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Editorial

Educational reform in many countries has been characterised initially by the expansion of educational facilities largely to extend basic education to the masses, and, following this, making secondary and higher education available to more young people. The tendency is to spend more and more on education so as to equip youth with the knowledge and skills required for the increasingly complex roles they will play in society.

Since then, educational development has been marked by efforts to improve the curriculum, modify the structure of education and introduce modern technology to the educational enterprise. All this springs from a concern for the future of our youths and society, a concern that in part stems from a seeming loss of purpose and direction among youth as is evident in the increasing number of drug cases involving young people and in acts of juvenile delinquency.

Much educational effort has thus been directed toward making education more relevant for our young people as well as making it more functional for the needs of modern society. To emphasize the urgency of the problem, the critics of education have cited so-called educational wastage, for example, the large number of "failures" – the "premature school leavers", the even larger number that come through having passed their examinations but not having the necessary minimum vocational knowledge and skills to enable them to fit confidently into the work pattern of society. Lately in some western countries, attention has been paid to youths who emerge from school without having acquired even basic literacy. Such problems have not gone unheeded and renewed efforts have been directed toward the more crucial issues of education.

Curiously while efforts are being made to reduce the mismatch between education and the needs of youth and society, strong doubts have been expressed in some quarters not just about the extent of effectiveness or ineffectiveness of the school system but even the need at all for school. Does schooling make a difference? Are there other alternatives to school to achieve the intended objectives? Do schools in fact bring about the desired outcomes? If they do, what

kinds of resources are necessary for the different functions of the school, and what difference does it make as to how resources are allocated?

Eng's paper reflects a concern with some of these issues. He discusses major school effects studies such as those by Coleman and Jencks, pointing out some of the weaknesses in methodology, measurement and conceptualization, and other similar studies some of which have adopted more sophisticated designs and techniques since the Coleman and Jencks studies.

Related to such studies but with a more limited purpose and specific task is Chan's study of the effects of informal teaching at an elementary school in Hong Kong. He found that the activity approach was not any more effective than conventional teaching in terms of academic attainment but advised caution against concluding that informal teaching was therefore inferior because of the instruments for evaluation and the different values attached to each approach or method of teaching.

These and other articles show a diversity of interest. De Souza examines different perceptions of the role of literature as well as the rationale for the teaching of literature in Singapore schools and its important links with society. For the latter purpose, he had conducted a survey of the attitudes and views of 45 teachers on their perception of the role of literature and the obstacles they have encountered in teaching literature.

The article by Goh and Chia is an attempt to clarify the concept of conductivity, a topic which Pre-university teachers appear to have difficulty with. Seng's article reviews studies of conservation training in young children while Chang's article is a discussion of the studies of motivation strategies by graduate students at the Institute of Education. Chia's paper is a reflection on the future of the fine arts in Singapore.

The article by Encik Sardi focuses on the status of Malay as a second language and recommends that its standard be raised. Encik Taha's article shows how the structural approach can be used to help students learn how to analyse the short story. ¶

The Effects Of Schooling In The Input-output Approach: Problems, Issues And Trends

In an open system (Burns and Stalker, 1961; Katz and Kahn, 1966; Thompson, 1967) allocative strategies of resources are influenced not only by the dynamics internal to the school system but also by the dynamics of environmental factors within and outside of the school system as an organization. The above suggests organizational adaptiveness or the need for adaptiveness for survival and effective goal attainment, and taken together with the conception that organizations tend toward an equilibrium in which structure and function harmonise for the attainment of goals in an on-going environmental setting, provide the impetus for research into the variables that make for organizational effectiveness. If the above proposition holds, then, it follows that allocative and organizational strategies vis-a-vis school systems and staff composition are a function of both internal dynamics and external pressure. This point of view seems consistent with the social-ecological theory of adjustment and accommodation in the face of environmental factors (Park, 1936; Hollingshead, 1947; Gettys, 1940). The question of interest is, therefore, the way school systems and staff composition respond to the environmental inputs of the school-going population and the community, and how effective that response is in terms of expected outputs.

Another question of interest is the way individual schools, given the resources in the short run, allocate resources in response to pressures and perceived needs among the different "sectors" within each school. Of more recent vintage is the interest in the allocative processes within each school, class and among individuals within the class. All the above notions are predicated on the assumption that resources make a difference in outcomes, however defined by the functioning unit, whether it be the school system, a school, a class or an individual. Indeed in the United States, since the time of Ellwood P. Cubberley in 1906 to the present, numerous resource or power equalisation formulae, such as the Strayer-Haig formula,

are predicated upon the assumption that resources make a difference in school effects (Benson, 1968; McDermott and Klein, 1974). In Singapore, the restructuring of the school system and the decision to build bigger and better equipped schools, to replace non-graduates with graduates at the secondary level, to inject funds for the purchase of audio-visual aids and to set up a curriculum development institute to produce new and presumably effective curricular programmes are predicated upon the assumption that the injection of resources into these areas of activities would make a difference to educational outcomes. Unlike industries, the educational enterprise does not have firm guidelines on the kinds of inputs that would make a difference to schooling outcomes and the kinds of inputs that are tractable to policy manipulation.

Theoretically, when applied to educational production, the input-output model of production, derived from the field of economics, should yield the kinds of answers required by policy makers. Economists are perhaps better placed than other social scientists in specifying a production function for education (the acronym is EPF) but few have entered the field of educational research. Sociologists and educationists have used the input-output model to answer questions that pertain to educational and status attainments but few have addressed themselves specifically to the questions of efficient resource allocation. So far no one has used the EPF to discover the full range and contribution of inputs that are optimal for the production of schooling outputs. When the model is carefully specified, it could be made to yield information on the relative impact of schooling inputs on outputs, the relative cost of inputs to a unit of output and the substitution rate of inputs to produce the same or a projected output. Such information would enable policy makers to make rational choices in school resource allocation.

The research carried out during the past decade using the input-output model, however,

has been disappointing to decision makers. Findings on school-specific antecedents of pupil achievement have either been inconsistent or negative. Averch *et al.* (1974), in reviewing the findings of studies on school effectiveness, aver that the findings of the research effort seem to point to one conclusion: the failure to identify one or more school factors consistently associated with pupil achievement. Factors which consistently show strong influences on student achievement belong to the cluster of variables coming under the socio-economic status of the student's family, e.g. his parents' education, income and occupation. Literally hundreds of research studies come to one pessimistic conclusion: that schools make no difference: that resources make no difference to schooling outcomes. A severe criticism against research on school effectiveness which had been conducted up to recently, especially those based on the input-output model, has been the lack of well-grounded theory (Richer, 1975).

School Effects Study in Developing Countries

Meanwhile, school effects studies have been extended to developing countries and an excellent review of these studies has been undertaken in "The Determinants of School Achievement in Developing Countries: The Education Production Function" (Alexander and Simons, 1975). Findings are not always consistent over the effects of the school inputs which enter into the EPF model. Inputs which show consistent and positive impact on achievement are highly motivated teachers, textbooks, access to reading materials and homework.

One consistent finding of EPF studies in developed and less developed societies is the differential impact of socio-economic status variables on student achievement. Unlike more industrialized societies where school inputs have less and social antecedent variables have more impact on achievement, school input variables have more impact than socio-economic status (SES) variables in developing societies (Heyneman, 1975). This may not imply that developing societies have more effective schools as such vis-a-vis schools in industrialized societies. The weak relationship between SES variables and achievement in developing societies may point to the important fact that status crystallization has not emerged yet to influence child-rearing practices, crucial in developing habits, values and attitudes that are con-

comitants for school achievement. It has been hypothesized that there are fewer differences in child rearing practices among emergent social classes in developing societies. Alternatively, it can point to the inadequacy or inappropriateness of the SES measures conceived in Western terms when applied to developing societies, that is, the measures of objective SES membership do not capture the essential differences of social classes in developing societies. It may also imply that school inputs are crucial in student achievement when these are in such short supply. There are obviously threshold effects in operation here; beyond the threshold, additional inputs of facilities or teacher qualities do not account for such differences in achievement. Another point, worthy of note, is that the community outside the school may be highly "educational" and is an important source of learning. What it teaches may not be much different from what schools are teaching in industrialized societies. In developing societies, the out-of-school environment does not complement what the school does and hence school achievement is peculiarly the work of the school. It is also conceivable that in developing societies where education is not compulsory and school places are limited, few of the lower SES children enrol in schools and those who do are exceptionally bright, which accounts for their being able to out-perform children from the higher SES group. The implication is that these children are atypical of the social class from which they are drawn. When all children from the lower SES are in schools with compulsory education, then the full range of abilities will be represented. When this happens, then SES will emerge as the dominant determinant of school success as in industrialized societies. The foregoing discussion is meant to highlight the complexities of situational factors that EPFs are dealing with but which are often left out leading to misleading findings and interpretations.

Leaving aside studies dealing with EPFs in developing societies, we now turn our attention to the Coleman "Equality of Educational Opportunity" (EEO) study which provides the benchmark from which other studies take their cues and forms the springboard from which many new attempts are made to fit a production function to schooling. Consideration of the many problems and issues of the EEO study best illustrates the numerous pitfalls of EPF studies, and represents the starting point for many subsequent studies aimed at improving the state of the arts in the study of school effectiveness.

The Coleman EEO Report

The first massive study and therefore the one with the most intense impact came with the publication of Coleman's EEO Report in 1966 (Coleman *et al.*, 1966) followed by an equally shattering "Inequality" (Jencks *et al.*, 1972). Both studies show that resources make very little difference to student achievement defined in cognitive terms. The general conclusion of "Inequality" points to non-school factors as being more important determinants of educational outcomes than school factors, with the devastating and somewhat careless statement that "additional school expenditures are unlikely to increase achievements, and redistributing resources will not reduce test score inequality".

Coleman's "Equality of Educational Opportunity" in substance denies any significant impact of the school's resources and facilities on pupil grades. His findings do show, however, that there is a correlation between achievement and the quality of the peers the pupils go to school with as well as certain teacher characteristics. He finds not only variance in attainment between schools but also greater variance within schools which presumably enjoy the same resource inputs, and attributes the within school variance, by and large, to outside school factors.

In any case, Coleman's work has been subjected to a great deal of criticism and re-analysis on the grounds that the study has serious flaws: misspecification of the variables under study, serious weaknesses in methodology and measurement, and working in a conceptual and theoretical vacuum. (Bowles and Levin, 1968; Spady, 1973; Cohen and Garet, 1975; Mosteller and Moynihan, 1972).

Some Theoretical, Conceptual and Methodological Weaknesses

Coleman's model operates in a theoretical vacuum. The choice of variables has not been informed by theory. Neither are the ordering of the variables and the linkage between them made explicit. On why and how the variables influence one another the Coleman report is silent. The reader is presented with a series of statistical relationships but is left in a quandary as to how he is to interpret the relationships in the absence of an explicit theoretical framework (Richer, 1975). How is one to interpret the presence of volumes of library books or science laboratories and their relationship to the impact or lack of impact on verbal achievement?

In the first place the nexus between science laboratories and verbal achievement is tenuous at best. Second, the availability of library books is merely an indicator of opportunity to use such books but is certainly not synonymous with actual use and frequency of use which are likely to be better predictors of verbal achievement or acuity than the mere presence of books.

The Use of Proxies

The tendency to use proxies also deserves comment. Most studies use proxies rather than get at the attributes which are theoretically postulated to have an impact on students (learning – cognitive or non-cognitive) outcomes. For student's background variables, either father's or parents' education or some index of SES is used as proxies for attributes such as child-rearing practices which reflect value orientation towards achievement in school and status attainment in the adult world. Undoubtedly some of their attributes are captured by the SES index or other proxies since SES and value orientation are likely to be correlated but variance in each SES group is ignored. The preference for proxies is perhaps dictated by the difficulty of access to the attributes of cultural characteristics or problems of measurement. This is the issue of the trade-off. Often enough, the trade-off leads to greater costs than benefits in that the findings are vitiated by the use of proxies which are not definitive enough to permit meaningful interpretation and the planning of policy-relevant actions. To know that SES or father's education or other proxies are important determinants of school achievement does not allow meaningful policies to be formulated which can bring about change in student input and make a difference in schooling. It is true that home background factors are often deemed to be beyond policy control but this may not be the case. For example, if the background factor is malnutrition or poor health which is responsible for school absenteeism or poor attention span, then it is amenable to policy control. Unfortunately, these variables are seldom entered into the equation. Neither are child-rearing practices entered as inputs in the antecedent variables. These are presumed to be adequately represented by some index of SES or father's education which is too global and all-embracing to enable one to pinpoint the inputs that really matter.

Teacher experience is a proxy for attributes thought to have an impact on student achievement. These attributes are seldom explicitly stated and

measured directly. Experience may be a proxy for increased pedagogical competence, familiarity with content area, increased skill in interpersonal interaction or perhaps greater psychological maturity – a very mixed bag of attributes which may in fact be absent from teachers classified as “experienced” whatever the criterion of years of teaching that is used to categorize experience. In fact, there may be greater variance among teachers of the same years of teaching experience than among teachers with different years of experience. The proxy, therefore, has little to recommend itself as a measure of teacher input. What is needed is an attempt to measure the attribute conceptualised as an input expected to have an impact on certain kinds of achievement however difficult it may be to measure it. A major problem here is the lack of theoretical guidelines on the sort of teacher characteristics that do make a difference. A reading of the literature, however, should provide some tentative selection of teacher inputs such as teacher competence in the subject that is taught (Anderson, 1950), teacher personality type (Hoil, Powell and Feifer, 1960) or teacher explanatory facility (Gagne, 1968). These will have greater policy relevance than a vague all-embracing proxy, teacher experience.

Measurement Errors

A number of measurement errors which bias the Coleman findings are obvious (Bowles and Levin, 1968). First there is the confounding effect of differences in the levels of measurement which guarantee the dampening of the proportion of variance in achievement explained. Some of the variables are measured at the individual level (the characteristics of pupils), some at the school level (volumes of books and science laboratories) while others are measured at the district level (expenditure per pupil). Yet irregardless of the levels of measurement, these characteristics measured at the school or district level are attributed to individuals. In brief, the fallacy is one of attributing group properties to individuals. A clear case is the measure of per pupil expenditure at the district level and attributing this expenditure as a resource to the individual student. The per pupil expenditure is an average measure for the whole district and by matching it to individuals, the Coleman study ignores the variance of per pupil expenditure between schools within a single district thereby overestimating the resource available to low SES schools and underestimating it for rich schools.

The net effect is to underestimate the impact of per pupil expenditure on achievement. Incidentally, it also ignores differences in resource availability between elementary and secondary schools.

Historical Measurement Error

The measurement of resources at one point in time and the impact of such resources on school outcomes rest on the unrealistic assumption that past resources do not have an impact on current learning and outcomes. Learning is cumulative, and initial learning, which is also a function of ability or IQ, is a function of past learning. Current resources, therefore, have differential impact on different students depending upon both initial ability and learning up to the present. This is the historical measurement error. What has been overlooked in the Coleman model are measures of relevant resources, whether they be school or home based, cumulative to the present time. Such an omission, however, has been corrected in recent formulations of the school effects paradigm in EPF studies taking the form of:

$$A_{it} = s(F_i(t), P_i(t), O_i(t), I_i(t), U)$$

The i subscript refers to the i student; the t subscript in parenthesis (t) refers to an input that is cumulative to time t ; where

$A_i(t)$ = a vector of educational outcomes for the i th student at time t

$F_i(t)$ = a vector of individual and family background characteristics cumulative to time t

$S_i(t)$ = a vector of school inputs relevant to the i th student cumulative to time t

$P_i(t)$ = a vector of peer or fellow student characteristics cumulative to time t

$O_i(t)$ = a vector of other external influences (the community, for example) relevant to the i th student cumulative to time t

I_{it} = a vector of initial or innate endowments of the i th student cumulative to time t

U = an error term

Range of Resources Measured

A number of other limitations has also been highlighted. The range of school resources measured is limited: the number of volumes of library books per pupil in elementary schools and, for secondary school, the additional resource of science laboratories. A whole host of other resources has been omitted, for example, access to counsellors and other supportive staff, programmed learning technology, allocation of teacher time, and others. No less important are the qualitative dimensions of resources which are more likely to be left unmeasured than the quantitative aspect.

Mishandling of Non-response

Other weaknesses in the Coleman Report stem from the poor sample response. Only 59 per cent of the high schools in the original sample responded and among the non-responses, were the many big city schools where many of the low SES schools were located. The manner in which Coleman handled the non-response to the many items in his questionnaire also contributes to measurement errors. For example, many of the non-responses were for items eliciting father's and mother's education and other background variables. The non-response items were simply given the arithmetic mean of the whole sample. This leads to biases in his estimates; there is reason to believe that the non-response to his many items is non-random. Comparison of the mean of the achievement scores of those who did not respond to parents' educational background with the mean of the whole sample shows that the mean of the non-responses is much lower. Non-whites are over-represented in the returned questionnaires that have non-responses to these background variables.

Inappropriate Proxy

Another serious error is the use of educational background as a proxy for SES. For Blacks, education, income and occupation do not correlate as closely as they do for Whites. Therefore parental education is a poor indicator of Black's SES. It has also been pointed out that the higher achievement of Blacks in schools with a higher proportion of whites could be attributed to Blacks' own social class rather than white peer influence. An interesting point which emerges from this Report is the finding that 23 per cent of the variance in

achievement for grade one children is accounted for in school with a higher proportion of whites, yet these scores were taken during the first days of the school year before peers have had time to interact and influence each other.

The Linear Model

The most widely used model for school effects study uses the linear regression of the form:

$$Q = a + b_1x_1 + b_2x_2 \dots b_n x_n$$

It has been pointed out all too often that such a linear model is not isomorphic to the impact of resource input on achievement or other non-cognitive output.

The additivity principle of the linear model is predicated upon the assumption that a unit increase in resource input (the independent variables) will lead to a proportionate increase in the outcome (the dependent variables). The linearity relationship implies a constant return whereas social reality or production reality would imply that, at least for some of the inputs, the multiplicative term would be more appropriate and a better predictor of school outcome. For example, teacher resource, whether it be time or competence, devoted to an individual student is likely to be multiplicative: initial ability or the initial achievement score interacts with teacher or material resource multiplicatively. If initial ability is x_1 and teacher resource is x_2 , then the multiplicative term $(x_1)(x_2)$ for the individual student is hypothesised to be a better predictor of that student's outcome because initial ability interacts with resource input to produce a certain quantum of outcome.

Most formulations assume that a certain quantum of resource input will yield the same outcome for all students within a class, which simply does not square with reality. Secondly, there is no reason to believe that all students within the same class receive the same resource input with regards to teacher time and level of expertise available to students. The teacher is a decision making unit and how much of the resources he devotes to particular students or groups of students will be based on the criteria used by the teacher within the constraints of the over-all school policy. It depends on whether the teacher is maximising the mean or the variance of achievement. What is true at the class level must also be true at the school or district level, that is, decisions to maximise the mean or variance of achievement scores (Brown and Saks, 1975).

Often enough no attempt has been made to ascertain whether the input-output relationship is linear or curvilinear. Forcing a regression line onto a non-linear relationship results in a bad "goodness of fit" line where the variances of the means of the independent variables are so large that the estimates derived from the regression coefficients are severely biased and inaccurate. For illustration, we can use a two-variable model which yields a relationship as shown by the curve in the diagram below:

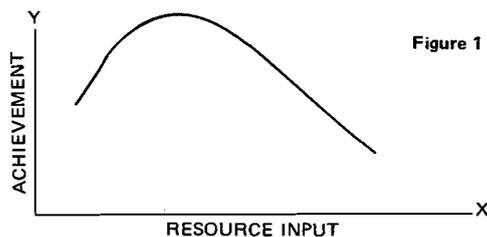


Figure 1

Forcing a linear regression line onto this relationship (Figure 1) would result in the line AB (Figure 2).

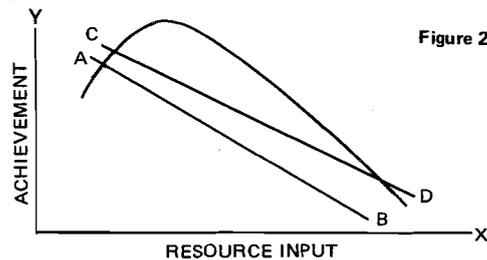


Figure 2

However, it is possible to obtain a better "line of fit" by using one of the polynomial transformations by squaring the resource input to yield the line CD. Other techniques such as the use of the log of the independent variables will also result in a "line of better fit". Theoretically it seems realistic that with additional applications of the same resource, other things being equal, diminishing returns are bound to set in as in economic production.

A common problem is that of multicollinearity among the independent variables which create problems in specifying the unique effect of each independent variable (Fuller, 1972). For example, if x_1 , x_2 are highly correlated, then if x_1 is entered first into the equation, it captures a larger proportion of the variance explained, leaving x_2 with very little to explain. The explanatory power of the first variable will be overestimated while the second variable will be underestimated. No statistical techniques are available for separating the joint influences of clusters of variables that are correlated. If we sum the squares of the standardized betas of each independent variable, we will find that this sum will be less than R^2 , the variance explained for the whole equation. The

difference between the R^2 and the sum of the squares of the betas can only be attributed to the joint influences of the independent variables and cannot be attributed to each independent variable uniquely. This limitation of an otherwise powerful statistical technique, the multiple regression, has to be kept in mind when interpreting the regression coefficients.

The Appropriate Unit of Analysis

Another issue which has come to the fore revolves around controversies regarding the appropriate unit of analysis. Coleman's unit of analysis is the school which, while it is equivalent to the plant in the industrial sector, is not the nerve centre in decision making in the allocation of resources, so it has been argued. It has been pointed out that the school is not a conceptually and empirically appropriate unit for determining the relationship between resource inputs, including pupil background inputs, and outputs, "if we view organizational phenomena as a means for transforming environmental inputs," which makes the school district rather than the individual school, "the principal locus of these phenomena" (Bidwell and Kasarda, 1975). The argument advanced is based on the logic that schools within a district is an organic whole controlled by the central office in such important matters as "differential allocation of resources between functions or between schools". The differences between school districts in terms of command over resources available for education and population characteristics make analysis at the district level more meaningful than at the school level especially when organizational attributes are to enter as independent variables having potential impact on pupil achievement. After all, resource inputs can be transformed into a variety of organizational attributes, which can have varying impacts on pupil outcomes, given the pupil inputs. It is the nature of the organizational attributes and staff composition, which represent the transformed resources, which act upon pupil inputs that we have to investigate to ascertain the impact of a given level and kind of resources. The social-ecological approach points to the significance of the transformation of environmental inputs by social organizational means in achieving organizational effectiveness vis-a-vis the goals of the organization.

"School District Organization and Student Achievement" (Bidwell and Kasarda, 1975) is the answer to the badly needed "empirical studies . . .

that use well-defined models of the link between input and output". Such an approach and the findings come as a welcome change from recent research which has become largely bogged down in the quagmire of hopelessness that "nothing matters in school". Some of the major findings of the Colorado study are summarized below:

- (a) High pupil-teacher ratio and administrative intensity depress median levels of achievement. The converse is also true.
- (b) Of environmental conditions, only percent non-white has consistently significant negative effect on median achievement.
- (c) Other environmental conditions, resources especially, have important indirect effects (positive) on achievement via their direct effects on school district structure and staff qualification.

The implication of the findings points to the importance of investment in teachers to reduce the pupil-teacher ratio and provide better qualified certificated staff vis-a-vis pupil achievement in reading and mathematics. Increasing administrative staff disproportionately to front line teaching staff results in lower median scores. The authors, therefore, conclude that it is premature to assert that "little can be done through the formal organization of schooling to affect students' academic attainment". At the same time, the authors add a caveat that their findings in terms of educational policy are to be taken as "tentative, since the coefficients that we have reported are modest". Further studies along the same lines are called for.

The Colorado Study and Grounded Theory

A very serious criticism of research on school effects or the EPF which had been carried out until recently, especially those based on the input-output model, has been the lack of well grounded theory (Richer, 1975). Without the theoretical framework, the models presented tell us nothing beyond the statistical relationships; without theory, the selection of variables for the model cannot be anything but random and the findings do not hang together as it were, in a meaningful and coherent frame of theoretical reference. "The role of a variable in affecting objectives can only take on meaning and be interpretable in the context of a carefully specified and theoretically justified model" (Cain and Watts, 1970). The Bidwell and Kasarda study on Colorado school districts redresses this lack, and this study stands out as one

of the very few studies that make explicit the theoretical justification and relationship of the variables in the model.

