Approaches to Learning in Secondary and Tertiary Students in Hong Kong: Some Comparative Studies

J.B. BIGGS

University of Hong Kong

Two seemingly conflicting stereotypes exist about Asian students: (i) they are committed to a low level, rote-biased (or "surface") approach to learning; (ii) they achieve disproportionately well, particularly at tertiary level. Evidence for the former view is mostly anecdotal, often extrapolated from what appear to be unfavourable teaching environments; evidence favouring the second view comes from a variety of sources. In the present study, students from Hong Kong portrayed a profile of motives and learning strategies that suggested a more "academic" approach to learning and studying than that of Australian secondary and tertiary students. Given also that Asians' attributions for academic success are more controllable, and therefore more amenable to intervention, than are those of Western students, questions might be asked about the "fit" of teaching methods to students' characteristic approaches to learning.

關於亞洲學生學習方法的類型,似乎有兩種互相抵觸的觀點:(1)他們的習慣方法是一種低層次,以背誦爲主(或"表面")的習慣法;(2)他們有超乎比例的成就,尤其在高等教育方面。關於第一個觀點時有聽聞,證據往往引伸自不大理想的教學環境。關於第二個觀點,也可從不同的來源得到證據。按本研究所得,從香港學生的動機和學習策略可繪畫出圖畫看來,香港的學生比澳洲的大專和中學學生的學習方法更爲"學術"取向。比起西方的學生,亞洲學生的學術成就歸因比較容易控制,所以也較容易用干預來測試。研究結果引起很多問題,例如我們的教學方法是否能與學生的學習取向配合。

Stereotypes

"The Rote Learner"

Following are some quotations from the reports of some Hong Kong University external examiners: "regurgitative, with little insight and understanding of the subject in question", "differences between better and poorer students being reflected in more effective recall than in qualitative factors," One examiner offered cold comfort: "This approach to learning is a direct consequence of pre-university education, and is beyond the control of University teachers."

A tertiary educator in Hong Kong remarks:
Hong Kong students display almost unquestioning acceptance of the knowledge of the teacher or lecturer. This may be explained in terms of an extension or transfer of the Confucian ethic of filial piety, Coupled with this is an emphasis on strictness of discipline and proper behaviour, rather than an expression of opinion, independence, self-mastery, creativity and all-round personal development.

(Murphy, 1987: 43)

Such observations fit those made of Asian students studying in Australia (Ballard & Clanchy, 1984; Bradley & Bradley, 1984; Samuelowicz, 1987). In this last study, staff and student's perceptions of problems facing overseas students were obtained. Staff comments heavily endorsed the stereotype:

In my discipline they all want to rote learn material rather than think. (Animal Science and Production) Students from Malaysia, Singapore, Hong Kong appear to be much more inclined to rote learning. Such an approach does not help problem solving. (Dentistry)
(Samuelowicz, 1987: 123–5)

At home and abroad, then, Asian students are perceived by some as relentless rote learners, syllabus dependent, passive, and lacking in initiative.

"The Brainy Asian"

At an Australian graduation ceremony, just before coming to Hong Kong, I took particular notice of the disproportionate number of Asian names in the First Class Honours and University Medal lists in such Faculties as Science, Mathematics, Engineering, and Architecture.

The University of California recently announced negative discrimination against ethnic Chinese applicants, whose numbers on campus would otherwise become disproportionate. Chan (reported in Jopson, 1990) surveyed 240 Chinese HSC ('A' Level) candidates in Australia and found over half in the top 20%. Bullivant (1988: 241) refers to a common stereotype held by Australian secondary students of the "brainy Asian", while Asian students for their part were "contemptuous of Anglo-Australians because they lacked achievement motivation and parental support" (*ibid.*). Carefully controlled international studies have consistently shown superior performance by countries such as Hong Kong, Singapore, Korea, and Japan, in science (Comber & Keeves, 1973; International Association for the Evaluation of Educational Achievement, 1988) and in mathematics (Garden, 1987; Husen, 1967), with some variation according to curriculum differences.

Which stereotype is right: that Asian students, and Chinese in particular, simplify academic work into a string of rote-learned propositions or algorithms, or that Chinese students are disproportionately better academic learners than Western students? Or can we have it both ways: that rote learning is an effective way of maximizing examination performance?

The last is unlikely, at least at tertiary level. Several studies report negative correlations between rote or surface learning and examination performance (e.g. Biggs, 1987a; Ramsden, Martin & Bowden, 1989): none, so far, positive correlations.

Learning Processes in Context

The 3P Model

Students (all students) learn for a variety of reasons; those reasons, and the contextual components in which they are placed, determine how they go about their learning; and how they go about their learning will determine the quality of the outcome (Figure 1).

