CONTENTS

01 Cecil Miskel
Structured Observations of Administrator Behaviour: Implications for Principal Leadership and Development

Sim Wong Kooi
Education for Equality in a Changing Society

Ho Wah Kam
Theoretical Influences on Educational Practice in Singapore: The Case of Curriculum Planning and Development

J M Elliot
Is Language Important in Mental Arithmetic?

K Ramiah
The Pattern of Tamil Language Use Among Primary School Tamil Pupils in Singapore

Robert Yeo
Teaching Singaporean Literature in Secondary Schools: A Singapore Case Study

Leonard Yong Mee Seng
Creativity and Sex Differences in Malaysian Pupils

RESEARCH REPORTS

Soh Kay Cheng
Quantification of Teacher Research

Tan Kok Siang
The Effects of Seat Location on Students’ Learning Behaviour in the Classroom

DISSERTATION ABSTRACTS

Grace Loh
The History Teacher’s Role in Construing and Enacting an Innovative Mode of Practice

Tay Siew Leng
Intelligence as Perceived by Students, Teachers and Parents in the Singapore School Community

Tay-Koay Siew Juan
Student Classroom-Thinking Processes and Their Relationships to the Language of Thinking Used by Teachers

BOOK REVIEW

Sim Wong Kooi
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Structured Observations of Administrator Behaviour: Implications for Principal Leadership and Development*

Cecil Miskel

Leadership is an elusive but fascinating topic of continuing interest to students of administration. During the past several decades the sheer volume of theory and research devoted to leadership testifies to its prominence in our collective efforts to understand and improve organisations. Both scholars and the public have developed romanticised, heroic images of leaders — what they do, what they are able to accomplish, and the general effects they have on individuals and organisations (Meindl, Ehrich & Dukerich 1985, 78-79). Indeed a number of scholars, especially during the 1970s, questioned the usefulness of the leadership concept in understanding organisations (e.g., Lieberson & O'Connor 1972; McCall & Lombardo 1978; Kerr & Jermier 1978; Salancik & Pfeffer 1977; Pfeffer 1977).

In sharp contrast, other scholars and writers (Thomas 1988; Day & Lord 1988) see leadership as a key concept in understanding and improving organisations such as schools. They argue that the earlier critical investigations (e.g., Lieberson & O'Connor 1972; Pfeffer 1967) are flawed, and present compelling evidence that individual leaders do make a difference in organisational effectiveness. Similarly, educational leadership does have substantial impact on school organisations (Roberts 1985). In particular, the effective schools movement in the United States during the early 1980s gave great credence to the speculation that principals are the key to school performance. Leading scholars, e.g., Sergiovanni (1981) and Clark, Lotto, and McCarthy (1980), essentially endorsed this generalisation.

Three basic reasons explain why leaders are important (Bennis, 1989, 15-16). First, they are responsible for the effectiveness of organisations. The success of all organisations rests on the perceived quality of leaders. Second, change and upheaval make it essential for our institutions to have anchors and guiding purposes. Leaders fill that need. Third, there are pervasive national concerns about schools. Educational leaders have a key role in alleviating the public's concerns. Building on the premise that leaders are important to educational organisations, we will present and assess selected parts of the theoretical and empirical literature dealing with leadership and its practice.

Definitions of Leadership

Given the attention that leadership has received, it is not surprising that definitions of the concept are almost as numerous as the researchers engaged in its study. Bennis (1989, 1) recently opined that leadership is like beauty: it is hard to define, but you know it when you see it. The following definitions of leadership are typical examples.

The leader is the individual in the group given the task of directing and coordinating task-relevant group activities — Fred E. Fiedler (1967, 8).

The essence of organisational leadership is the influential increment over and above mechanical compliance with the routine directives of the organisation. — Daniel Katz and Robert L. Kahn (1978, 528).

Leadership takes place in groups of two or more people and most frequently involves influencing group member behaviour as it relates to the pursuit of group goals. — Robert J. House and Mary L. Bactz (1979, 345).
Fiedler and Joseph Garcia (1987, 2) propose that the term "leader" refers to the person who is elected or appointed or who has emerged from the group to direct and coordinate the group's efforts toward a given goal.

An abundance of useful conceptual and empirical capital is available for both practitioners and scholars of school administration and leadership. During the 1970s and continuing today is a research approach that shows promise in helping us understand the leadership behaviour of administrators.

Structured Observations of Leader Behaviour

A strictly empirical perspective on leader behaviour is typified by surveillance studies describing leader behaviour. Two of the best known investigations were completed in business organisations by Henry Mintzberg (1973) and John P. Kotter (1982). Using a structured observation technique, managers were observed and questioned intensively as they performed their work.

Both Mintzberg and Kotter found that managerial behaviour is feverish and consuming. Managers spend most of their time moving quickly from one meeting with one set of problems to another meeting with a completely different agenda. In contrast to popular thought, general managers rarely make "big" decisions or give orders to subordinates during meetings (Kotter 1982, 80). Decisions are not based on a rational consideration of the existing data by a studious manager, but evolve from a fluid and often confusing series of short disjointed conversations, meetings, and memos. For decisions on immediate behaviour, business managers acted primarily on the basis of intuition, hunch, and common sense derived from trial and error experiences in their organisations. In other words, they often reacted to immediate conditions rather than planned their behaviours in advance.

Structured Observations of Principal Behaviour

A number of investigations using structured observation procedures also have been conducted in school settings across a number of countries on superintendents (Friesen & Duignan 1980; Duignan 1980; O'Dempsey 1976; Pitner & Ogawa 1981), on principals (Kmetz & Willower 1982; Peterson 1977-78; Willis 1980; Martin & Willower 1981; Morris & his associates 1981; Phillips & Thomas 1982; Chung 1987; Chung & Miskel 1989), and on educational innovators (Sproull 1981). As described by Mintzberg (1973, 231-237), structured observation is a method that makes it possible to develop theory inductively, to observe and question intensively, to be flexible with open-ended observation, and to be disciplined and systematic in seeking certain types of structured data. The researcher observes the leader as he/she performs the tasks of work. Each observed event (a verbal contact or piece of mail) is categorised by the researcher in a number of ways, e.g., duration, location, participants, purpose. Typically, three types of records are used to record the data — chronology, mail, and contact.

The studies provide a detailed and vivid picture of what school administrators do in their jobs, and with whom and where they spend their time. In addition to providing a fascinating glimpse of administrator work, the findings are important because the behaviours of school administrators have been described systemically and found to be consistent across organisational types, e.g., businesses and schools, across organisational roles, e.g., superintendents, supervisors and principals, and across countries, e.g., Australia, Canada, Korea, and the United States. Given the apparent regularities appearing in the studies, Chung and Miskel (1989) drew five generalisations to summarise the major findings of the structured observation research.

Generalisation One: The Work is Consuming

Universally, school administrators work long hours at an unrelenting, physically exhausting pace. Work weeks of 50-60 hours are typical. Principals work 40-50 hours per week during the regular school day, but secondary principals average an extra 10-15 hours per week during the evenings while elementary principals engage in school related activities an extra 5-10 hours per week during the evenings.

Daily routines, procedural repetition and long periods of uneventfulness are prevalent, but unpredictable events arise frequently; control of the situation can be lost quickly. Principals typi-
cally begin the day with a general tour of the building, end the day with a check of the doors, lights, furniture and equipment, and during the day intersperse regular trips through the school. Generalisation Two: Work is Done Primarily in Offices

Principals spend the largest portion of their time in their offices (see Table 2). A common profile of where principals work would be the following: 45-55% in their offices, 10-20% in classrooms, 5-10% in the halls, 10-15% in other offices, staff rooms and the school grounds, and 5-10% away from school. While in their offices, about 25% of the time is working alone and 75% with people, mostly faculty and students. Principals receive more mail than they send. Similarly, telephone calls frequently interrupt their desk work and meetings.

The average amount of time principals spend directly observing instructional activities in their schools' classrooms ranges from 2-14% (see Table 2). Superintendents spend about one day per week at school sites. The limited amount of time spent in classrooms suggests little direct

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Group</th>
<th>Hours/Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knetz-Willower</td>
<td>United States</td>
<td>Elem. Principals</td>
<td>50</td>
</tr>
<tr>
<td>Martin-Willower</td>
<td></td>
<td>Sec. Principals</td>
<td>53</td>
</tr>
<tr>
<td>O'Dempsey</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td>45</td>
</tr>
<tr>
<td>Chung</td>
<td>Korea</td>
<td>Principals</td>
<td>51</td>
</tr>
</tbody>
</table>

**TABLE 1: THE WORK IS CONSUMING**

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Group</th>
<th>Hours/Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morris et al.</td>
<td>United States</td>
<td>Elem. Principals</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec. Principals</td>
<td></td>
</tr>
<tr>
<td>O'Dempsey</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td></td>
</tr>
<tr>
<td>Chung</td>
<td>Korea</td>
<td>Principals</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 2: WORK IS DONE PRIMARILY IN OFFICES**

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Group</th>
<th>Work Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morris et al.</td>
<td>United States</td>
<td>Elem. Principals</td>
<td>56%-Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12%-Class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec. Principals</td>
<td>45%-Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Class</td>
</tr>
<tr>
<td>O'Dempsey</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td>44%-Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Class</td>
</tr>
<tr>
<td>Chung</td>
<td>Korea</td>
<td>Principals</td>
<td>74%-Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Class</td>
</tr>
</tbody>
</table>
involvement by principals and superintendents in the instructional processes. In other words, the behaviour exhibited by principals does not provide obvious support for the conventional wisdom that administrators affect student learning through strong instructional leadership.

*Generalisation Three: Work is Fragmented*

The work of school administrators — superintendents and principals — is characterised by variety, brevity and fragmentation (see Table 3). While superintendents have a less fragmented day with their events lasting about twelve to thirteen minutes on the average, principals average about three to seven minutes for each activity, but most last only one or two minutes. If it is assumed that principals change activities school constitutes a respite from desk work; five minutes quietly at the desk breaks the steady stream of visitors and their problems. Types of activities comprise an almost endless list. For example, in a short period of time, a principal might sign a tardy form, discuss a teacher resignation, handle a discipline problem, listen to a sales person, take a call from a parent or central office administrator, discuss a personal problem with a student or teacher, and hear a student complaint about a teacher or vice versa.

Principals are at the beginning, middle, and end of numerous issues all of the time. While some problems may be dormant, any of them can boil to the surface and demand attention. As a result principals often perform several tasks concurrently in an effort to conserve time. They skim and sign papers, for instance, while talking every five minutes for the ten hours they work each day, principals participate in about 120 different tasks per day. One in five activities will be interrupted. To say the least, the pace is rapid; discontinuity prevalent; and the span of concentration short. While both elementary and secondary principals exhibit the busy person syndrome, the life of elementary principals is somewhat less hectic and structured. In comparison to secondary principals, elementary principals engage in fewer activities, have fewer interruptions, less mail, and fewer scheduled meetings.

Principals do not really break the pace of work except by variety itself. A ten minute tour of the

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Group</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kmetz-Willower</td>
<td>United States</td>
<td>Elem. Principals</td>
<td>4.1</td>
</tr>
<tr>
<td>Peterson Martin</td>
<td>United States</td>
<td>Elem. Principals</td>
<td>4.6</td>
</tr>
<tr>
<td>Willower</td>
<td>United States</td>
<td>Sec. Principals</td>
<td>3.4</td>
</tr>
<tr>
<td>O'Dempsey</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td>1.6</td>
</tr>
<tr>
<td>Willis</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td>7.1</td>
</tr>
<tr>
<td>Chung</td>
<td>Korea</td>
<td>Principals</td>
<td>5.2</td>
</tr>
</tbody>
</table>

on the telephone. Another tactic to handle the demands is to complete tasks that can be handled quickly first and not allowing them to accumulate.

The sheer pressure of events and commitments, the range and variety of activities, the frequency of interruptions, and the simple matter of the unexpected being ever-present, all contribute to the short-lived, lack of in-depth experience which characterises much of principal work. As with general managers in business settings (Kotter 1982), events ordinarily control the behaviour of principals, not the other way around. Their actions are reactive as opposed to proactive, a violation of the tenets of rationality found in both the textbooks on
educational administration and the ideology of practice.

**Generalisation Four: Work is Done through Verbal Media**

School administrators rely on verbal media. Talking to individuals and groups is the primary activity of school administrators (see Table 4). With the exception of Korean principals, the amount of time spent using verbal media ranges from 67-83% of the total work time. The results are similar across countries and positions. Elementary and secondary principals and superintendents in Australia, Canada, Korea, and United States spend a lot of their time talking to students, teachers, staff members, other administrators, and the public.

Principals rely almost exclusively on the spoken word; they are not readers and writers. The primary medium of exchange is oral during brief face-to-face conversations, but information is also traded by telephone and public address systems. In group conferences with faculty or other groups, principals hear requests, give directions, seek reactions, and engage in friendly conversations, all oral exchanges. In contrast to receiving more mail than is sent, principals initiate most of these face-to-face verbal exchanges. Principals seem to need frequent and varied contact with people to swell their reservoirs of information about their schools.

**Generalisation Five: Work is done on a Variety of Tasks**

The content of administrator activities varies widely and many times consists of what other faculty and staff do not want to do. Common activities include administering discipline, giving guidance to students, dealing with staff and faculty on simple to complex issues but rarely on

![Table 4: Work is done through verbal media](image)

<table>
<thead>
<tr>
<th>Verbal Study</th>
<th>Country</th>
<th>Group</th>
<th>Contact (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morris et al.</td>
<td>United States</td>
<td>Elem. Principals</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sec. Principals</td>
<td>83</td>
</tr>
<tr>
<td>O’Dempsey</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td>75</td>
</tr>
<tr>
<td>Willis</td>
<td>Australia</td>
<td>Sec. Principals</td>
<td>67</td>
</tr>
<tr>
<td>Martin &amp; Willower</td>
<td>United States</td>
<td>Sec. Principals</td>
<td>64</td>
</tr>
<tr>
<td>Chung</td>
<td>Korea</td>
<td>Principals</td>
<td>36</td>
</tr>
</tbody>
</table>

The content of administrator activities varies widely and many times consists of what other faculty and staff do not want to do. Common activities include administering discipline, giving guidance to students, dealing with staff and faculty on simple to complex issues but rarely on
TABLE 5:
WORK IS DONE ON A VARIETY OF TASKS

<table>
<thead>
<tr>
<th>Common Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administering discipline</td>
</tr>
<tr>
<td>Dealing with faculty</td>
</tr>
<tr>
<td>Implementing procedural rules</td>
</tr>
<tr>
<td>Conducting hall surveillance</td>
</tr>
<tr>
<td>Balancing the budget</td>
</tr>
<tr>
<td>Maintaining the physical plant</td>
</tr>
<tr>
<td>Gaining professional knowledge</td>
</tr>
<tr>
<td>Monitoring extracurricular activities</td>
</tr>
<tr>
<td>Tending to concerns of parents and citizens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Less Common Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning and coordinating on a systematic basis</td>
</tr>
<tr>
<td>Teaching classes</td>
</tr>
<tr>
<td>Tending to issues of teaching and instruction</td>
</tr>
<tr>
<td>Evaluating teachers on a systematic basis</td>
</tr>
<tr>
<td>Observing teachers in classrooms</td>
</tr>
</tbody>
</table>

not pathologies. Administrators constantly change gears and tasks.

As a rule, principals devote limited attention to issues directly related to teaching and learning. Activities related to instruction that principals typically direct include creating class schedules, scheduling students for standardised test sessions, promoting the educational programme to the public. Most principals are not viewed by teachers as being instructional specialists. Teachers rarely go to principals for advice about difficult or interesting teaching situations that they are encountering. On the other hand, principals neither monitor the curriculum and work closely with teachers nor do they make adjustments based on knowledge of the instructional situation. Instead of systematic supervision, evaluations of teacher performance tend to be based on anecdotes from volunteered short stories about what a specific teacher did in a specific situation and observations from the hall. The data suggest that principals do not spend much of their time in the evaluation area. They turn over much of this to assistants. Principals know that teacher evaluation is generally an unpleasant task. They believe that evaluating teachers has only a marginal impact on the overall quality of instruction in the school. Principals also believe that even in cases of gross incompetence they must spend months carefully documenting the case and then spend long hours of emotionally draining hearing that lead nowhere. Therefore, principals stay out of classrooms.

Principals primarily attend to logistics or organisational maintenance; they are experts on the location and status of people and supplies and school routines. Extensive effort involves monitoring student, faculty, and staff attendance, scheduling classes, arranging transportation, and providing information to parents. Principals also act as buffers between the school and the larger district bureaucracy by giving and receiving information. Principals requisition supplies, request additional faculty, respond to school-wide surveys about student and faculty characteristics, describe inservice needs, and complete a multitude of other requests from the central office. Most interactions with district office personnel are related to district rather than school concerns. Principals spend little time with their peers — other principals. When they do interact with other principals, the topic is usually how to respond to a district directive, to learn about a professional meeting, or to ask a favour. Time with parents is primarily spent in conferences concerning student misbehaviour or complaints about teachers, students or school policy.

In summary, the descriptions of administrator behaviour and generalisations for school settings are quite similar across different countries and to those in business settings.
Working primarily in their offices or the school halls, the jobs are characterised by long hours, brief verbal encounters with diverse individuals and groups across a wide range of issues. Even though Donald J. Willower (1983) has stoutly defended the structured observation approach, Peter Gronn (1982) has correctly criticised the studies for emphasising a time-motion perspective based on efficiency and for failing to explain the meaning of administrator behaviour. However, the studies remain useful because they respond clearly to the question, “What do school administrators or leaders do in their jobs?” The importance of this behaviour becomes evident when considered in the context of the concept of institutional leadership and developing new school principals through practical experiences.

Implications

Institutional Leadership

Thus far the analysis has been descriptive and analytic; however, leadership behaviour occurs in a cultural context. The institutional perspective is rooted in phenomenological sociology, a theoretical orientation that argues that a social order is created by people who interact with one another and assign meanings to their interactions (Biggart & Hamilton 1987, 430). Consequently, leadership is more than the technical and interpersonal aspects of efficient management. Leadership also has a symbolic side. It rests upon meanings as well as actions. Leaders make meanings. Indeed Thomas J. Sergiovanni (1984, 106) argues that what a leader stands for is more important than what he or she does.

The term “institutional leadership” comes from Philip Selznick (1957, 17) who argues that a major function of leadership is to infuse the organisation with value beyond the technical requirements at hand, that is, to build upon people’s need for meaning and to create institutional purpose. If successful, participants come to identify with the organisation and a sense of community develops. The organisation comes to symbolise the group’s aspirations and idealism. The institutional leader is responsible for defining the mission of the organisation, shaping its culture, and protecting and maintaining institutional integrity. Selznick (1957, 149-150) explains:

The inbuilding of purpose is a challenge to creativity because it involves transforming men and groups from neutral, technical units into participants who have a peculiar stamp, sensitivity, and commitment. This is ultimately an educational process. It has been said that the effective leader must know the meaning and master the techniques of the educator...

The leader as educator requires an ability to interpret the role and character of the enterprise, to perceive and develop models for thought and behaviour, and to find modes to communication that will inculcate general rather than merely partial perspectives.

What school leaders stand for and believe about education and schooling, the role of education in our society, how schools should be structured and operated, and how parents, teachers, and students should be treated constitute a basic set of principles that bring meaning and institutional integrity to educational leadership (Sergiovanni 1984, 108). Successful leaders infuse a common set of values, ideals, and principles in their schools. The task is to build school culture. “Schools are for students;” “set high, but attainable academic standards;” “experiment with the content and process of teaching;” “don’t be afraid to make your share of mistakes;” “teaching and learning are cooperative processes;” “be open, close, and friendly with students and colleagues;” “keep the structure and procedures simple and direct;” and “educate each student to the best of his or her ability.” Core values or empty slogans? Such slogan-like themes can be cultivated to define a distinctive set of core values to which teachers are committed, in which teachers take pride, and which make the school much more than a technical vehicle for teaching and learning.

Leaders can help shape the culture of an organisation by what they pay attention to and reward. Systematic attention is a powerful way of communicating values and beliefs. Moreover, leader reactions to critical incidents and perceived crises are important in building culture. Crises raise emotional involvement and demonstrate the integrity and values of the organisation. Is this organisation a community that takes care of its members? Crises give clear answers to such questions. Leaders also provide role models...
for subordinates through their own deliberate behaviour. Actions speak louder than words when it comes to communicating organisational values and beliefs to other members. Finally, the criteria leaders use for recruitment, selection, promotion, and censure communicate both implicitly and explicitly their values (Schein 1985).

It is not easy to give daily behaviour long-term meaning and value, but that is precisely the goal of institutional leadership. Leaders need to make as well as communicate meanings, a task which is largely symbolic, often intuitive, and frequently involves myths, rituals, and ceremonies. Myths convey unquestioned beliefs that cannot be demonstrated by the facts. Rituals and ceremonies underscore and embellish what is important in the organisation. Leaders not only use symbols, ceremonies, and myths, they use the language of uplift and idealism to communicate the distinctiveness of the organisation. What is critical is not whether the ideals can be demonstrated but whether they become standards for group striving and identification. It is not the communication of a myth or the performance of ritual that counts; rather, creative institutional leadership depends on the will and insight to see the necessity of myths, rituals, and ceremonies, and above all to create the organisational conditions that will sustain the ideals expressed in them (Selznick 1957, 151). Myths, rituals, and ceremonies are institution builders; they help to create an integrated social system.

Leadership in schools is a complex process. It involves more than the skill of mastering a style of behaviour or a contingency approach. Matching the appropriate leader behaviour with a specific situation is important, but so too is the symbolic and cultural side of leadership. The issue is not one of choosing between leadership as an instrumental and behavioural activity or leadership as a symbolic and cultural one; it is clearly both.

**Mentoring Programmes**

According to Clawson (1980, 145), the term “mentor” and the model for its application comes from Greek mythology. When Odysseus left for the Trojan War, he charged his faithful and trusted household manager, Mentor, with the education and development of his son, Telemachus. This education included all facets of his life — physical, intellectual, moral, social, spiritual, and administrator. As the occasion demanded, Mentor acted as a task-master, confidant, counsellor, and friend. The idea was for the protege to grow in wisdom and not rebellion. In recent years, policy makers, educators heading preparation programmes, and managers have shown an expanding interest in the concept of mentoring and its applications to improve practice. Indeed, young professionals seem intent on finding a mentor to smooth the way for them. Because of its salience today and potential expense, it is important to explore the theory and application of mentoring for prospective school principals.

**Definition and Model of Mentoring**

In today’s complex world, a person is likely to learn from a variety of sources and to rely on more than one source to learn the job and career requirements. For example, prospective principals may learn instructional and supervisor skills, managerial abilities, and political behaviours from different people or media. Yet another person might push the central authorities to appoint the person to a first principalship. Being a mentor implies an intense relationship in which an individual assumes the role of both teacher and advocate for another person, i.e., a protégé. However, to develop a mentor-protégé relationship, Clawson (1980, 147) is firm that the term mentor becomes applicable only when a single individual plays several of roles for another person. A mentor is an experienced and trusted individual who takes an active interest in developing a younger person in his/her career. According to Kram (1988, 23), mentoring functions include: sponsorship, exposure and visibility, coaching, protection, challenging assignments, role modelling, acceptance and confirmation, counselling, and friendship. Zey (1984, 8) arranges four sets of mentoring activities into hierarchical levels — teaching, counselling/personal support, organisational intervention, and sponsoring. In these four sets of activities, the mentor invests time and knowledge, emotion and self, reputation and relationships, and reputation and career, respectively.

Clawson develops a model for mentor-protégé
relationship. In other words, the continuum ranges from a unilateral or a one-way relationship to a fully bilateral or two-way relationship. In the unilateral relationship, the direction of exchange and assistance is typically from the supervisor to subordinate; the commitment is limited to one of the individuals. In contrast, the bilateral relationship is characterised mutual concern, commitment, respect and influence. The continuums can be combined (see Figure 1) to describe a range of mentor-protégé relationships. As the comprehensiveness and bilateral dimensions increase, so does the full meaning of mentor-protégé relationships.

Improving Practice

The day-to-day job experience is so powerful that it may overshadow what individuals learn in other situations such as classrooms. As professionals interested in preparing prospective principals, we attempt to design internship, field experience, and practicum programme with the clear intent of producing positive professional growth. The power of job experiences probably can be multiplied by creating mentor-protégé relationships. After reviewing the literature, Merraim (1983) concluded that empirical evidence exists to support the hypothesis that the most successful individuals have had mentors. While Clawson (1980, 148) notes that the "life mentor" relationship is rare, the establishment of quasi mentor-protégé relationships is probably necessary to make a systematic impact on the prospective principal. That is, the mentor must be able to have some two-way communication and establish coaching relationships and a role

FIGURE 1: TWO ESSENTIAL DIMENSIONS OF MENTOR-PROTÉGÉ RELATIONSHIPS.

<table>
<thead>
<tr>
<th>Two-Way Commitment</th>
<th>Mixed Commitment</th>
<th>One-Way Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquaintanceships</td>
<td>Life Mentors</td>
<td>Coaching Relationships</td>
</tr>
<tr>
<td>No Influence</td>
<td>Career and Personal Influence</td>
<td></td>
</tr>
<tr>
<td>Contingent Influence</td>
<td>Career or Personal Influence</td>
<td></td>
</tr>
<tr>
<td>Life Mentors</td>
<td>Career Mentors</td>
<td>Role Models</td>
</tr>
</tbody>
</table>

Comprehensiveness of Influence
model to have an impact on the protégé. Clawson (1980, 181) believes that because the roles of mentor and protégé are products of relationships, they cannot be legislated or structurally created. From an organisation perspective, a lot can be done to foster their development, but in the end they are the result of the interpersonal evaluations of two individuals who see opportunities in their relationships to fulfill personal objectives. For the mentor, it is the opportunity to express psychic or intrinsic motivations to develop young people. In addition, the mentor receives help in the job and the protégé often becomes a trusted advisor (Zey, 1984, 10). For the protégé, it is the opportunity to have support, guidance, and friendship while earning one’s own professional competence and opportunity for career advancement. That is, the benefits are mutual.