The model presented in the Bidwell-Kasarda study is grounded in the social-ecological principles and organizational theories which yield certain key propositions vis-a-vis the effectiveness of the school district organization in delivering the stated goods. The input-output approach which treats the school as an unknown "black box" is less satisfactory and powerful in explaining the relationships between the input-output nexus. In the Bidwell-Kasarda model, some of the elements in the black box are identified and specified, however imperfectly, in the intervening variables of organizational attributes of the school district. Such a proposition postulates that fiscal inputs are transformed into organizational variables which provide certain experiences yielding outcomes of varying amounts and levels. Pupil inputs, bearing certain characteristics, some unique to themselves and some common to the population attributes of the community in which the district is located, are acted upon by the organizational attributes, which are postulated to be responsive to the environmental inputs.

The omission of the processes themselves in the school may constitute a weakness in the model, which is best looked upon as a segment in a possibly larger and more complete formulation in the achievement attainment model. The use of achievement scores rather than achievement gains as the dependent variable may constitute another weakness. The use of achievement gain, which speaks to the notion of value-added as a result of additional resource inputs, would be able to demonstrate the input-output relationship better. The value-added concept, however, is not without its own problems. This came to light with the Thai data brought to Chicago for a seminar course by Professor Fuller. When aggregated to the level of the region or for the sample as a whole, the value-added turned out to be a negative value. Another problem stems from the ceiling effect: the value added for a student who scores say 80 may be 10; for another student whose initial score is 40, the value added may be 15. Which of these represents more value added? Should the 10 added to the initial score of 80 be equated to a gain score of 10 for an initial score of 50? These are the unresolved problems. The ceiling effect will ensure that those who score high initially will have a lower gain score than those who score low initially. Perhaps a system of weighting could be used but a theoretical justification would be necessary before weighting

could be used. Barr and Dreeben (mimeographed) sum up the Colorado study thus:

Except for the fact that the school (as a firm) is conceptualized as an active agency transforming inputs into outputs, this study takes us little further empirically than previous studies in understanding the process by which schools transform inputs into outputs. How, after all, are pupil-teacher ratio, teacher qualifications, and professional support translated into achievement? Conceptually, however, this study does go beyond others in speculating plausibly about what might be going on in classrooms.

According to Bidwell and Kasarda, schools transform input into student output (achievement) at the level of the classroom through "instructional technology". But the black box still remains a close mystery.

A Shift of Interest to Variables Accounting for Within School Variance

Complementary to the school effects study using the school or the school district as the unit of analysis is the recent movement to get into schools to study within school variances, which are largely ignored in earlier studies in achievement and resource allocation. Two such studies, one by Barbara Heyns (1974) and the other by Alexander and McDill (1976) will be briefly reviewed. Both studies attempt to get at the social differentiation and stratification within high schools and its impact on achievement and non-cognitive outcomes. This represents an attempt to look at the social structural variables within schools commonly known as tracking which results in differential curriculum placement and influences the resource allocation process.

One crucial mechanism for academic differentiation and selection is the high school curriculum. Tracking and assignment policies typically segregate students within schools and define an academic hierarchy through which certain rewards may be allocated. The general conclusion that resources do not determine achievement differentials between schools (Coleman *et al.*, 1966; Jencks *et al.*, 1972) ignores stratification patterns and access to resources within schools and necessarily understates the effects of such resources. If access to better teachers, counselling, and highly motivated, academically oriented peers affects achievement to any degree, such resources should operate between curricula within schools as well (Heyns, p. 1435).

While pointing to the not unimportant determinant of SES in verbal achievement, grades, curriculum placement, and aspirations, Heyns comes to the major conclusion that ascriptive factors are overshadowed by achievement criteria used by schools for curriculum placement. Those placed in the college track have greater access to counsellors, teachers and other resources which point to important differentials in resource allocation within schools, a point which has often been masked in studies which aggregate inputs to the school or district level. Like all school effects studies, the conclusions of Heyns and Alexander and McDill are not always consistent. Alexander and McDill find that SES as measured has a major impact on curriculum placement.

Both articles are interesting theoretically in that they point to social differentiation and stratification within schools as a determinant of differential allocation of resources. Theoretically, however, both articles are rather thin. Heyns points to the common practice of ability grouping within schools and other empirical studies which show a link between college preparatory curriculum placement and subsequent attendance at college (Flanagan *et al.*, 1966; Jencks *et al.*, 1972). Alexander and McDill made a cursory reference to Parson's theory of curriculum differentiation as a major mechanism by which secondary schools perform their functions of "selecting and allocating" youths to adult roles. Many references are made to particular empirical studies on the relationship between curriculum placement and status origin but scant attention is paid to the rich theoretical literature on stratification, division of labour, honorific evaluations and their linkages to differential allocation of resources, reward systems and their isomorphism with stratification in society at large. Neither is there reference to the economic theory of investment of resources and returns in terms of cognitive and non-cognitive outcomes. Theoretically and empirically it seems reasonable to assume that more scarce resources are likely to be applied to those inputs that give the greatest yield. Neither is there reference to structural-functional and conflict theories (Collins, 1971; Nelson, 1975; Gintis, 1971) as theoretical constructs in viewing social stratification within schools.

The work of Summers and Wolfe (1976), "Equality of Educational Opportunity Quantified: A Production Function Approach" represents the continuing interest in taking the individual as the unit of analysis. The approach and the statistical technique employed are sophisticated and exhibit

none of the weaknesses characteristic of the Coleman study: an indication of the advance in the state of the arts in school effects study. Careful specification of the variables and measurement coupled with the use of dummy variables, piecewise linear fitting and other non-linear specifications have produced some interesting findings. The general conclusions suggest that

student achievement is increased when school resources are applied differentially to low income vs. high income students, Black vs. non-Black students, and, most clearly, to low achieving vs. high achieving students. This raises the question whether educational output should be regarded as a multi-product activity. Alternatively, perhaps the empirical work of this paper is best thought of as an estimation of a number of separate production functions for these different types of students which has been handled in one equation for reasons of statistical convenience and efficiency.

It suggests that there may not be a single, monolithic production function for a school or a school district, that there may be a series of production functions corresponding to certain recognizable characteristics of student inputs. It further suggests that differential application of resources would be necessary for different categories of student inputs to achieve maximum increase in achievement gains. What it is saying is that the same resource input, whether it be length of teacher experience, or class size, "bright" or "less bright" teachers can have differential impact on different categories of students at different levels in the school structure as different achievement outcomes.

Problems and Issues in the Specification and Measurement of Outcomes

The most common outcome of schooling used in the study of school effects or EPF is some measure of cognitive achievement for subjects like Mathematics, Science, reading or verbal skills, while affective and psychomotor outcomes such as citizenship, self concept, maturity and preferences are omitted (McDermott and Klein, 1974). But the school is a multi-product firm producing both cognitive and non-cognitive outcomes (Bowles, 1970; Katzman, 1971). Resources that enter into the school production function often yield joint products and in many instances it is not possible to separate the resources that go into the improvement of, say, Geography, History and even Mathematics and those that go into the production of certain attitudes, values or patterns of conduct. The

production of one also yields products of another kind. Joint product analysis in economics is not very helpful in school production function because the joint products of the school are not in certain fixed proportions as in such joint products as wool and mutton, or beef and hide. They are produced in unknown proportions irrespective of the resources devoted to cognitive or non-cognitive outcomes.

Even in the simple measure of cognitive outcomes, there is the issue of whether the mean or the variance of any cognitive measure is the appropriate one because some schools maximize the mean while others maximise the variance (Brown and Saks, 1975). Hence the common use of the mean score as the measure of some cognitive outcomes in EPF may in fact be an inappropriate measure. Even where the appropriate measure has been decided upon, the problem of the selection of inputs relevant to the selected output remains. Expenditure per pupil whether it be at the school or district level is too gross a measure in relating fiscal input to outcomes. The fiscal resources can be spent on numerous items and programmes and may have nothing to do with the outcome that is measured. Attributing resources to one group of students when they are in fact spent on another group leads to gross measurement error and biased findings.

There is the further problem and issue of what the school is maximising. Indeed, it is conceivable that different schools seek to maximise different outcomes. One school may decide to maximise Mathematics or Science or the cognitive aspects of schooling while another may seek to maximise athletic prowess or football skills. Yet another may maximise good citizenship behaviour. To select an outcome a priori without reference to the actual maximising behaviour of schools is to specify a production function that is non-isomorphic to the diversity of decision making with respect to school outcomes.

Even when the outcomes are known, the measurement problem remains. For cognitive outcomes, the usual instrument is the Standardised Achievement Test. Apart from the validity and reliability of the instrument, test situations are stressful ones and the score may not reflect the amount of knowledge gained.

Some of the problems related to the use of Standardized Achievement Tests are:

- (1) They are designed to test content though the course programme of each school may vary. Is this then a valid test of school output?

- (2) Poor test design, poor, confusing instructions, and the lack of uniformity in test administration may render the test non valid.
- (3) Another problem is that some tests test more than what they purport to test. For example, a reading test includes a test of reasoning ability which is influenced by home background.

Another issue is whether the Standardized Achievement Test is really the appropriate instrument for measuring cognitive outcomes. Standardized tests were constructed to rank individuals with respect to norms despite curricular variation across schools and districts. Items with little variation are dropped. Perhaps instruments designed in this way are inappropriate for studies which assess and compare different schools and curricula. Perhaps different school tests would be the more appropriate instruments for outcome measures (Cohen and Garet, 1975; McDermott and Klein, 1974).

In spite of some reservations regarding the measurement of cognitive outcomes, it is decidedly less problematic than the measurement of affective outcomes. Conceptually, there is the definitional problem of delineating mutually exclusive affects, of disentangling values from attitudes and attitudes from their cognitive component. The second problem refers to the validity and reliability of the instruments to achieve such measures. Measurements of attitudes and values or perceptions of significant others by students are fraught with instability and vulnerability to change. Different wordings of the questions would elicit different responses and the measure obtained may not represent the "objective" attitude of the respondent. There is also the notorious lack of isomorphism between expressed attitudes and actual behaviour or conduct. The murkiness of the social-psychological variables, which are theoretically interesting and relevant, has induced many a researcher to omit them in favour of more stable measures in cognitive outcomes. Of the 22 research studies reviewed in "How Effective is Schooling?" (Averch *et al.*, 1974), 21 use cognitive measures as the dependent variable. Only one study uses the student's and parent's attitude and grade expectation (and the fourth is the student's verbal score) as the dependent variables. "The measurement of educational output is in a primitive state, and educational decision makers should be extremely cautious in formulating substantive educational

policies on the basis of present productivity studies" (Alexander and Jordon, 1976).

Concluding Remark

Since Coleman's EEO Report, the school effects or EPF literature has proliferated. Controversy over theoretical positions and appropriate statistical techniques has led to new efforts and innovations resulting in more sophisticated designs and techniques. As research designs become more complex, techniques have been developed to handle non-recursive models. Controversy over the appropriate unit of analysis has led to advance in our knowledge and understanding of operational links and relationships at the district, school, class and individual levels. The next stage is the development of an overarching theoretical framework within which all levels may be included in a grand model which seeks to articulate what happens to individuals within the constraints of a particular class embedded in a particular school and district. But the basic processes of what happens in the classroom and the mechanisms of achievement still remain relatively unexplored. The black box in input-output studies still remains a closed book. Clearly then, the line of inquiry that seeks to shed some light on what goes on in the black box deserves close attention. The second need is to search for higher order theoretical concepts from which causal relationships may be articulated. The third need is for a theory of schooling without which further research on school effects may still take on a groping in the dark. But the last decade has seen school effects study reach a new height of maturity.

This paper does not speak to the social-psychological processes that mediate between the structural factors and achievement. The sociological viewpoint that much behaviour can be interpreted in terms of structural factors may be defensible considering the murkiness of the social-psychological variables that are theoretically interesting and relevant to the achievement process but are subject to instability of measures. There is also the notorious lack of isomorphism between expressed attitudes and actual behaviour.

Recent advances in theoretical conceptualization of factors which make for effective schooling have stimulated new research into educational productivity by the Centre for Educational Finance and Productivity located in the University of Chicago. ☞

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A Longitudinal Study of The Effects of Informal Teaching at An Elementary School in Hong Kong, 1976 – 1979

There has been much debate on the so-called "activity approach" to teaching since 1972 when several elementary schools were invited by the government to participate in an experimental project. To some extent the activity approach resembles the integrated-day method of the British primary school at the same time reflecting some of the features of open education as defined by Walberg and Thomas (1972). Of greater significance to educational development in this British colony during the past one and a half centuries, the activity approach represents a major breakthrough in elementary curriculum building as well as instructional patterning. For one reason or another, since 1972, quite a number of schools have followed the steps of the "Pilot Scheme" schools that participated in the experimental project, even though so far only a small minority of them have the determination to carry on the experiment beyond the third grade. For the remaining majority of elementary schools, many of which are by no means uninformed of the scheme, there is still little ground for supporting the experiment.

The Hong Kong government was as anxious as the experimenting schools 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 the academic attainments of pupils undergoing the experiment with those who were not. A non-verbal "I.Q. test" was used to ensure that the two groups of pupils belong to the same level of ability, and attainment tests in Chinese Language and Mathematics were designed to serve as criterion measures. On the basis of t-tests on group means, the research team concluded with the seldom-publicized statement that "there was a significant difference statistically in favour of the experimental group in both subjects"

(Education Department, c). Despite this finding, public opinion has been more cautious (Man, 1976). Research findings elsewhere, however, do not seem to give much comfort to the supporters of informal teaching. In the United States, evidence was either negative (Minuchin, 1969; Wright, 1975), or ambivalent (Groobman *et al.*, 1976). In the United Kingdom, the Bennett Report (1976) was devastating to the informal movement. Not only did the researchers fail to come up with positive evidence in terms of school learning, they also found no basis to support the contention that informal teaching favoured affective or personality development.

The present study was initiated in view of the fact that the official evaluative exercise gauged academic attainment after only one year's study in the experimental setting. In fact, it might be more meaningful to evaluate pupil performance in longer terms, say after a period of three years. This study represents an effort to confirm the findings of the 1974 – 1975 evaluation by extending the period of observation from one to three years. A second point of departure is that in the present study, the scope of investigation is extended to include the affective as well as the cognitive growth of the pupils. The general hypothesis is thus formulated: that pupils under experimentation with the activity approach shall attain better results in academic and personality growth than others taught by conventional methods. The working hypotheses in null form may be summarized in the following:

First. After controlling for pupils' ability level and socio-economic status, pupils from the experimental school do not differ in their academic attainments from their counterparts.

Second. After controlling for pupils' ability level and socio-economic status, pupils from the experimental school do not differ in their affective development from their counterparts.

The relevant variables which are of concern to the study are listed in the table below.

Table 1. Summary of Variables

Independent/ Blocking variables	Control variables	Dependent variables
1. Approach to teaching 2. Session of school 3. Grade level	1. Pupil's age 2. Pupil's ability 3. Pupil's socio-economic status	1. Academic attainments in Chinese Language and in Mathematics 2. Affective growth

Definition of terms

The various key concepts are defined as follows:

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

Traditional approach – a style or styles of teaching characterized by teacher dominance and uniform pupil learning pattern.

Academic attainment – pupils' attainment in subjects such as Chinese Language and Mathematics.

Affective attainment – pupils' level of maturity in certain personality development domains such as dependence on authority, peer relationships, self-concept, attitudes toward school, social values.

Ability level – pupils' Progressive Matrices scores measured at mid-year.

Socio-economic status – pupils' home background as indicated by the location and type of domicile.

A Description of the Schools

The object of this investigation is a church-sponsored school situated in one of the low-cost housing estates of New Kowloon. The school is atypical first of all because it is one of the six Pilot schools which started the experiment in 1972, and also because unlike virtually all other experimental schools, experimentation in the school is extended throughout the six years in all classes for both morning and afternoon sessions. The control school is also a church-sponsored school situated in the vicinity of the former. Both schools were opened in 1968; both employ a teaching staff of fifty-three, maintain full-fledged 24 classes, and enjoy great popularity among residents of nearby estates because of the high standard of their pupils' achievements. In 1977, for instance, more than half of their graduates were allocated 5-year subsidized places through the highly competitive Secondary School Entrance Examination. It could be concluded therefore that these are in fact

“elitist” elementary schools in the local school system.

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 but both are similarly assisted by senior teachers whose number is equivalent to that of the experimental school. Members of the teaching staff at both schools are relatively young, being 30.8 and 33.5 years respectively for the experimental and control schools. The number of years of teaching experience for teachers in the experimental school is 9.3, and for those in the control school, 13. This is to say that in general, the teachers at the control school are somewhat older and more experienced in teaching. The ratio of male to female teachers at both schools is identical, being one to two.

Curricular and related arrangements are again quite similar in both schools. The total number of contact hours per week is virtually identical. But since teaching periods at the control school are 5 minutes longer and the time allocation pattern for the subjects, Chinese, English and Mathematics, is the same for both schools, instructional time in the control school for these three subjects is a little more than that in the experimental school. Textbooks adopted in the two schools are the same for Chinese and English, though they are different for Mathematics. However, it must be borne in mind that textbooks put out by publishers must conform to specifications of the prescribed syllabus. The amount of homework assigned to pupils in each grade level is estimated to be quite equitable. But since many of the class activities in the experimental school centre around group work, it can be assumed that the amount of homework brought home by pupils may be lighter than that in the control school.

Subject division in the experimental school is not as distinct as that in the control school. For instance, subjects such as Social Studies, Nature Study, Health Education and Art and Craft are integrated into a single subject. Instead of depending solely on textbooks, teachers of the integrated subject have to compile units of texts together with appropriate exercises. There is also an attempt by the teachers to link up Chinese Language and Mathematics with the integrated subject. Instructional time devoted to the various subjects is therefore unevenly distributed; many of the teachers of integrated studies use block-time tabling instead of single periods.

An attempt was made during the first year

of this investigation to compare classroom interaction patterns in the two schools. Over twenty class observations were made by two trained observers using the Flanders Interaction Analysis Scale to trace the pattern of classroom interaction between the teacher and his pupils in both Chinese and Mathematics (Hung, 1976). From these observations it was found that classroom teaching at the lower primary grades in the experimental school was characterized by considerably less expository teaching, questioning, pupil recitation or drill en masse, but there was much more group work under the teacher's supervision. From visits to other schools experimenting with the activity approach during the year 1978-79, it appeared that the practice of dividing up class instructional time between "block teaching" and group work is very common. Pupils from the experimental school were found to "initiate response" several times more frequently than their counterparts. However, teachers of both schools did not differ much in the categories of "accepting feeling", "praising or encouraging", "using pupils' ideas", "giving directives", or "justifying authority". On the whole it could be concluded that the interaction pattern in the experimental classrooms generated a greater degree of spontaneity and freedom, and as a result a more relaxed atmosphere of learning was noticeable.

Sampling Procedures

Since random assignment of pupils was not possible because of administrative policies, it was decided to match the two groups of subjects on the basis of age as well as ability. First, two of the four grade one classes in each session (morning and afternoon) of either school were randomly chosen. These pupils, amounting to 338 in number, were given the Standard Version of Raven's Progressive Matrices test in October 1976. Then the actual age of each pupil was verified based on information given by the school authority. A child would be classified as overaged or underaged if he was born before or after any date in 1970 and thus excluded from the original 338. From the remaining 283, the sample of 192 were selected by pairing students from the two schools on the basis of their test scores to the nearest integer. The result of pairing yielded two matched groups for the morning session and another two groups for the afternoon session, all of the same size. The table below indicates the group means in terms of Raven's Progressive Matrices scores of the four groups of pupils.

Table 2. Group Means of R.P.M. Scores*

Morning session		Afternoon session	
Experimental	Control	Experimental	Control
18.45	18.41	17.95	17.87

*N = 48

Taking two classes of grade one pupils as a whole, the experimental school had the 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 idea of a more elaborate scheme was abandoned owing to the reluctance of the heads of the control school to grant access to information on the pupil's home background. A single index, namely the pupil's residential address, was used as a basis for categorizing the pupil's SES on the assumption that in normal circumstances, one's area of residence and the type of housing are highly related to one's socio-economic status. Accordingly to indicate SES, the following classes of residence were identified: private residential, semi-public low cost housing, public low cost housing, resettlement estate, and squatters or resite area accommodation. The validation of this classification scheme was not carried out except through a cross-reference of information on average household monthly income of four types of residence in the Kwun Tong neighbourhood. The following table summarizes income distribution among the four types of household:

Table 3. Average Monthly Income of Household by Type of Housing

	Private Residential	Semi-public L.C.H.	Public L.C.H.	Resettlement Estate
Under 1,000	11.8%	3.8%	23.3%	27.4%
1,000 - 1,999	34.8%	80.8%	58.1%	45.2%
2,000 - 2,999	21.8%	3.9%	9.3%	8.5%
3,000 or more	24.7%	3.8%	2.3%	3.1%
Not known	6.6%	7.7%	7.0%	15.8%
	(N = 380)	(N = 26)	(N = 43)	(N = 95)

Source: Kwun Tong Project, Social Research Center, The Chinese University of Hong Kong

Instrumentation

The attainment tests 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 either from test papers used in a government elementary school or from

exercises found in textbooks. Pilot testing was carried out in an urban subsidized school considered to be of equal standing in academic achievements to the two schools. The minimum cut-off point for discrimination was set at .20, and for difficulty level between 75 per cent and 40 per cent. Both subject inspectors from the Education Department and respective subject lecturers from the three colleges of education were consulted extensively at the drafting stage in order to reduce oversight and errors.

The Social Emotional Maturity Scale which aims at measuring non-academic attainments of lower elementary grade pupils was based on 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.

Raven's Progressive Matrices which was used in the matching of the pairs of pupils comprising the sample has been recognized as a reliable instrument for measuring the "general" ability of young children. The test is made up of sixty geometrical drawings requiring a separate non-verbal response. A validating exercise was carried out in 1976 with twenty grade one pupils from the experimental school, using the Goldschmidt and Bentler Concept Conservation Test. The exercise yielded a moderate correlation coefficient of 0.53, suggesting that the instrument can be accepted as a criterion measure.

Results and Findings

Except for the administration of Raven's Progressive Matrices which took place at mid-term, all attainment testing was conducted toward the end of the school year, sometime between late June and early July. Testing procedures were standardized through the use of taped instructions; the time taken for the tests by various groups of pupils was noted. The marking of test papers was done by graduate students in education using marking schemes, one set of papers was corrected by one marker. All data were then coded and the necessary computation carried out through the use of digital computers at the Computer Services Terminal of the Chinese University of Hong Kong. At the end of the testing session in July 1979, a total of 47 pupils from the original sample of 192 or roughly one quarter failed for one reason or

another to sit for all tests. The statistical analyses therefore were carried out on the basis of test results of less than the original number of 192.

Discussion on the Statistical Analyses

From Table 4 it appears that pupils attending the experimental school were making good progress in their Chinese subject during the first year. Beginning with the second year, the progress gradually wore off. At the end of the third year, pupils in the control school were able to outperform their counterparts in the experimental school.

From Table 5 it is obvious to us that attainment in Mathematics in the first two years of the pupils in the two schools did not differ. But similarly as for Chinese, toward the end of the third year, pupils in the control school excelled in their Mathematics test scores at a statistically significant level. It can be concluded therefore that our first hypothesis can be rejected, and the results of the testing are in favour of pupils in the control school.

Table 6 shows that the Social Emotional Maturity level of pupils in the two schools as measured by the S.E.M.S. did not differ from each other. Therefore the second hypothesis cannot be rejected.

Table 4. Main Effects by Approach, Using Ability and SES as Covariates: Chinese Language

	Grade One	Grade Two	Grade Three
Group			
Mean: Experimental	42.81 (91)	33.88 (82)	36.67 (74)
Control	32.88 (93)	29.49 (83)	43.83 (71)
F value	35.66	7.36	21.49
Sig. level	0.00	0.007	0.00

Table 5. Main Effects by Approach, Using Ability and SES as Covariates: Mathematics

	Grade One	Grade Two	Grade Three
Group			
Mean: Experimental	55.80 (91)	22.58 (82)	36.07 (74)
Control	55.32 (93)	22.81 (83)	43.83 (71)
F value	0.113	0.011	12.60
Sig. level	N.S.	N.S.	0.001

Table 6. Main Effects by Approach, Using Ability and SES as Covariates: Social Emotional Maturity

	Grade One	Grade Two	Grade Three
Group			
Mean: Experimental	12.84 (91)	12.62 (82)	10.49 (74)
Control	12.53 (93)	13.71 (83)	11.56 (71)
F value	1.305	0.399	2.653
Sig. level	N.S.	N.S.	N.S.