FIGURE 1. *Presage, process and product in student learning.*
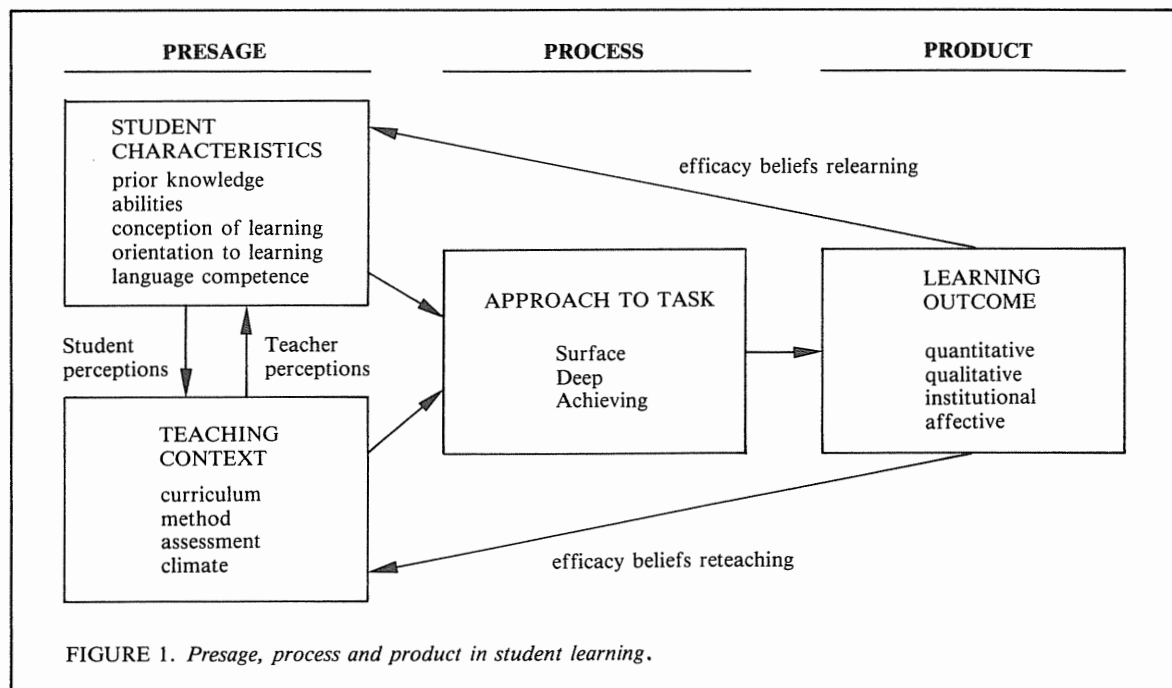
The model represents an integrated system, comprising three main phases (each begins with "p": hence the "3P" model).
Presage factors exist prior to learning and comprise:

(a) *The student context* contains many possible presage factors, which in the present context would include: traditional conceptions of learning and teaching imbibed from early youth, language competence in the medium of instruction, cultural values and expectations concerning achievement, and orientations towards certain approaches to learning (see below).

(b) *The teaching context* refers to factors located in the classroom or the institution: for example, course structure and content, methods of teaching and assessment, and institutional rules and routines surrounding the management of learning.

The *process* by which the particular learning task is handled derives from the way students interpret this teaching context in the light of their own preconceptions and motivations, and the nature of the task in question. The extent to which they use rote memorisation or higher cognitive processes is located at this stage, as elaborated below.

The *product* of learning may be described quantitatively (how much is learned), qualitatively (how well it is learned), and institutionally, which draws variously on both, in the form of the grades awarded. Affective outcomes relate to how students feel about their learning.

Approaches to Learning

Students devise strategies to solve the problems defined by their motives. This combination of motive and strategy is called an "approach" to learning. Surface and deep approaches were identified by marton and Saljo (1976) in phenomenographic case studies of tertiary students. Biggs (1979) identified approaches closely resembling these two, plus a third (achieving, see below) with the quite different methodoloy of factor analysing questionnaire responses; similar factors have been found many times (Entwistle & Ramaden, 1983; Entwistle & Waterston, 1988; Speth & Brown, 1988; Watkins, 1983).

The *surface approach* is based on extrinsic motivation, the student seeing university as a means towards some other end, such as obtaining a desirable job. Students adopting this approach need to balance avoiding failure against working too hard. The strategy appropriate to meeting that intention is to limit the target to those essentials that may be reproduced through rote learning. The student focuses on the concrete and literal aspects of the task components, rather than on their meaning, and treats them as unrelated to each other or to other tasks.

The *deep approach* is based on interest in the subject matter of the task. Deep strategies involve maximising understanding so that curiosity is satisfied. A student adopting a deep approach sees the task as interesting and personally involving, focuses on underlying meaning rather than on the literal aspects, and seeks integration between components and with other tasks. The student reads widely, discusses with others, and may "play" with the task, theorising about it and forming hypotheses about how it relates to other known or interesting items.

The *achieving approach* is based on the ego-enhancement that comes out of visibly achieving, in particular through high grades. The related strategies refer not to handling the content of learning, as do surface and deep, but to managing its context: organising time, working space, and syllabus coverage in the most cost-effective way ("study skills"). A student adopting an achieving approach plans ahead, is neat and systematic, and allocates time to tasks in proportion to their grade earning potential.

An approach to learning can be discussed at two levels of generality:

1. An "approach" can refer to the way an individual characteristically goes about most tasks. This meaning of approach is an *orientation*, describing trait-like qualities of a person, and is located at the presage stage.
2. An "approach" can describe the strategies a student uses to handle a particular task at a particular time. These strategies are determined in part by the learner's orientation and in part by the constraints of the immediate context, and is located at the process stage.

Usually, a degree of consistency between the two could be expected, but a characteristically surface student could be fired by enthusiasm on a particular task to respond deeply; more likely, time or other pressures will paint a deep into a surface corner. It is in fact easier to induce a surface than a deep approach because a surface approach is a reaction to external controlled, because with it, meaning is created by virtue of the structure the student can bring to the task.

A set of instruments developed to assess students' approaches to learning, in the presage sense of orientations, include the Learning Process Questionnaire (LPQ), for secondary populations (Biggs, 1987b), and the Study Process Questionnaire (SPQ), for tertiary populations (Biggs, 1987c). These are self-report questionnaires, in which students are asked to rate themselves on a 5-point scale on items addressing surface, deep, and achieving motives and strategies. Scores are reasonably stable over periods of a few months (test-retest reliabilities are of the order of $+ .70$). Thus, LPQ/SPQ scores give an indication of the extent to which students are in general likely to rote learn, to seek meaning, or to maximise grades, or any combination of these (the scales are

orthogonal). In particular, the scores would appear to reflect the kinds of things referred to in various stereotypes of learning: "rote learners" would be expected to have high scores in the surface related scales; "academic types" on deep and achieving.