Applying Clawson’s model with the idea of developing strong mentor-protégé relationships, it seems imperative that the experience be intense with opportunities for decision-making, highly interactive, goal directed, and of considerable duration. Field experiences without these characteristics cannot develop highly bilateral and comprehensive influence patterns. Hence, the learning experiences in terms of coaching and role models will also likely be limited.

The mentors themselves must be prepared for the role. Every encounter between the mentor and protégé probably involves learning for the protégé. However, to be most effective the mentor needs to know the goals of the experience and how to manage the interpersonal process for such activities as requests for a job to be done, reprimands, praises, goal-setting and so forth. The mentor must take an active teaching role with protégé and interact with him/her on a frequent basis, and reward the mentors for their good work in developing the school’s new talent.

Cautions

Potential drawbacks or dangers must be expressed about mentoring relationships. Merriam (1983, 171) notes that the literature does refer to mentors who are exploitive, egocentric, or too protective. In addition, the mentor could lose power or influence in the organisation, have too narrow a perspective on the organisation and career, or leave the organisation. Finally, Warren (1990, 303) says the mentor model is based on the use of conservative precedent. Mentor programmes encounter consistent pressure to accommodate to existing practice and conservative solutions to problems.

Summary

Leadership is an important topic in the literature of educational administration. Definitions of leadership vary widely, as do the approaches taken to its study. The recent literature based on structured observations of leader behaviour shows that administrators and managers across school and business settings exhibit regular patterns of behaviour. To integrate the findings in school settings, five generalisations were drawn to portray the regularities in administrator behaviour. In general, they work hard, primarily in offices, in a fragmented fashion, by talking and working on a variety of tasks. Leadership is cultural and symbolic as well as instrumental and behavioural. Successful leaders infuse value into organisations thereby creating institutional meaning and purpose that go beyond the technical requirements of the job. The institutional leader is responsible for articulating the mission of the organisation, shaping its culture, and protecting and main-taining its integrity.

REFERENCES


10 SINGAPORE JOURNAL OF EDUCATION


ABSTRACT

The apparent gender inequalities in Singapore, in terms of educational access and attainment and labour force participation, have historical roots which are reflective of deep-seated social mores. A progressive trend towards greater equality is however discernible. But in a number of areas, such as enrolments in Science and Technical courses, as contrasted with arts and education courses, females are disproportionately under-represented compared with males. While equality of educational opportunities is generally adopted in Singapore, educationists need to be vigilant against possible negative effects of some educational practices, such as the differential effects of early streaming, which might be disadvantageous to boys who tend to mature later than girls, and the adverse effects of self-fulfilling prophecies arising from the hidden curriculum of sex stereotyping.

Keywords: access to education, equality of educational opportunities, sex role (differentiation), social attitudes

Aipotu was an ancient city situated on the Peruvian Andeans near the source of the River Amazon. At the height of its civilization, its social system was highly organised and in some ways, quite advanced. For example, the Head of its Council of Elders was a woman by the name of Erulla. Under her leadership, Aipotu grew literally from strength to strength as a powerful and self-sufficient city. Erulla established two Ministries, namely those of Defence and Domestics, which ensured that big and hostile countries like Lizarb would think twice about attacking Aipotu and that all the daily necessities for comfortable living are taken care of.

Mindef, or the Ministry of Defence, had over the years developed a most effective way of training and developing its defence force. It relied on not only a rigorous regimen of regular exercises in trekking through difficult mountainous terrain but also daily dosages of a special root extract, which might have contained ingredients related to what we now know as steroids.

Mindom, or the Ministry of Domestics, had also developed very efficient ways of fishing and hunting using rather sophisticated traps and of farming which capitalised on the rich volcanic soil. Its domestic force therefore had a lot of leisure time to sustain and enjoy a high quality of life by concentrating their energies on creating interesting new dishes and making the home a most aesthetically pleasing and comfortable place for living.

There was no Ministry of Education. But at age six, every child was tested and placed for training and employment by either Mindef or Mindom. If they were found to be well-disciplined and articulate (for the ability to communicate well was considered an asset in military manoeuvres), they were channelled to Mindef. However, if they were found to be investigative and creative, they were diverted to Mindom. Those who qualified for Mindef were predominantly girls while those selected for Mindom were predominantly boys. In time to come, even the small minority of the opposite sex in each group were taken out upon the insistence of their parents, who felt embarrassed.

that their children should be trained for a reversal of a socially accepted role.

Thus, educational and occupational options were highly differentiated by gender. The girls were trained by Mindef to be tough and by our standards, rather "masculine". They were in fact the original Amazons. The boys were trained by Mindom to become rather gentle and, by our standards, rather "effeminate". They were weaklings in comparison with the girls and because of their habit of saying SiSi (or Yes), they were referred to as Sissies. One unfortunate outcome which was not realised until too late was that members of each gender group tended to find the opposite sex less attractive, preferring to associate with those of the same sex. As SDU was unknown at that time,

(a) Each society should not only decide in what way and to what extent role differentiation by gender occurs but should also be cognisant of long-term effects or side-effects.

(b) Some gender differences occur naturally, but, if educational or occupational decisions are not taken into account, could disadvantage one or both genders.

(c) Education can bring about developmental changes which could enhance inequality, or equality, depending on societal pressures.

In the case of Singapore, it is important to bear in mind that for sixty years of its history, Singapore was sociologically speaking a man's world. By 1881 when its population increased to 104,031, the male-female ratio was 3.09. It was only in 1965 that the ratio was reduced to 1.08.

### TABLE 1. COMPARISON OF MALE AND FEMALE LITERACY RATE (1957, 1970 & 1980)

<table>
<thead>
<tr>
<th></th>
<th>1957</th>
<th>1970</th>
<th>1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Literacy rate</td>
<td>336/1000</td>
<td>600/1000</td>
<td>762/1000</td>
</tr>
<tr>
<td>Male Literacy rate</td>
<td>686/1000</td>
<td>800/1000</td>
<td>915/1000</td>
</tr>
<tr>
<td>TOTAL Literacy rate</td>
<td>523/1000</td>
<td>700/1000</td>
<td>840/1000</td>
</tr>
</tbody>
</table>


Marriage was becoming obsolescent. Even when Erulla finally recognised the problem she could not, despite her alluring ways, turn the tide. Within a couple of generations, Aipotu was also no longer in existence.

Actually, Aipotu (or reverse of Utopia), Erulla (or reverse of Allure) and Lizarb (or reverse of Brazil) were all non-existent. The fictitious tale is used to highlight some possible issues in the debate on education for equality, such as the following:


In a migrant, male-dominated world, it was inevitable that women played a subordinate role in child rearing and home management. As economic providers of the family, males therefore had preferential opportunities in education and occupation.

In terms of literacy rate, females have been lagging behind males although the gap appears to be narrowing progressively as shown in Table 1. It is envisaged that the 1990 Census of Population will see a much smaller difference in literacy rate between the sexes.

In terms of labour force participation, the changes have been quite significant. Although the rate for females who were "ever-married" is considerably lower than that for single females,
FIG. 1 LABOUR FORCE PARTICIPATION RATES BY SEX AND AGE, 1980 & 1988


FIG. 2 DISTRIBUTION OF EMPLOYED MALES & FEMALES BY EDUCATIONAL ATTAINMENT, 1980 & 1988

and the progressive downward slide from around age 30 applies to both female groups, marked increases in participation rates of females compared with males are most evident, as shown in Fig. 1. Also the level of education of female workers has tended to be generally higher than their male counterparts as shown in Fig. 2.

That such trends are clearly considered desirable for Singapore, especially in view of its limited resources, including human resources, has been expressed on various occasions by the former Prime Minister. For example, he remarked:

"... in case we reach the 'cut off' point for work permits (for foreigners, particularly Malaysians, to come to work in Singapore) may I suggest we start planning now how we can employ our young women workers? They are under-utilised."1

Reflecting the close link between years of formal education and participation rates, the former Prime Minister pointed out:

"Societies which do not educate and use half their potential because they are women, are those which will be worse off... We cannot not educate and use the energy and ability of our women."2

That there is a price to pay in moving towards more equitable educational and occupational participation has been well – recognised. Expansion of child care centres, more flexible employment conditions to allow women with young children to work on part-time basis for a period of time, and encouragement of three-tier families so that grand-parents could help out, if of course they do not become an additional burden, are but some measures that have emerged in recent years. Perhaps other measures should also be actively explored, such as:

(a) Education of boys to share in home management and child rearing.
(b) Pooling of resources among a number of households or even a community along the lines of the Israeli Kibbutzim.
(c) Extensive use of information technology to allow women as well as men to work at home during part of the week or day.

As far as access to education is concerned, there is absolutely no de jure discrimination by sex, although some de facto discrimination seems to occur in a few instances. For example, if we examine the percentage of female enrolment in schools, streaming at P3 appears to be disadvantageous to boys, as relatively fewer girls compared with boys are streamed into the Extended and Monolingual courses (see Fig. 3). A study by Tan (1986) has shown that at P3, girls have significantly higher academic as well as non-academic self-concept compared with boys3. Since girls mature faster than boys, early streaming might be disadvantageous to boys. The streaming at P6, on the other hand, does not produce differential effects.

In terms of pre-university education, while proportionately more girls are admitted, a larger percentage enrol in Pre-U centres than in JCs. Tan's study has also shown that at P6N and P8E, girls have significantly lower self-concept in Mathematics and Science compared to boys. Thus a larger proportion of girls probably join the Pre-U centres which generally stress on Arts and Commerce rather than Science. It is quite likely that in secondary schools, girls tend to opt for Arts rather than Science subjects. To what extent this is attributable to social factors is not very clear, although sex stereotyping in choice of school subjects is fairly universal. For example, even if boys had a choice to select home economics rather than technical studies and girls vice versa, it is very doubtful that their parents would allow them to select these subjects.

The enrolment in tertiary institutions, while improving over the years, also reflect the bias in the choice of fields of study. Thus, as shown in Fig. 4, very few females enrol in the polytechnics while a large majority of them prefer to be trained as teachers.

While there has been a significant increase in university enrolment of females, their choice of courses again reflect their bias in favour of Arts and in avoiding Engineering, although there is now a majority of females in Science (see Fig. 5) In the case of Medicine, it is not clear what the situation would be like if females had an equal chance of being admitted as males. Perhaps, since Medicine is, like Education, a caring profession, it is probable that more females

---

FIG. 3 PERCENTAGE FEMALE ENROLMENT IN SCHOOLS, 1989

<table>
<thead>
<tr>
<th>Level</th>
<th>Female Enrolment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Pri.</td>
<td>43.8</td>
</tr>
<tr>
<td>Lower Pri.</td>
<td>47.8</td>
</tr>
<tr>
<td>Upper Pri.</td>
<td>47.1</td>
</tr>
<tr>
<td>Sec.</td>
<td>48.9</td>
</tr>
<tr>
<td>Pre-U</td>
<td>55.6</td>
</tr>
<tr>
<td>Normal</td>
<td>49.6</td>
</tr>
<tr>
<td>Extended</td>
<td>41.7</td>
</tr>
<tr>
<td>Mono.</td>
<td>42.8</td>
</tr>
<tr>
<td>Special</td>
<td>49.0</td>
</tr>
<tr>
<td>Express</td>
<td>50.0</td>
</tr>
<tr>
<td>Normal</td>
<td>47.3</td>
</tr>
<tr>
<td>J.C.</td>
<td>53.1</td>
</tr>
<tr>
<td>Pre-U. C.</td>
<td>64.2</td>
</tr>
</tbody>
</table>


FIG. 4 PERCENTAGE FEMALE ENROLMENTS IN TERTIARY INSTITUTIONS

<table>
<thead>
<tr>
<th>Year</th>
<th>University</th>
<th>Polytechnic</th>
<th>IE/CPE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965</td>
<td>29.1, SU</td>
<td>9.9, SP + NAC</td>
<td>58.0, TTC</td>
<td>36.0</td>
</tr>
<tr>
<td>1970</td>
<td>32.3, SU</td>
<td>8.1, SP + NAC</td>
<td>69.5, TTC</td>
<td>30.7</td>
</tr>
<tr>
<td>1980/81</td>
<td>43.9, SU</td>
<td>22.5, SP + NAP</td>
<td>84.9, IE</td>
<td>37.6</td>
</tr>
<tr>
<td>1988</td>
<td>49.2, NUS</td>
<td>30.7, SP + NAP</td>
<td>82.3, IE</td>
<td>39.0</td>
</tr>
</tbody>
</table>

FIG. 5 PERCENTAGE OF FEMALES IN SELECTED UNDERGRADUATE COURSES
(70–71, 80–81, & 88–89)

<table>
<thead>
<tr>
<th>Field</th>
<th>70–71</th>
<th>80–81</th>
<th>88–89</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Soc. Studies</td>
<td>58.2</td>
<td>67.2</td>
<td>75.1</td>
</tr>
<tr>
<td>Business Admin.</td>
<td>22.5</td>
<td>44.3</td>
<td>66.1</td>
</tr>
<tr>
<td>Science</td>
<td>39.3</td>
<td>55.0</td>
<td>56.8</td>
</tr>
<tr>
<td>Law</td>
<td>34.4</td>
<td>53.2</td>
<td>46.9</td>
</tr>
<tr>
<td>Medicine</td>
<td>26.8</td>
<td>38.4</td>
<td>32.7</td>
</tr>
<tr>
<td>Engineering</td>
<td>2.5</td>
<td>9.9</td>
<td>14.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33.2</td>
<td>45.5</td>
<td>52.3</td>
</tr>
</tbody>
</table>

Source of Data: 10th Annual Report of SU '70–'71
1st Annual Report of NUS '80–'81
9th Annual Report of NUS '88–'89

FIG. 6 PERCENTAGE OF FEMALE TEACHERS BY AGE AND LEVEL TAUGHT

<table>
<thead>
<tr>
<th>Percentage of Female Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>40</td>
</tr>
</tbody>
</table>

Source of Data: Education Statistics Digest 1989, Ministry of Education
would be attracted to it, given the societal stereotyping of females as being more caring.

The progressive feminisation of the teaching profession is a matter of concern in recent years. If we examine the percentage of female teachers by age, as shown in Fig. 6, it will be evident that within the next 5-10 years, those who retire will have proportionately more males than those who remain in service. Attempts by the Ministry of Education in recent years to encourage more males to enter the teaching profession seems to have paid off slightly in so far as graduate teachers are concerned. In the case of nongraduate teachers, the upward trend seems to persist, with 90% of those currently enrolled in the Cert Ed programmes being female (see Fig. 7). In a sense, this situation is less worrying than if it was the other way round, for it is probably more important to have male role models, as well as female role models, in secondary than in primary schools. Likewise, the predominance of females in early childhood education and special education programmes is perhaps not of serious concern.

It is also interesting to note that even in in-service courses, there is a progressive increase in the proportion of female participants relative to the number of female teachers in service. In the full-time further professional programmes for preparing prospective heads of departments, vice-principals and principals, slightly more than half the participants are females.

One of the observations in Low's (1988) study of educational administrators is as follows:

"While success for a man tends to be based on one criterion, that of success in his vocation, for a woman it has to be success both at work and at home."4

This observation might explain the general diffidence among female teachers to aspire to senior positions, but it does not explain the trend among younger female teachers to assume senior administrative positions as well as to undertake further professional courses to do so. (see Fig. 8 and Fig. 9). While it is possible to conjecture that they are paying less attention to the home, a more optimistic view is that they have learnt to cope well with both home and work or perhaps that they have found appropriate ways of enlisting their

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18 SINGAPORE JOURNAL OF EDUCATION
FIG. 8 DISTRIBUTION OF PRINCIPALS BY SEX, AGE AND LEVELS

% Primary Sec. + JC TOTAL

45 and below
M(62.5) 12.8 22.8 17.1 45 and below
F(37.5) 16.8 29.3 22.1 46-50

50-55
M(59.0) 40.8 33.7 37.8 50-55
F(41.0) 24.0 29.7 37.8 50-55

56 and above
M(61.1) 29.6 14.1 23.0 56 and above
F(38.9) 28.0 9.4 9.4 56 and above

Source of Data: Education Statistics Digest 1989, Ministry of Education

FIG. 9 DISTRIBUTION OF VICE-PRINCIPALS BY SEX, AGE AND LEVELS

% Primary Sec. + JC TOTAL

40 and below
M(52.3) 6.7 26.3 14.6 40 and below
F(47.7) 41.4 18.4 32.3 41-45

41-45
M(44.2) 12.1 31.6 19.8 41-45
F(55.8) 22.6 41.5 39.6 46-50

46-50
M(48.7) 39.7 23.7 33.3 46-50
F(51.3) 13.2 4.2 8.9 50 and above

50 and above

Source of Data: Education Statistics Digest 1989, Ministry of Education
husbands and children to help at home.

From the foregoing rather brief glimpses of the situation in Singapore, it is perhaps possible to advance the following tentative conclusions:-

(a) In as much as educational opportunities in Singapore are based strictly on merit, sex equality is generally adopted by the educational system. The few instances of apparent sex bias in terms of access, such as the limited availability to females of technical studies in secondary schools and of medicine in the university, need however to be reviewed.

(b) As in many other countries5 the influence of early socialisation, especially by parents and the media, on sex stereotyping is indeed most powerful. Although the influence of education in counteracting such self-fulfilling prophesies is rather limited, attempts can be made to reduce the possibility of education serving to reinforce negative attitudes. For example, teachers need to consciously re-examine the teaching materials and textbooks as well as their own teaching to see whether the “hidden curriculum” regarding sex roles and sex differentiation in society as well as the inadvertent treatment of students differently according to sex are being practised, albeit unintentionally.

(c) From the demographic trends, it is clear that considerable progress has been made towards educational and occupational equality. The situation today is indeed a vast improvement of the one depicted by Wong when she concluded her study of women in Singapore:

“...while educational opportunities are wide open to them, few women are presently engaged in the professions, fewer still have attained top positions whether in the public or in the private sector of the economy. At present, there is not even one single female member of Parliament”6. In education, there is a decided trend towards having more women being appointed to senior positions, not only in the schools but also in the Ministry’s Headquarters. The trend towards the teaching rank and file being predominantly female is however of serious concern, as the reduced availability of male role models, especially at the upper secondary levels could have adverse effects.

(d) Equality per se might not be the most desirable goal in education, especially if it is interpreted in the simplistic and narrow sense of having equal numbers or proportions of both sexes in all educational activities and achievement. As pointed out by Lim:

“...equality does not necessarily mean identity in economic function. It is possible, indeed likely, that there exist innate differences in ability between the sexes, though these are much less than similar differences within each sex, and have been narrowing through time with the impact of environmental changes. Even after complete equality in education, employment and responsibility for the reproductive role has been achieved, there will probably still exist a sexual asymmetry in occupational skill and preferences.”7

Education for excellence could be a preferred goal. But, of course, besides effectiveness and efficiency, excellence could include equity in terms of “equality of student access to... alterable educational resources and school processes” (Murphy and Hallinger, 1989).8

However, my personal preference for an alternative topic for discussion is “Equality for Education in a Changing Society”. While few people would deny the value of education, some even publicly extol its importance, but when it comes to supporting initiatives and innovations in education, very few, if any, are readily forthcoming. Likewise, there seems to be a great reluctance to accept education as a serious discipline, with virtually everyone professing to be an expert in education. In short, education does not appear to be accorded equal treatment in comparison with other activities which are regarded as important for individual as well as national development. Perhaps I should make my exit at this point before opening up Pandora’s box too widely.

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Theoretical Influences on Educational Practice in Singapore: The Case of Curriculum Planning and Development*

Ho Wah Kam

ABSTRACT

The purpose of this paper is to examine the extent to which theories derived from the West have had an influence on educational practice in Singapore, particularly in the case of curriculum planning and development.

In analysing the type of Western theoretical influence on curriculum planning and development in Singapore, the author locates the paper in a broader context of the movement of ideas from one culture to another, taking into consideration the historical experience of the recipient country, its social and cultural environment, the aims of education as officially enunciated and local institutional and infrastructural arrangements.

The paper was developed along the two dimensions of time (diachronic/synchronic) and levels (macro/micro). The resulting matrix permits a study of the process involved.

Introduction

This paper will attempt to examine the extent to which theories derived from the West have had an influence on, and relevance to, educational practice in Singapore, particularly the way the school curriculum is planned and instructional materials are developed. Since the school curriculum, defined in terms of syllabuses and sets of learning experiences made available to students in school, is essentially a response to questions about the purpose and nature of schooling, the paper will necessarily take into account the historical experience of Singapore, the social and cultural environment, the aims of education and the indigenous educational infrastructure.

* This is a shorter version of the paper presented at the AERA Annual Meeting (16-20 April 1990) Symposium on 'The Influence of Western Theories on and Their Relevance to Educational Practice in Hong Kong and Singapore'.

† The assistance of Mrs Wong Yin Mee and Mrs Mahalakshamy Sripathy of the Institute of Education in the administration of the questionnaires and the interviews is gratefully acknowledged. Appreciation is also extended to other colleagues for help received, viz. Mr Poon Tsui Yeong, Mrs Raminah Abdullah, Mrs Hadjah Rahmat, Mr Teo Choo How, Mr Neo Eng Guan, Mr K Raminah, Dr Chia Lian Sai, Dr Goh Ngoh Khang and Dr S Gopinathan.

Keywords: Western theories, curriculum development, indigenisation.

This paper was developed along two dimensions — time and levels. On the time dimension, the paper took into account both the synchronic (one point in time) and diachronic (across time) aspects of curriculum development. The other dimension encompassed the macro and micro perspectives, i.e. firstly at the macro-level of exogenous influence on curriculum development as a whole, and secondly, to get a better idea of

A definition of terms follows: 'Curriculum' is used as an umbrella term to cover the courses of study in a school system, the syllabuses and the instructional materials that come between the teacher and the pupils, while the term 'syllabus' is a statement for achieving the objectives of a specific subject including the topics to be studied in a subject. Although the term 'curriculum development' is often used to cover both curriculum planning and development, it would be clearer, as the story unfolds in the Singapore setting, to make a distinction between planning and development. At the planning stage in a syllabus-dominated centralised curriculum like Singapore's, the objectives of learning a subject and the types of experiences needed to achieve those objectives are defined. The product is usually a syllabus and related guidelines. The development phase involves the provision of specially prepared materials to bring about qualitative improvements in students' learning. In a sense, this stage is interventionist as it leads to change in teaching practices. 'Western' is used in the title as a broad geographical term to refer to the sources of theories in countries such as North America, Europe, Australia and New Zealand. Perhaps, more than geographical entities, they constitute a set of references.
the influence of Western theories on and their relevance to a specific subject at the micro-level. An investigation was made of curriculum planning as evidenced in the syllabuses for English Language and of the nature of curriculum development in two language-based projects.

A major assumption underlying this paper is that language, especially English, as the medium of instruction, is central to all of the activities that we associate with in schooling, and in the Singapore system, with its bilingual education policy, language has probably attracted greater attention than in any other education system.

Another assumption is that since teachers follow the syllabuses, textbooks and instructional materials rather closely (and often more closely than they should), the concepts and theories that have influenced the thinking in these documents and materials (and embedded in them) are likely to have the greatest impact on practice in the classroom.

As Tyler (1990) puts it, "The decisions made, consciously or unconsciously, in developing the curriculum greatly influence what is taught, what students learn, what teaching procedures are used, what learning activities students carry on, and how instruction is organised to facilitate continuous and integrated learning".

The central question, then, is the extent to which curriculum planners and developers themselves have been influenced by theoretical perspectives derived from the West.

The theme under which this paper is developed permits three possible strands for discussions interwoven in this essay, viz.

1. the transfer of ideas from one culture to another, and the type of indigenisation that takes place,
2. the process of curriculum planning and development in Singapore, and
3. the relationship between theory and practice.

Exogenous Linkages: Transfer of Ideas from One Culture to Another

The paper locates itself in a broader context of the movement of ideas from one culture to another and also of the process of indigenisation, and will try to draw pertinent insights from the social science literature.

In a free marketplace of ideas in an increasingly interdependent world, such as it is today, theory borrowing and adaptation has an important place in the diffusion of knowledge. This transfer of knowledge from institutions in the developed countries (the centre) to those in less developed countries (the periphery) has been characterised as part of the centre-periphery paradigm (Altbach, 1981). It is a useful descriptive term, but it necessarily suggests a certain amount of dependency of the periphery on the centre and also the absence of cross-influences.

In criticising the dependency theory, Raggatt (1983) notes that "there is no space in the paradigm to explore how important ideas and models, as they pass through different levels in the system, interact with deep-seated cultural commitments and notions of cultural identity ... it assumes 'fidelity' when 'mutual adaptation' by planners and implementers is the reality".

In turn, Raggatt calls for detailed studies of "how educational ideas and actual reforms are transmitted through the system, how they are negotiated with different audiences and at different levels, and how they are modified in the process".

Whether or not this one-way flow of knowledge is a good thing has been a topic of extended debate among social scientists sensitive to what has been called "the dynamics of imperial expansion". Not a few of these social scientists have called for indigenisation of the social sciences (Atal, 1981), although there is general recognition that as a result of the inherent inequalities in the distribution of expertise and wealth, the means of knowledge production are inevitably located in prestigious centres in the West.