In the light of these findings, it is rather clear that the activity approach to teaching as practised in the experimental school failed to produce in the long run academic results commensurate with those produced under the conventional system of teaching, at least as far as the lower elementary grades were concerned.

Furthermore the activity approach did not, as expected, produce affective attainments superior to those produced by the conventional approach to teaching. On the basis of these considerations, it must be concluded therefore that our general hypothesis cannot be substantiated.

Further Discussion

A word of caution must first be pointed out for hasty judgements about the "demerits" of one approach and the "merits" of another. Even at the conclusion of this longitudinal study, the investigator is still not yet convinced that attainment tests such as those that were employed in this study can justly map out outcomes of learning accrued under the informal setting. This is particularly true with learning and growth in the affective domain. But apart from the argument that conventional testing may be unfair to pupils educated in the informal setting, the hard facts do not favour the activity approach as practised in this particular school.

One explanation is that the freedom enjoyed by pupils in the experimental school and to a certain extent by pupils in other experimental schools does not benefit the pupils at this very young age as one would expect. Much instructional time may have been wasted particularly during group activities. This might be aggravated further if the teacher in charge does not make good use of this portion of class time to provide individual guidance. Classroom interaction analysis showed that there were certain advantages for pupils in tradition-oriented schools where the teaching put much more emphasis on collective drill and practices.

Pupils in the experimental school showed greater degrees of progress in their Progressive Matrices scores over the years (see Table 7) in contrast to the results for academic attainment. It is possible that the freedom allowed may provide a greater opportunity for more disciplined and rational thinking and hence help their mental growth.

In a recent review of the effects of informal teaching, Horwitz (1979) confessed that despite the vast amount of research studies on the topic,

Table 7 R.P.M. Group Means, 1976 – 79

		Grade 1	Grade 2	Grade 3
Morning	Experimental	18.60	35.95	41.50
	Control	18.44	28.98	37.60
Afternoon	Experimental	17.77	36.93	40.80
	Control	18.55	32.48	33.30

"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" (p. 71). Perhaps the key to the question lies in the paradox that although we recognize the paramount importance of educating for a well-adjusted personality, we still lack the knowledge and skill to differentiate the well adjusted from the maladjusted. For school administrators and teachers who share the belief that there is more to education than the mere acquisition of knowledge and skills, the activity approach to teaching seems to hold great potential as an alternative way of thinking about teaching and learning. ☞

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The Role of Literature In the Secondary School In Singapore¹

In recent years we have witnessed a growing ferment about issues concerning language usage in Singapore. English and Mandarin in particular have been, and still are, the focus of considerable attention on the part of the authorities and the populace. However, the emphasis on improving competence in the use of English has had a rather ambivalent effect on the fortunes of literature in English as a school subject. Since 1969 when the common curriculum for Secondary 1 and 2 was issued to schools, first language and literature have appeared as a single subject in the curriculum. The question of weightage in schools varied for many years, some giving equal weightage to language and literature, some giving less to literature, while others not assessing their pupils in literature at all. Although it is true that the Ministry of Education has not indicated favouring a 70 per cent weightage for language and a 30 per cent weightage for literature, the decision on the exact quantum of weightage when left to the discretion of principals would surely imply a shrinkage in the weightage for literature. This is because principals would have "to take into account the fact that a pupil needs a pass (i.e. 50 per cent more) in his first language as a condition for promotion" (*Straits Times*, July 10, 1978). To some extent one can see a possible diminution in the significance of literature as a school subject in the lower secondary classes despite the increased significance of English language usage in recent years.

This suggests the need for re-thinking some of the basic premises regarding the role of literature in the education system and, indeed, in society itself – since we cannot justifiably divorce the education system from the social context. If English is regarded as only a tool for the transmission of scientific, technological and business contents, what exactly would be the relevance of literature in the education system? Would its place be that of a strictly delimited supplement to the language programme? Is it merely an embarrassing post-colonial affliction or past-time which

the education authorities have not had time to scrutinise closely? Has it a significant role to perform in school and society? Should we go on doing literature the way we have been doing it or should adjustments be made to the literature programme? These are some of the fundamental issues that will be considered in this paper.

Assumptions

Before proceeding further, it might be useful to make explicit the main assumptions upon which this paper is based.

Firstly, it is not often that we have an attempt at public discourse on issues which are generally debated on behind closed doors. What we are considering here would normally be the province of the relevant authorities in the Ministry of Education, but I hope this paper on what I think are key issues concerning the fate of literature as a secondary school subject would not be looked upon as a piece of impertinence. It is meant to help towards an understanding of a fairly complex area of the curriculum.

My second assumption is that we share the opinion – with varying shades of conviction, I suppose – that one of the fundamental aims of education is to arouse and nourish the spirit of inquiry. Put simply, education makes us ask "why"? It is in this spirit that I would like to examine the place of literature in our occupations and our lives.

My third assumption is that knowing why we are teaching a particular subject would help in teaching it better. This may not be as self-evident as it appears to be. I am sure that there are many

¹This article was adapted from a paper presented at a seminar on "The Teaching of Literature in Secondary Schools", organized by the English Studies Department, Institute of Education, on 21 – 22 March, 1980.

good teachers of literature who have never asked themselves why they teach the subject. It is sufficient that whatever they teach they teach well and if they are required to teach literature they do it to the best of their abilities. These are the saints who do not know they are saints. They belong, I think, to a time when literature was on such a firm footing that there was no questioning its existence – it was like the air we breathe, it came with education, it was taken for granted, although, in some instances, I suspect, it was taken with a grain of salt.

Clarification of aims is certainly a necessary activity in any area of the curriculum. But in some areas, the sciences, for instance, this kind of clarification seems to be more easily come by than in a subject like literature. Few would want to ask "What's the use of Physics or Chemistry?" The impact of the sciences on our environment in terms of tangible products and methods of enquiry pre-empt any apologising, but with a subject like literature we are dealing with intangibles to a large extent. We confront human relationships, feelings, aspirations, dilemmas, dignities and indignities, the sense of wonder, despair, joy, . . . the multifariousness of human existence. We are concerned with the human image or "the human form divine" to enlist the help of William Blake. If one were to ask "Is it any use knowing what it means to be a human being?" or "Does our society need this kind of understanding?" then we would urgently need to have an entirely different kind of seminar. We would need to include philosophers, religious thinkers and anthropologists. And even more fundamental questions need to be aired like "What is society for?", "What do we live by?", "What exactly do we mean by the good of the people?". Fortunately enough, these large questions would be outside the pale of our discussion. I say "fortunately enough" because these are questions which often remain unresolved within the course of a life-time while we measure out our lives with coffee spoons and cars.

Definitions

At this point, it might be necessary to establish some guide-rails for our discussion on the role of literature. I could have assumed, since all of us are connected with teaching literature, that you would know what I am talking about when I refer to "literature" (e.g. Dickens' *Hard Times*, Shakespeare's *King Lear*, Keats' *Ode to a Grecian Urn*, V.S. Naipaul's *A House for Mr Biswas*, etc.); but

since the paper is also aimed at providing a defence against the uninitiated or the deliberately unsympathetic, it would be useful to start with an attempt at cleansing our instruments.

According to the Oxford English Dictionary, when we speak of "literature" we mean:

Literary productions as a whole; the body of writings produced in a particular country or period, or in the world in general; now also in a more restricted sense, applied to writing which has claim to consideration on the ground of form or emotional effect.

We shall be using the more specialised sense indicated in the second half of the definition. But this, definition – like many definitions in the humanities – is not wholly adequate. It does somehow seem more susceptible to a kind of effete and hedonistic view of literature than one would want to convey when considering literature in the context of the education system. To come to the point, it almost robs literature of moral significance. Nevertheless it is hard not to admit that it is in the artistic organization of language that literature lays the greatest claims to distinction.

If, however, we need a definition that does not lay explicit emphasis on aesthetics, we could point to George Steiner's view of literature as "language in a condition of special use" (1972, p. 126). This should not be confused with English for special purposes. Steiner's "condition of special use" is defined as

one of total significance, and of a significance which is – for every true poem or piece of literary prose – unique. No replacement of any semantic element, however small (consider the role of typography in Mallarmé, in e.e. cummings) will do (p. 129).

In common speech, it would be possible, without loss, to present a piece of information in a number of alternative ways. Much of the linguistic material would be merely conventional or even superfluous but, in the case of literature in its ideal condition, a single alteration could transform or even destroy the literary text.

What of the insights, perceptions, "truths" embodied in literary texts? Should a definition of literature not encompass this aspect as well? Steiner presents a view which, although cogent, one cannot quite see as fully compatible with an instrumental attitude towards the curriculum. In other words, if one is primarily looking for the uses of literature, one has to emphasise what Steiner de-emphasises in his view of literature:

The paramount responsibilities of literature, its ontology or *raison d'être*, lie outside immediate utility and/or verifiability. But

note how difficulties bristle: the immense moral, psychological 'utility', of literature is a common place — though one which I feel needs re-examining — the 'truths' discovered and communicated by great art are among the best we hold. I mean something more banal: the poem or the novel may prove of extraordinary use to the community; the propositions it puts forward about life may be authentic and of deepest validity. But these benefits will, as it were, be ancillary (p. 128).

Note that Steiner is not denying the "utility" of literature, he is only indicating that what distinguishes literature from other forms of communication is not so much the conveyance of "truths" but the condition of being of total significance — every sentence, every word, every punctuation mark would count towards the enactment of meaning — to the extent that we would not be able to tell "the dancer from the dance" to quote Yeats.

The Functions of Literature

Defining "literature" cannot be wholly divorced from an examination of its functions. But the controversy over the function of literature is an ancient one. There are two major camps as John M. Ellis indicates: "On one side are those who have wished literature to have an immediate and identifiable purpose, on the other those who have argued that it should be an end in itself, for aesthetic delight" (p. 233).

There is no reason why we should plug either one or the other position. Both positions have their validity and can co-exist quite comfortably. It would clearly be unrealistic — in the context of the local school system — to adopt an art for art's sake stance, although even aesthetic delight would have its social uses since it would be a way of occupying time in a socially acceptable manner at the very least and since it appears to be fulfilling some deep recurrent need in mankind as can be seen in the important place given to the fine arts in most societies.

Richard Hoggart, in an inaugural lecture delivered at the University of Birmingham in 1963 on "Schools of English and Contemporary Society", sees literature as having a vital role to play in exploring, understanding and ordering human experience. Yet, with characteristic common sense, he indicates the need for caution against over-playing this aspect of literature:

I have admitted the danger of too contemporary a slant in English studies, of too social a slant and even of too moral a slant. If we forget the 'celebratory' or 'playful' element in literature we will sooner or later stop talking about literature at all and find ourselves talking instead about history or sociology or philosophy — and probably about bad history and bad sociology and bad philosophy (1963, p. 17).

It would be dangerous to talk glibly about the "truths" presented through literature because we would be faced with complex problems concerning the validity of the information presented. One could point to sociological information in the novels of Dickens, but obviously the kind of validity they have would not be quite the same as that obtained in sociology with its battery of survey data. But that literary works can have important implications for the social sciences is borne out by the fact that sociologists include literature as one of the modes of understanding society. It is heartening to note that in the Sociology Department of the University of California, Berkeley, Course 174 is called *Sociology of Literature: the relation of literature to social order and to systems of social control, analysis of the social role of the writer*. Another very heartening illustration of the relevance of literature to other disciplines comes from Singapore itself. In a paper on "*Novels and the Historian: A Case Study on the Indonesian Revolution*" (1979), Yong Mun Cheong of the History Department, University of Singapore, poses this question: What can the historian learn from the novelist? And answers it with remarkable candour,

A historian writes about man in society. So does a novelist. But because of the latter's greater sensitivity, he may be more aware of the shifts in meaning inherent in changing social situations. He may be aware of themes that escape the eye of a historian. On that ground alone, it would be worthwhile for the historian to consider seriously the contribution of the novelist to the former's craft (p. 31).

Literature teachers can hold their heads high when their discipline is proffered such dignity from someone in another branch of the humanities.

But what is even more gratifying is that a Professor of Mathematics at London University, Hyman Levy, has co-authored a book (with Helen Spalding) entitled *Literature for an Age of Science* in which the significance of literature as a means of extending human consciousness is given an important place vis a vis the sciences:

With scientific and rational thinking developed to its present high level, it might be supposed therefore that the methods of science could adequately cover those forms of human understanding which it has traditionally been the function of literature and the arts to heighten. But, as we seek to show in this book, both approaches are aspects of one venture; they are complementary, and mutually supporting. Both seek to widen the horizon of experience and understanding; both seek to enrich man's awareness of himself and his environment. Each in its own way is experimental. Both move forward under the pressure of social experience, and the need for finding new forms and techniques for dealing with this ever-growing content. But because their disciplines, their methods, and their means are so clearly different, it is too often readily assumed that their ends do not converge. In this book we try to show not only that this assumption is unfounded, but that an understanding of the one is essential if the outcome of the other is to be properly appraised (p. vi).

It is a bold enterprise that Levy embarks upon in this book, and although one cannot quite agree that it is wholly successful, there is room for admiration and there should be a strong measure of thanks from those whose lives revolve around literature and the teaching of literature.

There is actually little need for literature teachers to be on the defensive — although this seminar itself, you might well say, arises from a certain degree of insecurity. Yet the insecurity is really misplaced. It probably stems from a certain lack of awareness — not so much among literature teachers themselves as among those outside the discipline. In a book published for the National Council of Teachers of English in the United States these brave words occur:

Art, literature, anthropology and linguistics — to name but a few subjects — have their reasons for being. Literature, for example, enlarges experience vicariously and in a controlled manner that firsthand experience cannot match. Not only does it enlarge or widen experience (in time and place) but it is also an exploration of the mind and spirit of man and of his relationship to himself, to society, and to nature. Looked at in this way, literature is not impractical and need not be defended weakly as its own justification. It is ironic in these times to encounter statements by responsible people which assume the impracticality of subject which as much

as any obey the injunction that the proper study of mankind is man (Sherwin, 1969, pp. 139 – 140).

Kenneth Burke, a critical theorist, has a fascinating essay entitled "Literature as Equipment for Living" (1941) in which he looks at literature as a means of naming typical, recurrent situations. In this way literature achieves that quality of timelessness: "Art forms like 'tragedy' or 'comedy' or 'satire' would be treated as equipments for living, that size up situations in various ways in keeping with correspondingly various attitudes" (p. 304). In other words beneath the trappings of the age, behind the array of different characters and episodes, one might often be able to discern a typical, recurrent situation in the work — a situation which might be of relevance to one's own life or to one's society. In this way, according to Burke, great literature achieves its universality and despite the fact that literature is steeped in the texture of the particulars of life, it is ultimately concerned with the general behind the particulars.

Another literary theorist, John M. Ellis (1974), advances four outstanding functions of literature, two of which would seem to have immediate relevance to educators. Firstly, he states that literature offers us "dramatic and violent experiences without the actual drama and violence that would threaten the stability of our society" (p. 244). Since we have a surfeit of television programmes, like "Starsky and Hutch" or "Spiderman" in addition to Kung Fu movies, this function would seem to be superfluous in the local context. Secondly, literature can assist in

creating a sense of the cohesion of a social unit the extent of which is invisible to the individual. We commonly speak of national identity involving prominently the literature of a country. . . . Here, then, is a factor that tends to hold an unwieldy social unit together (p. 245).

This function is of great significance to us in Singapore. We have one link language binding all the ethnic groups in our country and it is through this language that more and more vicarious and ordered experiences are being shared as the language is further extended through the mass media as well as the education system. In a thesis on the *Singaporean National Identity*, for instance, Chiew Seen Kong states: "The relatively high scores on national identity by the English-educated, therefore, confirm the hypothesis that the English-educated in Singapore tend to be more highly identified with Singapore than

the vernacular-educated in parallel institutions” (pp. 128 – 129). And if local writers continue their contributions to writing in English, it would not seem too remote that a national literature with English as the base would, in due time, emerge.

It would, however, be dangerous to advocate premature attention to local writing in schools because one has to consider the maintenance of standards and the suitability of texts for specific age levels. But in this respect there would be little harm looking further afield and exploring Commonwealth literature with its increasingly fertile contributions to writing in English. R.K. Narayan, Randolph Stow, Dennis Brutus, and Mulk Raj Anand are a few of the writers that local secondary school teachers and students would find profitable if they were better acquainted with their contributions to the growing body of Commonwealth literature.

In this respect the question of the remoteness of a text from the socio-cultural context of the student might be useful to consider. In 1975 in a project entitled *An Approach to the Teaching of Literature in a Local Secondary School*, Lee Sin Kee found that it was much easier teaching Tan Kok Seng's *Son of Singapore* than Charlotte Bronte's *Jane Eyre*. The students were more interested in the former largely because of the ease with which they could relate to the characters and the environment presented in the text. In addition, the language proved to be no obstacle to an understanding of the text and, with a bit of imagination, there were many possibilities for involving the students in the lives of the characters via visits to the actual locations referred to or described in the book.

This, of course, does not imply that the book was in any literary way superior to *Jane Eyre*; it was merely easier to teach in a local school. Now if we could select texts which are both easy to teach and of a fairly high literary quality we would not be far away from the ideal syllabus. Sacrifices in quality, it should be noted, would invariably imply sacrifices in standards.

However, this is a digression. Let us return to the third outstanding function mentioned by Ellis, i.e. the educative function. He sees two aspects of this educative function: the transmission of values and the development of the imagination. For him transmission of values is more explicitly carried out by literature in more primitive societies. Stories handed down by the tribe “impress on children in a forceful yet palatable way, the values of the tribe, its social system, the chief dangers of its environment” (p. 245). Not far different from

what our moral education programme here in Singapore is aimed at. However, a distinction needs to be drawn between the overtly moralistic in literature and the obliquely moral. The morality of literature is not exactly that of the parable although there are examples of fine literature which are at the same time consciously moral (e.g. John Bunyan's *Pilgrim's Progress*). Richard Hoggart (1963) has this rather illuminating observation on the relationship between literature and morality:

Literature, then, has to do with ‘knowledge’, with meanings. It is not primarily analytic or discursive, or it would be something else, something valuable perhaps (say, philosophy), but not art. *Only here in art is life embodied, recreated, in all its dimensions – so that a particular moral choice is bound up with this time and that place, with that other person and those habits. Only here do we, at one and the same time see ourselves densely and vulnerably* (p. 5).

Literature does not prescribe morality but it often presents moral dilemmas with all the attendant circumstances that are to be found in the actual context of living. In other words, in literature moral issues are seen in the flesh. We see the conflicting pulls of wife, kinship, ambition, loyalty to king, honour and other attendant circumstances in Macbeth's decision to kill Duncan. In other words, it is through the particularities of experience that we perceive moral abstractions.

The fourth function that Ellis mentions is the use of literature for ideological purposes: “If one is convinced that society needs rapid and fundamental reshaping (as, say, Marxists do) there is nothing inconsistent in demanding that literature help to promote this” (p. 246). In much of Lu Hsun, for instance, one could say that art serves a suasive function. This, however, does not mean that his stories do not often rise above their suasive role. It must be remembered that it is precisely when literature is no longer propaganda that it impresses us with its authenticity.

However, of more immediate relevance to the local context is a function which Ellis does not include as one of the outstanding functions of literature. In the education system it would be impossible to bypass this function. Literature is also a means of increasing one's competence in the use of the English language. Through reading, students are presented with a variety of structures and lexical items which they would find useful when they speak and write. Of course, it is not only literary texts that would be giving them this kind of enrichment. But if proper attention is

paid to the choice of texts, the literature programme could support and enrich the language programme and vice versa.

Why Teachers Teach Literature

So far, we have been dealing with why literature should be taught. A complementary question that invariably arises is why teachers in local schools are teaching literature. Do their motives tally with the functions that literature is said to subserve? Largely because of considerations of time and manpower, sampling is limited to 45 teachers of literature in Mission and Government Secondary Schools and a Junior College. The teachers included in the sampling were taking classes ranging from Secondary 1 to Pre-University 1. Because of limitations in terms of the size of the sampling and questionnaire design, the findings, at most, should be regarded as highly tentative.

The four most significant questions in the questionnaire were:

- Q 3 Why do you teach literature?
- Q 4 If you had a choice, would you teach another school subject rather than literature?
- Q 5 The biggest obstacles to teaching literature satisfactorily in local secondary schools are:
- Q 6 What do you think should be the role of literature teaching in local secondary schools?

Since the sampling was fairly small, there was no attempt at dividing the respondents in terms of different categories. The respondents came from all categories although the non-graduate teachers tended to predominate.

The responses to Question 3: "Why do you teach literature?" are first discussed here. The alternatives were as follows:

- (a) It is a subject I studied for the highest academic qualification I possess.
- (b) I enjoy teaching it.
- (c) The principal/vice-principal/senior assistant instructed me to teach it.
- (d) It helps transmit values that are relevant to my students.
- (e) It helps improve the student's ability to use English.
- (f) The students would understand Western culture better.
- (g) The students learn more about living in a contemporary industrial society.

- (h) Students find it an interesting subject.
- (i) Students learn more about life.
- (j) It is a relatively easy exam subject.
- (k) There's nothing else I can teach.
- (l) It helps stimulate critical thinking.
- (m) It is important for students to know the classics.
- (n) It promotes creative writing on the part of the students themselves.
- (o) Any other reason (please specify).

By far the largest number of votes went to alternative (b) "I enjoy teaching it." 26 respondents picked this as the number one reason while a total of 39 picked this as among the top three reasons for teaching literature. A healthy enough reason one might say, if enthusiasm for a subject makes it easier to be a good teacher.

As first choices, alternative (a) "It is a subject I studied for the highest academic qualification I possess" and (c) "The principal/vice-principal/senior assistant instructed me to teach it" tied for a far second place. Both scored 6. However, if we extend the choice to the first three places, alternative (a) had 13 votes altogether, which might delight the hearts of administrators since this would be one of the foremost considerations if one is interested in maximising manpower.

Alternative (c) drew a total of 10 votes for the first three choices. It was notable that among the 10 were two who did not want to teach literature. There was, in other words, some measure of frustration. They were just obeying orders, so to speak. But these formed a very small minority.

Although only 2 picked alternative (d), "It helps transmit values that are relevant to my students" as first choice, 15 selected this as one of the three main reasons for teaching literature. This ties in with the responses to the last question:

- Q 6 What do you think should be the role of literature teaching in local secondary schools?

The alternatives in the questionnaire for Question 6 were as follows:

- (a) To help develop the student's ability to use the English language.
- (b) To transmit moral values relevant to our society.
- (c) To develop a sense of humanity transcending geographical boundaries.
- (d) To stimulate critical thinking.
- (e) To promote creative writing among the students.
- (f) Any other item (please specify).

14 indicated (b) "to transmit moral values relevant to our society" as first on their list of priorities. And if we include the first three places, then the number would swell to 25. This was the second highest score for any of the alternatives for Question 6. One could, therefore, conclude that many perceive that literature has a strongly educative function and this is connected with a sense of moral values.

This perception of the role of literature as transmitter of values is connected with the development of a sense of humanity extending beyond one's own country. Thus, high scores were recorded for alternative (c) "to develop a sense of humanity transcending geographical boundaries" for Question 6. The second largest number, 11 respondents, picked this item as first choice. Altogether 18 nominated it to be among the top three priorities.

For Question 6, although only 9 respondents picked alternative (d) "to stimulate critical thinking" as top priority, altogether 29 saw it as one of the top three priorities. Perhaps the writing of responses to the literary text is perceived by a large number of teachers to be part of critical thinking. Also, the word "criticism" is central to the study of literature and so the connection between "critical thinking" and the teaching of literature is established.

One interesting alternative provided by a respondent for Question 3 under "any other reason" is connected with this particular function of literature. The alternative reads thus,

Because I believe that literature offers an awareness of different sensibilities as well as insights into the human-ness of man. This I feel is important to balance the emphasis on economic, technological and scientific progress.

Here we have, briefly summarised, the moral value of literature. A value that need not be circumscribed by culture, ethnic group, religion or geography.