The Hong Kong Context

While instruments such as the LPQ and SPQ index students' characteristic orientations towards learning, they are affected by context. For example, students in a problem-based medical school showed significantly higher scores in deep and achieving, and lower surface, than students in a traditional school (Newble & Clarke, 1986). The particular point at issue is the extent to which Hong Kong students' typical approaches to learning reflect the local context. What contextual factors might be expected to play a part?

The teaching context. Typically in Hong Kong, classes are relatively large, comprising 40 plus in primary and lower secondary, curricula are centralised, external examinations are important, if not dominant in determining what goes on in classrooms. Teaching methods are almost exclusively expository, with students' listening and taking careful notes of the teacher's best bets as to the exam content (usually very accurate); teachers believe that an expository teaching style, in which they lecture and provide notes, is the most *efficient* way (whatever they might privately prefer) of meeting what the examination syllabus requires of them and of the students (Morris, 1985). The curriculum is geared to the minority (less than 10 per cent) who proceed to post-secondary education. There is emphasis on school spirit and morale raising ceremonies, compulsory school uniforms, and a very authoritarian school climate. Content, method, assessment, and climate seem inevitably to maximise surface learning, given what we know about effects on approaches to learning (Biggs, 1987a; Crooks, 1988; Ramsden, 1984).

In the tertiary sector, change is foreshadowed but hitherto teaching methods have been traditional (mass lecture followed by tutorial) and the general ethos considerably more authoritarian than is currently the case in Australia, UK, or North America.

The language context. The effect of using English as the medium of instruction on approaches to learning is problematic. Intuitively one would expect that English usage would encourage a surface approach through learning key words, but much depends on the language competence of the students, and there is evidence that second language usage may actually encourage a deep approach (Biggs, 1990).

Traditional conceptions of learning and teaching. What of culturally-specific factors, such as Confucian conceptions of teaching and learning? Confucius himself saw learning as deep: "Seeing knowledge without thinking is labour lost; thinking without seeking knowledge is perilous" (quoted in Cleverley, 1985: 6); his methods were individual and socratic, not expository; his aim was to shape social and familial values in order to conserve a particular political structure. These do not appear particularly conducive to surface learning. However, Confucius did inspire several themes and variations, ranging from the rational morality of Mencius, through the Rousseausque naturalism of Mozi, to Xunzi's salvation-through-pain, and some of these derivations may play some role in the educational processes in "Confucian heritage" cultures (Ho, 1991). However, it seems rather tenuous to attribute the classroom behaviour and learning styles of modern tertiary students in Hong Kong to a transfer of filial piety, with the lecturer as father-substitute (Kember & Gow, 1989; Murphy, 1987).

The motivational context. It is said that the Chinese are traditionally harsher in child-rearing and education than Western countries: "Physical punishment in the school such as hitting the pupil's hand is still practised...ridicule or shaming of the child, such as making him stand out before his classmates, remains a common technique of control" (Ho, 1981: 89). Praise is believed to be harmful, and criticism necessary, for character building (Salili, Hwang & Choi, 1989).

However, teachers in many countries have similar beliefs. Physical punishment was banned in New South Wales seven years ago, to be reintroduced by the Greiner Government two years later. Winter (1990) used a rating schedule in 86 secondary Hong Kong classrooms and found that teachers blamed more than they praised only in the case of social/moral behaviour. In the case of academic behaviour, positive comments were twice as frquent as negative; and teachers were twice as likely to focus on academic than on social behaviour. Only 27% of individual teachers followed Xunzi in being more disapproving than approving, and only 19% were Confucian in responding more frequently to social than to academic behaviour. But then Wheldall, Houghton and Merritt (1988) used the same instrument as did Winter in 130 British classrooms, and found very similar results. There are teachers the world over who are as convinced

as Xunzi that blame fortifies the adolescent spirit but praise enervates it.

The crucial cultural difference is not frequency of blame, but the *attribution structure* surrounding blame for failure, which in Asian cultures leads to attributions not of low ability, but of lack of effort (Holloway, 1988; Salili, Hwang & Choi, 1989). Unlike Westerners who attribute success primarily to ability, many Asian cultures emphasise effort and endurance as not only the major factor in achieving success, but as intrinsically good. Students are encouraged to put in a lot of effort even where they perceive a low probability of success. Hong Kong secondary students rated the five most important causes of academic success, out of a potential of 13 (in order): effort, interest in study, study skill, mood, and only then, ability (Hau & Salili, 1991).

Given what we know of efficacy beliefs, attributions, and performance (Nicholls, 1984; Schunk, 1985), we can see some reasons why Chinese achieve so well. Chinese attributions tend to be internal and controllable (success follows effort and skill), the Western internal and uncontrollable (success follows from ability); a crucial difference, surely favouring the Chinese as far as the successful management of learning is concerned in the case of potentially good students. The downside is when the problems of the learning disabled are attributed to laziness; that can only result in heartache and frustration.

Another significant difference is the social framework surrounding performance and motivation (Holloway, 1988). Salili and Mak (1988) found that both high and low achieving students related career success to "friendship and wide acquaintance", quoting in support a Chinese proverb: "At home, you depend on parents; in the outside world you have to depend on your friends" (p. 135). This network begins in student days, with special interest classes forming strong bonds. Students tend to cooperate on assignments, despite the drive for individual high achievement (Tang, 1990).