In the debate, the question of the relevance of Western ideas to indigenous contexts constitutes an important aspect of this call for indigenisation. For example, in the foreword to an early volume entitled *The Relevance of the Social Sciences in Contemporary Asia*, Shiozuki (1968) recalls that as early as 1949, a group of Asian leaders meeting in Ceylon (now Sri Lanka) expressed the general feeling that much thinking about Asia was "too Western to be very relevant to the Asian setting" (p vi). In the same volume, Espiritu (1968) reminds his readers of the "limits to the applicability of Western concepts, values and methods to Asian realities" (p 43). Agreeing with the main thrust of Espiritu's paper, SA Lee (1968:52) elaborates on the point, "If we are not to receive..."
indiscriminately all Western thought, we should not at the same time throw out all Western thought; we should know what to select for our use and what not to select. In view of our scarce resources, it is in fact preferable to leave to Western universities and governments those items of research which can best be carried out by them and we should merely draw the results from time to time.

In the light of SA Lee's (1968) statement, it is useful to think in terms of three types of indigenisation (as applicable to the social sciences), as Kumar (1979) did, viz. structural, substantive and theoretical. The controversy has been over theoretical indigenisation, i.e. whether or not certain theoretical frameworks formulated in a particular society carry with them the normative values and dominant ideologies of that society, which has led to questioning the premises underlying the social sciences. Structural and substantive indigenisation are much less controversial. According to Kumar (1979:104), structural indigenisation refers to the "institutional and organisational capabilities of the nation for the production and diffusion of social science knowledge", while substantive indigenisation has to do with the content focus of the social sciences.

Kumar's concepts will be used when I generalise from the specifics, but the terms which will be employed are devoid of the connotations associated with the dependency theory so fashionable in the 1970s. In developing the general theme of this symposium, which is on the influence of Western theories on indigenous education systems like those in Hong Kong and Singapore, a threshold level for discussion must be first determined. The threshold level is the pull of the metropolitan centres (in the West) remaining as strong as it was in the colonial period principally because they are still the centres of knowledge creation and development. This is as true in the case of education as in the hard sciences. There are other factors, too. English, a major metropolitan language, is increasingly the medium of intellectual communication, and through it, the peripheries get to know about basic research in education coming out of Western universities and research centres, looking to the same sources for up-to-date journals and state-of-the-art books. Educational technology is Western in nature, and it brings with it not only a paraphernalia of hardware but also a philosophy and a set of views about teaching.

Exogenous Influence on Educational Practice: The Macro View

The British influence in countries like Singapore is well characterised in this statement made by Perren (1963) at a conference in Cambridge, UK, when he noted that "in Commonwealth countries where English is a second language, the influence of practice in Great Britain has been considerable. It has been exerted very largely through two agencies — British examinations taken overseas have set the syllabuses and largely controlled the teaching of literature in schools, and British trained teachers and inspectors have, often without question, assumed that what was believed right for Britain (especially anything which concerned the English Language) would also be valuable overseas". Perren identified two factors, viz. the examination system with its prescribed syllabuses and expatriate personnel.

While it can be said that the heritage of a British colonial past has, to a large extent, determined the structure of Singapore's education system until independence including the dominant use of English in instruction and in many aspects of the school curriculum, in reality, such influence was not uniform on each of the four language streams. The response of non-English-medium streams to Western influence, having used different reference points, was a complex combination of determination to preserve indigenous values and traditions, and general reluctance to learn from the West. For example, for a long time in the early days, textbooks for Chinese schools were brought in from mainland China; those used in Malay schools had a strongly indigenous cultural content. There was clearly a lack of fit between a Western orientation and the educational traditions of the Chinese, Malay and Tamil communities.

For the English stream schools themselves, the use of an exogenous language with grammatical and lexical norms set by educated native speakers in the UK and codified for teaching purposes in terms of Latin grammar, of textbooks imported from the UK and written by overseas authors employing a curricular orientation and principles of teaching more relevant to English-speaking children in England, of expatriate lecturers in the only teachers training college, and of exami-
nation syllabuses determined by the University of Cambridge Local Examinations Syndicate based in UK, would collectively be the clearest example of the transmission of Western theories of teaching and their values from the centre to the periphery.

The continued use and, indeed, spread of English (the maintenance of the language of administration of the colonial period was in itself unique among former colonial territories in Southeast Asia), the continuance of the Overseas Cambridge Examination system and the undoubted superiority of these texts are often cited as reasons for the situation (see Gopinathan, 1989:182). Until an indigenous textbook publishing infrastructure was built in the late 1960s in the private sector, schools depended almost exclusively on books from the UK especially when all the secondary school subjects were tied to the requirements of external examinations conducted by the Cambridge Examinations Syndicate. Then, some encouragement was given by established publishers in the UK to practising teachers here to adapt some of the textbooks for local use when there was evidence of local expertise to write textbooks. This was the first stage of the process of indigenisation in textbook provision.

In the hands of well-qualified teachers, the textbook remains a very powerful tool in classroom instruction, but for the less qualified, it is the only source of school knowledge, and so very often, it determines the way a subject is conceptualised, taught and understood. Seen in terms of a worldwide knowledge-distribution network, the publication of textbooks for export from the centre (where the world’s major textbook publishing companies are located) to the periphery provides another example of the way Western theories in teaching were (and are) being transmitted to countries like Singapore, which gives some justification to Altbach and Gopinathan’s (1985:15) statement that “Colonialism structured an international system that emphasised the power of the metropolitan centres and a dominant-dependent relationship between these centres and their peripheries. The publishing enterprise reflected this unequal distribution of material and intellectual resources”.

However, as Raggatt (1983) has suggested, the centre-periphery mechanism can be modified with the development of regional centres. Such a centre is the RELC (Regional Language Centre) established in Singapore in 1968, an outcome of decisions made at the first meeting of the Southeast Asian Ministers of Education Council (SEAMEC) to train “key personnel” in language education and to organise seminars on various issues of concern to the region on linguistics, psycholinguistic and sociolinguistic topics.

RELC’s regional seminars are widely known as important occasions, among other objectives, “to exploit the results of research and to synthesise the efforts of an international community of scholars in related disciplines in an attempt to search for solutions to present day language teaching and language learning problems in Southeast Asia”.

Topics for such seminars have ranged from language education in a multilingual society (1977), bilingualism (1979) to communicative language teaching (1984). How ideas and theories discussed at these seminars have had an influence on the teaching of English here may be illustrated with the story of the spread of the concept of communicative competence, which has had a strong influence on language teaching.

At the 1978 RELC seminar, there were two papers (Di Pietro, 1979; Prabhu, 1979) which introduced the notions of linguistic competence and communication with reference to language teaching. The 1983 seminar, under the rubric of Trends in Syllabus Design, brought together some internationally known language teaching specialists, among them Munby, who spoke on the communicative syllabus design, and Prabhu, who explained the rationale of his Communicational Teaching Project in Bangalore, South India, to which reference will be made later in this paper.

The 1984 RELC Seminar, devoted entirely to communicative language teaching, attracted papers on the application and adaptation of communicative language teaching in different indigenous contexts within the region. Hence, the concept mooted in 1978 was reinforced once again in 1984, by which time a teacher trainer (Kirkpatrick, 1985) working in Singapore then was able to report at the 1984 seminar that “Singapore’s grammar-based syllabus and communicative language teaching need not be enemies but can work together quite happily”. In this case, a theory transferred from the West underwent some changes as it interacted with a
slightly different cultural bias. Thus, the mechanism of the centre-periphery paradigm is being modified with the building up of centres within a region and linked through a network.

Although historical factors continue to weigh heavily in areas such as maintaining a national examination system and adopting curricular orientations that are subject-based, Singapore has, for good reasons, taken in some areas, a direction seemingly against trends in mainstream Western practice if they do not suit its purposes. One example is the introduction of academic streaming in schools after 1979, which created a lot of debate in the local press and drew some criticism from abroad. For example, Hunt (1987:117) called academic streaming "retrogressive in comparison with practices widely adopted elsewhere" but he nevertheless recognised that the "adoption of a policy of streaming is a clear statement of priorities ... [it] must be seen as primarily instrumental in the achievement of economic goals and to have been adopted substantially on economic grounds".

In fact, such streaming, with the provision of lateral transfers, has provided greater access to learning opportunities within the system than was the case before as fewer students leave the system prematurely. On the other hand, it was the British psychologist, Hans Eysenck, who was reportedly in favour of the Singapore streaming system (see The Straits Times, 1987). Singapore has developed a model of differentiated curriculum that takes full advantage of pupils' differential learning pace.

The Practice of Curriculum Planning: Sources of Influence

In the Singapore context, the curriculum is best seen as an example of organisational planning and management to which the principles of rational curriculum development can be applied. Early advocates of this view of curriculum planning were Tyler (1949) and Taba (1962) in the US.

However, unlike the situation in the UK (where school-based curriculum development in the 1960s and 1970s was very much in vogue), US, Canada, Australia and New Zealand, curriculum planning is highly centralised within the education system with subject syllabuses drawn up by the Ministry of Education. This development is probably the product of a colonial experience.

Although the school system itself is largely patterned on the British model with students working towards taking nationally conducted examinations, this aspect of the planning mechanism has developed through much improvisation because the colonial administration did not leave to 1980s, the influence of a liberal, humanistic approach recognising the centrality of the learner became evident. Probably taking the cue from the progressive movement in the UK, the syllabus designers introduced ideas focussing on students' interests and activities in learning. New subjects in civics and moral education were introduced, reflecting social and political priorities at that time. In structure, the syllabuses carried more details on the what of content, how of method, and where of objectives, thus, helping to define the relationship between a syllabus, teaching, learning and their organisation.

The third phase, starting with the establishment of the Curriculum Development Institute of Singapore (CDIS) in 1980, saw the introduction of the project team model in curriculum development, which brought together experienced teachers, subject specialists, material writers and external consultants (usually from the mainstream of education in the West) to produce subject-specific, attractive, multimedia learning packages. It was also during this period that the introduction of new subjects like religion and Confucian ethics into the curriculum led the Ministry of Education into some of the more sensitive and difficult areas of social policy.

Curriculum Planning and Development: A General Picture

If ideas can be used to mark out certain historical trends, then, curriculum planning and development in Singapore may be seen in terms of three phases.

The early phase, up till about the early 1970s, essentially involved the maintenance of a selective, highly academic curriculum with the periodic updating of subject syllabuses. The major achievement then was the provision of common content in the four language streams of education.

Then in the 1960s, a few new subjects were introduced with a technical-vocational slant. In form, the syllabuses collectively represented a subject-defined curriculum. From the early 1970s
behind any special expertise in curriculum development in a centralised system nor did it have much experience in administering such a system.

In 1979, when the Ministry of Education underwent restructuring, a team led by the then Minister of Education visited, instead of the largely Anglo-Saxon countries, the Centre National Documentation Pedagogique (among other institutions), France, to learn how the CNDP functioned for the production of instructional materials for schools in their country. That visit resulted in the publication of a widely-distributed report and in certain decisions related to the setting up of the Curriculum Development Institute of Singapore (CDIS).

While the French system could not be copied as it was, the then Minister (1980:iii) declared that “our understanding of how it [the French system] works confirms the conclusion I reached earlier about the pivotal role of curriculum work in a centralised system of education”.

The main conclusion was that the main task of curriculum development (defined as the elaboration of syllabuses, the production of teaching materials) was to be carried out by a newly established institute, the CDIS. Certain indigenous characteristics of CDIS make it very much an innovation (see Yeoh, 1983). As in the early days, the Ministry, through its Curriculum Development Committee (CDC), retains the authority to determine the subject syllabuses.

As evident from existing records, the formulation of subject syllabuses in Singapore has always been centrally determined. For example, prior to 1969, there was first the Textbooks and Syllabuses Committee (1959-66), then the Committee on Curricula and Syllabuses (CCS, 1966-69), followed by (between 1969 and 1976) the Advisory Committee on Curriculum Development (ACCD), which having replaced the CCS, was charged with the responsibility of advising the Minister on all aspects of curriculum development and of supervising the implementation of such recommendations as might be approved by the Minister.

The ACCD was, in turn, replaced by the Curriculum Development Committee (CDC) in June 1976, and among its terms of reference revised in 1979 were the following responsibilities:

- to translate national needs and educational policies into curriculum specifications, to clarify the objectives and needs of the curriculum with reference to education policy, and to guide the development of curriculum materials according to educational objectives.

In designing the syllabuses, Ministry officers were assisted by the Subject Advisory Committees (SACs), which comprised subject specialists drawn from schools, the teacher training institution and the university.

It was Wong (1974), trained at Queen's University, Belfast, Ireland and at Harvard (for her master's and doctorate) and the first chairperson of the ACCD, who gave a detailed picture of how the ACCD operated. Under Wong's leadership, the ACCD saw its most important functions as giving direction to the course of curriculum planning and coordinating the work of its subject committees, concentrating initially on four tasks, namely,

(a) the analysis of the context of curriculum changes (social, cultural and national),
(b) analysis of needs (the individual's, society's and the world's),
(c) stating objectives such as could be gleaned from policy papers and ministerial speeches or parliamentary statements, and
(d) operationalising the objectives.

The objectives were related to four categories of concern — the individual, society, the nation and the world, reflecting Wong's understanding of the social purpose of schooling. Objectives from these sources seem to have some authority external to the classroom.

With these objectives, curriculum development was seen in terms of two dimensions, the horizontal representing widening circles of concern between the individual and the environment, and the vertical dealing with aspects of learning (knowledge, skills and attitudes). Experiences for students had to be structured. In many ways, this statement from the ACCD represented an important shift in educational constructs. Standing committees were formed for different subjects, drawing into a "collaborative effort" representatives from professional organisations interested in curriculum development.

As explained by Wong (1973:5) again, the various committees were "exhorted to relate, as much as possible, the overall objectives identified to their specific subject objectives. These objectives were to be defined and analysed to the extent that they eventually permeated every lesson in the classroom, at which level, each objective
would appear operationally in instructional and behavioural terms”.

In the US, the doctrine of objectives was prominent in the periods, 1920s and 1960s. As in the US, the emphasis on objectives in the Singapore curriculum was in reaction to the highly academic curriculum that was patterned on the expectations of subject or content specialists. However, the major difference between the doctrine of specific objectives as espoused in the US and that advocated by Wong of the ACCD was that the former was quite mechanistic and Wong’s was based on a holistic view of child development and humanism. An inspiring teacher herself, with a strong sense of mission, Wong was against a lifeless curriculum and “ossified” methods of teaching, and the roots of her humanism might be traced to Dewey.

Nevertheless, the ideas of curriculum planning, as practised at that time, were clearly influenced by those advocating rational curriculum planning in the UK and US. The characteristics of this approach were explained by Hirst (1969), a British educational philosopher, “I propose ... to highlight three crucial demands of rational curriculum planning ... The first demand is that educational objectives be clear and precise ... The second demand is that we do not confuse questions about objectives and questions about content and questions about method ... The third demand of rational curriculum planning is that we begin first with questions of objectives and only then move on to questions about content and method”. Skilbeck (1972) called this approach “rational deductive decision taking” which is often realised in a “centrally-dominated curriculum system, where policy directives, detailed syllabuses, learning resources, examinations, personnel are controlled through a hierarchy from the centre”.

Although there has not been any explicit statement in the official documents on the theory that was/is used in curriculum planning in Singapore, it seems clear that the characterisation given above fits quite well the situation in Singapore before 1980. However, three of the curriculum planners in the survey mentioned Tyler’s (1949) and Taba’s (1962) theories as having an influence on their work. Hilda Taba elaborated on Tyler’s model. A few other respondents identified some of the features of curriculum planning found in Tyler’s model, which would appear that a likely source of influence would be that of Tyler’s curriculum theory, known generally as Tyler’s rationale. This is understandable, as Tyler’s book, I understand, has been translated into several languages, and is together with Dewey’s Democracy and Education, probably one of the two most influential books on curriculum thought and practice.

A brief word about Tyler’s rationale is in order in view of its widespread influence on curriculum development. The rationale is systematic, proceeding from means to ends, as Tyler believed that any curriculum should be organised around pre-determined, explicitly defined objectives, which would collectively serve as a guide to the selection of instructional materials and procedures and for the evaluation of the curriculum’s success. As is well known, the rationale revolves around four principal questions which the curriculum planner in the Singapore situation would ask or had asked using different words when the curriculum was revised in the 1970s. Tyler defines education as a process of changing the behaviour patterns of people. The process consists of a series of learning experiences aimed at fulfilling carefully considered educational objectives. The selection of appropriate objectives, goals and ends is a major feature of the Tyler model of curriculum planning. The four functions in curriculum development (identifying objectives, selecting ways of achieving these objectives, organising the means, and evaluating the outcomes) are seen by Tyler as moving in a sequence.

As in the Tyler rationale, the data for educational objectives in the Singapore example were derived from three sources: the learners themselves, the community, and the content of school subjects as recommended by subject specialists. There were two ‘screens’ which served as filters to these objectives — philosophical and psychological. The philosophical screen was best encapsulated in Singapore’s aims of education, and the psychological screen used was probably underpinned by learning principles as understood then.

Curriculum development was characterised by Wong (1973:6) as a series of “specify-implement-

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5 A questionnaire survey conducted among 40 curriculum officers in the Ministry of Education provided the empirical data, while interviews with a sub-sample (30%) of the respondents yielded some very useful qualitative data.
evaluate-improve cycles", stressing the importance of objectives — "... the purpose of the curriculum cannot be clear except through thinking through these objectives and specifying them".

Since the early 1970s, the use of educational objectives has been a dominant feature of curriculum planning in Singapore, and the question of how instructional objectives should be appropriately used by teachers in lesson planning and instruction was more recently the focus of a series of school-based workshops (see STU Report, 1987).

The Singapore curriculum has been undergoing continuous reassessment, synthesis and revision since the first major syllabus revision exercise in 1962. Traditionally subject-centred, it has taken a more child-centred orientation. From the replies of 40 curriculum planners in a questionnaire survey (please see Footnote 3), it is clear that there is now greater emphasis on the interests of the child which the curriculum is aimed at enriching. Together with what would be perceived as the needs of the child, the child's interest seems to constitute a strong motivational base for the curriculum.

The closed-ended responses from the same survey are briefly analysed next. All the respondents agreed that their work in curriculum planning would have a theoretical foundation based on concepts pertinent to a particular school subject. Also, 90% of the curriculum planners acknowledged that their conceptualisation of the syllabuses was strongly influenced by theories and thinking from Western sources, but they (90%) also agreed that theories were used with adaptation, taking into account the cultural factors and social conditions in the local situation. There was, therefore, a certain amount of what Kumar (1979) called 'substantive indigenisation'.

When asked to identify the theories that influenced their work and that were perceived to be relevant, the non-language officers mentioned, among other concepts, Bruner's theory of instruction, Piaget's stage development theory, the theories of Ausubel and Gagne, and the works of Dewey and Benjamin Bloom. However, it was the language specialists who were most specific in identifying theories pertinent to their discipline, eg. Krashen's monitor theory, the schema theory in reading comprehension and the communicative competence approach. Some of the current theories pertinent to second language acquisition in the West were also mentioned as being influential by those involved in planning the syllabuses for teaching endogenous languages such as Chinese, Malay and Tamil.

While it is true that language syllabuses have always been influenced by a theory of language and a theory of language learning prevalent at that time, the language syllabuses in Singapore have been more eclectic, consisting of a combination of structural, situational, skills-based and task-based features. Nonetheless, there has been a shift in thinking, with increasing attention paid to language use and decreasing attention to language form.

In arguing for a revision of existing syllabuses in English, Mok (1987:148) said, "The fact that the present syllabuses are out of step with the firmly held views of Singapore language specialists on language teaching gives a valid reason for considering revision".

The general shift of views of language learning is probably the result of what has happened in the West over the last 15 years in the area of language pedagogy. When the older behaviourist model of language acquisition gave way to a cognitivist perspective as a result largely of what has been called the 'Chomskyan revolution in linguistics', Krashen's monitor theory and related approaches have taken its place. The audio-lingual approach, based on the behaviourist model, has not been completely abandoned here but adapted to emphasise the oral aspects of language learning and to encourage regular use of the language in a communicative context. According to Mok (1987:148), schools, under the guidance of curriculum specialists from the Ministry of Education and training institutions, have been keeping pace with "current approaches and practices" — a phrase to be interpreted to mean following trends in the mainstream of language teaching. For example, the learner is now at least an active user of language, "Many school English programmes are slanting towards a view of language teaching that places the learner at a focal point with the teacher seen in the role of a facilitator who provides creative contexts for language learning" (Mok, 1987:148).

In recent years, there is, therefore, clear recognition of the centrality of the learner, a position which seems to be tied to the liberal, humanistic tradition of the West that started with the progressive education movement in the 20s in the
US. This is evident in the responses to the questionnaires, which affirmed that the move has been in the direction of the learner-centred approach, building on students' interests and needs. There has always been this tension between the subject-centred and learner-centred approaches in an attempt to make the curriculum more relevant to the life experiences of the learner. And although the source of this idea is clearly Western, the interpretation of it is different from how it is conventionally interpreted. Even in the West, curriculum theorists did warn against total reliance on students' interests. The respondents in the survey recognised that the students' interests and needs, and the basis of motivation to learn should be the starting point in the curriculum, although at the practical level, the interpretation may entail different ways of making topics interesting and acceptable to the student. Nonetheless, the idea that students must be intrinsically (rather than extrinsically) motivated is central to any educational theory.

In general, a number of basic theoretical ideas have more recently influenced educational practice and the construction of the syllabuses. In the mid-1970s, for instance, the concept of learning as inquiry influenced in particular the science syllabuses. The work of Benjamin Bloom and his associates in developing the taxonomy of educational objectives threw into relief the lack of attention being paid to the higher-level cognitive objectives in many syllabuses and classrooms. In the 1980s, attention was focussed on the development of higher-order cognitive skills, which resulted in the revival of interests in teaching thinking skills. The introduction of the recent Ministry-initiated CoRT (Cognitive Research Trust) Thinking Programme is a case in point (see CoRT, 1990). Introduced into a few pilot schools in Singapore in 1987 and designed by Edward de Bono, well-known for his work on lateral thinking, it consists of a series of 60 lessons intended for the direct teaching of thinking as a skill, but the next stage of integrating all the thinking tools into school subjects is regarded as crucial. So far, a total of 45 primary and secondary schools have joined the programme. This programme has generated a number of other school-based thinking projects (eg. Perera, 1990) designed to adapt the general principles and tools to suit certain school subjects and local conditions.

The Practice of Curriculum Development

Before 1980, the development of materials for subject teaching was confined to the production of guidelines and manuals for teachers, and instructional materials for one or two pilot-scale projects while commercial publishers, some of them foreign, produced textbooks written to given syllabuses. In the practice of curriculum development, then, structural or infrastructural indigenisation did not take place in Singapore until the establishment of the CDIS.

Set up in 1980 to "produce teaching materials of all kinds" (Goh, 1980:iii), the CDIS has been active in developing a wide range of instructional materials covering practically all school subjects. According to Lim (1988:2), a former senior staff member in CDIS, curriculum development was re-interpreted to include "needs analysis, goal setting, syllabus design, materials design, language programme design, teacher preparation, implementation of programmes in the schools, monitoring, feedback and evaluation". Although the visit to France, by a team of curriculum specialists (see Lau et al., 1980), did confirm the need for a new system of curriculum development in Singapore, there is probably no parallel organisation in education systems in the West.

As originally envisaged, CDIS has taken on "the pivotal role of curriculum work in a centralised system of education" (Goh, 1980:iii). Over the last nine years, CDIS has developed a large number of instructional packages for practically all school subjects. Although the conceptualisation and writing of these materials have been assigned to local specialists and teachers, CDIS continues to draw upon foreign expertise (usually from UK and the US) as consultants to its projects.

In a sense, Singapore is very much less dependent on Western publishers for teaching materials and textbooks but inevitably, curricular perspectives from overseas have been adopted. This last point was confirmed by Lim (1988), who coordinated a number of the language projects at CDIS. She referred to a hierarchy of factors taken into account in materials development in Singapore, among which she called the

4 "The goals are the sum of goals, largely humanistic, in language teaching as represented in current theory and practice, which focus on the learner, and which form the rationale of all the language materials produced by CDIS. They emphasise the learner as an active participant in the learning process, rather than a passive recipient, as an individual with special needs ..." (Lim, 1988:3).
goals' (or what Tyler would call the psychological screen).

These goals are moderated by what she called "Givens" and "Constraints". The "Givens", or the philosophical screen, are goals formalised in national policies, such as working towards a bilingual ability, the need to develop a cultural identity based on multiculturalism, and the inculcation of social and moral values. These form what Lim called the "ideological framework for materials development" (1988:4). The "Constraints" constitute the realities of the language situation, e.g. relatively large class size, the actual amount of curriculum time (less than desired), the heterogeneity of students' language backgrounds, etc. In assessing the effect of the invigorated curriculum development process after seven or eight years, Lim (1988:7) declared that "A combination of factors, including the worldwide trend towards a humanistic approach in language teaching, the advent of the communicative approach, a new emphasis on oral-aural skills, a new consciousness of the vast educational potential of technology ... have all contributed towards a greater willingness on the part of teachers to explore ways of removing barriers to make teaching more innovative". Lim cited, among other successful projects, REAP (Reading and English Acquisition Programme), a project currently based in the Ministry of Education.