Unexpectedly, for Question 3, alternative (e) "It helps improve the student's ability to use English" did not score votes for the top spot. However, 12 respondents picked this alternative as among the top three choices. When we compare the scores for Question 6: "What do you think should be the role of literature teaching in local secondary schools?", we find that the position of this same alternative has strengthened to 6 for top priority and 22 for the top three priorities. There could be various reasons for the ideal not being realised in the school situation. Factors like the

syllabus, the relationship between language and literature periods, time-tabling, type of examination, etc. could well have an immediate bearing on the issue. However, the data, in its present state, cannot really yield anything but tentative conclusions.

One rather notable fact about Question 3 is that none picked alternative (f) "The students would understand Western culture better" for any of the first three places. One wonders whether Western culture itself had pejorative connotations for the respondents. Nevertheless, judging by the texts taught in schools, Western culture was what was being transmitted. In fact, in other countries, literature as a means of acculturation is one of the major reasons for its place in the curriculum. In a study (Purves, 1973) based on literature education in ten countries, reports submitted by the National Centre for each country stressed "the necessity for literature education to perform the role of acculturation, although the degree of that stress varies" (p. 37).

It would also seem as though the fairly high scores for literature as a means of transmitting values referred to values which are perceived as universal values — not values that are culture-bound. In this way, a text may be written in England by an Englishman but might not be perceived as transmitting peculiarly Western values. On the other hand it might have been a simple failure in perception on the part of the respondent.

Alternative (1) "It helps stimulate critical thinking" seems to play some part in literature teaching motivation. However, only 2 respondents listed it as a top priority while 9 saw it as among the top three priorities. If we compare this with the scores for Question 6, the same reason appears to be given added weightage. 9 respondents listed it as the most important role that literature should be performing in local secondary schools while 29 placed it somewhere among the top three priorities.

Since knowledge and understanding of the text would be what tests and the GCE O and A level examinations for literature assess, it is not surprising that none of the respondents selected (n) "It promotes creative writing on the part of the students themselves" as one of the top three priorities. However, when asked to define the role literature should be performing, 1 respondent listed "to promote creative writing among the students" as a top priority and 13 listed it as among the top three priorities. Despite this, however, this aim appeared to have the lowest priority — judging from the scores for Question 6.

Question 5 required respondents to rank the biggest obstacles to teaching literature satisfactorily in local secondary schools. The alternatives given in the questionnaire were as follows:

- (a) the insufficient number of hours allotted to the subject
- (b) the cultural remoteness of the texts
- (c) the lack of English competence on the part of the students
- (d) the inadequate preparation given to the teaching of literature during teacher training
- (e) the influence of popular culture through the mass media.
- (f) the lack of background or critical material for the selected texts
- (g) the lack of audio-visual materials
- (h) an insufficient number of teachers who are academically qualified to teach the subject
- (i) any other item (please specify)

Not unexpectedly, the overwhelming vote went to (c) "the lack of English competence on the part of the students". 22 respondents put it in top spot while altogether 30 saw this as one of the top three obstacles to teaching literature satisfactorily at secondary school level.

It would be hard to refrain from pointing the finger at the kind of texts recommended for study in the secondary school. At Secondary 4 and in the Pre-University classes, students are faced with a syllabus that would be, to some degree, outside the purview of major modifications via the local Ministry of Education. However, it would seem that the students are not quite prepared to meet the texts on the basis of their command of the language. This could lead to a lot of drudgery on the part of the teacher. Much attention should be paid to the question of selecting texts for the lower secondaries and the list of approved books would have to be drawn up with a clear idea of selection criteria and the language competence of the students.

Remarkably enough, it was not the cultural remoteness of the texts that the respondents saw as a big obstacle. Only 1 noted alternative (b) "the cultural remoteness of the texts" to be the biggest obstacle while 6 respondents saw it as among the three biggest obstacles. On the whole, these scores were low if we compare them with the scores for the other alternatives.

The second biggest obstacle to teaching literature appears to be (a) "the insufficient number of hours allotted to the subject". 9 respondents listed this as the biggest obstacle while 16 noted

this down as one of the three biggest obstacles.

Almost tying for second place, (d) "the inadequate preparation given to the teaching of literature during teacher training" is a factor that strikes close to home. 7 respondents listed it as the number one obstacle while altogether 17 looked upon it as one of the three biggest obstacles. If the results of the survey have any validity, then a close scrutiny of the courses connected with the teaching of literature might be needed.

Two other fairly important factors were (f) "the lack of background or critical material for the selected texts" and (g) "the lack of audio-visual materials". Although both had negligible scores for first place, yet the scores for one of the top three factors were fairly high. They were 16 for (f) and 14 for (g). The respondents did appear to feel a sense of deprivation when it came to background and audio-visual materials.

In this paper, I have attempted to underline the rationale for the teaching of literature in local secondary schools and its important links with society. Literature has been seen as being of significant utility to society as well as an end in itself. In addition, I have attempted to present a brief outline of how a small cross-section of the teaching population sees the role of literature in secondary schools in Singapore and some of the obstacles to success in teaching literature. ☺

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The Concept of Conductivity and Molar Conductivity of an Aqueous Solution

Introduction

In most of the Pre-University Chemistry textbooks, the definitions of conductivity and molar conductivity are presented in an understandable and well-formulated way. However the authors' own teaching experiences reveal that many pre-university students do not understand the real physical meanings of conductivity and molar conductivity and even confuse the difference between the two terms. The purpose of this article is therefore to introduce a more basic concept and to give certain physical meanings for the conductivity, molar conductivity and molar conductivity at infinite dilution.

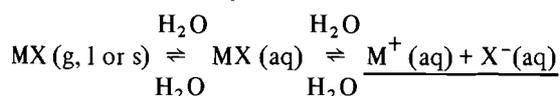
What causes the conductivity of an aqueous solution?

To answer the above question, we might first think what would happen to the electrolytes regardless of whether they are strong or weak, when placed in water. In fact, interactions of various particles would take place. These include

- (i) interaction of compound with polar water molecules,
- (ii) interaction of ions with water molecules (hydration effect), and
- (iii) interaction of ions themselves.

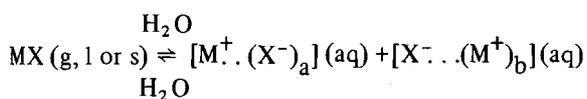
The process can be summarised as follows:

For weak electrolytes:

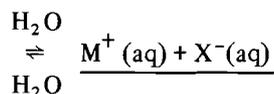


(Weak electrolyte, eg. HAc)

For strong electrolytes:



(Strong electrolyte, eg. KCl)



Normally, the interaction (ii) is accompanied with the interaction (i). The action of water will finally cause the dissociation of either strong or weak electrolytes into the ionic species.

Consider now the processes by which water is gradually added into weak as well as strong electrolytes.

- (a) Weak electrolyte: The electrolyte will form hydrated molecules together with some ions which are dissociated from the molecules. The electrolyte is weak because the dissociation is very small in quantity. If more water is added, more water molecules will separate the ions and prevent the recombination of ions and hence the dissociation will increase with increasing dilution.

This fact can also be explained by Le Chatelier's Principle that the addition of water will make the equilibrium shift to the right hand side. Such phenomenon is also known as Ostwald's dilution law.

- (b) Strong electrolyte: Strong electrolytes might dissolve in water completely because the hydration energy produced is usually sufficient to overcome the lattice energy or bond energy of the compound. If the hydration energy is insufficient, the entropy effect plays an important role in the dissolving process.

In the case when a small amount of water is added to the strong electrolyte, it can be imagined that the ions are crowded together. Since the attractive forces of ions to those oppositely charged are non-directional and unsaturated, positive ions tend to attract a number of negative ions and vice versa, with the formation of ionic atmosphere. With increasing dilution, i.e. addition of water, the ionic atmosphere will be destroyed due to more hydration, possibly between ions and water molecules. Eventually no more ionic atmosphere is left.

In fact, these two processes could be identical if the numerical values of a and b are both equal to unity. As a result, the term degree of dissociation can also be given to the strong electrolyte in such a state, in order to indicate how free the ions are. Since we still consider strong electrolytes to be completely dissociated, the term "apparent degree of dissociation" will be used for strong electrolytes. With this term, it seems more suitable for our purpose to distinguish strong electrolytes from weak electrolytes. But for convenience, degree of dissociation could commonly be used for weak electrolytes as well as for strong electrolytes.

The interaction (iii), i.e. the interaction of ions themselves, is responsible for the backward reaction. Such backward reaction, which is the reverse of dilution, indicates that the more concentrated the solution is, the greater is the effect it has. In a concentrated solution, the ions with opposite charges have more opportunity to approach each other and hence the chances to recombine together will be greater.

Those ions present, which are underlined, are responsible for conducting a current in the aqueous solution of an electrolyte.

The manner of conduction in a metal, i.e. its conductivity, is so much different from that of an aqueous solution because in the case of metal, the free electrons in the metallic lattice play the role of conducting the current. Its mechanism is shown in the following figure:

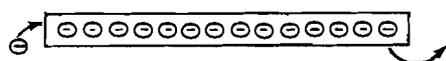


Figure 1

While one electron is put in from one end, immediately one electron will move out from the other end. In the case of an aqueous solution, the ions carry charges and move through the water molecules and oppositely charged ions, under the applied potential difference, towards the electrodes where the ions are discharged (see Figure 2).

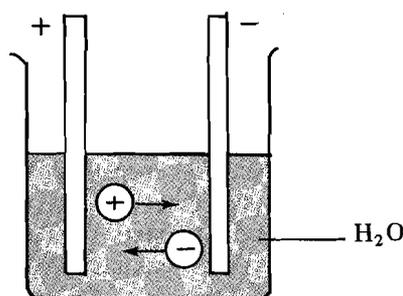


Figure 2

It can be expected that the conductivity of an aqueous solution will be very small in comparison to that of metal. Indeed it is so! In general, the electrolytic conductance is of the order of one hundred-fold less than metallic conductance.

Factors affecting the conductivity

The conductivity of an aqueous solution will be affected by some factors. These are:

- (I) number of charged particles i.e. ions, which are responsible for the carrying of current.
- (II) movement of charged particles under the applied electric field.
- (III) magnitude of charge on the ions.

More detailed discussions on these factors will be given below.

- (I) **Number of charged particles** – The total number of ions present depends on
 - (a) Whether the compound is weak or strong electrolyte – Due to the nature of the electrolyte, it is clear that with the same molar concentration, the aqueous solution of the strong electrolyte will contain more ions than that of the weak electrolyte. As a result, the strong electrolyte has generally a higher conductivity than the weak one.
 - (b) Concentration of the strong electrolyte – When the concentration of a solution of a strong electrolyte increases, the concentration of the ions present in solution increases. But the effect of interaction forces of ions also becomes more and more pronounced as the concentration of ions increases. This implies that the conductivity of a strong electrolyte, in very concentrated solution, is relatively low. With dilution, the conductivity increases rapidly up to a certain maximum value. With further dilution, the concentration of the solution, i.e. the number of ions per unit volume, drops accompanied by a fall in conductivity (See Figure 3)

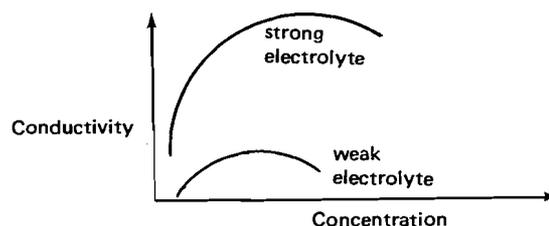


Figure 3

- (c) Concentration of the weak electrolyte – When the concentration of a weak electrolyte is increased, the concentration of the ions in solution and hence its conductivity would not increase very much because the degree of dissociation is limited.

As the dilution of a solution containing a weak electrolyte causes an increase in the degree of dissociation of the electrolyte, there is a steady increase of conductivity with dilution. But the gradient of this increase should be smaller in comparison to those for strong electrolytes. This is due to the fact that the interaction forces of the ions fall rapidly with the dilution of strong electrolyte solutions, while this is not the case with the dilution of weak electrolyte solutions. Analogous to the strong electrolyte, if the dilution exceeds a certain extent, a fall of conductivity should be expected. The increase of dissociation by dilution would likely to be compensated by the reduction of the total concentration caused by dilution (see Figure 3).

(II) **Movement of charged particles** – The movement of charged particles (ions) depends on the following conditions.

- (a) Size of the ions – The velocity with which ions move under the influence of an electric field is inversely proportional to the mass and the size of the ions. But the size of ions should be defined carefully since ions possess higher charges or smaller sizes, and attract water molecules so strongly and firmly that the water envelope formed should be taken as part of the size of the ion (see Figure 4, dotted line in the case of Na^+ ion)

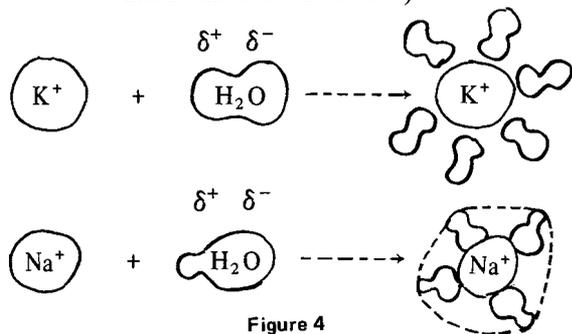


Figure 4

This explains the fact why Na^+ ions, although smaller in gaseous state (i.e. $\text{Na}^+(\text{g})$) than that of K^+ ions, has a lower conductivity.

- (b) Concentration of strong electrolyte solutions and interaction of oppositely charged ions – In a concentrated solution, the attraction of oppositely charged ions tends to shield one another from the electric field applied and these ions thereby move more slowly towards the respective electrode. The more concentrated the solution, the greater is the opportunity for the ions of opposite charge to come closer together and hence the greater the shielding effect. In a very dilute solution, the ions are separated from one another by distances which are very great compared with the sizes of the ions. Here the movement of ions through the solution under the influence of an applied electric field could be more or less independent of one another. Therefore, the conductivity increases as the concentration of a strong electrolyte solution decreases.
- (c) Concentration of the weak electrolyte solution – The dilution of a weak electrolyte solution generally causes an increase in conductivity due to an increase in the degree of dissociation, as discussed above. Although there is an increase of ions, the dilution might compensate more than the effect of interaction between two ions of opposite charge. So the movement of ions could still be independent.
- (d) The effect of hydration – As mentioned before, cations and anions are moving against a counter movement of anions and cations respectively. All these ions are hydrated with some water molecules and therefore the ions are in fact “swimming against the current”. As the concentration increases the effect would be more pronounced.

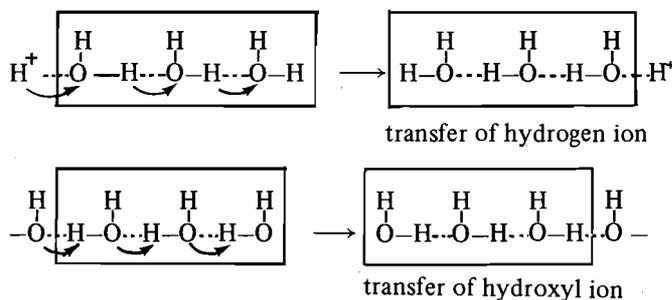
- (III) **Magnitude of charge on the ions** – We would expect that with ions of higher charge there is an increase of conductivity because the ions will be strongly affected by an external electric field. However the hydration effect and interaction forces will also increase with an increase in the charges of the ions. This provides a compensatory effect which

causes the resultant conductivity of all sorts of ions, except H^+ and OH^- ions, to be comparable.

Conductivities of hydrogen and hydroxyl ions.

The conductivities of hydrogen and hydroxyl ions are unexpectedly high, being about 7 and 3 times that of the average value for other ions respectively. It is known that water is polymerised in chains $(H_2O)_n$ [where $n = 2 - 5$] and that hydrogen

and hydroxyl ions are highly hydrated in aqueous solutions. Thus the very high conductivities of these two ions cannot be accounted for by the actual ease of motion of the ions themselves. It seems likely that a special mechanism takes place so that these ions do not actually have to move through the solution. It is thought that these ions are able to pass on their charge from one water molecule to another by the transfer of a hydrogen ion or a hydroxyl ion in the following way:



(The dotted lines indicate hydrogen bonds)

Figure 5

These processes can occur very rapidly and can be continued through the solution, causing the charge to transfer through the solution faster than the speed at which the ions can move, and hence resulting in abnormal conduction. This mechanism is similar to the manner of conducting electricity in metal, i.e. "one end in and the other end out."

However such mechanism involves the chain reactions of bond breaking and bond forming and hence the conductivity of hydrogen ion and hydroxyl ion respectively is still much smaller than conduction in metals.

Molar Conductivity

From the above discussion, it would be meaningless to compare conductivities under various concentrations, since any comparison should be on a certain common basis. So we introduce the concept of molar conductivity. The relationship of conductivity and molar conductivity is generally given by the following mathematical expression:

$$\Lambda(\text{Molar conductivity}) = \frac{k(\text{conductivity or specific conductivity}) \text{ m}^2/\text{mol. } \Omega.}{C(\text{concentration in molarity})}$$

In most chemistry textbooks, the meaning of molar conductivity is given as follows: "The value of molar conductivity is equivalent to the conductance caused by all the ions in a volume of solution (φm^3) containing 1 mol. of the electrolyte, the electrodes being 1 m apart". They can be imagined as parallel electrodes, each having a very large area and immersed into a solution. The conductance of the solution, confined between the cut-out surfaces of such electrodes having an area of φm^2 , is the molar conductivity of the solution. The volume of the solution between these electrode areas is obviously equal to φm^3 . It contains one gramme mole of electrolyte. The stand point of the above consideration is derived from the unit of molar conductivity and the measurement technique of conductance.

Physical Meaning of Molar Conductivity

For the respective concentration, the conductivity k includes the resultant effect of all the factors affecting the conductivity. Now the change of the various concentrations to the same unified molar concentration (1 molar solution) shows that the number of particles initially would be the same and this is what we have mentioned earlier, the common basis. The corresponding numerical

magnitude of the molar conductivity at certain concentration indicates only the change of conductivity which relates the increase (or decrease) of concentration to the unified one. In considering

those factors affecting conductivity just mentioned, the meaning of molar conductivities then could have the following two approaches (refer also to Figure 6):

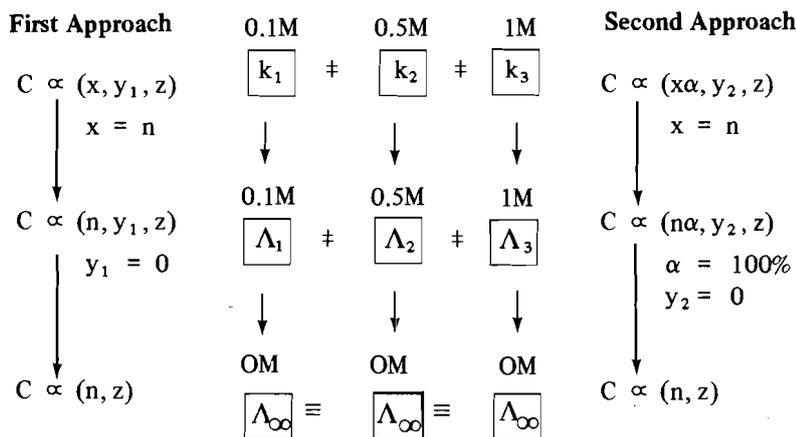


Figure 6

Legend

C = conductivity, x = no. of mol of ions, n = no. of mol of ions in φ m³ of solution which contains 1 mol of electrolyte, α = degree of dissociation, y₁ = interaction of ions in terms of degree of dissociation, y₂ = interaction of ions, z = hydration effect, k = specific conductivity, Λ = molar conductivity, Λ_{∞} = molar conductivity at infinite dilution, \propto : is proportional to, \neq : is not equal to, \equiv : is identical to.

Approach 1. If we assume that all sorts of electrolytes whether strong or weak dissociate completely in water, then the molar conductivity shows only the measurement of interaction of ions-ions and ions-water molecules (hydration effect) at the corresponding concentrations.

The difference between strong electrolyte and weak electrolyte could be considered to be based on the interaction forces of ions-ions. At normal concentration, the interaction of ions and ions for the weak electrolyte would be much greater than the strong electrolyte and hence it exists more in the molecular form.

Approach 2. If we want to have a distinction between the strong and weak electrolytes, then the molar conductivity should also include the measurement of the degree of dissociation besides the interactions of ions-ions and ions-water molecules at the corresponding concentration.

The second approach seems to be more related to the real situation. We can express the approach in another way.

For strong electrolytes: The molar conductivity is the proportional change of the conductivity from C concentration to 1 molar concentration, whereas hydration effect and interaction of ions themselves still remain the same as at C concentration.

The molar conductivity at infinite dilution is hence the molar conductivity at such a condition that the interaction of ions among themselves is eliminated.

For weak electrolytes: The molar conductivity of a weak electrolyte has exactly the same meaning as that of a strong electrolyte except that the dissociation is incomplete and the interaction of ions among themselves is eliminated (since the weak electrolyte exists mostly in the molecular form). The molar conductivity at infinite dilution is hence the molar conductivity at the condition which could be considered as 100% dissociation.

In fact, at infinite dilution, strong and weak electrolytes have exactly the same properties, i.e. 100% dissociation and no interaction of ions among themselves, except that the interaction of ions and water molecules might be different.

With the concept of molar conductivity and molar conductivity at infinite dilution, it is not difficult to understand the physical meaning of "conductance ratio" or non-committal term "apparent degree of dissociation", i.e. the ratio $\Lambda_v/\Lambda_{\infty}$ and the ionic conductance.

Furthermore, the figures for the ionic conductance which is throwing some light on the extent to which ions in solution are hydrated can be well understood. ☞

The Place of Conservation Training in Early Cognitive Development

During the early 1960s, a highly investigated topic in cognitive development research had been the study of conservation acquisition in young children. A huge effort was made on the part of developmental psychologists to determine how and to what extent the development of the young child's thinking and reasoning ability might be stimulated and accelerated. Conservation mastery is central in the research and theory of Jean Piaget. Its presence according to him is an important sign that the child has now acquired a new ability to perform mental operations and he has in possession an essential condition for the development of rational thinking and has moved from the stage of pre-operational to operational thinking. This acquisition of conservation implies that a modification has taken place in the child's intellectual structure.

Piaget believes that specific training or teaching plays a very small and non-significant role in the concept of conservation. His theory is that within the cognitive function, two very different aspects should be distinguished – the figurative and the operative. The figurative aspect deals with static configurations and in physical reality, there are states and transformations which lead from one state to another. Examples of figurative aspects in cognitive functioning are perception, imitation and mental imagery. Operative aspects, on the other hand, include operations and actions which also lead from one state to another. In cognitive development, the figurative aspects are subordinate to the operative aspects. Any given state is the result of some transformation and it is also the departing point for another. The pre-operational child does not understand transformation and therefore emphasizes the static quality of the states. In a conservation experiment, he simply compares the initial state and the final state and has no concern regarding its transformation. Concerning conservation training, Piaget believes that “in exercising perception and memory . . . , you will reinforce the figurative aspects without touching the operative aspects. Consequently I'm not sure that this will accelerate the development of cognitive structure” (Ripple and Rockcastle, 1964, p. 20).

Numerous studies have been conducted which supported or negated this theoretical Piagetian position. Many of these have used a variety of training techniques as well as diverse populations. Some have been successful in inducing conservation (Brainerd, 1974; Bucher, 1973; Gelman, 1969; Smith, 1968; Kingsley and Hall, 1967), but on the other hand, a number of experimental studies has also been ineffective (Mermelstein and Myer, 1969; Mermelstein, Carr, Mills and Schwartz, 1967).

According to Murray (1978), since 1961, 140 research studies were published on training young children between 4 and 7 years old to conserve. The greater bulk of conservation training research was done between 1970 and 1975. Initially this effort was motivated by a variety of forces, some of which were rather praiseworthy, for example, investigating conservation training as a mechanism to solve the problem of cultural deprivation in early life. There was also the general concern that our young children were not learning fast enough and that providing the child with a structured learning experience may prove to be a very effective way to develop mastery of conceptual material. However, the major influence came from the growing involvement of cognitive, developmental and educational psychologists in the area of conceptual development. Experimental studies were conducted to question how a child progresses through the stages of concept formation as described by Piaget. Experimental inducements of conservation were made to demonstrate that conservation could be trained despite what Piaget believed in. As mentioned earlier, some of the earlier experiments were ineffective although it is currently believed that conservation can be taught.