In fact, achievement motivation in Chinese is related to both collective and individual frameworks (Holloway, 1988). Standards of excellence and of what constitutes success may be competitive and norm-referenced, determined by the individual, or "determined by significant others, the family, the group, or the society as a whole" (Yang, 1986: 114). Further, the "pressure on students to study hard and do well in examinations, which is notorious in Hong Kong, may be present regardless of the educational level of the parents" (Ho, 1986: 30). As in Japan, individual achievement is much more a matter of family

"face" than is the case in the West (Holloway, 1988).

What, then, are effects of these complex contexts on students' approaches to learning? Simply taking those factors that research nominates as leading to surface learning, we would predict that the teaching context in Hong Kong would lead to high levels of surface learning, and low of deep (Crooks, 1988; Ramsden, 1984).

Looking at the wider cultural context, however, the individual is strongly motivated to achieve, to attribute success to internal and controllable factors such as effort, to know how to study effectively, to create interest and the "right mood", to develop collaborative relations with peers, and to develop "cue-seeking" skills (Miller & Parlett, 1974). Under the influence of such factors, the predicted effects of expository teaching, heavy external assessment, punitive methods of control (if this is indeed so), and even of being taught in a second language, might be quite different.

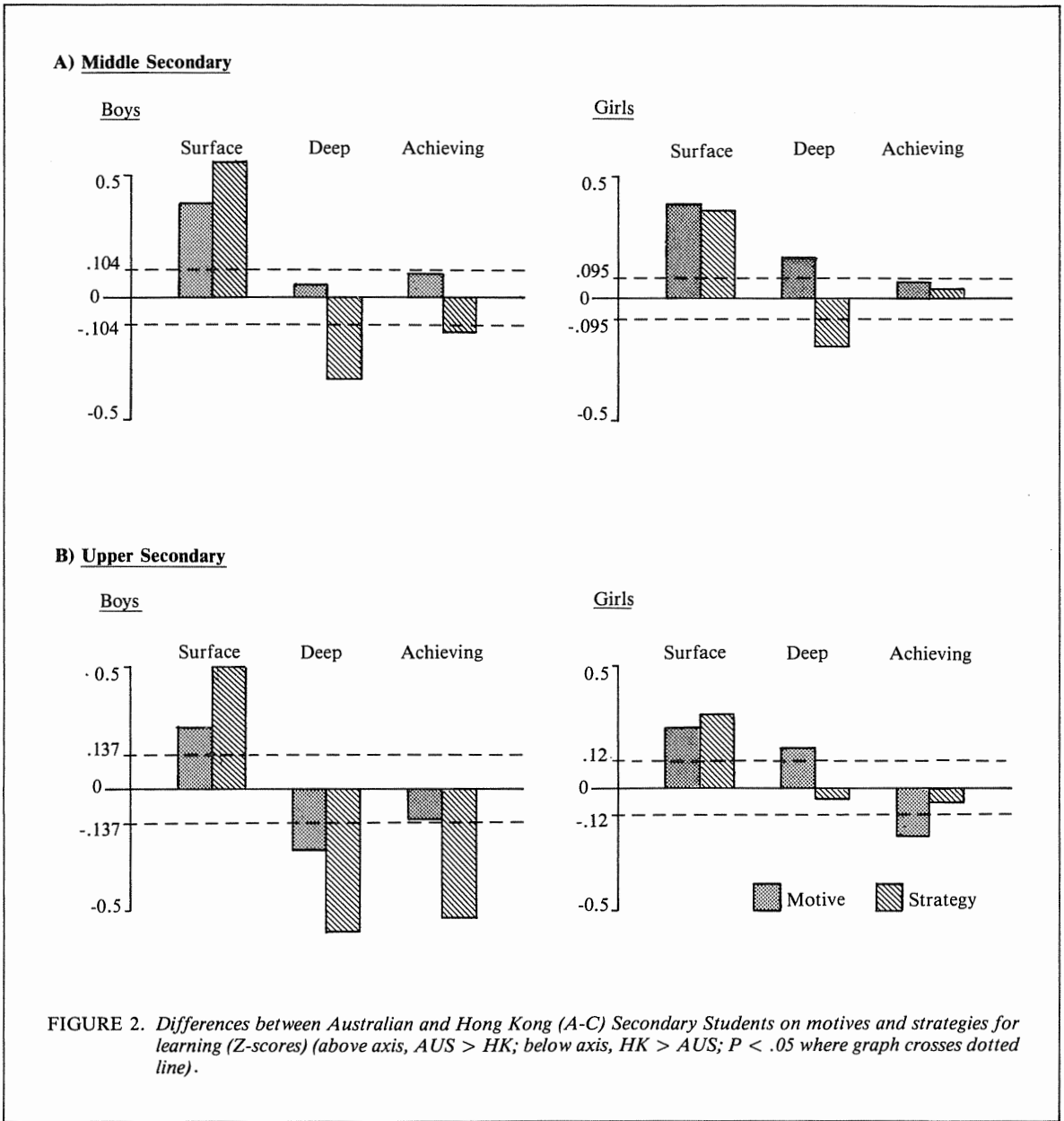Some evidence is presented below.

Asian-Western Comparisons on the LPQ/SPQ

Several data sets using the LPQ/SPQ throw some light on how Hong Kong Chinese compare to students from other cultures in their orientations and approaches to learning.

Australian and Hong Kong Secondary students

A bilingual version of the LPQ was administered to 1,500 ethnic Chinese students attending Anglo-Chinese (English-medium) government schools in Form 4 and 630 Form 6 students (Biggs, 1989). The data, which were selected to be as representative as possible, were compared to the original Australian norming samples of 1300 randomly selected students of Age 14 and 970 students in Year 11 (post Form 5, pre Form 7). The comparisons are given in Figure 2; the Hong Kong means are subtracted from the equivalent Australian mean, and divided by the larger of the two standard deviations to yield a conservatively estimated effect size. In Figures 2 to 6, the five per cent hand is drawn, so that if an effect size exceeds that band it is significant at or beyond the .05 level.