REAP and the language arts component in LEAP (Language Activity Programme, based then in CDIS) will be examined for the way exogenous theories have been adapted to suit local needs and conditions. Both programmes took seriously Dewey's advice about starting where the child is. In both cases, language was seen as central to learning, and both recognised the movement in language teaching towards strategies "based on communication, the use of real language and real situations, and a reliance on the pupil himself to set some of the parameters of his own learning" (Somerville-Ryan, 1985:15). Both programmes adapted what is broadly known as the 'Whole Language' approach, each to suit its own purposes. Whole language teaching, eclectic in its theoretical underpinnings (attribution has been made to Dewey, Halliday, Vygotsky and Frank Smith, among others) "operates from an examined theory of how language, thought, and knowledge develop holistically and in support of each other" (Goodman, 1989:209).

Briefly, REAP was developed in 1985 after some extensive field work, and has since been introduced to the lower-primary classes in practically all the primary schools in Singapore. The objective of the programme was to guide lower-primary teachers away from their rather structured teaching strategies towards methods incorporating the teaching of both oral and writing skills.

The concepts underpinning REAP came largely from the Language Experience Approach to Reading (LEAR). Although REAP takes LEAR as its model, which is built on the use of children's use of language that they bring to the learning task (Lee and van Allen, 1963:35), the approach had to be modified to take into account the largely EL2 situation in Singapore by adopting additional features from other language programmes, resulting in REAP relying on books much more than the original language experience approach would require. This was regarded as necessary because the language used in print was likely to be more precise and exact than what is sometimes heard in the classroom. The two additional features are the 'Shared Book Experience' and 'Book Flood' techniques. The 'Shared Book Experience', developed by Holdaway (1979) in New Zealand, seems most effective with young children as it emphasises the enjoyment of reading that can be shared with another reader and in an EL2 setting; it compensates for the lack of such reading experiences in the home with another adult. The idea of a 'Book Flood' strategy was taken from the Fijian Book Flood experiment reported in Elley and Mangubhai (1983), which showed how children, exposed to a great variety of high-interest illustrated storybooks, made improvement in their reading and listening after only eight months of such exposure. Elley, an external consultant to REAP, is a Professor of Education in New Zealand. This project has had a very strong impact not just on a particular subject like English but on the whole rationale of the school curriculum. According to the (internal) project consultant (Ng, 1987), the decision to implement the project was based on evidence derived from the pilot study that the language experience approach was suitable for the local primary schoolchildren on linguistic and psychological grounds. Two features in the adaptation have made this version different from the original — (a) the local version offers more
structural elements in language than would be warranted in the original approach, and (b) the incorporation of features from the teaching of English as a second language.

In the case of curriculum development, then, the influence from the West has been both direct and indirect. A good example is the Learning Activity Programme (LEAP) designed for academically weaker pupils. It was developed on the principle that pupils learn differently and that the weaker ones, in particular, have different interests. The main aim of the LEAP curriculum was “to inculcate basic literacy and numeracy while providing skills training to prepare students for the world of work” (Quah, 1985:8).

LEAP has several subject components but this discussion is confined to the language arts component. Three features of the language arts component in this programme are worth noting. Firstly, it is the L1-L2 transformation, i.e. while the original idea of a language experience, task-based approach came from the West, the procedures were adapted from a project carried out in Bangalore, South India, where the pupils were relatively weak in English language, learnt as a second language. It was called the ‘Procedural’ approach, and according to Somerville-Ryan (1986:1), one of the developers of this component of LEAP, “[LEAP] has incorporated the crucial elements of the procedural approach, but is structured around a broad model of skills development”. While Somerville-Ryan (1985:1) fully acknowledged that the language component in LEAP owed much to the theoretical basis of the Bangalore Project and the work of its director, Prabhu, the local team also made several important changes in the design of the language learning tasks.

Secondly, it was this synthesis of theory and practice which proved most challenging to the materials writers. Thirdly, the result was an approach which was marked by a move away from the content/grammatical specifications of the traditional language syllabuses, and which required the pupils to be involved in tasks or activities which encouraged them to express themselves in English. While it kept to the criteria of the procedural or task approach, it differed in terms of methods and techniques (see Somerville-Ryan, 1985:10). The starting point of the programme is the belief that language is best acquired through use, and that the communication of meaning is more important than the teaching of form — characteristics shared with other approaches advocated in current second language teaching methodology. In assessing this challenge in synthesising theory and practice (and touching implicitly on the indigenisation issue), Somerville-Ryan (1985:1) said, “While most of the theoretical issues which have influenced these developments have originated in Europe and America, the nature and complexity of language policy and curriculum change in Asia has meant that it is one of the most exciting arenas for practical research into language learning and curriculum implementation where the synthesis is made real”.

East-West Perspectives in Education

Theory borrowing characterises much of the transfer of knowledge from one culture to another, but McLean (1983:25) has warned of the dangers of direct transfer. Other than the question of cultural relevance, there are inherent problems, as he points out, in a model of direct transfer. For instance, the conceptual factors may be different in important ways in the two (donor and recipient) settings to allow for effective transfer, but more importantly, users of a theory in the recipient setting may fail to take into account the debate about the theory and the modification made within the parent theory itself after the transfer has taken place. The “ossification” of theories is a special danger, and therefore it is necessary for theories to be re-evaluated against the wisdom of practice. Furthermore, according to McLean, transfer of theories from the centre to the periphery may inculcate “local elites with metropolitan values”. In the Singapore situation, the kind of transfer that McLean warns against occurs less frequently because of the greater consciousness of the inappropriacy of direct transfer. It is clear from the replies of the curriculum specialists that much store is set by adaptation; indigenous mediating factors are inevitably taken into account. In the nature of adaptations, Widdowson’s (1989:128)

5 Prabhu (1984:275) explained that the Communicational Teaching Project, the cumulative result of major ideas and insights acquired in the last fifteen years or so, was based on the assumption that “language-structure is best acquired when the learner’s attention is on meaning — when, that is to say, the learner is preoccupied with understanding, working out, relating or conveying messages, or coping, in the process, as well as he can with the language involved.”
advice seems valid, when he says: "... the influence of ideas does not depend on their being understood in their own terms. Usually it depends on their being recast in different terms to suit other conditions of relevance. The more influential an idea, the less dependent it is on the particular context of its conception."

But how is this process of influence to be conceptualised? One way of explaining the impact of exogenous theories on local educational practice is to see it in terms of Anthony’s (1963) conceptual differentiation between approach, method and technique (see Fig. 1).

**FIG. 1. APPROACH, METHOD AND TECHNIQUE**

The term ‘approach’ covers the concepts and theories pertinent to the chosen way of teaching a particular subject. Such theories are related directly to method (an interaction of content and the selected principles of teaching the subject) and technique (a procedure implemented in the classroom). A ‘method’ refers to an overall plan in presenting and teaching the subject or topics in the subject, taking into account the nature of the content and the relevant principles of teaching. A ‘technique’ is what Anthony (1963) has called a device or stratagem. In language teaching, for example, if communicative competence is the theory adopted, then it is located within the approach and reflected in the method(s) used. The techniques are made visible in the classroom as activities or practices introduced. The process of indigenisation often occurs at the levels of method and technique.

Educational practice in Singapore has benefited from the dynamism of the West in theory development and basic research in education, but what are the long-term effects on the system given the transmission of thought forms, values and ideas that come with the influence? This question has been publicly addressed with reference to another context. Brig-Gen Lee Hsien Loong (1989), in an important speech on the problem of Westernisation, has said, “Because of this Westernisation, Singapore society has become different from other East Asian countries, like Taiwan or Hong Kong. As a people, we have also changed, in outlook and attitudes, from what we were 10 or 20 years ago. This is an objective fact, and not just nostalgia for a vanished past. Even today, the process is not complete. Our peoples’ values are still changing rapidly. With universal English education, we have become a totally open society. The next generation is not growing up with the same values and outlook as their parents. Nor are they acquiring updated values which their parents’ generations have carefully thought out and imbued in them. As a society, we are absorbing ideas from outside faster than we can digest them, and in danger of losing our sense of direction.”

This problem of response to Western influence is one faced by all non-Western countries, but Brig-Gen Lee adds, “Singapore’s problem is: how to be cosmopolitan, but yet not be rootless; how to have an open mind and be forward and outward looking, but still keep a clear sense of identity and self-confidence?”. The solution, Brig-Gen Lee says, is in building a strong sense of Singaporean identity, a “characteristic ethos and spirit of a people”. This argument can be traced to the roots of the bilingual education policy and the former Prime Minister’s concerns which he expressed as early as 1966. The values-language-culture link was made explicit by Mr Lee Kuan Yew when he spoke to members of the Singapore Teachers’ Union in 1972: “And it is not just learning the language. With the language go the fables and proverbs. It is the learning of a whole language system, a whole philosophy of life, that can maintain the fabric of our society intact”.

It was basically this fear that the traditional cultural norms might be eroded as a result of rapid modernisation and Westernisation that led to the teaching of moral education in schools to promote a set of values perceived as Asian in nature. There were curriculum initiatives such as *Education for Living* (citizenship education in the context of Singapore’s historical and cultural heritage), introduced in 1974 and replaced in 1981 by
Good Citizen and Being and Becoming, two moral education programmes for schools. In addition, a religious knowledge curriculum, offering a number of electives such as Bible Knowledge and Confucian Ethics, was later introduced and is now being phased out to give greater attention to a new civics and moral education course based on a set of metaethnic tenets which may well form the basis of a national ideology when such an ideology is finally formalised.

As the Western theories and ideas get selectively indigenised in the ways described in the preceding pages, the final form of the original ideas is going to look much different, which should add richness to the pool of educational ideas and theories. While the term Western is often used to describe a theory's place of origin, is there really a clear Western/non-Western distinction? My own view is that some of the Western theories and concepts are probably etic, in that they are applicable across cultures and settings, while other concepts may have a unique ethnocentric (Western) bias and can be described as emic. This etic-emic distinction, drawn from linguistics, is a useful characterisation for the purpose of studying how certain theories and ideas can be adopted and others need to be reshaped to support approaches in non-Western settings. The ideas that are transferred are likely to be etic rather than emic, irrespective of their geographical origin.

Summing Up

As explained earlier, curriculum planning and development in Singapore may be seen in terms of three phases. The first phase involved the maintenance of a selective, academic curriculum with the periodic updating of subject syllabuses. Then in the early 1970s (the second phase), the influence of the liberal, humanistic approach recognising the centrality of the learner became evident. New subjects in civics and moral education were introduced. The third phase, starting with the establishment of the CDIS in 1980, saw the introduction of the project team model in curriculum development, which brought together experienced teachers, subject specialists, materials writers and external consultants (usually from the West) to produce subject-specific, attractive, multimedia learning packages.

Several factors have been identified as having promoted the continuing influence of Western ideas on educational practice here. These are: the continued use of an exogenous language like English which has made Western ideas very accessible to educators here, the importation of expertise from the West for projects, etc, and the postgraduate training of subject specialists in academic centres in the West.

Although most specialists earned their first degrees at the local university, the Western intellectual perspective has always influenced much of the work at the university — for example, the texts used to teach courses came from the West (see Gopinathan, 1984).

In this paper, I have tried to show the process of indigenisation in curriculum planning and development in Singapore. It seems clear that what is called theoretical indigenisation takes place less readily in the Singapore setting than structural and substantive indigenisation. This is understandable. Until we are in a position to set our own research agendas to develop theories specific to the local context, we should continue to make use of imported theories and approaches. In the real world, it is too simple-minded to imagine that in the social sciences, the vast resources of prestigious research centres in the West and what they can produce will not continue to exert a power on the thinking of scholars in the periphery. However, as Raggatt (1983) has suggested, with the setting up of regional centres with indigenous networks, partly supported nonetheless by international organisations, the centre-periphery model can be modified in the process I have described in this paper.

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Is Language Important in Mental Arithmetic?

J M Elliott

ABSTRACT

The language in which a person first learns counting and simple mathematics often seems to be their subsequent language of choice for mental arithmetic. A summary report is offered of an enquiry into the possible role of covert translation in mental arithmetic, based on an experimental study of 128 Primary 4 children. It is argued that performance is potentially impaired by the use of covert translation or other forms of covert linguistic switching. Digit spans and articulatory speeds in English, Malay, Mandarin and Hokkien are also reported, and shown to correlate with speed of mental arithmetic. It is concluded that familiarity and speed of articulation of a language may both affect mental arithmetic. Mean digit span differences between languages appear to reflect articulatory properties of the respective languages, and this limits their potential value for assessing intelligence.

Introduction

Casual enquiry in Singapore reveals that many adults say they carry out counting and mental arithmetic in the language in which they first learned simple number skills. I will call this the language of first numeracy (LFN). The question, "what language do you count in?" immediately strikes a chord among such individuals, who know exactly what is meant, and indicate that even though they may have been using English for years in most of their working affairs, they still use their LFN for counting and often also for mental arithmetic. It seems from informal enquiry that Malay, Tamil and Mandarin are all languages in which many adult Singaporeans conduct their mental mathematics, and that in some cases Hokkien, Cantonese or other dialects of Chinese could be added to the list.

This observation appears to have been hitherto undocumented. I have not discovered any report of systematic investigation of the effect. It suggests that something like translation occurs when such individuals carry out mental arithmetic in situations where they would not otherwise be using their LFN, for example, a Chinese educated technician in a laboratory where English is mainly used. Mental arithmetic problems, insofar as they are thought about or solved in words at all, appear to be translated into the LFN for processing and retranslated to give the answer, if required.

The relationship between thinking and language is problematic. Some people do not feel that they use language at all in mental arithmetic, and that they use some kind of non-verbal or imaged representation. Others acknowledge that there is some sense in which their mental processes are linguistic. The task itself may affect how the processes are experienced. Recall of the multiplication tables, for example, is often explicitly a matter of verbal recall. It is likely that the actual cognitive mechanisms or strategies available to individuals for mental arithmetic may be quite various, and the precise role of linguistic representation is unclear. Considering bilingual subjects, all that can be said is that some individuals are definite that they only use one language for arithmetic, whereas others are equally certain that they use more than one concurrently.

Whether or not it is appropriate to refer to what occurs as a form of covert translation, or simply some form of code switching, the role of language in mental arithmetic deserves more systematic study for two reasons. Firstly, the possibility of multiple covert language use may have implications for efficiency in mental arithmetic. Secondly, it is possible that the different speed of articulation of different languages also affects how efficient they are for mental arithmetic.

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1. Possible Covert Translation Effects

It is often argued that bilingualism confers a certain flexibility or divergence in cognitive style, on evidence largely from analyses of verbal reasoning (e.g. McLaughlin 1984, ch. 7). Basic arithmetic, however, largely emphasises convergent skills. Therefore, the covert use of more than one language in mental arithmetic may be less effective than using a single language, as a mode of intellectual functioning. This is because any translation process or switching must occupy cognitive processing capacity. However, such translations would probably become fast and automatic when they are a constant habit, and it is a moot point whether in the long run they would impair actual competence in practice. However, the matter deserves investigation in any education system in which children are almost all bilingual and might use more than one language when learning arithmetic.

A study by Magiste (1982) on Swedish-German balanced bilinguals is relevant. Magiste reported that subjects took longer to do mental calculations if they reported using more than one language. The effect increased with the difficulty of the sums. She also observed that subjects using more than one language showed more outward signs of difficulty, such as counting out loud, making silent lip movements, using fingers, or writing down intermediate steps in the calculations. Magiste's results suggest that the use of more than one language penalises efficiency in mental arithmetic by increasing task difficulty. On the other hand, it is possible that the less able students were the ones more in need of such heuristics and were also more inclined to a less efficient mixed use of languages.

Although English is used in Singapore for teaching arithmetic in school, it is not necessarily the LFN for a majority of children. Counting and simple arithmetic taught in the home or in preschool classes may be taught in languages, including dialects, other than English. There is therefore a possibility that even in contemporary schools, covert translation may be occurring when children attempt arithmetic, reflecting preschool numeracy in languages other than English. This possibility was noted by Elliott (1981), who examined reasoning in Primary 4 children from Hokkien-speaking homes who were all receiving school mathematics lessons in English. A number of Elliott's subjects reported explicit use of translation in mental arithmetic in the classroom and in the experiments in his study.

If early learning is influential, children should be less inclined than adults to use other languages besides English in mental calculation. However, some children may already have acquired some numerical competence in other languages before entering school. This also would constitute early experience, and the extent to which it carries forward into primary and even secondary school is not known. The following predictions can be made:

(i) Subjective reports of covert translation or multiple language used in mental arithmetic will be commonest in children whose principle home language is not English.
(ii) Individuals reporting such covert translations will be slower in mental arithmetic.
(iii) Individuals reporting such covert translations will show a higher incidence of outward signs of aids to calculation (heuristics) such as counting on fingers, etc.
(iv) There will be an association between mental arithmetic speed and use of heuristics.

2. Language Specific Effects In Mental Calculation

There is a body of research suggesting that the articulatory characteristics of a language are relevant to efficiency in mental arithmetic. The idea is that different languages differ in how fast they are naturally spoken, and that such articulation rate differences may affect the efficiency of mental calculations. This is a natural effect, an inherent property of the languages, additional to such things as mathematical aptitude or amount of practice put in. See Ellis & Hennelly (1980), Hitch (1980), Hoosain (1984), Baddeley (1986), and Chen & Stephenson, (1988).

It is well established that different languages allow different rates of articulation (utterance). Numbers can be spoken faster in Chinese than in English (Hoosain 1984), and faster in English than in Welsh (Ellis and Hennelly 1980) or Arabic (Naveh-Benjamin & Ayres 1986). These differences appear to correlate closely with digit span capability. Digit span — the ability to immediately reproduce a string of random digits heard once — is greater in languages that allow faster utterance of digits (Chen & Stevenson 1988). This is in line with the view that decay in short-
term memory is time-based, not item-based; that is, that the faster one can utter items, the more items can be held in short term memory with the aid of subvocal (covert) rehearsal. This appears true not only for numbers but for verbal material generally. It challenges the traditional notion that 7 plus or minus 2 items can be held in short term storage (Miller 1956), but the evidence is substantial that speed of articulation is the limiting factor (Baddeley 1986). When items are long words, fewer can be retained in rehearsal (in an “articulatory loop”) than when short words are used (the word-length effect). This idea accounts for language differences in digit span by supposing that fewer digits can be rehearsed in working memory when the individual digits take longer to articulate in subvocal rehearsal.

Given that Chinese is a language of rapid articulation, and that Chinese speakers show high digit spans (Hoosain 1984, Chen & Stephenson 1988), it is interesting to find that there is also indirect evidence that Chinese facilitates mental arithmetic (Hoosain op. cit.). Hoosain spells out explicitly the possibility that a high articulatory rate minimises demands on immediate memory capacity, and frees capacity for other aspects of problem solving. Hoosain was working in Hong Kong, but his conclusions are likely to be applicable in Singapore, where the Chinese stream schools had in the past a reputation for producing pupils strong in mathematics. It may be that the Chinese schools gained this reputation for reasons connected with the attitude of the pupils or the methods of instruction used. However, it is possible that at least some of the effect (if real) was connected with the language itself, rather than a result of the style of education. Certainly, positive attitudes to scholastic achievement in general would not account for specific prowess in mathematics. It may be noted in this connection that Malay might be a more limiting language for use in mathematics, because it is bi- or tri-syllabic for numbers (e.g. 9 = “sembilan”), and consequently would put a high load on the articulatory loop in any situation where numbers were being mentally rehearsed. English would be intermediate.

Pupils of different language backgrounds are nowadays educated in the same schools, and mathematics and science are taught in English. If differences in arithmetic related to language background are found, they would not reflect teaching methods, and might more plausibly reflect language differences. If so, such differences could be related to differences in speed of articulation as well as with the use of more than one language for mental arithmetic problems.

A number of further predictions may therefore be made:

(v) Articulation speeds for English, Chinese and Malay should differ, with Malay being slower, English being intermediate, and Chinese (Mandarin or dialects) faster.

(vi) Digit span, similarly, should be greatest for spans in Mandarin or dialect and least for Malay.

(vii) Mental arithmetic speed should be related to language articulation speed and digit span.

Method

The purpose of this paper is to report briefly the main findings of an experimental study of these issues.

Subjects

The total sample (n=128) comprised four equal groups of primary 4 pupils (aged 10 years) whose principal home language/dialect was Malay, English, Mandarin and Hokkien respectively. Each group was balanced for sex. The English and Mandarin group pupils were from homes in which Hokkien was also spoken. Information on home language usage was determined from school records and confirmed during interview with the pupil.

Design

The independent variable was the language in which the pupil was tested, in a repeated measures design. The following dependent variables were measured for pupils in each group:

(i) The pupils’ digit span in English and either Mandarin, Hokkien or Malay.

(ii) The pupils’ speed of articulation of numbers in English and either Mandarin, Hokkien or Malay.

(iii) The pupils’ speed of mental arithmetic.

(iv) Whether or not the pupils claimed to use more than one language in mental calculation or in remembering digit span material (i.e. covert translation).
The pupils' observed use of gesture, fingers, verbalisation etc. as outward signs of calculation when doing mental arithmetic (heuristics).

Pupils' score on Raven's Coloured Progressive Matrices.

Procedure

Each pupil in the study was seen individually at school. Digit spans were obtained using digit lists prerecorded on cassette tapes by fluent female speakers of the four languages concerned. Speed of articulation of numbers was obtained by timing pupils repeating a brief random digit string. Speed of mental arithmetic was assessed as the pupil's time to solve a series of simple arithmetic problems.

Digit spans and articulation speeds were obtained for each pupil in English; and in Malay, Mandarin or Hokkien respectively according to group, in counterbalanced order. Mental arithmetic speeds were obtained in either English or the other language, but not both, due to time constraints.

Results

Sex and cognitive ability

Table 1 shows the results for the Raven's coloured progressive matrices test. The matrices were included as a non-verbal, non-mathematical test to preclude the possibility that any differences in results simply reflected differences in some aspect of abstract reasoning and were nothing to do with language or with specifically mathematical ability. The pupils in the four language groups did not differ in mean scores, used as a non-verbal test of cognitive ability. There were no sex differences on this or on any other variable.

<table>
<thead>
<tr>
<th>Group defined by principal language of home</th>
<th>Malay</th>
<th>English</th>
<th>Mandarin</th>
<th>Hokkien</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys: 31.3</td>
<td></td>
<td>33.9</td>
<td>33.0</td>
<td>33.3</td>
<td>32.9</td>
</tr>
<tr>
<td>(3.4)</td>
<td></td>
<td>(2.1)</td>
<td>(2.2)</td>
<td>(2.5)</td>
<td>(2.7)</td>
</tr>
<tr>
<td>Girls: 31.6</td>
<td></td>
<td>31.8</td>
<td>31.2</td>
<td>32.8</td>
<td>31.8</td>
</tr>
<tr>
<td>(3.4)</td>
<td></td>
<td>(3.8)</td>
<td>(5.9)</td>
<td>(1.8)</td>
<td>(3.9)</td>
</tr>
<tr>
<td>All subjects: 31.5</td>
<td>32.8</td>
<td>32.1</td>
<td>33.0</td>
<td>32.4</td>
<td></td>
</tr>
<tr>
<td>(3.3)</td>
<td>(3.2)</td>
<td>(4.4)</td>
<td>(2.2)</td>
<td>(3.4)</td>
<td></td>
</tr>
</tbody>
</table>

Subjects were asked about the use of language in the home, and whether or not they used languages besides English in the digit span and arithmetic problems. The information was obtained by means of structured interview. The interviews were all carried out by research assistants competent in the home language of the subject, and done in an informal and friendly way, with free use of whichever language the subject seemed comfortable with. This was done to avoid artifacts arising from unwillingness to admit to the use of languages, or especially dialects, other than English.

Covert translation effects

Table 2 gives the numbers of children in each group who reported translation for mental arithmetic problems. It also shows the mean number of different heuristic strategies observed during mental arithmetic, and the mean solution time for mental arithmetic problems. Within each
group the data are broken down according to the language in which the arithmetic problems were presented.

The results in Table 2 show that covert translation only occurred in a minority of subjects (45/128 subjects (35%) reported some such effect). Not surprisingly, when it occurred, it did so significantly more often (31/128) when the problems were presented and answered in a language other than English ($X^2 = 7.79$ df 1 $p < 0.01$). Groups did not differ in frequency of reported translation ($X^2 = 6.56$ df 3 $p = 0.09$ ns). Thus, covert translation was more often used when a mathematics problem was presented in a language other than English, and this was true even when the other language was the claimed main language of the home. This in turn suggests that teaching primary or pre-primary mathematics in English has effectively resulted in pupils utilising English in their mental arithmetic.

However, a small minority (14/128, 11%) were apparently translating even when the problems were in English.

Data were collected on the claimed direction of translation by the children. 8/45 translated from English into another language, 28/45 the reverse, and 9/45 were bidirectional or unclear. This is consistent with the finding that most translation was reported to occur when the mental arithmetic problems were not presented in English. The results suggest, not surprisingly, that most of the children were unaccustomed to problems except in English and only then had to translate.

Almost all subjects, whether or not they reported covert translation, showed signs of at least one calculation heuristic. A subject was given a point for each of the following heuristics if observed at any time during the calculations:

(i) Writing with a finger (in air, on the other
hand, on the body etc.).

(ii) Muttering or vocalising out loud, or appearing to do so silently.

(iii) Counting on fingers.

(iv) Rolling eyes up.

(v) Others, e.g. gestures.

Only seven subjects scored 0, i.e. solved the problems inscrutably. The total points (max 5) for each subject were used to calculate the mean heuristics scores reported in Table 2. Analysis of Variance gave no evidence that this score varied as a function of group or of the language in which the problem was presented.