Strauss (1972) made a review of several conservation training experiments and investigated three classes of conservation studies. These were disequilibrium, mental operations and regression.

¹ A lecturer at the Institute of Education, Seng Seok Hoon is now engaged in doctoral studies at the University of Hawaii, Hawaii.

Each technique was discussed in detail and comparisons were made between the Geneva and Harvard approaches, e.g. Smedslund's (1963) use of cognitive disequilibrium as a training technique exemplified the Piagetian stand whereas Frank (1966), a Brunerian, employed a screening technique as a training condition. Strauss's review is very selective and biased towards the Piagetian stand. According to Brainerd (1973), he had left out many other training experiments which do not support a developmental hypothesis.

From the review, it seems that a clearcut, sharp definition of what constitutes conservation is highly lacking in several conservation training studies. Each experimenter establishes his own criteria which are not considered in depth. Most of the minimal behavioural evidence like pointing or responding univocally appears very simple as in the operant training study made by Bucher and Schneider (1973). Some studies are stricter in their criteria which involve judgment and explanation as in the procedures used by Smith (1968) and Gelman (1969).

A very different technique of conservation training has been adopted by Bruner (1964). His criteria are based on the linguistic aspect of a situation as he believes that language development is an important cognitive tool. It appears that improvement in language at any given age should aid conservation and this is probably the best way to improve language skills. Bruner suggests that activation of language habits will improve the child's performance and this can be done by practising saying the description of something before him that he must deal with or saying it in its absence. Such an approach will help decrease irrelevant perceptual cues. The effects of saying before seeing are demonstrated in experiments reported by Frank and Nair (Bruner, 1964). The Brunerian training approach assumes that conservation is a function of the language activated. This is in contrast with Piaget who believes that mental structure precedes language development. Without the concept, the language facility cannot be appropriately directed.

Strauss emphasises that the more powerful criterion is that established by Piaget. Here a child is assumed as having reached conservation if he makes a correct judgment of equivalence and logically justifies that judgment. He is able to resist countersuggestion and to transfer conservation to other related tasks. Not all conservation training experiments have adopted this strict list of criteria. The choice of a clear criterion is very important in conservation training research for it apparently

will exert a very influential effect on the findings. A study of conservation training techniques used by investigators like Beilin, Sigel and Hooper, Smedslund, Bruner and Brainerd show that they all use different criteria. It is conceivable therefore that the success in their training programme may be related not to the Piagetian concept of conservation but to some other concepts depending on the criteria used.

Training for conservation in general therefore appears equivocal in its success depending on the different criteria and methodology adopted by each experimenter. According to Piaget, in order for conservation training to be effective, two other criteria have to be met. These are generalizability and durability. Therefore a concept which has been trained not only had to be transferred to other situations but it should not be extinguished over time. Most training studies posttested their subjects from as short as three days to five months. The generalizability and durability criteria are in some of these studies not satisfied.

The selected training technique depends to a large extent on whatever theoretical assumptions the experimenter has on the nature of learning. This further points out the difficulty of comparing these conservation training experiments. Historically, two opposing interpretations of cognitive development may be traced to the diverging positions between the empirical and the rational views (empiricism and rationalism). The former stresses experience and the latter the internal structure of the mind which exists independent of any experience. Today there are more interpretations of cognitive development based on other theoretical standpoints, e.g. nativistic, maturational, learning or developmental. There are of course many intermediate positions and conservation training researchers have each adopted their own rationale and methodologies based on their stance, e.g. between the learning theorists and the developmentalists one could identify the following:

Theoretical Position	Conservation Training Technique	Representative Researcher
Learning Theorist (learning through external reinforcement)	Language Activation Multiple Classification Verbal Rule Instruction Social Interaction	Bruner Sigel Beilin Murray
Developmentalist (learning through inner equilibration)	Adaptation Cognitive Conflict Verbal Feedback	Piaget Smedslund Brainerd

Some of the above conservation training experiments are very complex and yet exploratory. They serve to raise a number of questions regarding conservation inducement rather than answering its

presence. The need for a set of assessment criteria for conservation still remains and no one significant training strategy, from whichever theoretical inspiration it may have come from, has shown itself to be better than the others.

Research has yielded contradictory data concerning the effectiveness of conservation training strategy because it is impossible to equate methodologies based on differing criteria. Some possible levels of criteria for conservation are indicated below:

Criteria for Conservation	Related Training Techniques	Basic Classification
Explanation Judgment Equivalence Reasoning	Language	Social Interaction
		Role Playing
		Cognitive Conflict
Perceptual Flexibility Identity Reversibility	Feedback Verbal Rule Cue Reduction Discrimination	Stress on Mental Operation

The adequacy of any training technique is therefore influenced by the choice of criteria. It is noted that experiments training immediate and simple response learning will not be likely to lead to any profound cognitive thinking, whereas experiments stressing more than one stimulus may induce conservation at a higher level. Some variations to the above sample techniques may have to be made in order to make them suitable for different "trainability" levels in children. Studies are encouraged which involve multiple conservation training experimentations and these can be varied systematically so as to provide insight into their effects.

A review of conservation training literature permits one to formulate certain tentative generalizations. There is no doubt that there is tremendous potential for educational application; for instance, some of the training procedures can be applied to school situations. However these methods of training for conservation may have differential impact on different children depending upon the extent to which training is aimed at any specific area of deficit in the child. The trainability of any child is also dependent on his or her pre-training stage.

A vast majority of conservation training studies have been highly concerned with the effectiveness of the training method itself and not with the important variables that influence susceptibility to training. Whether it is possible or not to induce conservation depends on the subject's already "available schemata" (Piaget). According to Smedslund (1961), "if he has a structure which already approaches the given notion, the possibility of the desired reorganization is high, whereas if he is still far from the notion the chances are small that he will change sufficiently during a limited series of experimental sessions" (p. 19). With young children it is hard to believe that identical stimuli are obtained by asking everyone the same question. Even in the nonconserving stage the child is attempting to analyze and to dissociate variables. They are reorganizing relations which they cannot yet grasp in full. Before training it is important to draw up a strict definition of the differing possible levels of nonconservation.

In 1969, Mermelstein and Meyer conducted four types of conservation training techniques on differing populations drawn from three places. A total of 416 subjects from 3-6 years were involved and number conservation was taught using cognitive conflict, verbal rule instruction, language activation and multiple classification techniques. The results indicated that these different training procedures were not only ineffective but also failed with the different groups of children (regardless of their backgrounds). Brainerd (1972) questioned if experimentally induced conservation is a function of chronological age, developmental stage or both. 88 nonconserving kindergarten children were trained on number conservation and analysis revealed that the developmental stage was the only reliable predictor of posttest performance. His findings indicated that the benefit derived from training experiments by a nonconserving child depended on his pre-training stage. This reflects the significance of establishing the learning levels of nonconservation before experimentation begins. Because of this importance it is urged that more experiments be designed to test the influence of this variable. e

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Some Findings on the Use of Motivation Strategies in Singapore Classrooms

As Singapore has hardly any natural resources, it has to depend upon its human resources for its social development, industrial advancement, financial stability and hence survival and viability. Social development, industrial advancement and financial stability can only materialise if human resources are skilled and trained. The hand-in-glove relationship of skill training and formal education is obvious and their necessity for our development and survival is often emphasized by our leaders.

The task of enlightening students on the aims and values of a formal education rests on the shoulders of the teachers. Teachers are responsible for facilitating the active learning of students. Hence one of the teacher's duties is to enhance the motivation of his students. He is expected to provide favourable conditions for study for poorly motivated students. This leads to the inevitable fact that teachers should be equipped with the essential strategies to motivate their students in the classroom.

A number of small-scale projects on motivation strategies have been carried out by I.E. Diploma in Education (graduate) trainee teachers in schools. These trainee teachers had attended a 30-hour elective course on "Motivation in Learning" for which the form of assessment was a project on motivation or a related topic. They were allowed to hand in their projects six months after completing the course. It is not unusual for trainee teachers to undertake two projects simultaneously and so they generally have less than a semester to complete a project.

Since the samples involved in these studies were small captive ones, we cannot pretend that the findings of these projects are generalisable for the Singapore population or even representative of the school population. Hence the results are indicative rather than definite.

Motivation strategies in the classroom are mostly manipulations of incentives. Though effective methods are many and varied, we focus here on strategies which are common and can be

implemented easily at most class levels. Frequent testing, grade incentives, teachers' encouraging comments, praise and reproof, competition and cooperation are methods which have been found to be effective in Singapore and can be easily integrated into the daily lessons.

There is no paucity of data on motivation strategies from researchers in the developed countries. However the element of ethnic and individual differences raises the need to verify the effects of these strategies on Asian samples, and in Singapore, on multi-racial samples. The major ethnic groups in Singapore are the Chinese, Malays and Indians. In the English medium schools from which we drew our project samples, most classes are composed of all the major ethnic groups.

Owing to space constraint, only a cursory review of the principal findings of one project is given under each method. The projects selected for presentation here are fairly representative and not chosen to support certain hypotheses.

Grade Incentives

Cullen *et al.* (1975) reviewed a number of studies investigating the motivational power of grades. His investigations show that grades used as either a positive or negative incentive secure greater assignment completion than when no incentive is offered and that grades used as a negative incentive elicit better results than when used as a positive incentive. Moreover, when grades are used as a negative incentive, the greater the intensity of the incentive, the greater is the assignment completion.

Fong (1977) chose to use grades only as a positive reinforcer to motivate 40 Secondary 3 students in Mathematics. The students were girls whose average age was fifteen. The objective of the study was to determine the effects of continuous grading of Mathematics assignments on students' progress. The design of the experiment is shown in Table 1a.

Table 1a Design of experiment using grades as incentives

PERIOD	METHOD	ASSIGNMENTS
I. Pretreatment period – first 2 weeks of the experiment	3 assignments of Ss* were graded and recorded without Ss' knowledge	Each assignment consisted of about 4 – 5 problems. Ss* were allowed to complete them at home and hand them up the next day.
II. Treatment period – the last two weeks of the experiment	3 assignments of Ss* were graded and grades were recorded in Ss' books	

Ss* = subjects

Table 1b Average marks of assignments attained during experiment

Pretreatment period			Treatment period		
1st assignment	2nd assignment	3rd assignment	1st assignment	2nd assignment	3rd assignment
6.05	5.80	6.10	6.18	6.63	7.75

Table 1c Comparison of means of assignments in pretreatment and treatment periods

Period	df	Mean	Difference	t	p
Pretreatment Treatment	39	5.98 6.85	0.87	5.97	<.001

The experiment covered 4 weeks. During the pretreatment period, the assignments were marked and the grades were recorded in the teacher's record book. Prior to the implementation of the treatment, students were informed that their assignments would be graded for neatness and accuracy. Each student was told to keep a progress graph at the back of her exercise book. Each assignment was graded out of 10 marks.

Table 1b shows improvement as evident in the increase of mean scores in the assignments during the treatment period. A t-test carried out to compare the means of the pretreatment and treatment assignments gives a t-value of 5.97 which is statistically significant at the .001 level.

Students of this project appeared to respond positively to the grade incentive and were motivated to channel greater effort into their work.

In this experiment, there are factors like personality, intelligence, socio-economic status of students which could not be controlled. Though conscious care was taken to make the assignments of equivalent standard, there were no stringent means of checking. Moreover, students were allowed to complete the assignments at home. So external help might have been solicited.

Frequent Testing

In the course of instruction, feedback from the tests administered enables a teacher to reinforce what is already understood by his students and spend more time on areas which are vaguely understood or misunderstood. Feedback from tests also provides students with specific knowledge of results and information requisite for improvement in subsequent tests. Fitch (1951), Standlee and Popham (1960), Selakovich (1962), Crouse (1974), Gaynor and Millham (1976) and Reith *et al.* (1975) found that frequent evaluation is generally superior to infrequent testing. Besides improved achievement, Fitch noticed that frequent tests motivated students to read more extensively from supplementary sources and extend their preparation beyond routine requirements. Selakovich found that students exposed to frequent testing were more responsive and participated more enthusiastically in class discussions.

David (1978) decided to use frequent tests to motivate her weak Secondary 2 girls to better their performance in General Science. Two classes of 42 girls each participated in the experiment. Class 2K was academically better than class 2L and was used as the control class. Class 2L, the weaker

class, was selected as the experimental class.

To determine the effectiveness of weekly tests over monthly tests, the experimental class 2L was given weekly tests besides the routine monthly

tests. Class 2K took only the monthly tests. A pre-experimental test was administered to the 2 classes. Both classes were tested over a period of 2 months.

Table 2a Comparison of the results of the pre-experimental test obtained by the experimental and control classes

Class	df	Mean	s.d.	% of passes	Mean difference	t	p
Experimental (2L)	41	31	24.69	16	9.45	2.65	<.05
Control (2K)		40.45	27.91	27			

Table 2b Comparison of the results of the January monthly test obtained by the experimental and control classes

Class	df	Mean	s.d.	% of passes	Mean difference	t	p
Experimental (2L)	41	42	18.87	35	2.26	0.57	ns
Control (2K)		44.26	17.41	33			

Table 2c Comparison of the results of the February monthly test obtained by the experimental and control classes

Class	df	Mean	s.d.	% of passes	Mean difference	t	p
Experimental (2L)	41	53.25	20.3	57.1	9.64	2.26	<.05
Control (2K)		43.61	18.81	38.1			

An examination of the Tables 2a, 2b and 2c shows that the means obtained by the control class in the pre-experimental and monthly tests were fairly constant and the percentage of passes did not rise above 38.1 per cent (as obtained in the February tests). The experimental class showed an upward swing in its achievements. In the pre-experimental test, it scored a mean of 31 and only 16 per cent of its students passed. Mean difference between the 2 classes was significant at the .05 level. After the first round of weekly tests, the experimental class showed speedy improvement by attaining 42 marks for its mean in the January test. Its mean was lower than for the control class but the marginal difference was not statistically significant. Moreover, it secured 35 per cent passes compared to the control class's 33 per cent passes. In the February test, the experimental class achieved a mean of 53.25 marks while the control class kept closely to its previous attainment and scored 43.61 marks. The mean difference was significant at the .05 level. 57.1 per cent of the students in the experimental class passed this test,

compared to 38.1 per cent passes in the control class.

The results speak for themselves and show that properly planned, frequent tests are effective in motivating low achievers to better performance.

The experiment was not without its weaknesses. Since the study lasted for two months, extraneous variables were to be expected, e.g. intervening events external to the experiment, maturation and practice provided by frequent testing. The teacher bias might also be present as the experimenter and teacher were the same person. All these factors could have contributed to the results obtained.

Teachers' Encouraging Remarks

In 1958, Page carried out an experiment of immense magnitude to show that appropriate, encouraging, informative comments by the teacher had a facilitating effect on student motivation and subsequent performance. His students were divided into 3 different groups. One experimental group had free comments which were appropriate

vis-a-vis the students' performance while the second experimental group of students received comments specified for each grade. The control group had no comments for their performance. Results showed that positive and encouraging comments of any form brought about improved performance in subsequent tests and assignments.

Koh (1977) adapted Page's experiment and simplified the design. Instead of having 2 experimental groups, only one group was used. Free encouraging remarks were used on this group. The students were drawn from 2 secondary 3 classes. One was an academic class¹ of 27 boys. The other class was a technical class² of 38 students, of which 8 were girls. In each class, there were an experimental group and a control group. The

grouping was based on the results of 4 tests given to the students prior to the project. The students in both groups were selected in such a way that the mean scores and the standard deviations of these 4 tests were comparable for both groups.

Two pre-experimental Mathematics tests (A1 & A2) in the objective format were given to the 2 classes. During the experimental period, 2 ordinary tests (X1 & X2) were administered to classes. The X1 and X2 scripts of the experimental groups were given encouraging comments by the experimenter. After the experiment, 2 more objective tests (B1 & B2) were carried out. The tests were conducted weekly. Each objective test lasted 40 minutes while the experimental tests took 70 minutes.

Technical Class

Table 3a Comparison of the results achieved by the experimental and control groups in the pretests (A1 & A2)

Group	n	mean	sd	F	P
Control	19	67.11	18.80	1.045	ns
Experimental	19	67.63	19.22		

Table 3b Comparison of the results achieved by the experimental and control groups in experimental test X1

Group	df	mean	sd	t	p
Control	18	64.32	25.09	0.03138	ns
Experimental	18	64.05	26.51		

Table 3c Comparison of the results achieved by the experimental and control groups in experimental test X2

Group	df	mean	s.d.	t	p
Control	18	62.32	16.29	1.393	ns
Experimental	18	69.84	16.13		

Table 3d Comparison of results achieved by experimental and control groups in posttest B1

Group	df	mean	s.d.	t	p
Control	18	66.32	16.92	2.311	<.05
Experiment	18	78.95	15.86		

¹Students in the academic class took English, Chinese as a second language, Physical Science, History, Literature and Mathematics.

²Students in the technical class took English, Chinese as a second language, Mathematics, Physical Science, Basic Electricity and Electronics, Geometrical and Mechanical Drawing.

Table 3e Comparison of results achieved by control and experimental groups in posttest B2

Group	df	mean	s.d.	t	p
Control	18	65.26	16.97	2.917	<.01
Experimental	18	80.53	14.32		

The difference in mean scores in the pretests between the experimental and control groups was not statistically significant, showing that the 2 groups were comparable in their Mathematics achievements before the experiment. An examination of Tables 3b – 3e shows that just after the experimental treatment had been introduced, there was an increase in the scores obtained by the experimental group but the difference between the 2 groups was not statistically different. Posttest B1

was conducted after the test X2 on which the experimental treatment was applied and Table 3d indicates clearly that the gain made by the experimental group over the control group was significant at the .05 level. Although there was no experimental treatment on B1, the difference between the 2 groups in the posttest B2 was still significant showing that the effect of the treatment was not ephemeral.

The Academic Class

Table 3f Comparison of the results achieved by the experimental and control groups in pretests (A1 & A2)

Group	n	mean	s.d.	F	p
Control	13	47.31	14.33	1.952	ns
Experimental	14	47.86	19.88		

Table 3g Comparison of the results achieved by the experimental and control groups in experimental test X1

Group	df	mean	s.d.	t	p
Control	12	28.31	21.73	0.1080	ns
Experimental	13	27.57	26.60		

Table 3h Comparison of the results achieved by the experimental and control groups in experimental test X2

Group	df	mean	s.d.	t	p
Control	12	28.84	10.95	2.152	<.05
Experimental	13	39.43	13.41		

Table 3i Comparison of the results achieved by the experimental and control groups in posttest B1

Group	df	mean	s.d.	t	p
Control	12	29.23	10.71	4.021	<.001
Experimental	13	49.27	13.87		

Table 3j Comparison of the results achieved by the experimental and control groups in posttest B2

Groups	df	mean	s.d.	t	p
Control	12	33.08	14.35	4.331	<.001
Experiment	13	59.29	15.80		

The academic class was a poorer class in terms of cognitive abilities but was highly responsive to the treatment. For the pretests and X1, in the absence of the treatment, differences in scores between the 2 groups were marginal and non-significant. After treatment was applied on X1 scripts, the experimental group showed promising improvement in X2. There was an actual increase of more than 10 points in the mean and the difference between the scores of the 2 groups was statistically significant. The trend of improvement was stable in the experimental group and the mean scores for B1 and B2 were 49.27 and 59.29 respectively. The differences between the 2 groups for B1 and B2 were both highly significant at the .001 level.

From the data, we can deduce that teachers' positive comments are effective in motivating students, especially the low achievers, to put in extra effort in their performances. It is also heartening to learn that the effects do not fade out immediately after the withdrawal of the incentive.

Though results are positive and convincing, we cannot rule out the plausible effects of history and maturation on the findings. The differences between the academic class and technical class might be more complex than with respect to just cognitive abilities alone, resulting in the differential responses to the treatment.

Praise and Reproof

Praise has been found to be a potent form of

positive reinforcement in increasing students' efforts. It is regrettable that some teachers are not inclined to be magnanimous with their approval though they are quite liberal with reproof. Undoubtedly, reproofs have their share in energizing the less diligent students to perk up and to put in more than tepid interest in their work. However, negative incentives are often less dependable in their effects.

As early as 1925, Hurlock carried out a well-known experiment to determine the effects of praise and reproof on learning. Four comparable groups of students sat for Arithmetic tests on 5 successive days. Group A received praise for its performance, Group B was reproofed despite good results; Group C was ignored but allowed to observe the treatments given to Groups A and B, and Group D was separated from the other 3 groups and ignorant of what was going on. The results are shown in Table 4a.

Table 4a shows that both praise and reproof motivated the students to greater effort in their second tests. On the succeeding days, the praised group continued to improve but the reproofed group lost enthusiasm when their efforts met with criticism. The ignored group who observed the treatments given to Groups A and B perked up on the second day but fell off after being ignored. The control group (D) showed little fluctuation in their scores. The inference here is obvious, that praise is more effective than reproof in activating students towards achievement.

Table 4a Average scores attained in Arithmetic tests by groups working under different conditions for a period of 5 days¹

Group	Test 1	Test 2	Test 3	Test 4	Test 5
Praised (A)	11.8	16.6	18.8	18.8	20.2
Reproofed (B)	11.8	16.6	14.3	13.3	14.2
Ignored (C)	11.8	14.2	13.3	12.9	12.4
Control (D)	11.8	12.3	11.6	10.5	11.4

¹Reproduced from Hurlock (1925)

Tay (1977) replicated Hurlock's experiment to determine the effectiveness of praise and reproof as incentives for the classroom. The objectives of her project were:

- (1) to show that praise is more effective than reproof as a motivational device,
- (2) to show that reproof is most effective in motivating high achievers,
- (3) to show that praise is most effective in motivating average and low achievers.

80 Secondary 3 students were selected for the experiment. Selection was based on their per-

formance in the midyear examination and an objective test in History. Students were divided into 3 groups based on the average scores obtained. High achievers obtained scores between 70 and 100 marks; average achievers had scores between 50 and 69 marks, and low achievers' scores ranged from 0 to 49 marks. These students were then put into 4 groups – praised, reprovved, ignored and control (refer to Table 4b). Each group had 7 high achievers, 6 average achievers and 7 low achievers – making a total of 20 students in all.

Table 4b Summary of the types of praise and reproof given to different groups in the course of the History tests

Group Test	Praised	Reprovved
Test 2	<ol style="list-style-type: none"> 1. Good effort shown in work 2. Neat and careful 3. Keep up the good performance and try to set some records for others to follow 	<ol style="list-style-type: none"> 1. Poor results – below standard 2. Sloppy and careless work 3. Will fail if don't work harder 4. Another chance for proving yourself – try hard
Test 3	<ol style="list-style-type: none"> 1. Better performances – many improved in marks though no records broken 2. Standard exceptionally high for your level 	<ol style="list-style-type: none"> 1. Worse results than before 2. Not much effort shown 3. Quite untidy and careless 4. Shameful of you to bring down the standard of the school
Test 4	<ol style="list-style-type: none"> 1. Great deal of effort and interest shown 2. Showed intelligence in the way questions were answered 3. Try to break some records 	<ol style="list-style-type: none"> 1. Answers were not clear 2. Untidy – didn't follow instructions given 3. Marks deteriorated – bring down the school standard 4. Disgraceful lot – try hard to improve your marks or you will fail
Test 5	<ol style="list-style-type: none"> 1. Fantastic performance – have proved yourselves to be the 'cream' of the school 2. Keep up the excellent work shown 3. I'm very proud of you 4. You will go far in your quest for good results 	<ol style="list-style-type: none"> 1. Results poor as before 2. Doubt if you can pass your final exam 3. Don't be lazy 4. Don't make silly mistakes 5. Final chance for you to prove that you are not that hopeless

Table 4c Scores attained by the 4 groups in the 5 tests

Group	Test 1	Test 2	Test 3	Test 4	Test 5	Mean
Praised	60.5	63.8	66.5	64.8	68.3	64.8
Reprovved	60.5	60.0	64.3	61.0	58.8	60.9
Ignored	60.5	60.0	56.5	53.5	51.0	56.4
Control	60.5	56.5	52.8	47.0	48.0	53.0

Students from the 4 groups sat for 5 objective History tests, each of which was administered once every two days. Each test consisted of 26 multiple choice items, marked out of 100. Praise and reproof were based on a previous test and given before the beginning of the next test. The results are shown in Table 4c.