There is no support here for the stereotype of the rote learner. Hong Kong students of both sexes and at both middle and upper secondary are significantly *lower* on surface approach, and the

FIGURE 2. *Differences between Australian and Hong Kong (A-C) Secondary Students on motives and strategies for learning (Z-scores) (above axis, AUS > HK; below axis, HK > AUS; P < .05 where graph crosses dotted line).*

surface strategy of rote learning in particular, than the Australian sample. Likewise, deep strategy favours the Hong Kong students, except that in upper secondary, girls show no difference. Differences on achieving motive are small in middle secondary and have sharpened by upper secondary, favouring Hong Kong students; likewise, Chinese boys in upper secondary are higher on achieving strategy than Australians.
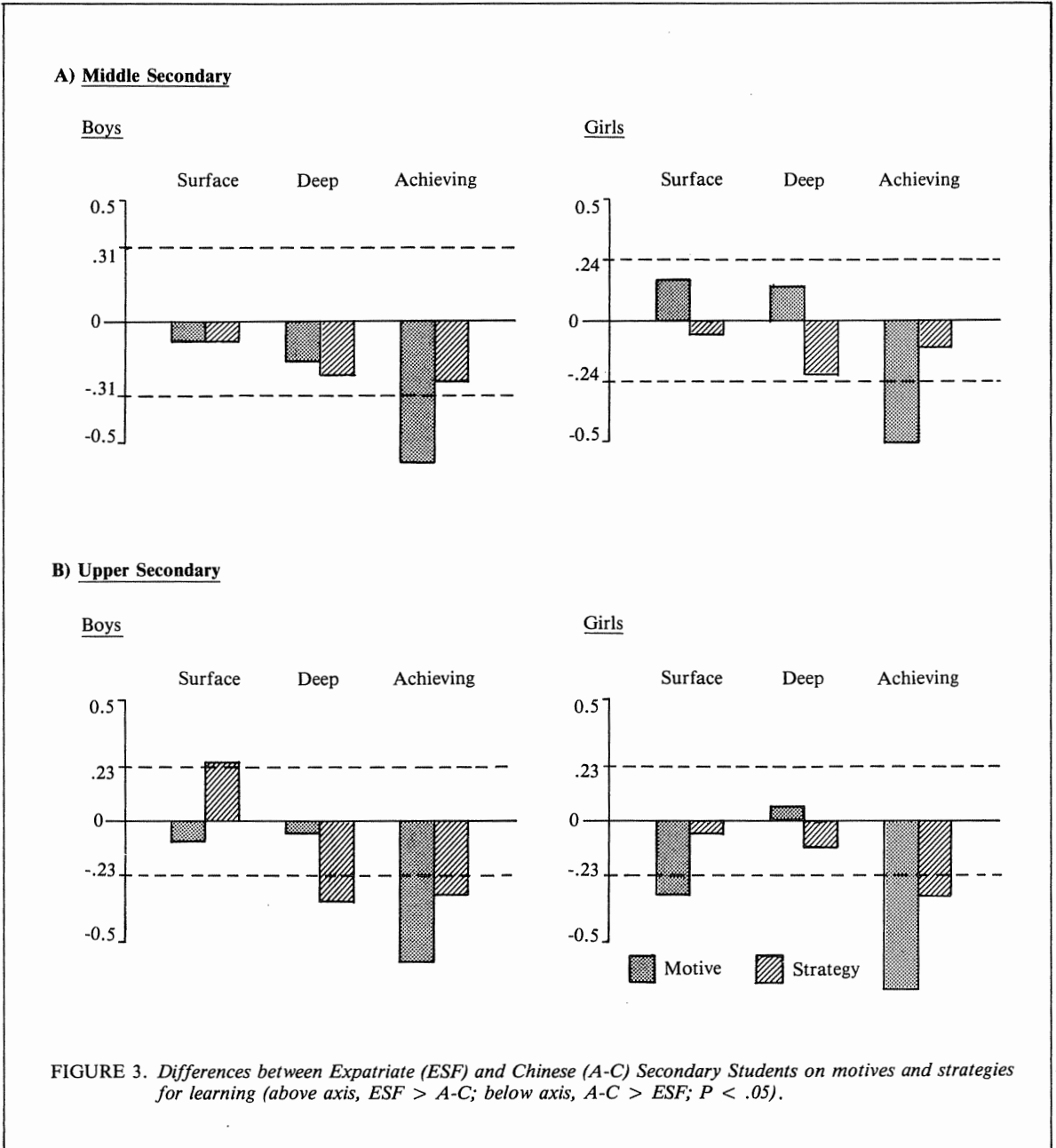
The cumulative effect of school context differs between the two systems, and between

sexes. From middle to upper secondary, Australian boys adopt less "academic" LPQ profiles, while Chinese boys move towards the academically desirable deep-achieving composite approach. The Australian girls' profile improved from middle to upper secondary, Chinese girls' remaining stationary. There is, however, a difference between the two countries in the retention rate at upper secondary, which might account for these data (Hong Kong students being much more highly selected).

Expatriate and ethnic Chinese Secondary students in Hong Kong

Another comparison is between Asian and nonAsian students in the same school system (the English Schools Foundation) (Biggs, 1989). The ESF system caters principally for expatriate students, and many Asian (both expatriate and local) groups are represented. Figure 3 presents comparisons equivalent to those in Figure 2:

FIGURE 3. *Differences between Expatriate (ESF) and Chinese (A-C) Secondary Students on motives and strategies for learning (above axis, ESF > A-C; below axis, A-C > ESF; P < .05).*

In middle secondary, the Chinese students are more achievement motivated; by end of secondary, they are higher on both achieving motive and strategy. By Form 6, ESF boys are higher on surface strategy, Chinese boys on deep strategy. Chinese girls in Form 6 are high on

surface motive. In progressing from middle to upper secondary, ESF boys behave like Australian boys, becoming more surface, whereas Anglo-Chinese boys become more deep.