Considering the data for mental arithmetic solution time, Table 2 reveals effects for both the language in which the problem is solved, and the home language group to which the subject belongs. The effects are shown graphically in Figure 1. Analysis of Variance is not really appropriate as the distribution of solution times is skewed. Inspection and non-parametric analysis suggest that

(i) English presentation gives similar solution times for all groups (Kruskall-Wallis test for solution time in English presentation across groups: $X^2=2.6 \, df\, 3 \, p=0.46$ ns).

(ii) Presentation in any other language gives different solution times across groups (Kruskal-Wallis $X^2=11.74 \, df\, 3 \, p<0.01$). The Malay and English groups take longer when the problem is presented and the answer is required in Malay or in Mandarin, respectively. (For pooled Malay and English group subjects, Mann-Whitney U test for English vs other language presentation gives $z=-2.51, \, p<0.05$).

(iii) Subjects in the Mandarin and Hokkien home-speaking groups appear to be equally quick regardless of the language of presentation of the problem. Pooling these two groups, Mann-Whitney U test for English vs other language presentation gives $z=-2.51, \, p<0.05$).

From Table 2, it would appear that differences in speed of mental arithmetic are unrelated to differences in frequency of covert translation or number of heuristic aids to mental calculation. However, if subjects are grouped according to whether or not they report a translation strategy, the solution time tends to be greater if they do, as predicted (Mann-Whitney U test, $z=-1.72, \, p<0.05$ 1-tailed). Moreover, the heuristic and solution time data do reveal a relationship in that a weak but significant rank correlation is found (Kendall’s Tau $=0.20, \, p<0.01$). Slower times tend to be associated with a greater number of heuristics.

In summary,

(i) Translation is commoner when problems are not given in English regardless of the pupil’s home language. Prediction (i) is not confirmed.

(ii) Translation is linked to slower solution times. This confirms prediction (ii).

(iii) Translation is not linked to a greater use of outward behaviours (heuristics) associated with effortful mental calculation. This fails to confirm prediction (iii).

(iv) Slower solution times are significantly correlated with greater use of heuristics. This confirms prediction (iv). The association is not a strong one, which may be why it is not apparent in the translation analysis in (iii).

(v) Not surprisingly, English, as the language of school mathematics instruction, is also the language associated with less translation and faster solution times. However, where Mandarin or Hokkien are the first home languages, no advantage in speed of solution is gained by giving the problems in English (Fig. 1). This may reflect the early exposure of children from such homes to a Chinese LFN. i.e. their familiarity with the languages. However, it may also reflect something about Chinese dialects, including Mandarin, as languages favouring mental arithmetic because of their more rapid articulation. That is, it may be that children with Mandarin or dialect as a main home language are able to cope with arithmetic problems faster whether or not they are presented in English and whether or not an element of translation is involved. Therefore, we turn to the analysis of the articulation speed and digit span data in relation to solution time.

Language Specific Effects In Mental Calculation

Each pupil gave digit spans and a measure of speed of articulation, for English and for Malay, Mandarin or Hokkien according to subject group. Articulation speed was the time taken to repeat a familiarised 4-digit random string five times. Use of a familiarised string meant articulation
TABLE 3: SUMMARY DESCRIPTIVE STATISTICS FOR DIGIT SPAN AND SPEED OF ARTICULATION IN DIFFERENT LANGUAGES.

Group defined by principal language of home n=32 per group
(Bracket gives other language for digit span and articulation speed)

<table>
<thead>
<tr>
<th></th>
<th>Malay (Eng)</th>
<th>English (Man)</th>
<th>Mandarin (Eng)</th>
<th>Hokkien (Eng)</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digit Span:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean &amp; (sd)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in English:</td>
<td>5.7 (1.18)</td>
<td>5.8 (1.36)</td>
<td>6.0 (0.80)</td>
<td>5.8 (1.08)</td>
<td>5.78 (1.06)</td>
</tr>
<tr>
<td>in Other Lang:</td>
<td>5.3 (0.99)</td>
<td>6.0 (1.02)</td>
<td>6.4 (0.98)</td>
<td>6.3 (1.15)</td>
<td>6.01 (1.04)</td>
</tr>
<tr>
<td>Articulation speed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean &amp; (sd)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in English:</td>
<td>9.4 (1.49)</td>
<td>9.8 (2.49)</td>
<td>10.4 (3.50)</td>
<td>9.5 (1.99)</td>
<td>9.74 (2.48)</td>
</tr>
<tr>
<td>in Other Lang:</td>
<td>11.8 (2.45)</td>
<td>11.1 (4.19)</td>
<td>9.0 (3.25)</td>
<td>9.0 (2.98)</td>
<td>10.23 (3.28)</td>
</tr>
</tbody>
</table>

Is language important in mental arithmetic?

FIGURE 1: Mean solution times for each group, broken down by language in which the answer is to be reported, English or language of group. English group subjects reported in English or in Mandarin.

Mean Solution Time (sec)
FIGURE 2: Mean Digit Span values for each language in each group.

FIGURE 3: Mean Articulation Time for each language in each group. The total time for articulation of 25 digits is given.
speed was not limited by reading speed. Table 3 presents the results for digit span and for articulation speed, and Figures 2 and 3 give these results graphically.

For articulation speed and digit span, the means for English do not differ across the groups (speed: $F=1.05$ df3, 124 ns; digit span: $F<1$ df3,124 ns); the means for other languages do differ (speed: $F=6.12$ df3,124 $p<0.001$; digit span: $F=8.00$ df3,124 $p<0.001$). There is a small positive correlation ($r=0.2$, $p<0.5$) of progressive matrices scores with English digit span, but reanalysis with matrices scores as a covariate does not alter the language effects. When Mandarin alone is considered, although articulation is faster and digit span longer in children from Mandarin-speaking associated with faster articulation speed ($p<0.05$) and with quicker solution times in mental arithmetic ($p<0.01$, 1 tail). Speed and solution time are also correlated but not significantly.

These results strongly suggest that digit span and articulation speeds are linked, and differ for the four languages studied. The groups of pupils did not differ in mental arithmetic solution speeds when given in English, nor did they differ in progressive matrices scores. It is therefore likely that the effects for span and speed are linguistic in nature, rather than a product of a group differences in cognitive or mathematical ability.

**Discussion**

The results of the study suggest that covert use of

<table>
<thead>
<tr>
<th>TABLE 4: CORRELATIONS OF ARITHMETIC SOLUTION TIME IN ENGLISH WITH DIGIT SPAN &amp; ARTICULATION SPEED IN ENGLISH.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sol'n Time</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Sol'n Time</td>
</tr>
<tr>
<td>DSpan</td>
</tr>
</tbody>
</table>

than from English-speaking homes, the effect is not significant.

The above analysis deals with the extent to which digit span and articulation speeds differed across groups as a function of which language the subject was using. However, familiarity in a language may also affect these measures. To report these variables for each language, therefore, the mean speed for Malay, English, Mandarin and Hokkien are calculated from groups 1 to 4 respectively, i.e. on the basis of the first home language. The articulation speed means are as follows, showing the predicted rank order (slowest to fastest), viz. Malay (11.8) < English (9.8) < Mandarin (9.0) = Hokkien (9.0). Digit spans similarly showed the predicted rank ordering (smallest to largest mean span) when considering the first home language, viz Malay (5.3) < English (5.8) < Mandarin (6.4) = Hokkien (6.3).

Table 4 gives the correlation between digit span, articulation speed, and speed of solution for mental arithmetic, all in English. It can be seen that the expected relationship between these three variables is found. Longer digit spans are more than one language is not a frequent problem among primary 4 children, but that it does occur, and increases required solution time for mental arithmetic. Solution time is also longer when digit span is less and articulation speed slower. Additionally, results of this study establish that the digit span and articulation speed effects reported elsewhere apply also in Singapore, such that languages with faster maximum articulation speeds show higher digit spans.

These effects appear to be language effects. Subjects in the different language groups did not differ in their English spans or speeds, their progressive matrices scores, or their mental arithmetic solution times in English. It would therefore be difficult to attribute the results to group differences in mathematical aptitude.

It is interesting to note that comparing English and Mandarin group children, the digit span and articulation rates follow the predictions for the two languages, but the solution time is worse in Mandarin in the English group (Figs. 1–3). This indicates that language properties alone do not determine solution time, and suggests that familiarity with the language is also important.
English as a common medium provides the basis for a common ability in solution when the problems are in English, but when the problem is in the another language a child may be slowed down either through the nature of the language itself, or by a lack of familiarity in using it, or both. Familiarity is unlikely to be the whole story, however, because it is difficult to account for the slower solution times for problems in Malay but not in Chinese as a familiarity effect.

Because digit span and articulation speed correlate quite well with the time taken to solve mental arithmetic problems in English, there is a prima facie case for suggesting that mental arithmetic is facilitated by the speed with which the language used can be articulated. Any such facilitation is additional to any effect of familiarity in the language, or whether or not it was the subject’s LFN. For any given language an aspect of mathematical aptitude may lie in the ability to articulate rapidly, possibly because this helps to maintain a larger or more effective working memory.

Digit span measures often feature in intelligence tests; however, they do not correlate highly with general intelligence. Even in 1958, Wechsler regarded them as indicative only of a basic capacity, necessary for other abilities more central to intellectual functioning. Findings such as reported above and in the literature reviewed earlier mean that digit span measures in different languages would not necessarily be comparable. Intelligence testing in Singapore is difficult in that standardisation samples have not been published, and it is likely that any future such standardisation will be in English as the common first language of education in all schools. However, in the event that standardisation eventually proceeds in any other language, it has to be kept in mind that digit span scores will not be directly comparable for different languages.

The educational implications of a study of this nature should not be exaggerated. It is a single study focussing on an aspect of how children do mental arithmetic. However, the findings do suggest that the merits of early bilingualism are reduced if it results in mixed use of language for early arithmetic. However, the fact that translation is not common is reassuring. Moreover, since the children from homes in which Hokkien or Mandarin are first languages showed equal problem solution times regardless of language of test, there is some support for the idea that early bilingualism has benefits in arithmetic as in other areas. The need is for further investigation of the nature of cognitive processes in arithmetic in bilinguals.

Acknowledgements

The research reported in this paper was funded by the National University of Singapore (Grant No RP8800005). The support of the University and of the Ministry of Education for permission to conduct the study in the primary schools is gratefully acknowledged. I would like to thank the Principals, staff and pupils of the schools participating in the study for their time and active willingness to help. I am also grateful to the various student research assistants who conscientiously prepared material and collected the data, especially Mariam Hussain Aljunied for managing the entire Malay sample, and Earnsy Liu for data transcription and useful discussion.

REFERENCES

The Pattern of Tamil Language Use among Primary School Tamil Pupils in Singapore

K Ramiah

ABSTRACT

The specific objective of this study is to identify the patterns of language use among primary school Tamil pupils in Singapore. This study examined the socio-cultural and socio-economic factors which contribute to this pattern of language use. It investigated the use of Tamil in eight domains and the patterns of maintenance and shift among the younger Tamil population in Singapore. The sample of this study was 1000 pupils randomly selected from 12 primary schools.

Keywords: Language use, second language, primary education, bilingualism.

Introduction

Language maintenance and language shift is one aspect of linguistics that has attracted the interest of many sociolinguists. Fishman’s (1966, 424) definition of language maintenance and language shift is a useful starting point. He says:

The study of language maintenance and language shift is concerned with the relationship between change or stability in habitual language use on the one hand, and on-going psychological, social or cultural processes, on the other hand, when populations differing in language are in contact with each other. That language (or language variants) sometimes replace each other, among some speakers, particularly in certain types of domains of language behaviour, under some conditions of inter-group contact, has long aroused curiosity and comment.

Many studies show that linguistic minorities, despite their hard struggle to maintain their language, eventually find that their language is reduced in significance and use. Weinreich (1968) says that language shift should first be analysed in terms of the social functions of the languages in the contact situation because a mother tongue group might switch to a new language in some functions but not in others. This would be a case of partial shift, not a total shift. He also says that language shift is a long process which should be studied against time with great care.

Hayden (1966) investigated language use in French in Fall River, Spanish in San Antonio and New York; and Ukrainian in Glyplant and Newark and concluded that except in the domains of ‘family’ and ‘close relatives’, English had displayed the mother tongue in almost all domains of languages.

In studying the expression of psychological preference for one language over the other Williamson and Van Eerde (1980) note that the particular attitudes and social characteristics within a given social language preference may suggest certain patterns of language maintenance.

Gumperz (1969, 248) states that: "To the extent that social factors affect language usage, it must be the speaker's perception of these factors rather than the social scientist's categorisation of them in terms of class, sex, socio-economic status, etc. which is important. This calls for a cognitive
rather than a correlative, approach to the problem. It suggests that we regard social reality as related to the speaker’s perception of this reality”. Very few studies have, however, been carried out in a Singapore-type situation of four official languages and in which two minority languages are also media of instruction and mass media communication.

The Position of Indians and Tamils in Singapore

According to 1988 estimates, the population of Singapore is about 2.7 million — Chinese 76.1%, Malays 15% and Indians 6.5%. Among the Indians, Tamils from Tamil Nadu form 64%. The total number of Tamils in Singapore is estimated at slightly more than 108,000, that is, about 4% of the total population of Singapore. The other Indian ethnic groups, are Malayalees, 8% of the Indian population, Punjabis, 8%, Gujaratis, 1% and other Indian ethnic groups 19%.

Although the official policy of the government is to give equal treatment to all four media of instruction, English schools are the most popular. This popularity is justified on the grounds that English is the vehicle of modernisation, industrialisation and urbanisation. In view of this, enrolment in the vernacular schools — Malay, Chinese and Tamil medium schools dropped in the 1970’s. Tamil medium schools suffered the most and have now ceased functioning. The closure of the only Tamil secondary school in Singapore (i.e. Umar Pulavar Tamil High School) in 1982, signalled the end of Tamil medium schools where Tamil was taught as a first language.

Tamil as a Second Language in English Schools

The teaching of Tamil as a Second Language (TL2) in English schools was introduced only after 1951. As most of the English educated middle class Tamil parents sent their children to English schools, the number of children who took Tamil as a second language increased considerably. Further, with the introduction of a compulsory second language at the primary level in 1966, and at the secondary level in 1969, the numbers of Indian pupils taking Tamil as a second language (TL2) have also increased. As a consequence of these policies, some 15,000 pupils offered Tamil as a second language in 1989. Tables 1, 2 and 3 provide further data on the teaching of TL2 in Singapore schools.

<table>
<thead>
<tr>
<th>Level</th>
<th>No. of Schools</th>
<th>No. of Centres</th>
<th>No. of Junior Colleges</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>118</td>
<td>1</td>
<td>—</td>
<td>119</td>
</tr>
<tr>
<td>Secondary</td>
<td>35</td>
<td>9</td>
<td>—</td>
<td>44</td>
</tr>
<tr>
<td>Junior College</td>
<td>—</td>
<td>1</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>153</strong></td>
<td><strong>11</strong></td>
<td><strong>14</strong></td>
<td><strong>178</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>No. of Pupils in Schools</th>
<th>No. of Pupils in Centres</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>9,925</td>
<td>75</td>
<td>10,000</td>
</tr>
<tr>
<td>Secondary</td>
<td>2,800</td>
<td>2,200</td>
<td>5,000</td>
</tr>
<tr>
<td>Junior College &amp; Pre-U Centre</td>
<td>320</td>
<td>300</td>
<td>620</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,045</strong></td>
<td><strong>2,575</strong></td>
<td><strong>15,620</strong></td>
</tr>
</tbody>
</table>

TABLE 1: NUMBER OF SCHOOLS AND JUNIOR COLLEGES OFFERING TL2 (1989)

TABLE 3: NUMBER OF TAMIL TEACHERS TEACHING TL2 (1989)

<table>
<thead>
<tr>
<th>Level</th>
<th>No. of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>320</td>
</tr>
<tr>
<td>Secondary</td>
<td>85</td>
</tr>
<tr>
<td>Junior College &amp; Pre-U Centre</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>420</strong></td>
</tr>
</tbody>
</table>

Shift from Tamil to Other Languages

About 23% of Tamil pupils do not offer Tamil as a second language; instead, they learn Malay or Chinese as their second language (Ramiah, 1987, 8). Tamil, being a minority language, is always in danger of losing its place in society. Some English-educated and middle-class parents argue that Chinese is the second most important language in Singapore and is therefore useful economically and politically while Malay, being a regional language, is useful in Singapore and also in the Asean region. These Indians do not perceive Tamil having a significant political or economic strength in the wider Singapore society.

Yet other Indians think that the social status of Tamils is not high in Singapore society and thus do not want to be identified with Tamil-speaking persons. Further, due to interethnic marriages, some Indians find that they are unable to provide a Tamil-speaking environment at home and their children opt to learn Malay or Chinese.

These are some of the factors which hinder the Indians in getting their children to learn Tamil. Unless the attitude of Tamil parents changes in favour of Tamil, the decline in the use of Tamil language in Singapore will continue.

Research into the Status of Tamil

Research conducted by Mani (1979, 93-105) on the socio-economic status of Tamils reveals that for his sample, only 67% of the mothers and 53% of the fathers were educated up to primary level while 12% of the parents did not have formal education. Most of the parents were engaged in employment which did not require any educational or technical knowledge and about 65% of them earned $450 or less per month. The situation, though slightly improved now, remains very much the same.

Sobrielo (1985) studied maintenance and shift in Tamil language usage in Singapore. Her study reveals that if the Tamils fail to maintain their loyalty to their mother tongue then they will lose it as the shift towards English and the other languages is very great. In her findings Sobrielo reveals that there is a noticeable shift among the younger generation of Tamils towards English. While Tamil appears to be maintained in the domains of prayer, family and kin, in the domains of work/school and official business, English was dominant.

Mani & Gopinathan (1983) studied changing literacy trends in the Indian population using the population census of 1957, 1970 and 1980. They reported that in 1957, 4.8% were literate in Tamil but by 1970, the literacy rate in Tamil had declined to 2.8%. However, this rate was checked in 1980 when the rate of literacy rose to 3.4%, but was still well below the literacy rate of 1957. According to Kuo (1979, 331) Tamil is the only language showing a decline in usage at the national level. Tay (1983) notes that only 3% of the Singapore population speak Tamil which, according to her, indicates "that it is not an important language at the national level". Furthermore, she says that with the exception of Tamil, the number of speakers for the other three official languages, namely English, Chinese and Malay has increased, especially among students, and those below 30 years of age.

Mani (1979) conducted a study among 233 primary six pupils who were taking Tamil as a second language. His findings reveal that 81% of them converse with their parents and grandparents in Tamil but only 73% and 32% of them use it among siblings and friends, respectively. Since most of the parents and grandparents are unable to converse in English, they have no choice but to speak in Tamil.

Eleven years have passed since Mani (1979) conducted his study, and it is necessary to examine contemporary patterns of Tamil
language use among primary school pupils in Singapore. Has it remained the same as in 1979 or has a greater shift taken place towards English? This study, it is hoped, will throw some light on this issue.

Objectives of the Study

This study using a sample of Singapore primary school Tamil pupils aims to find out the socio-cultural, economic and other factors which contribute to patterns of language use. It investigated the use of Tamil in the domains of family, kin, neighbour, school, friends, entertainment, reading and prayer.

The specific objectives of this study are:
(1) to identify the pattern of maintenance and shift of Tamil language use among primary school Tamil pupils in Singapore and the extent of the shift towards English; and
(2) to identify the socio-cultural, economic, educational and other factors contributing to this pattern of Tamil language use.

Methodology

The Sample

One thousand primary school pupils were randomly selected from twelve primary schools (10 government, 2 aided) representing a cross section of the Tamil population of Singapore. The sample was one-tenth of the total primary school Tamil population, and thus formed a representative population. The educational levels, ranged from primary one to eight extended and ages ranged from 7 to 14. The ratio of boys to girls was about equal.

Instrumentation

A questionnaire was developed to find out the personal particulars of the pupils as well as the use of Tamil in the domains of family, kin, neighbour, school, friendship, entertainment, reading and prayer. The questionnaire was also used to discover their attitudes towards learning Tamil.

The questionnaire was designed in English. The lower primary pupils, especially those in primary one and two, were guided by the teachers on how to respond to the questionnaire. The pupils were also advised to find out from their parents before answering certain questions such as those dealing with the monthly income and educational qualifications of their parents. The questionnaire has 33 questions and a copy is available from the researcher.

Data Analysis

Two kinds of analysis was used with the data. First, a frequency count was made of the data for each question and analysed in percentages. Secondly, all the relevant questions were grouped under eight domains to find out the pattern of language use in each domain. They were calculated and tabulated under the use of Tamil and English languages in percentages.

Analysis of Data

The first question was designed to find out about pupils' mother tongue. 888 pupils or 88.8% responded that their mother tongue was Tamil, while 8.5% and 1.4% responded that their mother tongue was Malayalam and Telugu respectively. Kannadam and other languages make up the 1.3%. This result clearly reflects the Tamil language learning situation at the national level.

To the question 'What language are you fluent in?' more than 61% responded that they were fluent in English while 56% responded that their fluency was in Tamil. A number of them responded that they were fluent in both Tamil and English.

The question on attitude asked whether they thought the learning of Tamil was useful and to specify their reasons. It is interesting to note that 952 respondents or 95.2% responded positively while 48 respondents or 4.8% responded negatively.

The following are a few examples of those who responded positively:
(i) 'Tamil is my mother tongue; I must learn it.'
(ii) 'It is very shameful for one not to learn one's mother tongue.'
(iii) 'My parents used to tell me Tamil is a beautiful and rich language. So I want to learn Tamil.'
(iv) 'If I don't learn Tamil, when I grow up I wouldn't be able to speak Tamil. Then the Tamil people will laugh at me and look down upon me.'

The following are a few examples from respondents who gave negative responses for
learning Tamil:
(i) ‘When I go to work, I will speak English not Tamil. So why waste time learning Tamil?’
(ii) ‘My parents say that if I learn Tamil, I cannot get a good job.’
(iii) ‘Learning Tamil is difficult and not interesting.’

When I go to work, I will speak English not clearly shows that Tamil is losing its grip among the younger generation of Tamil pupils. Will this trend continue or will it be arrested? It is likely that this trend may continue unless the Tamil community takes steps to arrest the situation.

From the examples cited above, we note that parents and Tamil teachers play an important role in motivating pupils towards learning Tamil.

Let us now look at the use of Tamil and English in each of the domains specified earlier.

**Family**

The questions examined the respondents’ pattern of language use when talking to their immediate family.

The differences in the use of Tamil and English among older and younger pupils are clearly displayed in Table 4. The use of Tamil gradually declines from grandparents to siblings.

**Kin**

Questions in this domain examined the subjects’ pattern of language use when talking to older and younger relatives.

Table 5 indicates that when the pupils converse with their older relatives they use Tamil 70% of the time and English 34%. On the other hand, when they talk to their younger relatives they use Tamil 65% and English 59% of the time. This too shows that among younger relatives the use of Tamil is declining while the use of English is steadily increasing.

**Friends**

The respondents’ answers to questions on this domain might best reflect their language preference.

Table 6 shows that the respondents use more...
TABLE 6: LANGUAGE USE IN THE FRIENDSHIP DOMAIN

<table>
<thead>
<tr>
<th>Language Use</th>
<th>Frequency %</th>
<th>Easier to Speak %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>40</td>
<td>46</td>
</tr>
<tr>
<td>English</td>
<td>79</td>
<td>69</td>
</tr>
</tbody>
</table>

English and less Tamil when they talk to their friends. When they speak to their friends they use Tamil 40% of the time and English 79%. Of course, there might be some code switching from Tamil to English and vice versa when they speak to their friends. 69% of the subjects found it easier to communicate in English against 46% Tamil.

TABLE 7: LANGUAGE USE IN THE SCHOOL DOMAIN

<table>
<thead>
<tr>
<th>Language Use</th>
<th>English Class %</th>
<th>Tamil Class %</th>
<th>Outside the School %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>27</td>
<td>86</td>
<td>59</td>
</tr>
<tr>
<td>English</td>
<td>87</td>
<td>20</td>
<td>46</td>
</tr>
</tbody>
</table>

School
Questions for this domain were meant to find out what language they use to talk with their Tamil classmates in English class, Tamil class and outside the school.

In Singapore most schools encourage their students to speak English. They conduct 'Speak English Campaigns' to ensure that their students do not speak dialects or mother tongues and speak only English. In view of this, it is understandable that 87% of the pupils use English in English class to talk to their classmates. However, in Tamil language class Tamil was used 86% of the time with English used 20% of the time. English was spoken by those who found difficulty in expressing their thoughts in Tamil. They were unable to speak in Tamil due to various reasons, that is, they might have come from non-Tamil speaking backgrounds. Outside the school, the pupils used both Tamil (59%) and English (46%) more or less equally.

Neighbours
Being a minority, Tamils are scattered all over the island. In view of this fact, most of their neighbours are non-Tamils. Questions on this domain were intended to find out language use with their Tamil neighbours.

According to Table 8, Tamil is used 69% of the time as against 31% English when the subjects

TABLE 8: LANGUAGE USE IN THE NEIGHBOURHOOD DOMAIN

<table>
<thead>
<tr>
<th>Language Use</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>69</td>
</tr>
<tr>
<td>English</td>
<td>31</td>
</tr>
</tbody>
</table>
converse with their neighbours. This means that more than two-thirds of Tamil was used against one-third of English. This might look healthy but as more and more people are being educated in English this trend may change in the future.