The ignored and control groups showed

steady regression in their performance over the 5 tests. The reproofed group demonstrated the least change as the test scores of subsequent tests varied very little from Test 1. The praised group showed steady progress and attained an average of 68.3 marks in Test 5. The results supported Hurlock's findings.

Table 4d Average scores obtained by high achievers working under different conditions

Group	Test 1	Test 2	Test 3	Test 4	Test 5	Mean
Praised	85.7	80.0	76.4	72.9	70.7	75.0
Reproved	83.6	70.7	75.0	80.7	86.4	78.2
Ignored	83.6	77.1	70.7	68.6	66.4	70.7
Control	83.6	75.7	69.3	60.7	62.9	67.2

Table 4e Average scores obtained by average achievers working under different conditions

Group	Test 1	Test 2	Test 3	Test 4	Test 5	Mean
Praised	59.2	60.0	64.2	60.8	67.5	62.3
Reproved	58.3	61.7	67.5	60.8	54.2	60.5
Ignored	57.5	63.3	60.0	55.8	51.7	57.7
Control	59.2	56.7	55.0	50.0	49.2	54.0

Table 4f Average scores obtained by low achievers working under different conditions

Group	Test 1	Test 2	Test 3	Test 4	Test 5	Mean
Praised	36.4	50.7	58.6	60.0	66.4	54.4
Reproved	39.3	47.9	50.7	41.4	32.9	42.4
Ignored	40.0	41.4	39.3	36.4	35.0	38.4
Control	38.6	37.1	34.3	30.7	32.1	34.6

Table 4f shows that low achievers responded best to praise and showed accelerated improvement. The average group (Table 4e) showed improvement too when praise was administered but the gain made was by no means comparable to the low achievers. The praised high achievers regressed from 85.7 marks in Test 1 to 70.7 marks in Test 5 (Table 4d). On the other hand, the high achievers fell badly in Test 2 after having been reproofed but responded to the treatment and picked up in subsequent tests. The average achievers also responded to reproofs but continuous criticism appeared to undermine their enthusiasm and confidence. There was a sharp drop in their scores in Test 5. Like their average counterparts,

reproofs were less effective with the low achievers. Being ignored and total lack of stimulation appeared to have negative effects on all 3 categories of achievers.

Praise and reproof have motivating effects on students of different abilities. However, continuous application of reproofs seems to have a debilitating effect on the average and low achievers. Students with low confidence and poor self-concept respond better to positive and encouraging comments. Reproof has a facilitating effect on the better students.

One of the weak spots of the study is the arbitrary criterion used in classifying the 3 classes of achievers – high, average and low. Low achieve-

ment covered a wide range from 0 to 49 marks and the high achievers spanned the 70 to 100 marks range. The average achievers were those who scored between 50 and 69 marks. The narrow range allowed for the average group contrasts sharply with the wider range of grades used for the other two groups. This arrangement would have its effects on the results of the 3 achievement groups.

Some of the words of praise used were exaggerated and not effort or behaviour oriented, e.g. "Fantastic performance – have proved yourselves to be the 'cream' of the school." On the other hand, some reproofs could be harmful for the self-concept and confidence of the students involved, e.g. "Doubt if you can pass your final exams." "Final chance for you to prove that you are not that hopeless." The harsh comments made for weak students who are not able to better themselves can have unpleasant repercussions. Generally, positive and realistic comments are preferred to derisive reproofs as incentives, as these help to strengthen the confidence of students and their relationship with their teachers. Students usually view encouraging remarks as signs of interest and helpfulness.

No tests of significance were carried out on the results to determine whether the differences among the groups were significant.

Competition and Cooperation

Interaction among students can be classified into 3 goal structures, each of which specifies the type of interdependence existing among students (Johnson and Johnson, 1975):

1. cooperative or positive interdependence in which students work together to accomplish shared goals,
2. competitive or negative interdependence in which students work against each other to

achieve a goal which only one or a few students may attain,

3. individualistic or no interdependence in which students work by themselves to accomplish goals that are unrelated to the goals of others.

In schools, all 3 types of interaction have been used in varying degrees to promote learning in different situations. Many studies have been conducted to investigate the effects of cooperation and competition on students' learning. Studies of self-rivalry, however, have been relatively scarce. These studies yield results which are in some cases conflicting. Even where overall results tend to favour a certain conclusion, it is dangerous to make a generalization from a particular study and apply it to any classroom situation.

Wong (1978) attempted to use rivalry as a form of extrinsic motivation to promote learning in Human and Social Biology. All 3 forms of rivalry, namely, interpersonal competition, intergroup competition (intragroup cooperation) and self-rivalry, were introduced to determine their effects on achievement. The students were Secondary 3 girls whose ages ranged from 14 to 16 years. They were drawn from 3 Arts classes – Sec. 3(3), Sec. 3(5) and Sec. 3(6). Sec. 3(3) had 43 students and was the top Arts class. There were 42 students in Sec. 3(5) and 37 students in Sec. 3(6). The students in Sec. 3(5) and Sec. 3(6) were heterogeneous in ability.

Six weekly tests of 15 objective questions each were given to all the 3 classes. The maximum marks for each test were 30. For the first 3 tests, all 3 classes were subjected to the same conditions, that is, no motivation was given. These tests would serve as the control. After the third test, each class was subjected to a different form of rivalry. The design for the experiment is described briefly in Table 6a.

Table 6a Experimental treatments for the 3 classes

Class	Treatment	Grouping	Incentive
Sec. 3(3)	Interpersonal competition	Nil	Top ten girls for the last 3 tests were awarded prizes.
Sec. 3(5)	Intergroup competition	4 groups of comparable ability	Members of the group with the highest average marks for the last 3 tests were given prizes.
Sec. 3(6)	Self-rivalry	Nil	Students who showed the most improvement in the last 3 tests were awarded prizes.

At the end of the experiment, the students were also given a questionnaire in which they were told to choose which of the 3 types of competition they would prefer in class.

Grouping in Sec. 3(5) was based on the results of the first 3 control tests. The students were ranked according to their average marks for the 3 tests. The top was placed in Group A, No 2 in

Group B and so on. Similarly the last student was placed in Group A and the second last in Group B until all students were placed in groups.

Results

T-tests for paired data were conducted to see if there were significant differences in the test results before and after treatment.

Table 6b Analysis of variance for the pretreatment scores of the 4 groups in intergroup competition

Source of variation	degree of freedom (df)	sum of squares	variance estimate	F	p
Total	41	439.08	1	0.11	ns
Between Groups	3	3.73	1.24		
Within Groups	38	435.35	11.46		

where df = 3, 38

F₅% = 8.59

F₁% = 26.41

Sec 3(3) – Interpersonal Competition

Table 6c Mean test scores of Sec. 3(3)

Test	Tests before treatment				Tests with treatment				difference in mean scores before and after treatment
	T1	T2	T3	Mean	T4	T5	T6	Mean	
Test score	16.7	16.9	18.9	17.2	20.0	24.0	25.0	23.0	5.8

Table 6d t-test on the mean test scores before and after interpersonal competition

Treatment	df	mean difference	t	p
Interpersonal competition	42	5.8	5.36	<.01

Table 6c indicates a gradual improvement in the control test scores. Improvement was accelerated after introduction of interpersonal rivalry. There was a sharp increase from an average of 20 marks for T4 to 24 marks in T5. The mean score of 23 for the tests with interpersonal rivalry

compared favourably with the mean score of 17.2 for the pretreatment tests. The difference of 5.8 was found to be significant at the 1 per cent probability level. Hence, significant improvement in academic results was evident when interpersonal competition was introduced as an incentive.

Sec 3(5) – Intergroup Competition

Table 6e Mean Test scores of Sec. 3(5)

Test	Tests before treatment					Tests after treatment				differences in mean scores before and after treatment
	Group	T1	T2	T3	Mean	T4	T5	T6	Mean	
Test score	A	9.8	17.3	15.6	14.2	16.2	18.9	19.3	18.1	3.9
	B	12.0	13.8	12.2	12.7	15.6	18.0	16.7	16.8	4.1
	C	13.8	14.9	14.0	14.2	13.2	16.9	21.0	17.0	2.8
	D	13.4	13.7	15.6	14.2	16.0	20.8	19.4	18.7	4.5
	Class	12.3	14.9	14.4	13.8	15.3	18.7	19.1	17.7	3.9

Table 6f t-test on the mean test scores before and after intergroup competition

Group/Class	df	mean difference	t	p
Group A	9	3.9	1.41	>.05
Group B	9	4.1	2.57	<.05
Group C	10	2.8	1.10	>.05
Group D	10	4.5	2.61	<.05
Class	41	3.9	4.48	<.01

Sec 3(6) – Self-Rivalry

Table 6g Mean test scores of Sec. 3(6)

Test	Tests before treatment				Tests after treatment				differences in mean scores before and after treatment
	T1	T2	T3	Mean	T4	T5	T6	Mean	
Test score	11.6	15.4	15.5	14.2	17.3	19.9	20.2	19.1	4.9

Table 6h t-test on the mean test scores before and after self-rivalry

Treatment	df	Mean difference	t	p
self-rivalry	36	4.9	4.71	<.01

All of the 4 groups showed improvement in their test performance after the implementation of intergroup competition. But only the difference in scores for Group B and Group D was statistically significant. The class taken as a whole made significant improvement in the tests during the treatment period. This shows that intergroup competition is an effective classroom motivation technique.

Under the condition of self-rivalry, there

was an obvious improvement shown in the performance. T1 registered a low mark of 11.6 while T6 gave a comfortable score of 20.2 marks. The difference between the tests taken before and after the implementation of self-rivalry was statistically significant at the 1 per cent probability level. Therefore, when students were motivated to compete against themselves, the test scores improved significantly.

Preference for Goal Structure

Table 6i – Preference for the various goal structures for each class

Goal structure preferred	Sec. 3(3) (working under interpersonal competition)		Sec. 3(5) (working under intergroup competition)		Sec. 3(6) (working under self-rivalry)	
	No	%	No	%	No	%
Intergroup Competition	10	23.3	23	54.8	22	59.5
Inter-personal Competition	22	51.2	6	14.3	2	5.4
Self-rivalry	11	25.5	13	30.9	13	35.1

Certain outstanding features can be observed in Table 6i. In Sec. 3(3) (working under interpersonal competition) the majority (51.2 per cent) preferred interpersonal competition. The situation was strikingly different in Sec. 3(5) (working under intergroup competition) and Sec. 3(6) (working under self-rivalry). In these 2 classes, intergroup competition was the favoured goal structure. 54.8 per cent of Sec. 3(5) students and 59.5 per cent of Sec. 3(6) students indicated a preference for intergroup competition. Interpersonal competition was the least popular form of competition for both these classes.

An analysis is made of the preference of goal structures by students of different abilities. The students were divided into 3 categories – Low Achievers (LAs), Average Achievers (AAs) and High Achievers (HAs). The classification was based on the school's system of grading, presented in Table 6j.

For a clearer analysis of the contrast in the preference of goal structures by the students of different abilities, only the LAs and HAs in each class were considered.

Sec. 3(3) was an academically better class and had very few LAs (only 2). Both LAs in Sec. 3(3) preferred intergroup competition (refer to Table 6k). Similarly 64.7 per cent and 46.2 per cent of the LAs in Sec. 3(5) and Sec. 3(6) respectively favoured intergroup competition. 29.4 per cent of the LAs in Sec. 3(5) and 53.8 per cent of the LAs in Sec. 3(6) opted for self-rivalry. Only 1 LA (5.9 per cent) from Sec. 3(5) deviated from the norm and chose interpersonal competition. Taking the 3 classes together, it can be perceived that intergroup competition was most popular with the LAs (59.4 per cent), followed by self-rivalry (37.5 per cent).

Interpersonal competition was chosen by 57.2 per cent and 50 per cent of the HAs in Sec. 3(3) and Sec. 3(5) respectively. HAs in Sec. 3(6) were exceptional and preferred intergroup competition (58.4 per cent). Taking the 3 classes as a whole, HAs appeared to favour the more challenging form of competition – interpersonal competition (45.4 per cent). The other two goal structures attracted an equal number of supporters (27.3 per cent).

Table 6j Grading of Results

Marks	Grade	Category
75+	A1	HAs
70 – 74	A2	
65 – 69	B3	
60 – 64	B4	
55 – 59	C5	AAs
50 – 54	C6	
45 – 49	D7	LAs
40 – 44	E8	
39 and below	F9	

Table 6k Preference for the various goal structures among LAs and HAs

Category of Achievement	Goal Structure	Sec. 3(3) (working under interpersonal competition)		Sec. 3(5) (working under intergroup competition)		Sec. 3(6) (working under self-rivalry)		Total No of LAs in 3 classes	% of LAs in 3 classes
		No	%	No	%	No	%		
LAs	intergroup competition	2	100	11	64.7	6	46.2	19	59.4
	interpersonal competition	0	0	1	5.9	0	0	1	3.1
	self-rivalry	0	0	5	29.4	7	53.8	12	37.5
	Total	2	100	17	100.0	13	100.0	32	100.0
		No	%	No	%	No	%	Total No of HAs in 3 classes	% of HAs in 3 classes
HAs	intergroup competition	6	17.1	2	25.0	7	58.4	15	27.3
	interpersonal competition	20	57.2	4	50.0	1	8.3	25	45.4
	self-rivalry	9	25.7	2	25.0	4	33.3	15	27.3
	Total	35	100.0	8	100.0	12	100.0	55	100.0

In this project, each goal structure was investigated on its own. Conclusions can only be made on the effects of the goal structure on a particular class. No reasonable comparison can be made between the effects of different treatments because the 3 classes were not absolutely comparable in academic ability. Nevertheless, the 3 forms of rivalry appear to have motivating effects on the students concerned, leading to improved achievement. HAs showed a preference for interpersonal rivalry while LAs settled for group rivalry and self-rivalry, which are less anxiety arousing and threatening.

Conclusion

The studies cited above give concrete though limited evidence that Singapore students of different abilities can learn and improve under the patient guidance of caring teachers who persevere in enhancing the interest and motivation of their students.

Many factors govern a student's achievement in school and intelligence is only one of these variables. Motivation, teacher-pupil interaction, satisfaction of personality needs and positive concepts of abilities are non-intellectual variables

which are considered by educationists nowadays to have considerable influence on productive learning. It is heartening to note that low achievers, who usually are not expected by their teachers to perform well, respond eagerly to incentives and show accelerated improvement. Weak students lack confidence and work better under a non-threatening social climate. This is evinced by their unequivocal preference for group rivalry and self-rivalry (Wong, 1978).

Positive incentives in the form of praise and favourable written comments work extremely well with students of different abilities (Koh, 1977; Tay, 1977). Adolescents are solicitous of the esteem of others and their needs are met by the attainment of approval.

Tests and grades are treated as accepted features of the classroom by many teachers, not realizing that the careful manipulation of these factors can stimulate uninterested students to become energetic learners (David, 1978; Foong, 1977).

The methods used by the above experimenters are by no means exhaustive and their results may not be applicable to all Singapore students. None the less, these studies can stimulate and interest other researchers. The persevering

effort of the teachers and the keen interest of students are crucial ingredients in attempting to accomplish classroom success. ☞

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Whither the Fine Arts? ¹

Introduction

Many people have a very fixed concept of what art should be. They would like to see a highly realistic art form retained for all time. They would prefer a retention or revival of an academic art form that dates back to pre-Impressionism. For these people any change away from realism is anathema. In all other things, cars, furniture, interior decor, fashion, electronic goods, etc., they would demand the latest in design, but not for the fine arts. Will this nostalgia for realism be perpetuated and carried into the year 2000? In it lies the answer to the direction the fine arts will take. Singaporeans are hard-headed pragmatists who swear by graphs and charts. It would therefore be reasonable to assume that the form and contents of the fine arts would reflect this down-to-earth outlook. Art for art's sake could only be an artistic dream. The visionary would remain a stranger in the Singapore art world.

Painting has been the dominating art activity in the past just as it is today and will continue to be so in the foreseeable future. My discussion will therefore be concentrated around this area with mention of the other art forms as and when there is occasion to call attention to them. On a non-participatory level, and for purpose of investment, ceramics, especially Chinese pottery and porcelain, may outstrip painting as the favourite item for collectors. Sculpture, despite a crying need for this to enhance our public buildings and parks, is still very much neglected although I can see a bright future for it. Commercial graphics have made tremendous advancement since the days of slick cinema posters. It has now permeated every facet of the commercial and advertising world. Packaging design has become a way of life as manufacturers fight for survival to come up with attractive wrappings to lure consumers to buy their goods. Prints are actively promoted though printmaking is hardly practised.

Early Beginnings

The future starts with the present, and one cannot talk about the present without bringing up the past. So before we can begin to speculate on what the future portends for the fine arts, we need to take stock of what has happened in the past and what is happening now, and to deduce from this the shape of things to come.

The art history of Singapore is of recent origin. In the absence of records, I would place the awakening of interest in the fine arts at around 1935, the year the Society of Chinese Artists was founded. Except for the war years, 1942–45, this Society has been active ever since. In 1938, the Nanyang Academy of Fine Arts was started by Lim Hak Tai. It was, and still is, the only art school in Singapore that provides a foundation for the practice of the fine arts. Most of our painters today have, at one time or another, been associated with the School, either as a teacher or a student. During these early years scattered interest in the fine arts was maintained by occasional exhibitions at the Chinese Chamber of Commerce or the Victoria Memorial Hall. The highlight of the pre-war years was the big retrospective exhibition of Xu Bei-Hong, the very well known Chinese painter of horses. The postwar years were memorable for the water colours of the Penang artist, Yong Mun Sen. I mention these to show that even at this early stage, there was an appetite for the fine arts especially amongst the Chinese-speaking community. Other ethnic-based art societies like the Malay Art Society and the Indian Fine Arts Society were also active promoting their own culture. The organization of exhibitions by artists

¹This article was adapted from a paper presented at a seminar on "Singapore toward the Year 2000" on December 21 1979 at the Singapore Science Centre.

from Hong Kong and China was mainly undertaken by the Society of Chinese Artists and sponsored by Chinese businessmen. Government support was non-existent.

In 1949, Dr Gibson-Hill, who was then in charge of the Raffles Museum and Library, met with Richard Walker, the Superintendent of Art for Singapore schools, and a few others to form the Singapore Art Society. The aim was to encourage and foster the practice and appreciation of the arts in Singapore. Founder members also included representatives from the various ethnic-based cultural bodies. Membership of the Society was open to all regardless of race or creed. This multi-racial art society was soon looked upon as representing the interests of the Singapore and Malayan artists. There was free intermingling of artists in the two countries, and Frank Sullivan was their unofficial spokesman. The Singapore Art Society was truly performing the duties presently taken over by the National Museum Art Gallery.

In the schools a start at organized art training was begun as early as 1923 with the appointment of Richard Walker as the art master for government English schools. He was in sole charge of the art programmes for all schools until his retirement around 1950. His dedicated service to art has inspired many of his students to take up the subject as a life-long study or hobby. The Chinese schools were well looked after where art was concerned by a group of professional artists which included Liu Kang, Chen Wen Hsi, Cheong Soo Pieng and Chen Chong Swee. The same group was responsible for the art training at the Nanyang Academy of Fine Arts. Cheong Soo Pieng in particular was the idol of many art students. His style of painting was closely followed and imitated by young aspiring artists on both sides of the Causeway. In 1968, the Baharuddin Vocational Institute was started to provide training in the Applied Arts.

At the tertiary level, the University of Malaya Art Museum was established in 1955. This was meant to be a teaching museum for students taking courses on the history of art. The Museum Collection provided the students with "an opportunity for direct contact with original works of art and to form the nucleus of a centre for the study of art and archaeology of Southeast Asia".¹ The University of Malaya ceased to function in the Bukit Timah campus in 1962. The Museum Collection was accordingly divided equally between the University of Singapore and the University of Malaya. Lack of student enrolment for the history of art course at the University of Singapore

forced it to close in 1973. The Singapore share of the Museum Collection was transferred to the National Museum.

Art in the 70s

There were stepped-up art activities in the early 70s. The Ministry of Culture took the lead in organizing exhibitions not for the favoured few but for the masses. Its "Art For Everyone" series went the rounds of the community centres to give exposure to those who would not normally visit art exhibitions. It was hoped that this would generate enough interest for them to want to take up art as a worthwhile hobby. The exhibitions were primarily aimed at youngsters to help keep them off the streets and their minds off drugs. It was a praiseworthy effort that had the backing of the various art societies. The Ministry further consolidated its efforts to bring art to the people by presenting annually its National Day Art Exhibitions. The more experienced and knowledgeable members of the artist community may find this somewhat trite, but there is no denying that the exhibitions did serve the purpose for which they were intended – to provide for an art form that could be appreciated by the uninitiated. It was the base that needed building up. The more aesthetically inclined could find their own way to strengthen areas of weaknesses as they could motivate themselves. Admittedly they were equally deserving of government support and sponsorship, but those who had less were more deserving of whatever limited funds there were then available. So it was that much criticism was levelled at governmental quarters for their lethargy and lack of support of the fine arts.

Left to their own devices our artists showed initiative in promoting what they really believed in. Youthful impatience with accepted art concepts combined with enthusiasm for what was new resulted in the formation of the Modern Art Society in 1964. The Society believed in a revolutionary approach to painting as expounded by the Western Abstract and Action painters. Not for them the photographic realism of the camera, the picturesque postcard views of the Singapore River, nor idyllic kampong scenes. The members were for an art of the spirit, of spontaneous reaction to felt phenomena expressed in terms of the materials

¹National Museum Art Gallery Official Opening Catalogue.

that one is using. Whatever may be its shortcomings, the Modern Art Society had the conviction of its belief behind it. Annually its members presented that which they believed to be the significant art forms for a modern society. The fact that these were not usually accepted did not deter them. Just as the Modern Art Society was throwing overboard accepted art values, the Singapore Water Colour Society was committed to a back to Nature call. Started in 1970, the Society's aim was to stop the swing to abstraction and non-figurative work, and to uphold the traditional time tested approach. Its members believed that water colour was the most suitable medium for the Eastern artist because of its affinity with Chinese brush painting. To its credit, the Singapore Water Colour Society has produced some very skilful water colourists today.

The Alpha Gallery is a well-run private art gallery that promotes the works of established masters, both local and foreign, as well as the young avant garde. It held its Inaugural Exhibition in October 1971. It is a gallery managed by artists for artists. Exhibitions are but a part of its activities. It has a core of its own regular exhibiting artists who share a common studio a few doors away, and who are prepared to meet any one wishing to discuss art. The Alpha group holds regular talk-in sessions with visiting artists. Its list of past shows reads like a Who's Who in the Singapore art world. Its policy is to promote whatever is worth promoting. An example is the work of the primitive painters of Bali.

The highlight of the 70s was the opening of the long awaited National Museum Art Gallery in August 1976. This ushered in a new era. The fine arts were finally given their proper status and accorded the respectability which was long their due. Exhibitions increased in frequency and variety. Besides paintings, there were exhibitions of French, Australian and local photography, ceramics and sculpture of America, art and crafts from the Democratic People's Republic of Korea, and graphic art shows from Holland, Finland, Switzerland and Germany. This cosmopolitan outlook on the visual arts continues to be a feature of current art shows at the Museum Art Gallery.

Of great importance towards shaping the accepted role of the National Museum Art Gallery as "a vital centre for the enjoyment and understanding of the art of the region"¹ was the work of the Museum Education Services. This unit was, and still is, responsible for a hive of activities that catered to the very young right through to the school leavers. Its Young People's Gallery shared

equal responsibility with its adult counterpart in developing the aesthetic sensibilities of young minds towards an appreciation of the arts.

Toward the Year 2000

As can be seen from what has been discussed, the build-up over the years had been very slow. Singapore, as it moves toward the year 2000, will not see any dramatic changes in the fine arts. The slow tempo started in the early years will be maintained and accelerated. However, there will be none of the rapid and spectacular changes that are daily transforming the city into the dynamic metropolis of the 21st century. Despite all that has happened since 1935, the fine arts in Singapore are just getting off the ground. The 70s was a period of consolidation. The establishment of the National Museum Art Gallery marked the beginning of a new era. The making of the Singaporean as a man of culture has begun.