ESF schools contain a high proportion of bilinguals, including Chinese/English bilinguals; all bilinguals, whatever their particular languages, turned out to be lower on surface and higher on deep than the English-speaking monolinguals. This finding reinforces a previous finding that bilingual students in an immersion context have high scores on deep approach (Biggs, 1987a).

Australian and Hong Kong tertiary students

In 1988, the LPQ was administered to all incoming students ($N = 4,000$) of the two polytechnics, Hong Kong Polytechnic and City Polytechnic of Hong Kong (Gow, Kember, Chow, Biggs & Balla, 1989). These data were pooled and compared to the Australian CAE Science norms ($N = 470$), the nearest equivalent group, along the same lines as before (Figure 4(a)). Next, Hong Kong University Postgraduate Certificate of Education students ($N = 330$) were compared with Australian University Education norms ($N = 200$) (Figure 4(b)). Finally, Hong Kong University Psychology (Social Science) ($N = 290$) were compared with Australian Arts norms ($N = 400$) (Figure 4(c)):
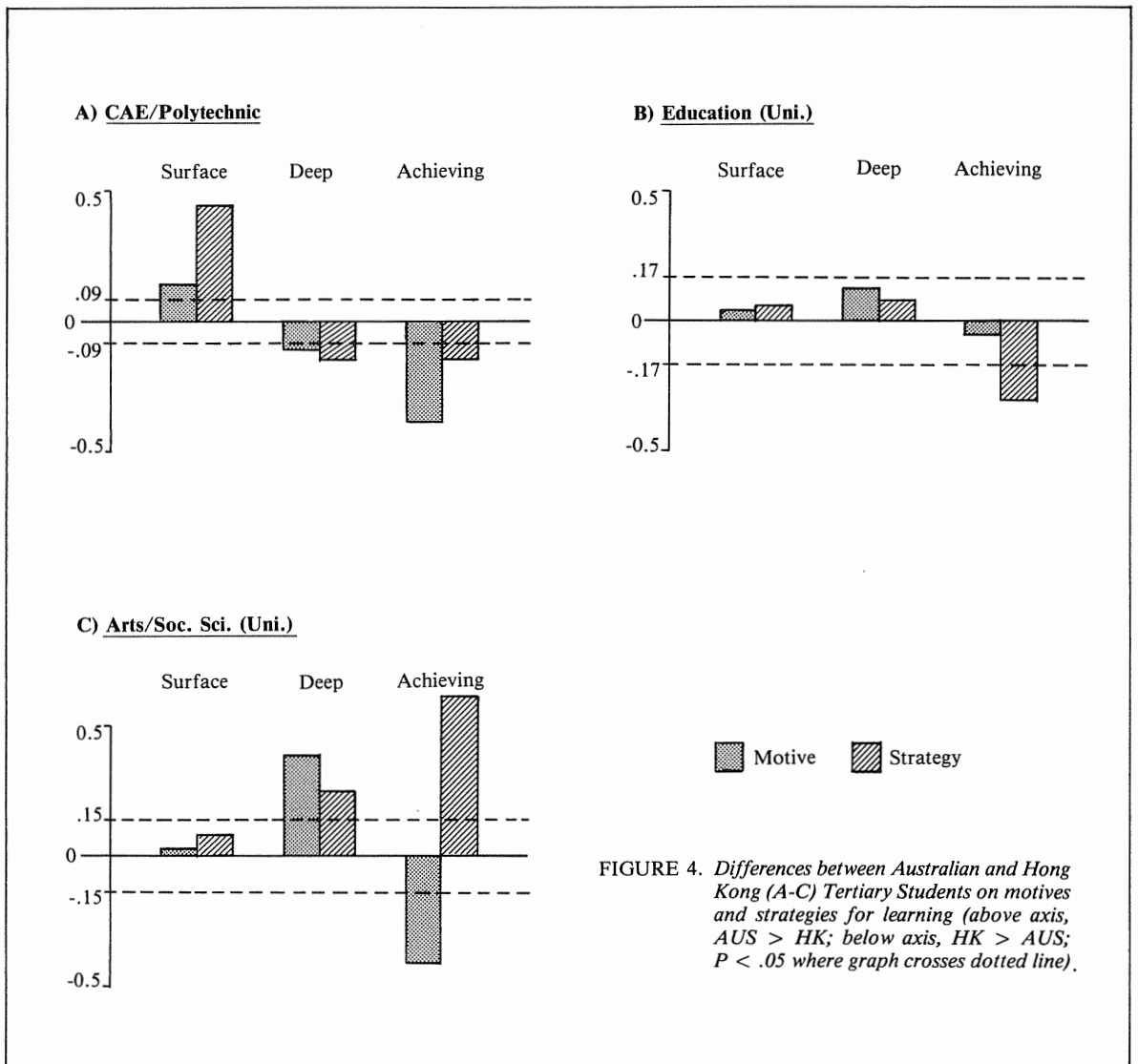