Tamil books from, 52% responded that they obtained their Tamil books from school libraries.

Entertainment
The entertainment domain was surveyed to examine language preference for television viewing and radio listening.

Table 10 shows that 70% preferred to listen to Tamil songs against 43% for English. It is a well-known fact that younger Tamils, to a certain extent older Tamils too, are attracted by modern Tamil cinema songs which in some cases have been influenced by Western popular music.

With TV watching English programmes are more popular than Tamil programmes (49%).

### TABLE 9: LANGUAGE USE IN THE READING DOMAIN

<table>
<thead>
<tr>
<th>Language Use</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>33</td>
</tr>
<tr>
<td>English</td>
<td>83</td>
</tr>
</tbody>
</table>

Reading
The purpose of the question was to find out how much use was made of the language learned as second language (i.e. Tamil) in school.

This domain reflects the fact that English books are commonly read. As the main medium of instruction is English, it is natural that more English books are read than Tamil Books. Even though each school has a library and the pupils have easy access to Tamil books, the data indicates that very few Tamil books are read. Records in the National Library and other branch libraries show that very few Tamil books are borrowed. This study reinforces the above perception.

A question was asked to find out what types of Tamil books pupils would like to read most. 54% responded that they preferred to read fiction against 21% non-fiction.

On the question of where they obtained their

### TABLE 10: LANGUAGE USE IN THE ENTERTAINMENT DOMAIN

<table>
<thead>
<tr>
<th>Language Use</th>
<th>Radio Programme</th>
<th>TV Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>70</td>
<td>49</td>
</tr>
<tr>
<td>English</td>
<td>43</td>
<td>72</td>
</tr>
</tbody>
</table>

Prayers
The Tamil language is an important unifying force for the Tamils. They are divided by religion, caste and other attributes. Questions in this domain were meant to find out what language they used in personal prayers.

Table 11 indirectly reflects the various
religions practised by Tamils. Since most of the Tamils are Hindus, they pray in Tamil and Sanskrit and interestingly, some in English. Christians and Muslims mostly pray in English and in Arabic, respectively. Thus, the data reveals that Tamil (71%) is maintained in the prayers domain.

**TABLE 11: LANGUAGE USE IN THE PRAYERS DOMAIN**

<table>
<thead>
<tr>
<th>Language Use</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>71</td>
</tr>
<tr>
<td>English</td>
<td>17</td>
</tr>
<tr>
<td>Sanskrit</td>
<td>3</td>
</tr>
<tr>
<td>Arabic</td>
<td>11</td>
</tr>
</tbody>
</table>

Conclusions and Recommendations

Conclusion

The study reveals that language use with grandparents was predominantly in Tamil but among siblings and friends language use was predominantly in English. This was probably due to more exposure to English in schools and public places. In spite of being a minority, less exposure to the use of Tamil, and other constraints, Tamils were however able to maintain their language in the domains of family, prayers, entertainment, neighbours and kin. On the other hand, the shift towards the use of English is alarming in the domains of friends, reading and school.

The primary school Tamil pupils in this sample used Tamil (72%) in the family domain, 71% in prayers, 70% in entertainment, 69% in neighbour and 65% in kin domains. But in the other three domains, Tamil was used among friends (40%), reading (33%) and school (27%).

We are fast approaching the end of the twentieth century. Thus far, Tamils have been able to maintain the Tamil language satisfactorily, for several reasons. Firstly, Tamil Nadu, the birth

**TABLE 12: MONTHLY INCOME OF PARENTS**

<table>
<thead>
<tr>
<th>Amount</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $750</td>
<td>192</td>
</tr>
<tr>
<td>$750 to $1,000</td>
<td>259</td>
</tr>
<tr>
<td>$1,000 to $1,500</td>
<td>194</td>
</tr>
<tr>
<td>$1,500 to $2,000</td>
<td>107</td>
</tr>
<tr>
<td>$2,000 to $2,500</td>
<td>47</td>
</tr>
<tr>
<td>$2,500 to $3,000</td>
<td>54</td>
</tr>
<tr>
<td>$3,000 and above</td>
<td>58</td>
</tr>
</tbody>
</table>

Socio-economic Status

The socio-economic level plays an important role in determining the pattern of language use. Table 12 gives the income bracket of the Tamils in the sample.

In terms of Singapore's living standards, more than half of the Tamils are considered to be in the lower income group. Out of 911 respondents, 451 people or 49.5% earn less than $1,000 per month. Only 112 parents or 12.2% of the respondents' parents were earning above $2,500 per month. So it is clear that the socio-economic status of the Tamils is not high.

Out of 1,000 respondents only 94 or 9.4% responded that their parents were graduates. This confirms that most of the Tamil parents are not highly educated, a finding that is related to low socio-economic status.

52 SINGAPORE JOURNAL OF EDUCATION
place of Tamil is near to Singapore and quite a considerable number of Tamils still have close cultural ties with Tamil Nadu. This helps them to revive their culture and language periodically. Secondly, since parental attitudes have a direct bearing on the children’s mastery of a language, most of the Tamil parents have positive attitudes towards their children learning Tamil.

Thirdly, Tamil is one of the four official languages in Singapore and it is a compulsory subject in the school curriculum. A pass in Second Language is required to proceed to tertiary education.

These few factors help the Tamils to maintain the Tamil language in Singapore. What about the twenty-first century? Will Tamil be able to withstand the onslaught of English? Tamil language and culture can be maintained in Singapore, forever, if the Tamil community takes an enthusiastic interest in the language.

**Recommendations**

Based on the findings of this study I suggest the following recommendations:

1. Tamil parents should not only ensure that their children learn Tamil as a second language in school but also adopt positive attitudes towards it by making an effort to speak Tamil. Parents should speak with their children in Tamil and should encourage them to use Tamil among siblings.

2. Tamil must be widely used during birthday parties, marriages and other home and community celebrations.

3. There is a fear among some Tamils that if Tamil is used quite often, the competence in English will be eroded. This fear is unfounded. In fact by learning the two languages and using them appropriately, competence in both languages will be increased.

4. Tamil children should be taught from young the cultural, ethical and moral values of learning Tamil. They should be cautioned that if they ignore Tamil, they will lose their identity.

5. The several Tamil organisations in Singapore who are working to uplift the educational level of Tamil pupils should coordinate their efforts and activities to ensure that Tamil has a secure place in Singapore’s future.

**REFERENCES**


Teaching Singaporean Literature in Secondary Schools: A Singapore Case Study

Robert Yeo

ABSTRACT

The aim of this article is three-fold:
(i) to inquire into the circumstances leading to the study of Singaporean English literature texts in secondary schools in Singapore
(ii) to consider literary, cultural and political issues that have arisen as a result of a conscious decision on the part of schools and the Ministry of Education to adopt the texts for both non-examinable and examinable study purposes, and
(iii) to look at teacher attitudes in the use of such texts.

The article initially focuses on a school which first began the systematic study of the texts followed by issues which have arisen. Closing the article is a survey of teacher attitudes. Teacher attitudes are probably crucial to what is really an important educational-cultural experiment being conducted in Singapore.

Keywords: Literature teaching, environmental influences, text selection, curriculum.

The place of literature in the secondary curriculum is widely known. In Secondary 1 and 2 (see Table 1, Curriculum for Secondary 1 and 2), literature is a core or compulsory subject. It is taught separately from English and is usually given two hours per week.

<table>
<thead>
<tr>
<th>No.</th>
<th>Subjects</th>
<th>No. of Periods* Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Core Subjects</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>First Language(^1) and Literature</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Second Language(^1)</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Elementary Mathematics</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>General Science</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>History</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Geography</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Art and Crafts</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Technical Subjects (Metalwork/Woodwork) or Home Economics (for girls)</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>Non-Examination Subjects</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Moral Education</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Music</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Assembly</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total number of periods per week</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

* Each period is 35-40 minutes.
\(^1\) In the Special Course, the two languages are taught at L1 level.

Parts of this, especially the results of the survey, were presented in a Seminar on Literature Teaching at the Upper Secondary level, 29 and 30 May 1989, at the Institute of Education. The paper, as a whole, was presented at the Across the Borders Language at the Interface conference, jointly organised by the Australian Reading Association and the Australian Association for the Teaching of English, Darwin, 30 June – 4 July 1989.

From Secondary 3 – 5, the situation changes as literature becomes an elective subject. For Secondary 3 – 5 Normal Courses, it is 1 out of 4 electives (out of a total of 14), and for Secondary 3 and 4 Special and Express courses, it is 1 out of a total of 17. Although its status is reduced from compulsory to elective, a 1988 Status Report on the Teaching of Literature in Secondary Schools revealed that it compared well with other Humanities subjects, approximately 19,000 for History and 2,500 for Geography.

**Background to the Teaching of Literature**

For a long time, very likely since the Second World War, the literature taught in secondary schools leading to ‘O’ level qualifications, and in pre-university classes leading to ‘A’ level qualifications, was English literature. A selection of poems, stories, novels and plays were studied at Secondary 1 and 2, the novels and plays usually abridged or adapted; in Secondary 3, unabridged texts were introduced including a Shakespeare play, paving the way for ‘O’ level examinations in Secondary 4. The more popular choices have included novels by Jane Austen and Thomas Hardy and some Shakespeare plays. When I sat for my ‘O’ level examinations in 1956, the texts were Shakespeare’s *Richard II*, and Jane Austen’s *Northanger Abbey* and *An Anthology of Longer Poems*.

The situation, familiar in a British colony, was one of unrelieved exposure to British literature. Gradually, a few texts by Americans and authors from the Commonwealth, written in English were introduced. Among the most popular have been Steinbeck’s *The Pearl*, Lee’s *To Kill a Mockingbird*, Paton’s *Cry The Beloved Country*, Achebe’s *Things Fall Apart* and Ngugi’s *The River Between*. In 1972, however, a Singaporean teacher, Marie Bong (now retired), created history by introducing to her Secondary 2 literature students, the book *Son of Singapore* written by Tan Kok Seng, a Singaporean author, for serious study. This was the first time a Singaporean book was actually studied i.e. discussed, analysed, though not examined in a school. As a subject in secondary schools, literature did not have a syllabus but rather a list of books which had to be approved by the Ministry of Education for teaching in Secondary 1 to 3. Schools were free to recommend texts and Mrs Bong took advantage of this relative flexibility, and suggested Tan’s book.

**Introduction of Singaporean Texts in 1972**

In the account of the serious study of Singapore literature in English in Singapore schools, there are three important dates. The first was the publication of *Creative Writing* (1969), edited by Marie Bong, containing poems written by her own students from Katong Convent, a secondary school for girls. The second was the study of *Son of Singapore* in 1972 for Secondary 2 students of the same school, and the third was the approval given in 1987 by the Cambridge Examinations Syndicate and the Ministry of Education for the study of three texts by Singapore authors at ‘N’ and ‘O’ levels for examination purposes. (*O* is the level below ‘O’ and the examination is taken by candidates who complete their secondary education in five instead of four years.)

*Creative Writing* collected for the first time the poems of a group of secondary school children, made concrete the idea that school children, a ‘merely “average” group ... who have to work very hard to pass examinations, who nibble pencils more than they write with when confronted with a set essay’,² can write verse if well taught. The poems were published in 1969 but had in fact, been written two years earlier and talked about in class. From discussing their own works, and realising that they, too, can write, it became much easier for the young writers to accept the idea of considering and possibly studying works by other Singapore authors. And when Tan Kok Seng’s autobiogrophy *Son of Singapore* was published in 1972, it was eagerly recommended for study by Mrs Bong. As other books appeared in the seventies, the women teachers of Katong Convent, enthusiastically led by Mrs Bong, added the following books to the list that their girls should read, namely *When Singapore Was Syonan-To* (published 1973) and *Chinese Jetsam On a Tropic Shore* (published 1974), both by N I Low.

**Reasons for Teaching Singaporean Texts and Public Response**

In interviews and written responses to my questions, the teachers interviewed gave the following reasons.

Mrs Bong’s students, as mentioned earlier, had written their own poems, performed their poems and others by Singaporean writers in

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choral readings and it became easy for her to regard the study of Singaporean literary texts as a natural development.

Another teacher, Mrs K T Koh (also retired) was of the firm opinion that such texts encouraged enjoyment because of the simplicity of the language (in the case of Son of Singapore) and the accessibility of the experiences depicted in N I Low's books. Low described vividly what it was like to live in Singapore during the Japanese occupation and the teachers would often enliven teaching with their own personal experiences, encouraging students to find out more about such experiences from their older family members. On occasions too, authors like Tan Kok Seng and N I Low visited the school, to read and meet the students. In ways like these, teaching was personalised and made pleasurable for the students of Katong Convent.

Another teacher, Mrs Martha Shepherdson, a contemporary of Mrs Bong and Mrs Koh, wrote of Son of Singapore that her pupils 'could identify with the characters and their experiences. Places mentioned were familiar to them.' Mrs Shepherdson thus adds a sociological dimension — identification, to the complex of aesthetic reasons advanced by Mrs Koh.

One could gather implicit nationalistic motives in these reasons but they emerged explicitly in 1980 when the use of Singaporean poems in schools came under attack from an influential politician, Mr Devan Nair, the MP for Anson and an important trade unionist. In an unlikely forum, the general debate on the 1980 Budget in Parliament, Mr Nair castigated the teaching of Singaporean poems in schools on the grounds that some of the poems were not good enough. He submitted that until such time when credible national and international standards of literary criticism were developed in Singapore, 'it would be safer to introduce [Singaporean] children to English poetry through universally acknowledged models of poetic content and diction like Wordsworth, Shelley, Milton, Shakespeare, and so on.'

The controversy over this issue certainly drew attention to the fact that the study of Singapore's literature in English could be a contentious matter.

In an interview with ASIAWEEK, an Asian weekly magazine, Mrs Bong was reported, in 1980, to have said that Singaporean writers had not yet reached a standard comparable to some Western authors. 'But local poems and stories,' she adds, 'have relevance — they are about us. It's only through local literature that students can appreciate other types of literature.'

Disagreement did not harm the cause of such study as the number of Singapore texts approved for use in schools increased over the years. This took place, notwithstanding the fact that Mr Nair appeared to have raised an important question in his speech which Marie Bong partly answered. The first part of his query about the development of 'credible' national and international standards, the answer surely is that national standards are often best decided nationally, and relevance, as Marie Bong has pointed out, is an important criteria. As for international standards, the relativity applicable nationally has to be further stretched across national boundaries. One can cite numerous cases of authors esteemed in their own countries but not appreciated abroad, or more highly regarded elsewhere than in their own country (Edgar Allan Poe in France being a case in point.) The important question is, who decides?

'Out of their sense of a national identity, Americans had long demanded a national literature.' This comes from Harvests of Change American Literature 1865-1914 by Jay Martin. In the context of Singapore's attempt at nation-building after independence on 9 August 1965, the majority of Singaporeans were powerfully pulled by this demand.

The answer to 'who decides?' and the issue of national identity must have occupied the minds of officials in the Ministry of Education whose business was to approve of, and teachers who recommended, Singaporean texts for study in schools. Both officials and teachers must have decided in favour of the introduction of Singaporean writing, for supplementary reading and serious study, giving rise to the important decision made in 1987 when Singaporean books were officially adopted for study at both 'N' and 'O' levels, a decision made by both the Ministry and the Cambridge Examinations Syndicate.
Cambridge's support was important because of its worldwide repute as an examining body. The lists of books offered for examinations at 'N' (1987, 1988) and 'O' (1987, 1988) levels are indicated in Tables 2 and 3.

TABLE 2
LIST OF LITERATURE BOOKS AT N LEVEL, 1987 AND 1988

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>J. Schaefer, <em>Shane</em></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>James Marshall, <em>Walkabout</em></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>N. Gogol, <em>The Government Inspector</em></td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>J. G. Ballard, <em>Empire of the Sun</em></td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Chinua Achebe, <em>Things Fall Apart</em></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>William Golding, <em>Lord of the Flies</em></td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Catherine Lim, <em>Little Ironies</em></td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Ho Minfong, <em>Sing to the Dawn</em></td>
<td>1</td>
</tr>
</tbody>
</table>

* Singaporean titles

TABLE 3
LIST OF LITERATURE BOOKS AT O LEVEL, 1987 AND 1988

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shakespeare, <em>Twelfth Night</em></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Shakespeare, <em>Julius Caesar</em></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>H. G. Wells, <em>Kipps</em></td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Thomas Hardy, <em>Mayor of Casterbridge</em></td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Anthony Trollope, <em>Barchester Towers</em></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>J. B. Priestley, <em>An Inspector Calls</em></td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Hewett (ed), <em>A Choice of Poets</em></td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Barnes &amp; Egford (ed), <em>20th Century Short Stories</em></td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Chinua Achebe, <em>Things Fall Apart</em></td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>J. G. Ballard, <em>Empire of the Sun</em></td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>V. S. Naipaul, <em>A House for Mr Biswas</em></td>
<td>1</td>
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<tr>
<td>12</td>
<td>G. B. Shaw, <em>St Joan</em></td>
<td>1</td>
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<tr>
<td>13</td>
<td>Hydes (ed), <em>Touched with Fire</em> (Section D)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Catherine Lim, <em>Or Else The Lightning God and Other Stories</em></td>
<td>1</td>
</tr>
</tbody>
</table>

* Singaporean titles

The inclusion of Singaporean titles in the list was a revolutionary decision. It meant that, as far as studying literature texts for examination purposes was concerned, Singaporean authors like Catherine Lim and Ho Minfong were on par with Gogol, Golding, Achebe and Ballard. This represented an appreciable improvement upon the situation described by G E Perren in a paper considerable. It has been exerted very largely through two agencies: British examinations taken overseas have set the syllabuses and largely controlled the teaching of literature in schools; British trained teachers and inspectors have, often without question, assumed that what was believed right for Britain (especially anything which concerned the English Language) would also be valuable overseas.8

However, the 1988 Status Report referred to earlier, revealed that teachers were not entirely happy with the literature-teaching situation in

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9 Ibid. p 8.
secondary schools. It reported that
i) ‘Teachers were under the impression that
literature was given low priority not only in
the school curriculum but also by students
themselves.’
ii) ‘Teachers feel that they were not sufficiently
trained to teach literature, [that] there
had been little interest in literature, [and]
literature was sometimes the odd subject that
they were obliged to teach to fill up the
teaching quota.’

There is here a curious discrepancy between
the status accorded to Singaporean authors and
teachers’ perceptions of the relative insignificance
given to literature. More to the point, however,
were the views of teachers on the teaching of
Singaporean literature and the appreciation of
the local culture. This is worth quoting at same
length:
‘Surprisingly, although the teachers
generally welcome the teaching of local
works, the appreciation of local culture and
literature figures very low on the scale. If
we are to see literature as a means of devel-
oping a Singaporean culture and social
ethos, it may be necessary to give higher
priority to these last goals. It may also be
desirable that the emphasis be more
equitably distributed over all the goals.’

Further Public Response to the Teaching of
Singaporean Texts
The furore over Salman Rushdie’s The Satanic
Verses reminds us of the sensitivities that litera-
ture can stir. In the multi-racial context of Singa-
pore, both authors and readers have to be ex-
tremely aware of values and nuances conveyed in
literature. The recent debate on the need of a
national ideology and the government’s belief in
it underscored the sensitiveness of living multi-
racially. The presence in Singaporean texts, es-
pecially Catherine Lim’s short stories, of
characters belonging to a particular racial group
who are perceived to be exhibiting negative traits,
presented problems for teaching. Early in 1989,
the Ministry of Education organised a series of
meetings among ‘N’ and ‘O’ levels literature
teachers in an effort to come up with ideas for
handling sensitive issues in literature texts. A
document Strategies for Handling Sensitive Issues in
Literature Texts was subsequently sent out to all
upper secondary literature teachers. The docu-
ment is outstanding for fearlessly facing sensitive
problems in a multi-racial Singapore, and for the
sound and practical advices it gave to meet the
problems. Here is a sample from Section 3, In-
vestigating the Text:

3.1 ‘Look at the text in a purely literary way by
— drawing on textual evidence.
— placing a story in its historical per-
pective or background. E.g., certain
views may have been commonly held
at a certain period rather than being
the writer’s views.
— deciding if we are hearing the author’s
voice or that of the character. E.g.,
the diatribe of Mrs Chee in Catherine
Lim’s Kenneth Jerome Rozario against
Eurasians does not represent the
author’s point of view but is meant to
show Mrs Chee’s bigotry and pre-
judice and is all the more disturbing
because she is cast in the role of a
teacher.
— let the pupils realise that the writer is
creating a very specific situation with
specific characters for a specific
purpose and that he may be dealing
in the particular not the general.’

Section 3 continued with more sound,
commonsensical advice:

3.2 ‘To counter negative attitudes to a par-
ticular group, the teacher could
— create a positive image by referring to
those members of the group who have
contributed to society.
— see failings as human failings rather
than peculiar to a group.
— draw on pupils’ and teachers’ personal
experiences and share both positive
and negative aspects.

3.3 Examine issues by
— training pupils to distinguish between
fact and opinion.
— recognising language that is indicative
of stereotyping, prejudice, closed
mindedness. E.g., vague generalisa-

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10 Ibid. p 13.
tions, references to an all-embracing "they", generalising from isolated examples."

**Teacher Attitudes to Teaching Singaporean Texts: Results of a Survey**

Two questionnaires each were sent out to 63 schools identified by the Ministry of Education as offering Singaporean texts for study. 30 schools replied and 63 replies were received.

14 questions were put to teachers of literature from levels Secondary 1 – 5. To Q1, “Are you generally in favour of the use of Singaporean literary texts in secondary schools?” the replies were 47 ‘Yes’, 5 ‘Not Sure’ & 8 ‘No’, yielding a ‘Yes’ of 78.3%. This confirms earlier findings of the Ministry of Education that teachers were generally in favour of the teaching of Singaporean books. 5 statements were offered as to ‘Why more Singaporean texts should be taught in schools.’ Here is the detailed picture of responses.

i) The content (theme, character, references) is local and makes the text easier to teach
   Yes 48
   Not Sure 6
   No 0

ii) The language is familiar and accessible and makes the text easier to teach
   Yes 46
   Not Sure 8
   No 8

iii) We should teach our own literature in accordance with the general aims of education in Singapore
   Yes 28
   Not Sure 16
   No 16

iv) We should teach our own literature as a matter of national pride
   Yes 20
   Not Sure 14
   No 23

v) The writing is of a sufficiently good quality
   Yes 38
   Not Sure 16
   No 6

The percentages of responses to (i) and (ii) reinforced earlier findings of conversations with the teachers of Katong Convent that a local content, familiarity and accessibility of language made the texts easier to teach. Many teachers knew this to be the case and its endorsement came as no surprise. Nonetheless, it was assuring to know that teachers saw cultural and linguistic familiarity which made texts more teachable, as a reason for studying their own literature.

However, the next two questions which sought to link such teaching to the general aims of education in Singapore and as a matter of national pride, did not receive positive overall response. 28 were of the opinion that such teaching was in accordance with the general aims of education in Singapore, while 32 were in the ‘Not Sure’ and ‘No’ category. To the statement that such teaching was a matter of national pride, the ‘Not Sure’ and ‘No’ responses of 37 outweighed the positive ‘Yes’ responses of 20.

These findings might suggest that teachers of literature in secondary schools tended to be pragmatic, preferring specifics that could easily be implemented to general or abstract aims not easily demonstrated. Certainly, the majority would appear not to agree with Mrs Marie Bong who was quoted earlier as saying that local poems and stories have relevance — ‘they are about us.’ If Mrs Bong here evoked relevance as criteria, her yardstick for relevance was cultural whereas the teachers were more comfortable with a pedagogical one, agreeing that localness of content and familiarity of language made teaching easier.

Nonetheless, there were several statements which showed teachers were concerned that there should be broad awareness of both local and foreign cultures as found in the texts studied. A few quotations will suffice:

i) Pupils should be exposed to various genres of literature taken from a diversity of works. As students read materials written by foreign writers, that cultural awareness would be aroused.

ii) Lower (secondary) ... It should be easier for the students to grasp the various concepts etc. At the upper secondary level, they should be exposed to other cultures, foreign writers etc.

iii) Local literature is easier to understand in terms of cultural dimension, hence it should go down well with our own lower-secondary students.

iv) Students in upper-secondary schools should be made aware of the wide scope of literary texts available; otherwise they will remain narrow-minded about literature.

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11 *Collated Notes of Meeting with Literature Teachers*, 16-20 Jan 1989. Pages 2 & 3. Appendix A.
There were several responses, and three in particular used the word 'issues' to indicate that Singapore books enabled students to be exposed to local issues. Here are the quotes:

i) The upper-secondary pupils are more mature and are therefore more ready/able to grasp the issues explored in the texts ...

ii) As long as students can respond to the issues in the work, it should not matter if it is taught at lower/upper secondary.

iii) I would only use literary texts of sufficient quality ... Also we can address certain local issues.

It would be interesting to ask what these issues were. As the earlier reference to Collated Notes of Meeting with Literature Teachers 16 Jan – 20 Jan 89 indicated, the addressing of local issues might be problematic. Where the content to be taught was non-controversial, local content and accustomed language made teaching easier as compared to books by foreign authors. However, in cases where sensitive racial and political issues were found in Singaporean texts, objections were advanced by groups or interests which perceived that they had been maligned.