With the modest start achieved since its formation, the National Museum Art Gallery should have no difficulty in building on this foundation. The Gallery stands as an affirmation of the faith that the government places in the fine arts. This is reassuring to local artists who have for years lamented the lack of interest of those in authority. They can now concentrate on their creative activities without having to worry too much about getting a place to show their work. There is also the incentive for them to work much harder to improve in order to qualify for the privilege to show in such a prestigious place. It would not be amiss therefore to expect much more high quality work in the near future than what is available today. A greater variety of styles and media could also be in the offering if the Museum Gallery could live up to its role as a catalyst for the fine arts.

Presently in its permanent collection, the Museum Gallery has 115 paintings donated by the late Dato Loke Wan Tho, 45 oil portraits of former Governors of Singapore and other historical personalities, 29 paintings and 4 sculptures by Singapore, Malaysian, Indonesian and other artists, and about 80 Chinese paintings. A very modest beginning indeed! It is on an urgent basis that the Gallery will have to build up its permanent collection. Its programme to promote and disseminate knowledge on the work of promising and talented artists in the region will come to nought

¹National Museum Art Gallery Official Opening Catalogue.

if the pictures are not forthcoming. There is an acquisition vote but this is far from adequate especially when prices of art work have escalated so rapidly in the last few years. Like museums everywhere there will have to be dependence on donations and bequests to expand the collection. In the Singapore situation this may not work so well because collectors of pictures are rare. We do have collectors of Chinese paintings and artefacts, but we lack the big timers like the Guggenheims, the Rockefellers, or Amro Bank of Amsterdam. How then can we add on to what we have? Appealing to artists for donations is the present practice. Understandably there is a limit to what one can get from this. The artist who has given once will not be too ready to part with his work a second time even though it may be a great honour to be asked again. The artists rightly expect the Museum Gallery to give its support by buying their work. The Museum with its very limited vote can do that much and no more. It is the big corporations and industrialists who can channel some of their profits towards the acquisition of art work. The government can encourage this practice by granting tax exemptions on art gifts to the Museum Gallery just as it gave tax concessions to companies that set up pioneer industries in Jurong some years back.

With the increase in wealth and leisure the buying public for art work will be proportionately increased. The Museum and private art galleries can help generate interest in private ownership of works of art by co-operating with artists to offer picture loan services whereby pictures/art objects are rented out for a fee. If the borrower likes a picture so much that he wants to keep it, he can pay the difference in the paid-up loan fees and the actual price of the painting to gain outright possession. This practice is known to be successful in the United States and is worth a try here. Given proper guidance and encouragement this can well be the trend in art collecting in the decades ahead.

But before this can come about, there must be back-ups to guide the viewers in art appreciation. Research programmes must be instituted. The Museum Gallery is presently busy documenting its collection and preparing information sheets on local artists and their work. The press is bravely struggling to provide some form of art criticism and is devoting more and more space to the fine arts when before there was hardly any. Radio and T.V. are giving good coverage to art programmes. The artistic climate has never been so conducive to growth as it is today. If this can be properly

nurtured and maintained, the future for the fine arts is assured. Before the year 2000 the revamped Nanyang Academy of Fine Arts should attain the status of a national art school, and there would be a need to revive the faculty of fine arts in the University of Singapore.

Public interest in the fine arts has picked up considerably but the same cannot be said of the schools. This is in contradiction to the fine showing of our school children in overseas exhibitions and competitions, and the enthusiastic attendance at Singapore Youth Festival Exhibitions. The talented few nurtured by enthusiastic art teachers do not give a true picture of what is actually happening in the schools' art programme. Far too many schools treat the subject as peripheral and look upon it with benign disinterest. The pressure from other more "important" subjects also helps to push it further away from the core of compulsory subjects needed for the all-round development of the child. The new education system does provide the underachievers in academic subjects with opportunities to pursue an art course at the Baharuddin Vocational Institute if they are so inclined. The high flyers can only have a nodding acquaintance with the subject no matter how passionately they may feel about it. Thus the task of the art educator in the next decade or so will be to seek out ways and means to correlate art with the other subjects on the curriculum. Art on its own will not have the relevance that it would have for the schools if it were to be related with the sciences, literature or the technical subjects. Integration will enhance its usefulness as a school subject. I believe principals will be more ready to allot it the time it deserves if they can see its supportive role and its link with the other subjects on the curriculum. This attempt at marrying the fine arts with the sciences and the humanities should occupy the attention of art teachers in the years ahead. It has to be this way to stop the practice that has started with some schools doing away with the subject at upper secondary level and cutting down on art time for the lower secondary classes.

The practising Singapore artist may not need to consider the utility aspect of art but he certainly has to be more alive to his environment. His art forms should belong more to this age than what was in vogue a century ago. Harping back to a nostalgic past and delving into one's own culture for inspiration is both inevitable and highly desirable. However, in the context of the present and the future, this would be more appropriate if he could translate his feelings and

observations in terms of modern advancement made in science and technology. There is a whole new world of modern equipment and materials to be explored. Each of these is capable of imagery hitherto unattainable with the conventional paint and brush method. Our artists, if they claim to be sensitive individuals, which they are, should be adventurous enough to take up the challenge. Already there are signs that a few of the younger set are beginning to make tentative probes with plastic, acrylic paints, cement fondu, metaform and other mixed media. This spirit of enquiry is what is needed to revitalise the fine arts. More, I predict, will follow in their footsteps. When concentration on subject matter is thoroughly fused with the inner conflict of the mind and the media and tools of self-expression, then can we say that we have arrived in the modern age, artistically speaking so to say. Retention of old values and concepts in art may have sentimental associations for many, but it will retard growth in creative thinking. A dynamic nation needs a dynamic art form that reflects its aspirations. Hanging on to past achievements is not that preferred art form.

All along the government has adopted an open door policy where the fine arts are concerned. There is no restriction as to what an artist can or cannot paint. Although a Singapore identity has been encouraged from time to time, there is no attempt to lay down rules. It has been acknow-

ledged that it will take time to establish a distinct Singapore identity. Any attempt to push this will only result in superficiality of artistic expression. Given time and a conducive atmosphere, and the freedom to be themselves, our artists will come up with a style that will be distinctly Singaporean. Right now, and into the next decade or so, is the period of gestation. In twenty years' time it is possible that characteristics attributable to a Singapore identity may be traced in the work of our artists.

Singapore has kept abreast with the latest in scientific and technological know-how. In the field of commerce and high finance, the most sophisticated of modern equipment and techniques are used in conducting business. As a modern state it has all the trappings that make it tick. It is forward looking in all fields except in the fine arts where ideas generated half a century ago are still very much the norm by which painting is being judged. With constant exposure to more modern art forms, a change in attitude will come sooner or later. By the year 2000, the 50-year gap in viewing habit should be considerably reduced.

This has not been a rosy picture. Neither has it been discouraging. If expectations as spelt out can in any way help to resolve some of the problems, this crystal ball gazing would have been worth the effort. ¶

Tinggikan Taraf Pelajaran Bahasa Melayu Sebagai Bahasa Kedua

Sejak beberapa tahun kebelakangan ini, kita di Singapura telah menyedari bahawa kelas-kelas aliran Melayu di sini telah merosot setahun demi setahun. Yang masih ada kini, bukan sahaja amat sedikit bilangannya malahan kebanyakan kelas-kelas tersebut tidak mempunyai murid-murid yang mencukupi. Satu hakikat yang tidak dapat dinafikan lagi ialah bahawa sekolah aliran Melayu di Republik kita ini akan lenyap dalam masa empat atau lima tahun lagi.

Mengapakah keadaan ini boleh berlaku? Faktor utama ialah kerana ibu bapa Melayu (seperti juga kebanyakan ibu bapa Tionghoa dan India) lebih suka menyekolahkan anak-anak mereka di sekolah Inggeris. Mereka berbuat demikian dengan mata yang terbuka luas terhadap kenyataan sosioekonomi yang terdapat di negara kita. Dalam konteks Singapura dahulu dan juga hari ini mereka yang lulus sekolah Inggeris mempunyai peluang yang lebih cerah untuk memperbaiki taraf sosial dan ekonomi mereka sedangkan mereka yang hanya lulus sekolah Melayu kurang mempunyai peluang yang seperti ini. Dari itu tidak hairanlah mengapa ibu bapa Melayu memilih persekolahan melalui bahasa Inggeris untuk anak-anak mereka dan bukan sekolah aliran Melayu. Tambahan pula mereka sedar dengan adanya dasar pelajaran dwibahasa, anak-anak mereka masih lagi dapat menerima pelajaran Bahasa Melayu meskipun mereka bersekolah Inggeris.

Pada masa ini majoriti anak-anak Melayu yang masih di bangku sekolah belajar di aliran Inggeris. Mereka mempelajari bahasa Melayu sebagai bahasa kedua oleh kerana bahasa pertama yang mereka pelajari ialah bahasa Inggeris. Dengan lenyapnya sekolah aliran Melayu bererti lenyaplah pengajaran bahasa Melayu sebagai bahasa pertama di Singapura.

Sudah umum diketahui bahawa sukatan pelajaran bahasa kedua tidaklah sama darjahnya seperti sukatan pelajaran bahasa pertama. Ini ialah disebabkan matalamat pencapaian bahasa kedua jauh lebih rendah daripada matalamat pencapaian

bahasa pertama. Pelajaran sastera juga tidak disertakan dalam pelajaran bahasa kedua. Masa menggunakan bahasa kedua di sekolah juga terbatas. Akibatnya ialah kita dapati penguasaan dan penggunaan bahasa Melayu standard di kalangan pelajar-pelajar Melayu di aliran Inggeris kurang memuaskan. Kelihatan bahawa perbendaharaan kata mereka tidak luas dan tepat, kalimat-kalimat kurang kemas dan baik dan gaya bahasanya pula terbawa-bawa kepada gaya bahasa pertamanya iaitu bahasa Inggeris.

Mempelajari bahasa Melayu sebagai bahasa kedua oleh pelajar-pelajar bukan Melayu memanglah wajar. Tetapi jika ini dilakukan oleh pelajar-pelajar Melayu iaitu penutur peribumi mempelajari bahasa ibundanya sendiri sebagai bahasa kedua adalah satu situasi yang paradoks. Penutur peribumi mempunyai kebolehan dan potensi untuk mempelajari bahasa Melayu pada darjah yang lebih tinggi daripada apa yang mereka terima sekarang.

Andainya pelajar-pelajar Melayu terus menerus disajikan dengan pengajaran bahasa Melayu dalam bentuk yang ada sekarang ini, saya percaya bahawa masyarakat Melayu akan datang di Singapura, akan mengalami kemerosotan dari segi penguasaan dan penggunaan bahasa Melayu standard; bukan saja dari sudut penulisan tetapi juga dari sudut pertuturan.

Anggapan bahawa mereka yang dilahirkan sebagai orang Melayu dengan sendirinya dapat menggunakan bahasa Melayu yang baik adalah tidak benar. Penguasaan bahasa Melayu standard hanya dapat dicapai dengan dipelajari secara sistamatis. Tidaklah dapat kita nafikan bahawa tempat yang baik sekali untuk mempelajari bahasa Melayu standard ialah di sekolah. Tetapi malangnya sebagaimana telah disebutkan di atas tadi pengajaran bahasa Melayu sebagai bahasa kedua kepada pelajar-pelajar Melayu di aliran Inggeris tidak dapat memenuhi fungsi untuk melahirkan pelajar-pelajar Melayu yang berkemampuan menguasai dan menggunakan bahasa Melayu standard.

Siapakah yang harus dipersalahkan? Pelajar-

pelajar Melayu itu sendiri ataukah guru-guru yang mengajar mereka? Pada pendapat saya keduanya tidak dapat dipersalahkan dalam hal ini. Saya mengatakan demikian kerana pelajar-pelajar Melayu yang mengambil bahasa Melayu sebagai bahasa kedua kebanyakannya lulus dengan cemerlang dalam matapelajaran ini. Perangkaan keputusan peperiksaan menunjukkan antara keempat-empat bahasa yang diambil sebagai bahasa kedua bahasa Melayulah yang mempunyai peratus kelulusan yang tertinggi. Kejayaan pelajar-pelajar tersebut adalah juga hasil daripada pengajaran yang berkesan oleh guru-guru yang baik. Maka dapatlah kita membuat kesimpulan bahawa taraf pencapaian bahasa Melayu sebagai bahasa kedua itu terlalu mudah dan rendah untuk pelajar-pelajar Melayu. Sukatan pelajaran bahasa Melayu sebagai bahasa kedua yang ada sekarang hanya dapat mencapai matalamat peperiksaan tetapi tidak dapat menjamin pelajar-pelajar Melayu dapat menguasai dan menggunakan bahasanya dengan baik.

Jadi dalam keadaan sedemikian, tentulah tidak wajar kita membiarkan pengajaran bahasa Melayu sebagai bahasa kedua kepada pelajar-pelajar Melayu dalam bentuk yang ada sekarang ini berterusan. Langkah-langkah yang berkesan haruslah diambil supaya pengajaran bahasa Melayu kepada pelajar-pelajar Melayu di aliran Inggeris dapat melahirkan penutur-penutur peribumi yang benar-benar dapat menguasai dan menggunakan bahasa ibundanya dengan baik. Persoalan samaada pelajar-pelajar Melayu di aliran Inggeris diharuskan mempelajari bahasa Melayu sebagai bahasa pertama atau bahasa kedua tidaklah begitu penting. Yang patut dipertingkatkan ialah sukatan pelajaran bahasa Melayu sebagai bahasa kedua yang ada sekarang ini perlu dibaiki dan dipertinggi supaya setaraf dengan sukatan pelajaran bahasa Melayu sebagai bahasa pertama. Pelajaran sastera juga patut dimasukkan ke dalam pengajaran bahasa Melayu sebagai bahasa kedua untuk anak-anak Melayu. Guru-guru bahasa Melayu harus juga berusaha untuk memperdalam pengetahuan bahasanya, khususnya tentang tata-bahasa Melayu. Banyak lagi langkah-langkah yang akan membawa manfaat boleh dilakukan seperti mengadakan teks-teks yang lebih baik dan sesuai, mempertinggikan kaedah pengajaran dan sebagainya. Apa yang saya kemukakan adalah merupakan garis-garis kasarnya saja. Tentulah pihak-pihak yang berkenaan dapat mengadakan rancangan yang

lebih baik dan teliti jika mereka benar-benar berminat untuk menyempurnakan pengajaran bahasa Melayu standard itu.

Sebenarnya rasa tidak puas hati terhadap pengajaran bahasa Melayu sebagai bahasa kedua kepada pelajar-pelajar Melayu sudah lama disuarakan oleh beberapa pertubuhan Melayu di Singapura. Dalam tahun 1977 Kesatuan Guru-Guru Melayu Singapura telah mengemukakan usul supaya memasukkan pelajaran sastera ke dalam pengajaran Bahasa Melayu sebagai bahasa kedua.

Cikgu Muhammad Arif Ahmad, dalam kertas kerjanya yang berjudul "Mengenal Kebudayaan Melalui Sastera" untuk Seminar Kebudayaan Melayu Singapura anjuran Majlis Pusat Pertubuhan-Pertubuhan Budaya Melayu Singapura dengan kerjasama Kesatuan Guru-Guru Melayu Singapura telah menyentuh hal ini. Kata beliau "Sependapat dengan pengakuan Menteri Negara Kanan, Kementerian Pelajaran menerusi *Berita Harian* 2 Mac 1977 (saya tukil)

Adalah diakui bahawa pemindahan budaya, tradisi, nilai-nilai dan sikap adalah terbaik dilakukan menerusi bahasa ibunda itulah maka ASAS 50 menyokong KGMS yang mengemukakan usul supaya memasukkan pelajaran sastera ke dalam pengajaran bahasa ibunda (bahasa kedua di sekolah-sekolah Inggeris di sini) pada tahun lalu".

Seminar Kebudayaan Melayu Singapura yang diadakan pada 23 hingga 25 Disember 1978 telah juga menyarankan agar pelajaran sastera disertakan dalam pelajaran Bahasa Melayu sebagai bahasa kedua atau pelajar-pelajar Melayu di aliran Inggeris dibenarkan memilih matapelajaran sastera dalam bahasa ibundanya. Yang Berhormat Encik Sidek Saniff, Setiausaha Parlimen (Perhubungan dan Kebudayaan) pula baru-baru ini menyarankan agar pelajar-pelajar Melayu di aliran Inggeris mengambil bahasa Melayu sebagai bahasa pertama.

Hingga ke hari ini belum lagi kelihatan reaksi yang menggembirakan dari pihak-pihak yang berkenaan terhadap usul-usul yang telah dikemukakan. Demi memelihara kemurniaan bahasa Melayu standard itu dalam tarafnya yang semestinya, orang-orang Melayu seluruhnya eloklah memberikan pemerhatian yang serius dan mengambil langkah-langkah yang wajar untuk memperbaiki keadaan yang disebutkan tadi. ☞

Cara Mengajar Mengkaji Sastera (Cerpén)

Introduksi

Pengajaran yang baik itu antaranya ialah menetapkan matalamat atau objektif untuk tahun pengajaran dan kemudian memikirkan cara-cara bagaimana untuk mencapainya. Tidak ada satu cara pengajaran pun yang dapat dikatakan mutlak sebagai cara yang terbaik. Teknik mengajar itu adalah suatu 'art' yang mana penyampaiannya agak berbeza-beza di antara seorang guru dengan yang lain. Apa yang dibentangkan di sini ialah salah satu daripada banyak cara pengajaran di mana para pelajar dapat dipimpin, dilatih dan diasuh untuk mengkaji sastera khususnya cerpen dengan tersusun.

Objektif pengajaran sastera:

Antara beberapa objektif pengajaran sastera ialah:

- (1) Untuk mengajar para pelajar mengenali jenis-jenis sastera dan mengetahui bentuk-bentuk khusus tiap jenis sastera itu.
- (2) Untuk mengenalkan kepada para pelajar, dalam bentuk yang paling sederhana kepada minat kritik sastera.
- (3) Untuk membantu para pelajar membentuk tabii yang baik dalam pembinaan perbendaharaan kata.
- (4) Untuk meransang minat membaca selanjutnya dalam segala bentuk dan berbagai jenis sastera.

Teori pengajaran sastera:

Ada beberapa perkara yang berkaitan dengan teori pengajaran sastera iaitu:

- (1) Isi kandungan sastera itu tidak akan dapat difahami tanpa kepahaman tentang struktur sastera tersebut. Penyaluran efektif sesuatu ide adalah tergantung penuh kepada kaedah yang digunakan oleh pengarang untuk menyatakan ide tersebut. Dalam konteks untuk benar-benar memahami 'apa' yang dikatakan oleh pengarang, adalah penting kita ketahui 'bagaimana' dia telah membuat pilihan untuk menyatakannya. Bila seorang pelajar memahami

apakah alat atau teknik yang telah digunakan oleh seorang dramatis atau alat yang digunakan oleh pengarang, pelajar itu nanti dapat mencari kebenaran tentang seorang pelaku, fungsi setting/latar, pengertian action dan hubungan antara ketiga-tiganya dengan tema dasar karya tersebut. Hanya dengan analisa struktur yang teliti sahaja sesuatu jenis sastera itu akan memaparkan betapa dalamnya pengertian sesuatu bahan atau isi perbincangan.

- (2) Analisa struktur mengajar pelajar untuk memahami hubungan dalam dan juga antara beberapa *genre* sastera dan dengan itu dapat kekal dalam fikirannya tentang selok belok padang sastera yang maha luas itu. Kebanyakan para pelajar mampu ingat maklumat secara bersepehan iaitu mereka dapat ingat sedikit sebanyak maklumat tentang riwayat hidup, latar-belakang sejarah atau pun perkembangan watak. Tapi dengan analisa struktur dua perkara dapat dicapai iaitu; (a) dapat menerapkan sifat-sifat untuk setiap jenis sastera itu dan (b) dapat mengecam persamaan-persamaan yang wujud antara semua jenis sastera. Keakraban mengenai sifat-sifat dari setiap jenis sastera akan membantu pelajar untuk melihat karya sastera pada perspektif yang sebenar.
- (3) Analisa secara induktif meransang pemikiran yang kreatif, bebas dan bersambungan. Oleh kerana kaedah induktif itu adalah penelitian kemudian analisa dan kemudian pula sintesis, pelajar yang telah diasuh mendekati sastera secara induktif akan belajar mengembangkan kemampuan penelitiannya. Dia akan belajar menguji reaksi awalnya terhadap sesuatu karya sastera, mengecam tujuan sesuatu karya, menganalisa secara tepat kaedah yang digunakan oleh pengarang untuk mencapai tujuannya dan akhirnya menarik

kesimpulan yang wajar mengenai mutu karya itu secara keseluruhannya. Pelajar akan mengembangkan kemampuan sendiri yang merupakan pemikiran yang kritikal. Dia akan bertemu dengan apresiasi sastera dalam bentuknya yang paling murni iaitu – apresiasi!

Apa itu Cerpen?

Cerpen atau cerita pendek itu sering kali disebut sebagai bentuk sastera yang paling awal. Keistimewaannya terletak kepada kemampuan yang menyebabkan pendengar atau pembaca hanyut dalam arus penceritaan itu dan mengidentifikasikan dirinya dengan watak-watak dalam cerpen tersebut. Pencerita yang berbakat dapat menyebabkan beberapa perasaan muncul dalam jiwa pendengar atau pembaca menerusi berbagai sudut-pandangan. Sebagai pencerita dia dapat mengemukakan beberapa pilihan kepada pembaca samaada ceritanya itu berbentuk hiburan, ketenangan atau pun suatu pelarian.

Tidak ada satu definisi pun mengenai cerpen yang dapat kita pilih antara yang banyak. Kita dapat memerhatikan antara sifat-sifatnya yang membezakannya dari bentuk sastera yang lain. Pada umumnya, cerpen itu pendek, meliputi satu jangka-waktu, menonjolkan satu atau dua pelaku utama dan juga merupakan pernyataan suatu pemikiran pokok. Cerpen yang paling primitif iaitu fabel atau dongeng perumpamaan adalah suatu contoh di mana sifat-sifat itu wujud sama seperti dalam cerpen moden yang begitu kompleks.

Keperluan-keperluan dalam cerpen:

Di antara keperluan-keperluan cerpen ialah tema, plot, pelaku/watak dan setting/latar. Dalam pengkajian cerpen kita cuba menyelidik bagaimana keperluan-keperluan tersebut diterapkan secara bersendirian. Adalah perlu diingat bahawa yang penting dalam segala bentuk fiksi ialah ide atau tema yang hendak dikembangkan oleh si pengarang. Penulis mau kita bertanya, 'Mengapa?' atau 'Apa maksudnya?' mengenai cerita itu dan dia dapat memilih salah satu daripada banyak cara untuk membangunkan temanya. Dalam satu cara mithalnya, dia membangunkan peristiwa-peristiwa dengan teliti hingga mencapai satu klimaks – dalam cerita yang begitu action atau plot yang diketengahkan. Lain penulis pula mengungkapkan manusia dalam tema dan bukannya peristiwa-peristiwa, memilih keadaan sekitar yang akan mengutarakan dengan jelas sikap, ide atau kelakuan pelaku utamanya. Masih juga ada penulis lain yang mengembangkan

temanya dengan melukiskan masa dan tempat yang penting lantas membina cerita di mana setting/latar menjadi elemen terpenting. Dengan kata lain, keperluan-keperluan atau elemen dalam cerpen (plot, tema, setting) adalah cara-cara di mana tema itu dapat dikembangkan.

Cara mengajar mengkaji sastera (cerpen)

Satu cara yang dikemukakan oleh Siri sastera Singer/Random House bersama-sama dengan 'Kamus Soalan-soalan untuk memahami sastera' adalah peristiwa unik dalam pendidikan moden. Cara mengajar ini didasarkan kepada prinsip-prinsip pendidikan yang kukuh. Antara beberapa prinsip itu ialah:

- (1) Menggunakan cara induktif – para pelajar patut mendekati sastera melalui analisa strukturnya. Pendekatan struktur secara induktif ini diimplemenkan melalui 'Kamus Soalan-soalan untuk memahami sastera', suatu cara yang sistematis di mana tabii analisa kritik sastera akan dikembangkan.
- (2) Dengan cara 'kerja kuat' yang terlibat kita akan sampai kepada apa yang dikenal sebagai 'kepuasan'. Kajian yang terlibat itu nanti akan cuba menguasai struktur sesuatu hasil karya sastera itu.