FIGURE 4. *Differences between Australian and Hong Kong (A-C) Tertiary Students on motives and strategies for learning (above axis, AUS > HK; below axis, HK > AUS; P < .05 where graph crosses dotted line).*
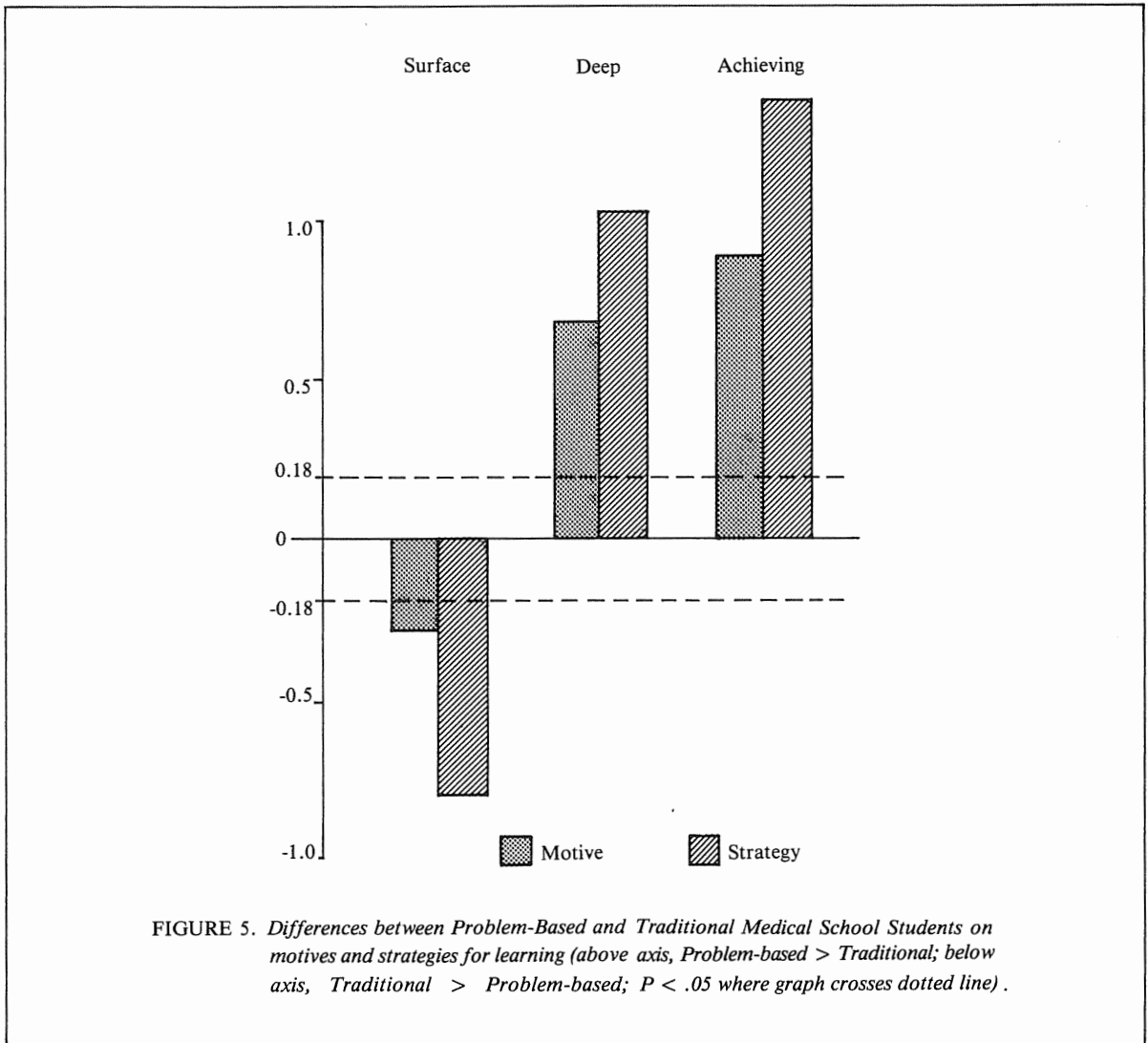
The Polytechnic-CAE comparisons are significant on all subscales and recall the secondary school findings: Australians high on surface, Hong Kong on deep and achieving. In Education, Australians are lower on achieving strategy, otherwise no difference. In Arts/Social Science, Australians this time are higher on deep and achieving strategy, but lower on achieving motivation.

The bulk of these comparisons reinforce the secondary data: the Hong Kong Chinese learning approach profile is low surface, high deep and achieving.

Problem-based versus traditional medical students

Finally, to show that present teaching context is important, Figure 5 gives comparisons between a problem-based medical school ($N = 640$) (Note 1), and a highly traditional medical school ($N = 250$) (Note 2).

FIGURE 5. *Differences between Problem-Based and Traditional Medical School Students on motives and strategies for learning (above axis, Problem-based > Traditional; below axis, Traditional > Problem-based; P < .05 where graph crosses dotted line).*

The differences here are huge, and in the way one would expect if *teaching* context was to play a part (the problem-based data are averaged all years, but in fact the deep approach increases from first year on; see also Newble & Clark, 1986). This time, the data do not replicate any cultural trend suggested so far: the problem-based school is in the University of Newcastle, Australia, the traditional school in the University of Hong Kong. As we would expect from student learning theory (Ramsden, 1984), teaching in a problem-based context encourages the development of deep and

achieving approaches, and discourages a surface approach.

If teaching context can be so influential, how do we account for the previous comparisons?

Are Cross-Cultural Comparisons Valid?

Most of these effects cannot be attributed to chance — in some cases, we would be dealing with probabilities of one in ten thousand and more — and they cannot easily be put down to artefacts like response set, because the differences go all ways (it's not that Chinese always tend to rate themselves highly on deep items and low on surface). A more fundamental question is whether instruments like the LPQ/SPQ can be presumed to measure the same constructs when applied to different cultures.