**The Quality of Singaporean Writing**

Mr Devan Nair had objected to the teaching of Singaporean literature on the grounds of inadequate quality. The responses to item 2v, which stated that Singaporean writing is of a sufficiently good quality, were generally positive — 38 'Yes', 16 'Not Sure' and 6 'No', a pro of 63%. But this general positive response had doubts cast on it by the responses to Item 7 which asked, 'How well do you know the writings of Singaporean authors?' ‘Very well’— Nil, ‘Quite Well’ — 24, ‘Not Very Well’ — 38, and ‘Not at all’ — 1. In other words, 60.3% did not know about Singaporean authors very well but it did not prevent the majority of 65% from saying that the writing is of a sufficiently good quality. Is there an unconscious patriotism at work here, contrary to the findings of responses to Q2?

Among those who know Singapore literature quite well, there were almost an equal number who regarded the standard as 'good' or 'not good'. These respondents provided the most articulate accounts and gave the impression they know what they were talking about. There were some strongly-worded comments from those who said that they did not know the literature very well and these could be easily dismissed; but the fact remains that the majority admitted to not knowing their own literature very well.

That the respondents did not know about Singaporean writers very well was borne out by the responses to Q10 which asked that three favourite Singaporean titles be listed. On top of the list were two titles by Catherine Lim, Little Ironies and Or Else, The Lightning God & Other Stories with Ho Minfong’s Sing to the Dawn a distant third. A few other titles were mentioned several times, notably Philip Jeyaratnam’s First Loves and Tan Kok Seng’s Son of Singapore. Discounting these last two titles, the first three on the list were all ‘N’ and ‘O’ level texts for 1987 and 1988.

Therefore, the first preliminary conclusion to be reached about the reading habits of secondary teachers of literature is that the exposure of the majority is extremely limited; the second preliminary conclusion is that, despite the teachers’ general approval for the teaching of Singaporean texts, the very restricted reading of the majority must cast doubt on their ability to pronounce on the quality of Singaporean writing. (This qualm becomes even clearer if it is recognised that poetry is the most advanced genre in Singaporean writing in English and though poetry is not as much taught as fiction, the only poet mentioned is Lee Tzu Pheng.)

**Comments on Catherine Lim**

It is not surprising that Catherine Lim invited the most number of comments as two of her books are in the ‘N’ and ‘O’ level examinations. There is a balance of views on her books and here are samples

i) I am acquainted with Catherine Lim’s books — quality wise fine for variety.

ii) Catherine Lim's Or Else The Lightning God & Other Stories ... are enjoyed by many students.

iii) I can base my opinion on Catherine Lim and Philip Jeyaratnam. I think they are very good, captures the mood and flavour of people very well.

iv) Catherine Lim does deal with some unusual themes. However, her stories do not reach the level of more established writers e.g. Saki, D. Parker, Maugham.
v) I find Catherine Lim’s characters sometimes mere caricatures of Singaporeans. Some of her characters are alright. I would say that I have a mixed response towards her books. The majority of those who have taught her books at levels 3–5, pronounced themselves quite satisfied with them.

Compilations vs Single Author Texts

When asked if they favoured the teaching of a compilation of the works of many authors as against a single author-text, the replies were ‘Yes’ – 24, ‘Not Sure’ – 29 and ‘No’ – 7. This question was prompted by the knowledge of two facts. Firstly, that a poetry text compiled by Jack Hydes called *Touched by Fire* was encouraged by Cambridge, and secondly, the rise of the Singaporean short story.

Since the appearance of my edition of *Singapore Short Stories Volumes 1 and 2* in 1978, the writing in this genre has advanced considerably in both quantity and quality, with many new stories appearing in volumes by sole authors represented in the 1978 volumes. Obviously, an anthology of stories does not have the singleness of effect of a collection by an author but it offered variety and this was recognised when the Cambridge authorities, upon the recommendation of the Ministry of Education, Singapore, approved of a selection of short stories from *Singapore Short Stories* for study as an ‘O’ level text worldwide in 1991-92.12

This meant that the book will be used in countries which are members of the British Commonwealth whose candidates sit for the Cambridge ‘O’ level examinations. This gives further credence to the significance of the need to have students exposed to the study of their own literature in the context of the development of new literatures in English. Bruce King described this context clearly when he wrote:

‘The same process of nation-building that led to the creation of national vernacular European literatures can be said to be still in progress in the new English-language states. I use the term ‘state’ purposely because the English literatures under discussion have emerged during a period when national-states formed as a result of British imperialism are attempting to transform themselves into nations having the same shared history, myths, habits and values of a people with a common culture.’13

The importance of education in such a transformation is widely recognised in Singapore and one of its agents is undoubtedly the curriculum. In both the primary and secondary curriculum, the syllabuses of some subjects e.g. History, have been completely localised, removing content and bias that were Euro-centric and substituting in its place, material in accordance with nationalist aspirations. This is happening in literature at the secondary level albeit on a very small scale. As Table 3 demonstrates, one Singaporean text in a list of fourteen can hardly be expected to change the ‘O’ level canon.

And for reasons of quality and balance, it is of course desirable to keep the English and modern Commonwealth classics in the list. Nonetheless, it is a beginning. As education policy and my survey show, the introduction of Singaporean texts for students at secondary levels up to ‘O’ level, is generally welcomed for nationalist (whether conscious or unconscious) and pedagogic reasons. British educationists meeting at the 1963 conference (mentioned earlier) realised this when they agreed to this recommendation:

‘The interests and previous experience of students in overseas countries, arising as they do out of local historical and social circumstances, including the local use of English, are the teacher’s springboard, and his choice of texts should be based on them.’14

Singaporean teachers of English, while aware of this, have to be up-to-date and acquaint themselves more with their own writers — so that they can contribute significantly to the vigilant need to make or remake a curriculum in accordance with the interests of their students.

Creativity and Sex Differences in Malaysian Pupils

Leonard Yong Mee Seng

ABSTRACT

The main purpose of this study is to investigate the differences on creativity of Malaysian boys and girls. The Torrance Tests of Creative Thinking Figural Form A and Verbal Form A (Bahasa Malaysia version) were administered to a sample of 397 Form Four pupils comprising 181 boys and 216 girls. The findings indicate that the boys are more creative than girls in both figural creativity and verbal creativity as well as in each of the seven creativity components.

Keywords: Creativity, gender, adolescents.

Introduction

The importance of creative thinking in enhancing learning and consequently in the development of the individual and society cannot be overemphasised. Over the past three decades, empirical evidence has accumulated to suggest that the creative potential is latent in everyone and can be developed through the application of appropriate strategies. In education, especially after the launching of the first space satellite by the Russians in 1957, there was a call for educators to be more responsible in nurturing the creative abilities in students and to seek ways for its development. This call has resulted in considerable research interest in creativity. The information obtained so far has contributed substantially to our understanding about creativity and the factors which affect its manifestations, but much research remains to be done before the results can be universally generalised. In the context of the school, a large proportion of these research efforts should naturally be directed to obtain more empirical data, especially in different national and cultural settings regarding the influence of school and personal variables on the creativity of students.

It has been observed that there are few women among creative inventors (Rossman, 1931) or scientists (Roe, 1953). This observation has led to the suggestion that creativity may either be a sex-related ability or at least influenced by sex-role expectations. As early as 1965, Torrance postulated that sex differences in creative development and achievement can be partly explained by the differential rewards given to boys and girls for specific kinds of creative behaviours. In a summary from a number of studies related to the comparison of the creativity of American boys with girls of different age groups, Torrance (1965:130) made the following conclusions:

The evidence suggests that differential rewards are off limits for both boys and girls. When teachers are asked deliberately to reward creative behaviour, they describe incidents in which boys have been rewarded. This may mean that this emphasis brings about a better equalization of rewards for boys. It may also mean that teachers reward the creative behaviour of boys more frequently than they reward the creative behaviour of girls.

Creativity and Sex Differences

There is no research evidence to show conclusively that either males or females are superior in creative thinking. Although some investigators (e.g. Hudson, 1968; Torrance, 1962; Fu, 1977; Dharmangandan, 1981) have reported that boys tend to perform better on creativity tests
than girls, others (e.g. Guilford, 1967; Wallach & Wing, 1969; Gould, 1972; Liikanen, 1975) have reported that girls seem to have more creative potential than boys. Yet other studies reveal that neither boys nor girls seem to be at an advantage with regard to their level of creativity (Feldhusen & Denny, 1965; Torrance, 1965; Wallach & Kogan, 1965; Comeau, 1980).

Studies on the relationship between creativity and sex differences have also shown conflicting results in different countries. The influence of cultural factors on the relationship of sex differences and creativity should not be underestimated. It is to be noted that studies which report boys to be more creative than girls have been found mostly in the developing countries like India and the Middle East. The American and European studies have generally yielded evidence of girls being as creative as boys if not more so. Further research is required to establish a clear relationship between sex differences and creativity.

In Malaysia, parents are generally more protective of their daughters than their sons. Boys are encouraged to be adventurous and outgoing while girls are expected to take on a more passive and demure role. Behaviour which does not conform to these sex role stereotype is generally frowned upon. Hence any semblance of unconventional or creative behaviour is more likely to be tolerated and encouraged in boys than in girls. It can therefore be hypothesised that Malaysian boys are more creative than girls. However, no study on the comparison of creativity of Malaysian boys and girls have yet been undertaken. It would therefore be appropriate for this study to investigate the influence of sex differences on the creative abilities in Malaysian children.

**Statement of the Problem**

This study attempts to investigate the differences in creativity between Malaysian boys and girls. Creativity is defined in this study as having two dimensions, namely figural creativity and verbal creativity. Each dimension comprises a number of components. Figural creativity comprises originality, fluency and flexibility and elaboration. Verbal creativity comprises originality, fluency and fluency and verbal flexibility.

A basic assumption of this study is that creativity comprises a number of specific abilities or components in two dimensions which can be measured. Seven components of creativity are investigated in this study. In the figural dimension of creativity, the components are figural originality, figural elaboration, figural fluency and figural flexibility and in the verbal dimension, they include verbal originality, verbal fluency and verbal flexibility.

**Subjects**

The subjects for the study comprised 397 Form Four pupils from five secondary schools in the metropolitan city of Kuala Lumpur and the suburban town of Petaling Jaya. The schools were selected on the basis of their being urban schools with similar characteristics. They were academic-oriented schools and were comparable in educational programmes and in educational facilities such as the number of science laboratories, libraries and playing fields. The schools were classified as Grade A schools and each of them has a total enrolment exceeding 1000 pupils. The pupils in the Form Four classes of the selected schools take similar courses and are being prepared for the national secondary school certificate examination at the end of Form Five or the Peperiksaan Sijil Pelajaran Malaysia. The subjects in this study are all approximately 16 years of age.

**Instrumentation**

The Torrance Tests of Creative Thinking (TTCT) designed by E. Paul Torrance were used to measure the creativity of the subjects. The Torrance Tests of Creative Thinking (TTCT) are well-known and widely used as a measure of creativity. Joseph Petrosko (1978:118) in a survey of the state of the art of measurement of creativity observes that up to 1972 alone, The Seventh Mental Measurements Yearbook (Buros, 1972) lists 243 references of studies that had used the TTCT. A decade later, Khatena (1982:244) reports that the TTCT have been translated and used in at least 25 different languages.

Two different types of TTCT are employed in this study. The Figural Form is used to give an indication of the figural creativity dimension and the Verbal Form is used to give an indication of the verbal creativity dimension. The tests are
based on the Directions Manual And Scoring Guides provided by the Manual and its author.

Adaptation and Pilot Test of the TTCT

The instructions in the TTCT were first translated into Bahasa Malaysia by a language teacher who was fluent in both English and Bahasa Malaysia. The translated versions were then given to two other equally competent language teachers for checking against the original instrument in English. Based on their comments and suggestions the translated versions were revised and the final instrument was then pilot tested in a pilot study involving 40 pupils. Ten of these pupils were then interviewed in order to determine whether the instructions and the activities were clear and devoid of ambiguities. The ten pupils were satisfied that they had no difficulty in understanding the instructions. The TTCT was then finalised, henceforth referred to as TTCT (Bahasa Version) or TTCT (BV), for the research and administered according to the sample.

Results

The composite score for figural and verbal creativity is obtained by adding the T-scores of the components of figural and verbal creativity respectively. An aggregate score for overall creativity is then obtained for the pupil by summing up the figural and verbal creativity scores of the pupil. The pupils who are in the top quartile of the total overall creativity scores are operationally defined as Creatives while those in the bottom quartile are defined as Noncreatives. Similarly, those pupils in the top and bottom quartiles of the figural creativity scores are defined as High and Low Figurals respectively while those pupils in the top and bottom quartiles of the verbal creativity scores are defined as High and Low Verbals.

Chi-square Analyses for Overall Creativity Groups

Chi-square analyses were carried out to ascertain the relationships between overall creativity groups, figural creativity groups and verbal creativity groups and sex. Table 1 presents the results of the chi-square analyses of the Creatives and Noncreatives by sex. The table shows that there are 102 pupils in the Creatives group and 101 pupils in the Noncreatives group. Among the Creatives, there are 69 boys and 33 girls. The Noncreatives comprise 24 boys and 77 girls. The chi-square analysis reveals a chi-square value of 37.6 which is significant at \( p < 0.05 \). The results show that overall creativity is not independent of sex. Boys have generally higher overall creativity than girls.

Chi-square Analyses for Figural Creativity Groups

Table 2 presents the results of the chi-square analyses of the High Figurals and Low Figurals by sex. As shown in the table, there are 58 boys and 43 girls among the 101 High Figurals Group. For the Low Figurals, there are 33 boys and 67 girls. The chi-square analysis gives a chi-square value of 11.1 which is significant at \( p < 0.05 \). The results show that figural creativity is not independent of sex. Boys have generally higher figural creativity than girls.

The results show that figural creativity is related to sex. It appears that boys tend to be more figurally creative than girls.

Chi-square Analyses for Verbal Creativity Groups

Table 3 presents the results of the chi-square analyses of the High Verbals and Low Verbals by sex. As shown in the table there are 101 High Verbals, which comprise 76 boys and 25 girls. For the Low Verbals, there are 26 boys and 74 girls. The chi-square analysis gives a chi-square value of 46.8 which is significant at \( p < 0.05 \). The results show that verbal creativity is not independent of sex. Boys have generally higher verbal creativity than girls.

Conclusion

The results of the study indicate that at Form Four level, boys are more creative than girls. The chi-square analysis of overall creativity, figural creativity and verbal creativity by sex indicated that there was a significantly larger number of boys than girls who had high scores for overall creativity, figural creativity and verbal creativity. These results are consistent with some studies reported from other non-Western countries such as India (Shukla, 1982), and Nigeria (Akinboye, 1982). Social norms in developing countries generally differentiate between male and female roles. While boys are encouraged to be expres-
sive and innovative, girls are expected to be passive, soft-spoken and self-effacing. In the Malaysian society, there are strong pressures to have boys and girls behave according to their respective sex roles. By the time Malaysian children enter school at the age of six, they usually have some idea of their sex role. Throughout their primary and secondary school years, the children are reminded of their “appropriate” sex roles. These roles include the acceptance of the fact that the behaviour of girls would be more regulated than boys. In many Malaysian homes, the girls are expected to accept their future roles of being housewife and mother as more important than the pursuit of an academic or professional life. By adolescence, these respective sex roles have become well reinforced and clearly reflected in their personalities. In most instances, even the creative girls have been “trained” to be passive and unadventurous. Generally, therefore, creativity is not encouraged in girls whereas boys are conventionally rewarded for their creativity by Malaysian society.

The present findings that Malaysian Form Four girls are less creative than boys suggest that certain necessary measures should be taken to enhance the creativity of the girls. Teachers and parents play an important role in the development of the children. They should be sensitized to some crucial factors in promoting creativity such as the setting of a climate suitable for creative behaviour. It is imperative that parents and teachers should be aware of the importance of a climate that is conducive to evoking creative behaviour in children, particularly, in girls.

Shallcross (1981) suggests three major areas that contribute to such a climate that will help to enhance the development of creativity in children, viz. the physical, the mental and the emotional. The physical climate that will encourage development of creative behaviour includes a willingness by teachers to allow students to have some space in the classroom where they can store some of their own work which they may not like to put up for public display yet. The principle here is that of encouraging the students to take risks, to try new things, to dare to be different and to guarantee them some privacy as they are in the process of risking. Other physical-climate factors in the classroom would include making resource materials such as scissors, cellophane-tape and colouring materials available for the children.

A mental climate that will stimulate creative behaviour can be provided by the classroom teacher who is aware of the need for moderate novelty in classroom tasks. Moderate novelty implies that the tasks given in the classroom are neither too easy nor too difficult. Teachers can present children with classroom situations that contain challenges that have built-in successes. Children then can be motivated to be more willing to try novel approaches in solving tasks which are new to their experience. Finally, the conducive emotional climate will include the willingness of the teacher to provide their students with an atmosphere of trust and security. Through such an atmosphere, students can experience a continual sense of self-worth and belonging that is so vital to the development of their creative abilities.

**TABLE 1**

<table>
<thead>
<tr>
<th>CHI-SQUARE ANALYSIS OF CREATIVES AND NONCREATIVES BY SEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL CREATIVITY GROUPS</td>
</tr>
<tr>
<td>CREATIVES</td>
</tr>
<tr>
<td>Count</td>
</tr>
<tr>
<td>SEX</td>
</tr>
<tr>
<td>BOYS</td>
</tr>
<tr>
<td>GIRLS</td>
</tr>
</tbody>
</table>

1991 Vol. 11, No.2. 65
### TABLE 2
**CHI-SQUARE ANALYSIS OF HIGH AND LOW FIGURALS BY SEX, SES AND COGNITIVE LEVELS**

<table>
<thead>
<tr>
<th>FIGURAL GROUPS</th>
<th>CHI-SQUARE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Count</td>
<td>Count</td>
</tr>
<tr>
<td>Count Percentage</td>
<td>Count Percentage</td>
</tr>
<tr>
<td>SEX BOYS</td>
<td>58</td>
</tr>
<tr>
<td>GIRLS</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>28.9%</td>
</tr>
<tr>
<td></td>
<td>21.4%</td>
</tr>
</tbody>
</table>

### TABLE 3
**CHI-SQUARE ANALYSIS OF VERBAL CREATIVITY BY SEX, SES AND COGNITIVE LEVELS**

<table>
<thead>
<tr>
<th>VERBAL GROUPS</th>
<th>CHI-SQUARE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Count</td>
<td>Count</td>
</tr>
<tr>
<td>Count Percentage</td>
<td>Count Percentage</td>
</tr>
<tr>
<td>SEX BOYS</td>
<td>76</td>
</tr>
<tr>
<td>GIRLS</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>37.8%</td>
</tr>
<tr>
<td></td>
<td>12.4%</td>
</tr>
</tbody>
</table>

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Buros (1972) *Seventh Mental Measurements Yearbook.*


Quantification of Teacher Research

Soh Kay Cheng

From Teaching to Research

In teacher education, teaching and research have been taken as two separate and unrelated aspects of training. Teaching is the job of classroom teachers and research that of experts from outside the classroom. If teachers were involved at all in research, they almost invariably play a minor role by assisting in data collection or carrying out the experiment. Thus, the problem being studied comes from without the classroom and hence has little relevance to the teacher's daily work. It is therefore not surprising if teachers feel research has nothing to do with them.

From a positive point of view, scholars and experts should concentrate on producing knowledge through research and supply teachers with it; this is division of labour. Unfortunately, division of labour does not always mean cooperation. As a result, researchers and teachers go their own ways without much meaningful conferencing.

Can teachers of language (or any other school subjects for that matter) benefit from research? Yes, if they do it personally and make research an integral part of their teaching through "learning by doing".

In the midst of a very busy schedule, teachers may not realize a fact: that every lesson is an experiment in a very real sense. There are three reasons for this assertion. First, the effect of any lesson is probabilistic rather than deterministic in that the results of teaching is relative and not absolute. A lesson is going to be more or less successful but not totally successful or otherwise. Secondly, after a lesson, teachers are more concerned with how to get on with the next and seldom, if at all, have the time or habit to reflect on the lesson just taught. Thirdly, most teacher education programmes aim almost exclusively at developing teaching skills and not at developing the skills that will enable teachers to develop teaching skills. The recent movement of classroom-based research, action research, or teacher research is to rectify this deficiency in teacher education.

As a matter of fact, it is not difficult for teachers to 'promote' themselves as teacher-researchers. Thinking and concerned teachers will, as a habit, reflect on their own teaching and try to improve on it. However, not being trained in research, teachers may not be in the habit of systematically and objectively recording and evaluating their own teaching behaviours and effects. Many of the 'conclusions' are coloured by personal impression, faith and preference. This situation is clearly evidenced in many articles written by teachers for teachers.

Think, Try, and Check

To quantify teacher research in language teaching, the best starting point is the teacher's experience. The teacher can follow a cycle of three steps:

Think → Try → Check

The teacher can begin with reflecting on the habitual ways of teaching certain aspects of the language lesson, think of alternative ways which may be more effective or efficient. These alternatives need to be tried out in the classroom to see if they work. To check their effectiveness, it is necessary to do some kind of systematic and objective record-keeping.
In most teaching situations, pupil calibre and curriculum materials are the 'given', and to which the teacher can make almost no changes. Nevertheless, there are other aspects of classroom teaching where the teacher is in a good position to change: how the materials are organised and presented, how the pupils are organised and involved; how teaching aids are used; and how pupils are assessed, etc. These can be called 'situational factors' which are under the full control of the teacher and can be expected to influence pupil learning. Four examples from the more recent research literature are cited below for illustration.

In a normal reading class, it is a common practice that the teacher asks questions based on the text the pupils have read. In an experimental study, pupils asked questions instead. These pupils scored higher on a comprehension test when compared with those who answered the teacher's questions in the usual manner (Davey & McBride, 1987). In an undergraduate class, students who were explicitly told to underline key concepts scored higher on a recall test when compared with those not told to do so (Blanchard & Mikkelson, 1987). A class of primary pupils were given partial lists of spelling words over four days, from Mondays to Thursdays, while another class was given the complete lists on Mondays; both were tested on Fridays. The class given the partial lists did better on testing (Guza & McLaughlin, 1987). One class of primary pupils were instructed to imagine they were projecting words on to an imaginary screen after seeing the words. Another class listened to the teacher reading the letters in of each word and yet another class 'wrote the words in the air'. On the post test, the imagery group scored the highest (Sears & Johnson, 1986).

In these examples, the independent variables were all 'situational factors' or alternative ways of presenting or processing the language materials to be learned; by using the alternatives, a pupil's performance was enhanced.

In the local scene, a group of fifteen experienced Chinese Language teachers attending the Advanced Certificate in Education programme were guided to carry out similar classroom-based research projects. They were first given a short course on how to plan such projects and how to analyze the data using simple statistics (eg the Mann-Whitney and the Wilcoxon tests). They then carried out the studies with their own pupils. They found that

* distributed practice was more effective,
* home study before the lesson was beneficial,
* memorisation did not help comprehension,
* dictation helped recall of Chinese words,
* competition of word-forming and word-combining improved recall of Chinese words,
* filling blanks with helping words and sentence completion were more effective than rote-learning of Chinese words,
* group and individual learning made no difference in the identification of errors in the writing of Chinese,
* practising on word-combining and orally making sentences had the same effect,
* emphasising passage meanings and emphasising the learning of word meanings had the same effect on the comprehension test, and,
* teacher-centred and pupil-centred approaches made no difference in comprehension.

Benefits to Teachers

Classroom-based teacher research is not without its problems. First of all, such research tends to be void of theoretical underpinning as it is a pragmatic approach to the study of teaching effectiveness and hence will not help the teacher in better understanding the language she teaches. Next, the research is 'localised' and hence the findings are specific to the particular classroom where the study was carried out; generalizing beyond this is doubtful. None the less, there are some advantages that may accrue.

First, since the problem arises from daily teaching and the findings feed back to the classroom, it serves as a form of quality control of classroom teaching. The problem is real, and the purpose is to improve teaching.

Secondly, it deals with the psychological and social aspects of classroom learning and hence, affects directly factors related to the pupils learning process.

Thirdly, this form of research focuses on the teaching behaviours the teacher has been used to and enables her to evaluate these with impar-
tiality, thus helping the teacher to sort out her thinking and preferences where teaching methods are concerned.

Fourthly, to carry out such research, the teacher needs to prepare herself by acquiring some skills and knowledge beyond those pertaining to the subject matter and instruction; this is therefore a form of professional development which will widen the teacher’s view, enhance her confidence and improve her image as a professional.

Finally, although individual teachers’ classroom-based research is limited as to its generalisation, the accumulation of such studies will ultimately enable the formulation of principles of language teaching with wider applicability.

What Next?

Many of the problems faced by language teachers have to do with classroom organisation, pupil activities and presentation of learning materials. To a large extent, such problems have been neglected, leading to a dichotomy of research and teaching. For research to serve the teacher well and be useful to them, it is desirable that teachers be prepared, both psychologically and technically, to see themselves as teacher-researchers, to carry out their own research in their own classrooms and use the findings for their own and for their students’ benefit. Some actions worthy of serious consideration for classroom-based research and of value to the teachers are:

* preservice teacher education should include a course in classroom-based research,
* inservice training in classroom-based research should be available to interested teachers,
* teacher education institutions should set up units to plan, design, promote and coordinate classroom-based research,
* professional publications should provide more opportunity for write-ups on classroom-based research by teachers,
* teacher organisations should initiate and sponsor seminars and conferences on classroom-based teacher research, and,
* teachers should see quantitative classroom-based research as part and parcel of their daily work.

[Editorial Note: This paper is based on the one presented by the author as one of the three plenary papers at the World Conference on the Chinese Language and Its Teaching in the World held in Singapore on 27-29 December 1990. The Conference organized by the Chinese Linguistic Society, Singapore, was opened by Singapore’s Prime Minister Mr Lee Kuan Yew, and was attended by scholars from China, USA, USSR, Malaysia, Singapore among other nations.]