Apakah yang perlu dicapai dalam pengajaran sastera, ialah merangsang pemahaman imaginatif mengenai sastera – memang sudah jelas tetapi *bagaimana* ini dapat dicapai belum lagi jelas. Banyak kajian yang ditumpukan kepada kaedah penyampaian dalam sastera menjelaskan bahawa pendekatan struktural dan induktif untuk sastera adalah cara yang paling berkesan untuk mencapai matlamat tersebut.

Analisa secara struktural ialah dengan cara mencabut karya itu kepada beberapa bahagian untuk (1) melihat apa dia bahagian-bahagian itu (2) bagaimana tiap bahagian itu bekerja atau berfungsi (3) bagaimana tiap bahagian bertugas dalam hubungannya dengan bahagian yang lain dan (4) apakah jumlah kelakonan pada keseluruhannya. Sebagai contoh, pemecahan sesuatu cerita kepada pelaku, plot, setting dan tema, suatu penelitian tiap-tiap satu bahagian secara bersendirian dan juga hubungannya dengan yang lain. Induksi ialah pencapaian konklusi berdasarkan segala bukti yang spesifik dan yang berkaitan. Ini merupakan kaedah penyelidikan yang dasar dan menjadi asas kritik sastera.

Kamus soalan-soalan mengenai sastra

'Kamus soalan-soalan mengenai sastra' adalah terdiri daripada beberapa soalan yang dapat digolongkan kepada tujuh sudut-pandangan. Ketujuh-tujuh sudut-pandangan ini menurut sinarnya merupakan pendekatan secara induktif. Secara tersendiri tiap sudut-pandangan mewakili soalan umum yang perlu kita paparkan bagi tiap karya sastra. Secara kasar tujuh soalan untuk sudut-pandangan itu ialah:

- Pertama : Apakah kesan pertama karya itu ke atas diri saya?
Kedua : Di bawah golongan jenis sastra yang mana satu akan saya masukkan karya ini?
Ketiga : Apakah kesan secara sementara mengenai tema karya ini?
Keempat : Bagaimanakah secara *keseluruhan* tema itu dikembangkan?
Kelima : Bagaimanakah secara *khusus* tema itu dikembangkan?
Keenam : Bagaimana tema itu dijelaskan oleh elemen-elemen pengetahuan yang lain dari karya itu sendiri?
Ketujuh : Apakah penilaian akhir saya tentang karya ini?

Sudut-pandangan pertama: Di sini kita lihat reaksi pelajar yang umum ke atas karya itu selepas membacanya tanpa dibantu. Dengan dipaparkan sudut-pandangan yang pertama, pelajar cuba berjinak dengan karya itu dan membentuk beberapa pemikiran mengenainya. Kesan pertamanya mungkin juga terlalu negatif atau terlalu ghairah. Di sebaliknya mungkin juga tawar dan hambar sahaja – ini tidak menjadi persoalan kerana pelajar itu sedang mendaki proses belajar yang memerlukan suatu permulaan.

Sudut-pandangan kedua: ini objektif bentuknya dan memerlukan pelajar itu menggolongkan karya yang ditatapnya. Dia perlu mengecam sama ada karya itu merupakan puisi, cerpen, novel atau esei. Klasifikasi ini perlu sekali kerana sesuatu jenis sastra memerlukan beberapa tuntutan kepada pembaca dan kepatuhan bagi pihak si pengarang itu sendiri. Klasifikasi awal ini umum bentuknya dan dapat ditinggalkan apabila pelajar sudah biasa dengan cara ini. Soalan-soalan lain dalam bahagian ini memerlukan pemahaman yang tinggi mengenai jenis sastra – mereka bertanya sama ada karya itu dimaksudkan untuk dibaca, dilakukan atau didengari, sama ada karya itu terjemahan atau asli, karya itu lengkap atau berupa sedutan sahaja.

Sudut-pandangan ketiga memerlukan pelajar itu untuk mula mengupas dan mencari makna atau

tema sesuatu karya itu. Soalan-soalan dalam bahagian ini akan memaksa pelajar itu untuk mencari dengan lebih mendalam lagi dan bukan hanya tahu apa yang berlaku dalam sesuatu karya itu. Dalam bahagian ini pelajar cuba meletakkan dirinya sebagai penulis karya itu dan cuba mencari apa sebenarnya tujuan atau tema yang dimaksudkan. Pelajar akan bertanya: Apakah tema? Mengapa subjek itu penting kepada pengarang? Apa yang pengarang mahu pembaca simpulkan mengenai pelaku utamanya?

Sudut-pandangan Keempat menumpukan perhatian kepada organisasi karya itu sendiri. Soalan-soalan yang berkaitan dalam bahagian ini memerlukan pelajar mengecam pembahagian besar karya tersebut dan ciri-ciri pembahagian tersebut. Dia akhirnya nanti akan mendapati bagaimana pembahagian-pembahagian tersebut berkaitan dengan tema keseluruhan karya itu.

Sudut-pandangan kelima memerlukan analisa terperinci tiap-tiap bahagian karya tersebut dan menarik perhatian pelajar bagaimana bahagian cerita itu memainkan peranannya untuk kejayaan atau kegagalan karya itu secara keseluruhannya. Soalan-soalan dalam bahagian ini bertanya sama ada stail pernyataan karya itu konsisten sentiasa atau naik turun pada masa-masa tertentu dalam cerita.

Sudut-pandangan keenam menarik perhatian pelajar kepada kenyataan yang di luar daripada karya itu sendiri yang bakal membantu pemahaman kita tentang karya itu atau kepada masa lahirnya karya itu. Soalan-soalan dalam bahagian ini dimaksudkan kepada riwayat hidup, nota, jurnal, surat atau segala sesuatu yang berkaitan yang bakal membantu menjelaskan lagi tujuan dan keupayaan si pengarang. Antara soalan-soalannya ialah: Adakah karya awal dari pengarang ini memberi pengertian yang lebih kepada karya yang baru ini? Bagaimana reaksi pengkritik-pengkritik dan interpretasi mengenai karya ini membantu pemahaman saya ke atas karya ini?

Sudut-pandangan ketujuh menumpukan perhatian penuh kepada karya itu secara keseluruhannya. Soalan-soalan yang berkaitan dalam bahagian ini lahir dari kesimpulan pelajar mengenai karya ini berdasarkan penelitian karya tersebut dan pilihannya yang tersendiri. Sudut-pandangan yang ketujuh ini dibuat untuk membezakan dalam pemikiran si pelajar pemilihan yang pribadi dengan apresiasi intelektual. Soalan-soalan dalam bahagian ini memerlukan pelajar untuk sampai kepada kesimpulan mengenai karya itu dengan pertimbangan pemilihan pribadinya dan penyelidikan objektif karya itu.

Sudut-pandangan yang terakhir ini melibatkan karya itu secara sepenuhnya. Analisa bahagian-bahagian telah pun selesai dan pelajar ini sudah bersedia untuk mengungkapkan kenyataan dan reaksi pribadinya yang akan membawa kepada penilaian tegas mengenai karya tersebut. Sila suruh pelajar ini membandingkan karya itu dengan lain-lain karya yang digemarinya atau pun dikaitkan dengan filsafat hidupnya sendiri.

Penggunaan 'Kamus Soalan-soalan mengenai

sastera' ini akan mengenalkan para pelajar kepada karya sastera pada tingkat kemampuannya, memimpinya kepada tabii menganalisa dan memelukannya mengungkapkan jumlah ransangan kepada pemilihan karya berbagai jenis. Sistem ini kalau diikuti dengan teliti untuk sepanjang kehidupan akademik pelajar akan mendidik pelajar kepada apresiasi sastera yang dipelajarinya dan mina yang tulen untuk meninjau lebih jauh kepada apa juga bentuk pembacaan yang dijumpainya. ¶

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Book Reviews

The Heart of a Boy

de Amicis, Edmondo
Translated by Sophie Jewett
Singapore: Federal Publications, 1980
200 pages

D.P. Pereira Institute of Education

I approached *The Heart of a Boy* with considerable expectation and even some awe. The publishers had been looking for a book to serve as a textbook to aid the inculcation of moral principles among our school population. It had been a long and worldwide search which had culminated in the discovery of the book in the Library of Congress in the United States. My first surprise was finding out that it was not a new work. It had been written before the turn of the century by an author who was a contemporary of Tolstoy and Henry James. Next came the realization that the book, written as the diary of a schoolboy in a small town in northern Italy, consists mainly of a series of episodes tenuously linked by the fact that they pertain to the classmates of the diarists, their teachers and their parents. The episodes are presented in a direct, unadorned style, simple almost to the point of naivete. The sequence of the events arises from the cycle of the seasons and the school year: otherwise they appear as separate episodes, each highlighting one aspect of character or behaviour. There is little to provoke the reader's curiosity and thereby induce him to read on. Each episode exists on its own merits.

The life portrayed in the book is that of a small-town community in pre-industrial Italy — simple, religious, patriotic and ethnically homogeneous — observing values which at first appear to be a far cry from those of an urbanized, technologically developed, multi-racial and mainly materialistic society like that of Singapore. It is not surprising that one tends to jump to the conclusion that the average Singapore boy or girl will find little relevance in the episodes and little in common with the incredibly kind, understanding, hard-working and self-sacrificing persons portrayed.

However, before we dismiss the book out-of-hand, should we not examine it for features which may make it utilizable for the purpose intended?

When I mentioned the book to one of my colleagues, he told me that he had read it in Chinese translation over thirty years ago, and the book had made considerable impact on him. He had been suffused with its warmth and had come to believe for the first time that kind and moral people existed outside his family circle. This is indeed high praise, and in it may lie the clue to the value of the book. One has to believe that people like the boys Mario, Garrone, Stardi and Derossi and the adults portrayed in the book can and do exist in the real world. The biographical sketch of the author, de Amicis, included in the book leads us to believe that the characters featured in *The Heart of a Boy* are modelled on persons the author had actually met and lived with, and the events narrated are based on occurrences in the life of the author and his acquaintances, and are not figments of his imagination. Indeed to consider those characters unrealistic and the things they did improbable would be an act of utter cynicism. It would imply that totally kind, totally honest and self-sacrificing persons simply do not exist. Or if one accepted the possibility of the existence of such persons in the Italy of a century ago but not in the Singapore of today, would it not be tantamount to denying the very purpose of moral education in this country?

To give de Amicis his due, his book does depict villains as well as paragons of virtue, and he does describe acts of selfishness and injustice as well as those of heroism and self-sacrifice. But he eschews description of extreme cruelty, violence and depravity, which are sadly all too common in the literature and entertainment media of today, and accepted because they are "realistic". Is it not an indictment of our present attitudes to approve of descriptions of depravity because they are realistic but to deny the realism and relevance in literature of acts of kindness and sacrifice? Does being entertained by Superman, the Incredible

Hulk and Wonder Woman require less suspension of disbelief than being intrigued by the deeds of generosity and humanity described by de Amicis? (Even in these series, moral principles are involved. Superman, the Hulk and Wonder Woman invariably help the just against the evildoers.)

The way the preceding questions are answered will determine whether there is a place for *The Heart of a Boy* in the schools of Singapore. The answer which, I think, should emerge is "Yes, with reservations." The values which the book extols are the universal ones of filial love and respect, brotherliness, obedience to authority, hard work, humility, courtesy and patriotism. These are no different from the "traditional Asian values" which a study of the Asian mother tongues is said to transmit. The way these values are presented in the book, direct and without concession to subtlety, is reminiscent of Asian stories with similar themes. Like my colleague, other young Singaporeans might have been attracted by the book if it had been published here thirty or more years ago. The reservations one has arise not from the content but from the approach. Can the present generation of children raised on a diet of T.V. and film violence and excitement find *The Heart of a Boy* other than slow-moving and boring? Given the proper treatment, our children should be able to find pleasure in literary fare other than the excessive stimulation of the crime movie, the horror story and the sensational advertising prevalent in the media. They should be made to realize that the moral, self-controlled person exists and is just as real as the one prone to violence or self-indulgence; that there is nothing namby-

pamby about doing good to others, even at one's own expense; that there is as much life, joy or sorrow, ecstasy or pathos, in the day-to-day happenings of ordinary people as in the more sensational occurrences in the lives of the great and the famous and the glamorous. It is up to the teacher to bring out the relevance of the persons and incidents in a book such as *The Heart of a Boy* by drawing parallels with local and contemporary situations wherever possible. I do not believe that most Singapore children have attained a level of worldly sophistication to the extent that this book is meaningless to them.

It must, nevertheless, be emphasized that *The Heart of a Boy* is only one of several texts which may be used as starting points for discussion of moral issues. Many more works, ranging from fairy tales to Dickens and Shakespeare, illustrate moral principles more unobtrusively and more subtly, but few with such directness, simplicity and economy. Much of the book may be omitted without loss, for example, the passages dealing with Italian patriotic events and some of the "monthly stories".

The author claims that the book is addressed to children of between nine and thirteen years of age. But in Singapore the language and vocabulary of the English translation may not be grasped by children below the lower secondary level without considerable help from the teacher.

Finally, the book, with its shortcomings and notwithstanding its merits, should be seen as a stop-gap until a book more in tune with the Singapore situation and more appealing to Singapore children appears. This book remains to be written.

Fifteen Thousand Hours: Secondary Schools and their Effects on Children

Michael Rutter, Barbara Maughan, Peter Mortimore
and Janet Ouston
London: Open Books, 1979
279 pages
S.P. Eng Institute of Education

The question addressed by Coleman in his Equality of Educational Opportunity (EEO) Study (1966) is still very much alive today. *Fifteen Thousand*

Hours is testimony of the persistent search for an answer to the question, "Do differences in schools make a difference in schooling outcomes?" When

Coleman was commissioned to make a study on what makes the difference in schooling outcomes, there was the secret hope that differences in school resources would affect schooling outcomes. His massive study came up with the startling finding that differences in resource inputs made no significant contribution to differences in school outcomes, a finding that took the wind out of the sail of the equality-of-educational opportunity movement's fight for the injection of more fiscal resources into schools that perform poorly. Coleman's finding ran counter to conventional wisdom and intuition. Critics set to work to re-examine his study and re-analyze his data. Though Coleman's study was flawed on many counts, his main findings have not been overturned by the hundreds of studies since the EEO Report.

Fifteen Thousand Hours represents yet another attempt to search out school variables that make a difference to schooling outcomes. It is a remarkable effort of painstaking research extending over several years. The findings — that there are school variables that exert a beneficial effect on secondary school pupils — are encouraging both for schoolmen and policy makers.

The main thrust of *Fifteen Thousand Hours* is to demonstrate empirically that the school process variables, which reflect the ethos and working patterns of social interaction of the key people in the school — administrators, teachers and pupils — are significant factors which influence pupil behaviour in a number of dimensions. This is the main contribution of *Fifteen Thousand Hours* to the growing school effects literature. Past studies tend to rely on cross-sectional data and school variables that are easily accessible and measurable such as the number of library books and the presence or absence of science laboratories. The schools' academic emphasis, teacher actions in class, the reward and punishment system, the school's provision of a comfortable environment, pupil opportunities for positions of responsibility and participation and staff organization, all these are closely correlated with the four outcome measures, viz. academic outcome, pupil behaviour, school attendance and delinquency rate. The school process variables have received scant attention in the past simply because they are difficult and time consuming to measure. To be sure, measures of school process variables which pertain to schools as social institutions cannot attain the same level of precision as other easily quantifiable variables such as expenditure per pupil or teacher experience measured in years. Past empirical re-

search using very simple designs have shown that management and teaching styles affect the whole configuration, both social and psychological, of relationships within the class and the school. Intuitively it seems reasonable and logical that the manner in which the school is run and the social structural arrangements made by teachers for teaching and learning are bound to make a difference in schooling outcomes. Rutter *et al.* were perceptive enough to recognize this fact and had chosen school processes as the main intervening variables in affecting the four outcome measures they have specified. They were rewarded; they had broken the monotonous null findings of past school effects research that schools are impotent in the face of powerful home influences. What schools do and how they do it are important in influencing academic outcomes and behavioural development. Even after controls for antecedent variables such as home factors and pupil intake characteristics, the school process variables remain significant and robust.

Fifteen Thousand Hours has certainly benefited from past weaknesses in the school effects literature. Whilst it has proven the thesis that differences in school processes do affect outcomes, it has only focussed attention on one aspect, albeit an important one, the complex of activities that goes on in schools. The use of a linear model limits the sorts of questions that can be answered. An interaction model using non-recursive techniques would have been more satisfying. Like all social science research, the total variance in the outcome variables explained is small. More than seventy per cent of the variance in the outcomes specified are left unexplained. Much remains to be done in specifying a comprehensive model of school effects based on an overarching theoretical framework. All the different approaches used during the pioneering era of the school effects research such as the input-output approach, the process approach, the organizational approach, the educational intervention approach and the experiential approach have been useful in throwing some light on one or the other aspects of schooling effects. What is needed is an approach which synthesizes the different approaches based on a well-grounded theory which is relevant to the schooling enterprise.

A Storytellers' Guide to ASIAN FOLKTALES

compiled by Elizabeth H. Bronnert¹
Singapore: National Library Children's Services, 1979
48 pages
A. Sobrielo Institute of Education

English-speaking children in Singapore are not very familiar with the folktales of their heritage. The English-educated child is probably better acquainted with the Hare and the Tortoise or even Brer Rabbit than he is with Sang Kantchil. He knows all about Cinderella but hasn't heard of Cam who had an ugly and cruel sister but who, like Cinderella, found her prince in the end and lived happily ever after. With the publication of this very useful and timely guide to Asian folktales, therefore, it is hoped that this imbalance will finally be set right.

The purpose of this annotated guide, says Elizabeth H. Bronnert, in her Preface, is "to help parents, teachers and librarians find Asian folktales which will have immediate appeal to children".

The tales she has selected for inclusion in the booklet have all been recommended by the children's librarians of the National Library and are especially suited for storytelling.

We are told, in the Preface, that the criteria used in considering a folktale for the guide "included an exciting or moving plot, illustrations which capture the spirit and culture of the country, literary quality of the retelling and fluency of the author's or reteller's style which demands little paraphrasing by the storyteller".

The guide is arranged according to country, in alphabetical order, starting with the broad category Asia, followed by individual countries like Afghanistan, Burma and then thirteen other Asian countries, the last being Vietnam. The titles of the stories under each country are listed alphabetically by author.

The books discussed include both one-story picture books and anthologies. Should an anthology consist of stories from more than one country, then the individual stories are entered under the country of origin.

A short description is given of the content of each book. For an anthology, there is a general review, while for the single-story picture book and

the individual tales from anthologies, the reader is given a very brief description of the story.

As the guide is for storytellers, the telling time is included as well as the age-group for whom the tale is most suited. The telling time should be especially useful for teachers who might wish to plan activities around the stories. There are very short stories, for example, India's "The rich man and the tailor" which takes only two minutes to tell; and longer ones lasting about fifteen minutes, for example, "Kintaro's adventures", a tale from Japan.

Included at the back of the guide is a list of all the books discussed, with complete bibliographical information. Also included are an author index and a title index.

It is a pity that more illustrations from the various books were not included. Besides the cover illustration, there is another on the title page and just one more on page 41. Perhaps more pictures, for example, the covers of some of the books, could have been printed in the spaces which were decorated with the single-flower motif.

This publication was funded by a Unicef IYC grant to Singapore and it was published by the Children's Services of the National Library as an International Year of the Child (IYC) project.

Copies of the guide are available from the National Library. It is understood that a copy will be given to every school. As all the books discussed in this guide are part of the Asian Collection of the National Library Children's Services, it is hoped that the teachers will make full use of this guide to introduce our story-starved children to the very rich and exciting collection of Asian stories, just waiting to be discovered.

¹Elizabeth Bronnert is currently teaching in the Supplementary English Language Programme at Balestier Hill Technical School. She has compiled a *Guide to Asian Folktales Suitable for Storytelling* which is soon to be published by the National Library Children's Services.

Social Engineering in Singapore: Educational Policies and Social Change, 1819—1972

Wilson, H.E.
Singapore: Singapore University Press, 1978
300 pages
S. Gopinathan *Institute of Education*

Wilson's book, enticingly entitled *Social Engineering in Singapore*, is the only extensive study of education to appear in print since *Towards a National System of Education in Singapore, 1945-1973* (Gopinathan, 1974) and *Emergence of a Nation-wide Learning System in Singapore* (Skolnik, 1976). Wilson, incidentally, is also the author of two useful studies on Singapore education, *Educational Policy and Performance in Singapore, 1942-1945* (1973) and *Education as an Instrument of Policy in Southeast Asia: the Singapore Example* (1977). This book is doubly welcome then, not only because Wilson is knowledgeable about Singapore education but also because his book will add to our knowledge about an increasingly vital instrument of Singapore's future.

Wilson has chosen a dauntingly large period for his study, 1819-1972. He has managed to provide a largely comprehensive survey of the major developments in prewar education, and treats the shorter, postwar period more extensively, giving it slightly over half the book. Even so, it is to be expected that briskness will characterize the treatment of various issues and that some issues of considerable significance to the "social engineering" process get less detailed treatment, e.g. the integrated school experiment, the restructuring of the education structure to include a more extensive technical and commercial segment, etc. Even language policy which has considerable consequences for the way in which social relations are organized is seen essentially in the context of politics rather than in its effects on pupils and the school system.

Wilson is in agreement with the many commentators who have characterized educational development prior to the Pacific War as one of response in a haphazard manner to a variety of events. He states that "decisions were taken at the whim of individual officials rather than as the result of careful investigation and largely were determined by preconceptions concerning the

needs of the ethno-linguistically diverse groups of which the population was composed" (p. 30). No comfort here for those who see British colonial education interest as one intended to "divide and rule". Wilson is also scathing in his evaluation of British colonial education effort, noting that the consequence was "a fundamental inequality of treatment and opportunity . . . and a failure to provide any education for more than half the school-age population". Most seriously, colonial education policy "intended to deny to Malays the means of adapting to urban life, encouraged the detachment of Tamil speakers from their literary heritage and continued to promote the evolution of a culturally alienated English-speaking group amongst the predominantly Chinese population" (p. 30).

Wilson's chapter on the implications of Japanese educational policy makes for fascinating reading. Except for Yoji Akashi's "Education and Indoctrination Policy in Malaya and Singapore under Japanese Rule, 1942-1945" (*Malaysian Journal of Education*, 1976, 13, Nos. 1/2), very little has been written about this period. There is much scope for a comparative study of Japanese education policy in occupied Southeast Asia. What were the consequences of Japanese policies on language, for instance? The anti-Dutch stance of the Japanese in Indonesia aided the nationalists' propagation of Bahasa Indonesia. In Singapore, however, Japanese hostility to the Chinese prevented a resurgence of Chinese at the expense of English which was an "enemy language". While it is probably true that fear and self-interest persuaded many to learn Japanese, Wilson's conclusion that "the dissemination of the language amongst people of naturally varying linguistic ability made significant progress during the three-and-a-half years of Japanese rule" needs more evidence than the author has been able to provide. The same comment can be made of his claim that "the proliferation of junior technical schools and trade schools

produced the nucleus of a skilled labour force that was to play an important role in the metamorphosis of postwar Singapore" (p. 104). Indeed, Wilson himself appears to be qualifying himself when he notes that even if the Japanese claim of 25,000 pupils in ninety-two schools was accepted, this represents only a third of school enrolment in 1941. "When only such a small proportion received any formal education such a situation clearly could contribute little to social integration or equality of opportunity" (p. 243).

Wilson's last two chapters, "Experiments in Democracy" and "Education for National Identity" deal with the postwar period. The former is a detailed account of political and ideological manoeuvring with education as a political football. The author is critical of Labour Front policies, noting that its "educational policy failed to produce a single type of school within which Singaporeans from all ethno-linguistic groups might receive instruction through the medium of a single

language and hence acquire a shared system of values". This is perhaps asking far too much of a government caught in the midst of political brawling. Wilson's own point that the Labour Front government's policies in school building laid the foundations for expanded educational opportunity and reflected its growing awareness of the need for technical training as seen in the plans for the Singapore Polytechnic should carry more weight in the assessment of the Labour Front's educational policies.

In conclusion, while we have noted that there are judgements in Wilson's book that need to be questioned, this is still a valuable book for those interested in Singapore education. Wilson's major preoccupation as a historian leads him to concentrate on the political developments that affected education. What is now needed are studies that deal with and are assessments of how policies affected the school system, their pupils and teachers. **☞**