REFERENCES


The Effects of Seat Location on Students’ Learning Behaviour in the Classroom

Tan Kok Siang

ABSTRACT

The classroom is a second home to students. Unless students have a comfortable and secure learning environment, they may develop learning problems. The preference of seat location of 22 Secondary 5 (Normal) Science students were sought. Three factors were found to have influenced the choice of seats—physical location of seats, personal habits and peer influence. Four target students were also identified for observation. The frequencies of their off-task behaviours were then related to their seating positions. Results show that seat location does contribute to students’ classroom learning problems. A knowledge of seat preference will help teachers manage and counsel students’ seat-related problems.

Keywords: Learning behaviour, classroom studies, peers.

Introduction

Each day, students spend about two-thirds of their waking hours in the classroom. The classroom is therefore very much a second home to them. Unless students have a comfortable and secure learning environment, they may develop learning problems. Seat location and students’ learning behaviour were found to be related in this study involving 22 Secondary 5 (Normal) Science students. Three factors determining students’ choice of seats were identified—the physical location of seats; personal habits; and peer influence. Also, four target students with contrasting learning behaviour and seated at various locations were individually studied. The frequencies of their off-task behaviour during lessons were then related to their seating positions. It was found that seat-related factors do contribute to students’ classroom learning problems. A knowledge of these factors would be useful in helping teachers to effectively manage and counsel adolescents coping with the learning process.

Studies had shown that seat-related factors did affect the level of attentiveness and disruptions in the classroom. Pupils seated at the front rows were found to be more attentive (Schwebel & Cherlin, 1972), and socio-psychological factors like being seated with peers of the same interest or personality were also found to be important criteria in choosing a seat in the classroom (Bates, 1973; Totusek & Staton-Spicer, 1982). Totusek and Staton-Spicer found that pupils seated at the front and centre positions were both highly participative and similar in personal characteristics. Dykman and Reis (1979) confirmed that participation rates decreased linearly from the centre-front to the periphery of the classroom where pupils were found to feel less threatened by being seated at a distance from the teacher.

The centre-front area of the classroom, where participation and pupil interaction were found to be higher, had been designated by researchers as the “Action-Zone”. Similar research on the local classroom seem lacking. The present investigation is an initial probe into the scene with the aim of establishing a relationship between seat location and students’ learning behaviour by observing the effect of seat changes on selected students showing contrasting personalities and learning behaviour.

Sample

A small sample of 11 boys and 11 girls from Secondary 5 (Normal) Science class was chosen for
the study. They were generally weak in Science (Chemistry and Physics) with fifty percent of them having failed the “N” Level Science Course. They were being prepared for the “O” Level Examination due in 10-month’s time from commencement of the study.

Three boys and one girl were selected by their form and subject teachers for individual observation on their off-task behaviour during lessons. Their selection was confirmed after careful exami-

nation of their past academic performance, social and behavioural background, and their responses to the questionnaire on views about their seat locations. Only the girl had failed her “N” Level Science course, but all, except the top boy, had some form of behavioural problems ranging from uninvolvement to restlessness during class lessons. A summary of the four students’ background and behaviour are presented in Table 1.

<table>
<thead>
<tr>
<th>Student</th>
<th>Description</th>
<th>Original Seat</th>
<th>New Seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew</td>
<td>No behavioural problem. Attentive and participative during lessons. He was the top student of the class.</td>
<td>Third row, window seat.</td>
<td>Second row, third seat.</td>
</tr>
<tr>
<td>Betty</td>
<td>Dreamy, quiet and uninvolved during lesson. She failed her “N” Science course.</td>
<td>Second row, third seat from the left.</td>
<td>Front row, fourth seat.</td>
</tr>
<tr>
<td>Charles</td>
<td>Quiet by nature, but rather participative during lesson. He did well in the “N” Science course. Lowly motivated but a sociable boy.</td>
<td>Front row, second seat from left.</td>
<td>Back row, right corner seat.</td>
</tr>
<tr>
<td>Daud</td>
<td>Had a group of good friends seated with him. He treasured his privacy and preferred “to be left alone all the time if possible”. He did well in the “N” Science course.</td>
<td>Back row, corner seat.</td>
<td>Front row, second seat from left.</td>
</tr>
</tbody>
</table>

* All names cited are fictitious.

The first part of the questionnaire sought the students’ opinions on their present seating positions, and the second part showed a plan of the classroom and respondents were to indicate, with reasons, their preferred seating positions. Classroom lessons were taught for four weeks with students in their original seats. Then, the four selected students were directed to their new seats. They were unaware that they had been singled out for observation because five other students also had their seats changed. Four more weeks of lessons were delivered after which, the affected students were given the same questionnaire and interviewed for opinions on both their new and old seatings.

The observation scoring sheet used was modified from Boehm and Weinberg (1977). The observer, a co-operating teacher, sat at the back of the room checking specific off-task behaviour observed. These behaviours were as follows:

- Looking around (seated)
- Unrelated activities (out-of-seat)
- Unrelated activities (seat)
- Distractive talking to neighbours
- Distractive talking to teacher
- Miscellaneous off-task behaviour
- On-task/Neutral behaviour

Procedure

The pupils’ seating arrangement in the classroom was confirmed to be unchanged for six weeks before commencement of the study. A self-designed questionnaire on seating was then administered.
A target student was observed at random for ten seconds, followed by an interim period of about 50 seconds for the observer to record. The first four sessions of 35 minutes were observed with the students in their original seats and the next four sessions with the students in their new seats. Andrew had indicated he preferred a middle seat, thus his new seat was the third in the second row, while the new seat for Betty, a habitual day-dreamer, was the fourth at the front row so that she could pay more attention during lesson. Charles, a sociable student, was seated in Daud's back row, right corner seat, while Daud, an introvert, was asked to occupy Charles' front row seat where he was surrounded by the good friends of the latter.

**Results**

To facilitate the analysis of the results on the students' opinions of seating positions, the classroom was divided into five sections — Front, Back, Middle, Partition and Window (Fig. 1). The first and last seats of the Partition and Window sections were also considered in the Front and Back sections respectively. The Partition refers to the wall separating the classroom from the corridor.
TABLE 2: FREQUENCY (%) OF STUDENTS’ OPINIONS ON THEIR PRESENT SEATING POSITIONS.

<table>
<thead>
<tr>
<th>Opinions Expressed</th>
<th>Front (n=6)†</th>
<th>Back (n=5)†</th>
<th>Middle (n=7)†</th>
<th>Partition (n=4)†</th>
<th>Window (n=4)†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like present seating position</td>
<td>66.7</td>
<td>100.0</td>
<td>100.0</td>
<td>75.0</td>
<td>75.0</td>
</tr>
<tr>
<td>Would like to change seat</td>
<td>50.0*</td>
<td>100.0</td>
<td>100.0</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Can hear teacher clearly</td>
<td>100.0</td>
<td>60.0</td>
<td>0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Can see blackboard clearly</td>
<td>50.0</td>
<td>60.0</td>
<td>100.0</td>
<td>25.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Like looking out of window</td>
<td>16.7</td>
<td>20.0</td>
<td>28.6</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Looking out of exit</td>
<td>0</td>
<td>20.0</td>
<td>14.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Classmates’ distractions</td>
<td>50.0</td>
<td>0</td>
<td>14.3</td>
<td>50.0</td>
<td>0</td>
</tr>
</tbody>
</table>

Keys:
* Some students liked their original seats but they also indicated a change of seat.
† N = Σn [> 22 because corner seat students are counted in both rows and columns.]

Responses revealed that 18 of the 22 students were satisfied with their original seats. Four did not choose their own seats but accompanied their good friends on the first day at school, and sat near them. Only four students indicated they wanted a change of seats. The rest preferred to remain in their original seats. The following are the views of students seated at the various sections:

**Middle.** There were no hearing problems or distractions from outside the classroom, but some students felt “being watched by friends” seated around them.

**Back.** About 40% of the students seated here had some hearing or vision problems, but most commented favourably on the relatively quieter and more private atmosphere.

**Partition.** Vision problem was created by light reflection from the blackboard but the wall provided extra leaning facility. However, given the direction they faced when leaning against the wall, distractions from classmates and window scenes were unavoidable.

**Window.** Looking out of the window was a problem, but some felt that window scenes helped ease tense moments, like during a test. Rusty window grilles and splashing raindrops were also cited as problems.

**Front.** This section was the least preferred. Proximity to the blackboard made it difficult for the students to read or copy notes as they had to turn or raise their heads frequently. Students also complained about having to pass materials or collect books. One tall female student seated at the front felt she was blocking her classmates’ views.

TABLE 3: FREQUENCY (%) OF TARGET STUDENTS’ BEHAVIOUR BEFORE AND AFTER CHANGE OF SEATS.

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Andrew</th>
<th>Betty</th>
<th>Charles</th>
<th>Daud</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking around (seated)</td>
<td>B 3.3</td>
<td>A 6.9</td>
<td>B 3.4</td>
<td>A 26.7</td>
<td>B 10.3</td>
</tr>
<tr>
<td>Unrelated activities (out-of-seat)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Unrelated activities (seated)</td>
<td>-</td>
<td>-</td>
<td>10.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Distractive talking to neighbours</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13.3</td>
</tr>
<tr>
<td>Distractive talking to teacher</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Miscellaneous off-task behaviour</td>
<td>-</td>
<td>17.2</td>
<td>6.7</td>
<td>13.8</td>
<td>-</td>
</tr>
<tr>
<td>On-Task/Neutral behaviour</td>
<td>96.7</td>
<td>75.9</td>
<td>83.3</td>
<td>82.8</td>
<td>60.0</td>
</tr>
<tr>
<td>Percentage sum of off-task behaviour before/after change of seat</td>
<td>3.3</td>
<td>24.1</td>
<td>16.7</td>
<td>17.2</td>
<td>40.0</td>
</tr>
</tbody>
</table>

Keys:
* Total is computed from sum of all off-task behaviour observed in the entire study.
B Before change of seat.
A After change of seat.
The main off-task behaviour, before the change of seats, were found to be “Looking around (seated)” (39.3%), followed by “Unrelated activities (seated)” (28.6%) and “Distractive talking to neighbours” (21.4%). “Unrelated activities” included writing unnecessarily, passing things to neighbours, and flipping the pages of the textbook.

After the change of seats, it was observed that the frequency of “Looking around” behaviour had decreased but there was a significant increase in miscellaneous off-task behaviour like, putting head on table, biting nails, rubbing eyes and fidgetting. Andrew had the highest on-task frequency of 96.7%, but this dropped to 75.9% in his new seat. A post-observation interview with him revealed that during one session, he was rushing to complete an assignment which he had to hand up before the end of the day. Betty showed little change in her on-task/neutral behaviour while in her new seat, but her miscellaneous off-task behaviour picked up significantly, perhaps indicating some uneasiness over her new seat. Charles’ off-task behaviour dropped significantly from 60.0% to 51.7% when seated away from his close friends. His “isolation” had probably made him quieter and his “looking around” behaviour was reduced. Daud also became more fidgety when surrounded by Charles’ friends. On one occasion he was even packing his bag before the lesson ended. He appeared impatient in getting out of his new seat.

**Discussion/Conclusion**

The least complaints came from pupils seated at the middle, followed by those at the back and sides. The front seats were the least favoured, mainly because of the proximity to the blackboard and light reflection. The back seats were favoured by the introvert and less participative students. Those who like to relax may be found seated along the windows or against the partition. Students’ physical features may also affect their feelings about seating position. It was also found that most students did not spend much time choosing their seats. Some would sit with good friends so that help could be available when needed. Observation on the four students and post-observation interviews also revealed some of these findings.

Despite some limitations involved in this study, some conclusions could be drawn for these 22 students studied. Firstly, the middle seats are the most favoured and constitute an interactive zone. Secondly, physical location of the seats is a cause of hearing and vision problems, and thirdly, physical and emotional characteristics of the students, including peer influence, do affect their choice of seats. These conclusions imply the importance of meeting the security and psychological needs of students in order to motivate them to learn in the classroom. Teachers should carefully study the effects of seat location on their students’ learning behaviour when assigning seats or allowing free seating. In any case, a seat change should be made only after consulting the student and his other teachers. Since seat-related problems can demotivate students, it is important for the teacher to realise that an understanding of this aspect of classroom life is a milestone in helping students solve some of their learning problems.

**Acknowledgements**

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**REFERENCES**


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This study examines the History teacher’s role in construing and enacting an innovative way of teaching the subject to first year secondary (or Secondary One) students in Singapore schools. The teacher’s response to curricular change is examined from the perspective of the individual teacher.

The five teachers who participated in the main study formed the data source through which the following research questions were explored:

1. How did the Secondary One History teacher construe the innovative mode of practice?
2. How did the Secondary One History teacher implement the innovative mode of practice?
3. How did the Secondary One History teacher change his or her construction and use of historical evidence?

To answer these questions, a variety of methods was used. In employing these different methods, the emphasis was on the exploration and elaboration of the individual teacher’s construction and enactment of his or her role in curricular change and how that role changed over time. The repertory grid employed in the main study was designed so that the teachers construed the experiences associated with their roles as History teachers. The grid was elicited from the teachers at the beginning and at the end of the main study. As the grid was elicited on two occasions, it served as a repeated measure on which to structure the sequence of reports and reflections that all five teachers engaged in with the researcher over a period of two terms (i.e. from January – May, 1988).

In addition, other data collection methods were chosen that complemented this emphasis on the individual and the extent of change. Each teacher was asked at the beginning of the main study to write about his or her work and explain how she planned lessons for Secondary One History students. After trialling the innovative materials for a period of one term, each teacher was asked to complete an open-ended questionnaire on teacher beliefs, planning and actions. The teacher was also given an opportunity to evaluate the innovative mode of practice. Additional data in the form of transcripts of interviews and classroom teaching were available to the researcher.

Data collected from this range of sources enabled answers to be presented to research questions (1) and (2) on the teacher’s response to the innovation, and to research question (3) on the extent to which the teacher changed in the way she construed and used historical evidence. With regard to questions (1) and (2), the data relating to the individual teacher demonstrated that the teacher’s response to the innovative mode of practice depended on his or her frame of reference. The data also showed that there were changes in the manner in which each teacher construed and implemented the innovative mode of practice.

Initially, the teachers construed the innovation as being a source of supplementary materials which could be used to summarise each chapter of the textbook. However, as the teachers experimented with the innovation, they realised that they needed to understand its meaning and purpose. Apart from construing the innovation
differently, the teachers also changed their mode of practice. Initially too, the teachers adopted a traditional approach to teaching the subject. They focused mainly on the coverage of facts and adhered closely to the History textbook.

However, as the teachers used the innovative materials which were supplied by the researcher in Term 1 and developed their own materials in Term 2, they realised that the innovation was not just a body of knowledge. Instead, the teachers were aware that the innovation consisted of strategies which were used by experts to interpret evidence. These strategies included concept mapping to structure information; analogies to simplify abstract concepts; focal questions to emphasise the key issues in a chapter, thinking stories to incorporate alternative interpretations which were provided by students; and learning activities to encourage students to view historical events from opposing viewpoints.

In the case of research question (3), the data also demonstrated that the teachers changed in the way in which they construed and used historical evidence. Previously, the teachers focused on essential facts which must be covered. As they experimented with a different way of teaching, they were aware that they could interpret the past like historians. For instance, the teachers could ask questions about the past and gather relevant evidence to answer these questions. The teachers could also design learning activities to show students how the latter could also interpret historical evidence.

In finding answers to these questions, a number of research assumptions have been reinforced. Firstly, the data provided by the study support the belief that teachers can make or break an innovation since they control implementation. In view of this, the researcher must work closely with the teacher to provide the teacher with a "helping hand" in resolving the teacher's concern about his or her role in the process of curricular change and to ensure that the teacher feels s/he is maintaining his or her autonomy. A second conclusion is that it is imperative to use a variety of methods to examine
This study was designed to elicit and to understand the implicit views of intelligence held by members of the Singapore school community. Specifically, five aspects of intelligence were used to design the questionnaire. The aspects relate to the nature of intelligence, its qualities, the effect of nature and nurture on intelligence, its visibility and constancy.

Subjects were drawn from nine secondary schools, five Pre-university centres and two junior colleges in Singapore. Some 1637 students represented six educational levels i.e. Secondary One to Pre-University Two. A second sample consisted of 173 teachers who taught in the above schools. The third sample consisted of 150 parents of the students involved in this study. A 15-item questionnaire was administered to these subjects. Their perceptions of intelligence were then collected for statistical analysis.

On the nature of intelligence, it was found that there were significant group differences on the number of notions held by students, teachers and parents. With advancement across the six educational levels, students’ notions of intelligence became more numerous as hypothesised. Also, teachers’ and parents’ notions of intelligence were more numerous than the students of all levels combined. Despite slightly different emphasis, all three respondent groups shared striking similarities in characterising intelligence in terms of personal qualities, learning and thinking abilities, knowledge acquisition, and work competence. From the perceptions of these three groups of respondents, a common picture of an intelligent person seems to emerge. The picture is of one who is valued for his or her personal qualities such as cleverness, high IQ, wit, wisdom and initiative; his or her ability to think and learn quickly; one who possesses extensive knowledge and understanding; and one who is capable of performing well either in school work or at work places.

The second aspect this study dealt with is the qualities of intelligence perceived by the three respondent groups as useful in discriminating intelligent from less intelligent persons. The finding revealed that there were significant differences in the way students, teachers and parents perceived four sets of qualities as useful in discriminating intelligent from less intelligent people. However, mental, school and work related qualities were found to be more discriminating by each respondent group than were social or physical qualities.

The third aspect dealt with the respondents’ views on the effect of nature and nurture on intelligence. The finding indicated that there was a greater tendency for students rather than teachers or parents to identify intelligence as something inborn. The environment was considered by all three respondent groups to be more important than family or friends. Also, students were more likely than teachers or parents to judge intelligence from outward appearances. Lastly, no significant group differences were found regarding the perception that intelligence was a fixed attribute over one’s life.

This study has identified some major meanings students, teachers and parents attach to the concept of intelligence. In future research, interest can be focused on at least three other areas. First, the research can be extended to cover gender differences in the conception of intelligence. For students, it may be interesting to examine the meanings of intelligence in terms of their interactions with gender, ability and...
educational levels. Second, it may be worthwhile to examine individual differences when responding to each of the questions asked. Race, age, educational qualifications, socio-economic status and religious beliefs could be investigated in future analyses to see how these variables contribute to their concepts of intelligence. Finally, for teachers, research can be carried out to determine whether primary, secondary and tertiary level teachers vary in their conceptions of intelligence with regard to the aspects of intelligence examined in this study.
Student Classroom-Thinking Processes and Their Relationship to the Language of Thinking Used by Teachers*

Tay-Koay Siew Luan

The study was designed in an attempt to gain greater understanding of the kinds of thinking processes engaged in by students during regular classroom instruction. Hypotheses were aimed at determining mental representational modes employed to decode and understand lessons and at investigating the relationships between self-reported thinking processes and the language of thinking used by the teacher.

Six school levels of male and female students from 44 secondary and pre-university classes (N=2719) and a sample of 79 teachers from the Humanities and Sciences were the subjects of this study. Stratified random sampling was used to select 14 schools in Singapore for the study.

During the lessons, students and teachers were observed and video-taped. Following the lessons, students' reports of their thinking processes were obtained using a questionnaire. The questionnaire also served as the basis for a follow-up interview of four randomly selected students from each of the sampled classes. The whole procedure was repeated for each class within a one-month period and for a different curricular area.

Results showed that while, as a whole, the majority of students sampled (80.7% in Lesson One and 74.7% in Lesson Two) mentioned that they were thinking during the lessons, less than half of them reported being engaged in lesson-relevant thinking. Only a small proportion of the students (9.3% in Lesson One and 8.8% in Lesson Two) indicated that they were employing complex higher order thinking processes.

Analyses of student responses showed significant differences between ability levels, sexes, ages and fields of study in the number, variety and complexity of thinking processes reported. The findings showed that ability is significantly and positively related to the number, variety and complexity of the thinking processes reported by the students. Sex is only slightly related to the thinking processes described by the students. On the contrary, age seems to be inversely related to the variety and complexity of the thinking processes reported by the students. According to student responses to the questionnaires and interviews, the picture that emerges is that while the lower ability students tend not to think actively, the average ability students are more likely to engage in lesson-relevant thinking. Although the higher ability students are more easily distracted during the lessons, nevertheless, they are more inclined to utilise a variety of specific thinking processes and to engage in higher order thinking processes. The findings seem to suggest that thinking is a complex, idiosyncratic process. The results also indicate that if a certain type and level of thinking process is not employed by students, it is not necessarily attributable to inability but more possibly to the lack of habit and lack of skills in thinking.

The findings also revealed that the vast majority of the students were not employing pictorial forms of mental representation in processing intellectual tasks and lesson content. Of the minority who reported drawing during the lessons, two-thirds were drawing diagrams related to the lesson. The rest who drew reported that they derived their ideas from a variety of sources.

Correlation results between the student thinking processes and language of thinking used by teachers produced little relationship. However, the low ability students rather than the high

ability students seem to be stimulated more by precise thinking vocabulary and higher order questions posed by the teachers.

The results were interpreted in terms of physical and organisational characteristics of classrooms in Singapore. Instructional implications were discussed in relationship to both the findings and previous literature.

Sim Wong Kooi

In 1983, when the Institute of Education held a conference on "Research and Teacher Education" with papers by speakers from five countries, there was a dearth of books on the subject. A few notable examples are Taylor (1978) and the chapter by Peck and Tucker (1973). But since then, quite a few have emerged (e.g. Houston (1990), Katz and Raths (1984), Katz and Raths (1986), Haberman and Backus (1986), Section 6 in Dunkin (1987) and chapters by Tisher (1987) and Lanier and Little (1986). However, these books or chapters of books have been confined to North American, European and Australian countries and have not attempted to develop an international perspective.

This volume edited by Tisher and Wideen, with authors from twelve countries representative of five continents or world regions, is therefore most timely and refreshing, even though the Middle East and the Pacific are under-represented. Although the country chapters display a variety of specific contents and styles, there seems to be a commonality in the areas of concern. Thus, apart from introductory remarks with an overview of the context for teacher education and concluding remarks with suggestions for future research, most, if not all, chapters seem to address the following three questions:

- Who should become teachers and how should they be identified or selected?
- What knowledge, attitudes and skills should pre-service student teachers develop and how should this be done?
- What provisions should be made for continuing in-service education, including the induction of beginning teachers?

For example, even for the chapter on Singapore, where in-service education has been explicitly excluded because of the paucity of research on in-service education, this area was highlighted as one of the "areas given little attention".

The chapter by Katz and Raths presents an interesting and useful framework, in the form of a matrix of eleven parameters, for "ordering, summarising and synthesising available literature in the field and for generating new questions for research". It should, however, be pointed out that the framework is a logical, rather than a socio-psychological, one. Hence, even if a particular cell logically exists, it might not be an area which individuals, or groups, might consider to be of high priority. The editors have also not attempted to be exhaustive in synthesising the twelve preceding chapters, but used some examples to illustrate what could be entered into each cell. For instance, no example from the Netherlands was used and illustrations came mostly from USA and Canada.

The introductory and concluding chapters by the editors have neatly sandwiched the 13 chapters by first presenting an overview suggestive of what the reader could expect and closing with some very incisive and insightful "review, reflections and recommendations". The first chapter highlighted three questions, namely:

- Who undertakes the research being done, and why?

Does the research have impact on policy
and practice?

What does the research tell us about teacher education?”

The last chapter then attempts to answer these questions based on the country chapters. They suggest that the “critical mass” of researchers in teacher education should be increased; for changes to be produced, teacher educators should also be researchers; and, more information is needed to conceptualise on how the process of teacher education unfolds for pre-service, beginning and experienced teachers.

In addition, the editors also suggest four strategies for the future, namely “building upon what we have; developing collaborative teams, links and network; conceptualising teacher education; and fostering ownership of in-service education.” Each country should do well to re-examine how far it has progressed or is likely to progress vis-a-vis these directions. It is comforting to note from a perusal of the chapter by Ho that, notwithstanding it being a relative newcomer on the research scene, the progress that has been made in Singapore in recent years has been fairly impressive. We certainly can concur with the editors that there are more than ample grounds for being optimistic about the future.

While the editors have done a superb job of putting together in a coherent way the contributions of scholars from varied backgrounds, there are some areas of divergence, on which it would have been desirable for the editors to deliberate a little more. For example, merely pointing out that the situational-interpretative procedures are preferred by most countries while the empirical-analytical orientation is still predominant in some countries and then to suggest that “pluralism of methods should be retained” seems to be skirtsing the problem of whether and in what way a rapprochement of methodologies is possible.

There has also been no attempt to come to terms with the different uses of terms. For example, “research in teacher education” seems to be used interchangeably with “research on teacher education”. Perhaps the distinction by Taylor (1983) is useful when he took research on teacher education to be “systematic attempts to collect facts about, to interpret, and to develop theories concerning the formal efforts of education systems to educate and train teachers for their tasks in classroom and school”, and research in teacher education to be “about how we might help future teachers to appreciate the values and limitations of research — in their own specialist subjects, not just in education — how to use research findings, and how to carry out and participate in research that will improve their professional practice”.

Having made the most important breakthrough in international collaboration, it would be a pity if the authors and their respective institutions do not continue the momentum by actually embarking on cross-national projects on areas of common interest, which certainly abound as we read the book. Hopefully, such a step would be taken in the near future.

REFERENCES