"Etic" research compares different cultures on universal categories, while "emic" research deals with culture-specific categories; "pseudoetic" research imposes the emic categories of one culture, usually Western, onto another culture as if they were universals (Triandis, 1972). The constructs of "deep" and "surface" were derived in Sweden, and have since been widely used on many Western countries. They may however take on different meanings in cultures where the prevailing conceptions of learning and teaching are different from Western conceptions. Two possibilities arise: (i) that different items might be necessary to define "deep" and "surface" in an instrument like the LPQ; or (ii) that different constructs might better replace the the existing ones of surface and deep.

In the first case, the internal consistencies of the scales would be low in the exotic culture. Hattie and Watkins (1981), for example, found weak factor structures on the LPQ in Filipino samples, and the scales did have low internal consistencies, suggesting that indeed one should not use the LPQ in that culture. The Hong Kong Cronbach alphas, on the other hand, were good; at the tertiary level, they ranged from .56 to .80 (in Australia the same range was . 51 to .77).

As to the second possibility, Kember and Gow (1989) suggest that a "narrow" approach characterizes Hong Kong tertiary students, on the basis of a second order factor analysis of a group of Hong Kong Polytechnic students' responses to the ASI (Entwistle & Ramsden, 1983), which has aspects of both deep and surface. This approach is characterised by the sequence "understand-memorise-understand-memorise..." on tasks that are clearly defined by the lecturer. They attribute this partly to the need to reduce processing load when working in L2, and partly to a transfer of Confucian "filial piety" to the teacher or lecturer. The last suggestion aside, the question arises whether reducing processing load in this manner involves the strategic use of a deep approach, or it warrants postulating a different approach.

Some light on this is shed by Tang (in progress) who obtained some qualitative data from physiotherapy students at Hong Kong Polytechnic in the course of a study on the effects of two modes of assessment on students' approaches to studying. Each student was interviewed twice, once for each mode of assessment; interviews were conducted in the mother tongue (Cantonese) although teaching and assessment are conducted in English.

Three broad conclusions may be drawn from Tang's data.

1. Deep and surface approaches were used here in much the same way as they are in Sweden, UK, or Australia. While some "deep" students stressed the importance of both understanding and memorizing, as Kember and Gow (1989) also found, the memorizing was not in conflict with, or as a substitute for, understanding. Cognitive psychologists would agree with these students that application requires ready access, and both application and recall are best embedded in meaning.

2. Her students showed a marked sensitivity to context — to the format of assessment, to the emphases and cues displayed in class by the teacher — and were willing to adapt their approach to the contextual requirements. Whether Hong Kong students are more sensitive than other students in this respect is not evident from these data.

3. Collaboration in planning the assignment was very common. Analysis of the protocols of the 39 students interviewed showed that, for the assignment, only 5 studied alone, 34 collaboratively. In the absence of similar data in Australia, casual observations would suggest that nothing like 87% of a class would spontaneously form groups to work collaboratively over an assignment.

The collaborative aspects of this work, and their significance in student learning, are developed elsewhere (Tang, 1990).

Implications for Teaching

Thus, while teaching context has an effect on orientations to learning (Figure 5 especially),

Chinese Asians have a motivational and social infrastructure that appears to mediate contextual effects, giving orientations to learning that are unexpected given the teaching context. Two questions arise:

1. What are Hong Kong students' orientations to learning?
2. Do the common teaching methods in Hong Kong provide a good fit to these orientations?

Typical orientations to learning

In comparison to Western students, Hong Kong students display the following characteristics:

a) *Approaches to learning*. Deep and achieving approaches appear to be widely used. These approaches are endorsed on LPQ and SPQ, and most of Tang's students emphasised in interview the need to seek meaning and to understand. Memorisation is also emphasised in preparation for tests, but that is an entirely sensible strategy to ensure retrieval after the event; it rarely appears to be used as a substitute for meaning, as in the surface strategy itself. The achieving strategy is also used, which reflects self-management of studying.

b) *Cue-seeking*. Students tend to be very watchful of cues that could be important for assessment or other purposes. This strategy is widely used by secondary teachers, in preparation for the external assessments, and is carried over into the tertiary sector by student themselves. This is an adaptive strategy where there is heavy emphasis on testing, and it is quite likely that it is used more rigorously when instruction is in L2, in order to ease memory load (Kember & Gow, 1989).

c) *Collaboration*. Chinese students appear to work far more collaboratively than do Westerners, despite the excessively competitive and norm-referenced context of local assessment systems, and the reliance on teacher-dominated, expository, teaching methods. This is probably has a cultural basis (Salili & Mak, 1988), as well as a linguistic one (see below).

d) *Coping with L2 medium of instruction*. Much no doubt depends on student's competence in L2, but in general students tend to restrict the range of what is to be studied, but to study deeply within that range, and ensure the accessability of

what has been learned by rote learning the deeply processed product. This results in learning that is focused and easily accessible. Elaborative processes, such as application to other areas, or establishing links with related knowledge, may well be handled in L1, with input and output mediated by L2, depending on the threshold of language competence (Cummins, 1979). The strategy of collaborative learning, which is handled in L1, may well be the means by which deep processing occurs (Tang, 1990).

The fit with teaching methods

How well does the local teaching context fit this orientation to learning? This is a very large question, and is not just a matter of language medium of instruction. The general impression is that education proceeds on two levels: the formal, which is conducted in English, and the informal, which is conducted in the mother tongue. Formally, we have a system which is expository, examination dominated and one-way: teachers expound selectively and students respond accordingly, with the norm-referenced exam system seemingly encouraging individualistic competition. This formal level would seem likely to lead to high surface, low deep, orientations to learning but it apparently does not.

Informally, there is an inter-student network, based on cultural factors particularly emphasising high motivation, but also high collaboration. It is not conducted in the official language of instruction, and could well instantiate what McKeachie et al:

> The best answer to the question, "What is the most effective method of teaching?", is that it depends on the goal, the student, the content, and the teacher. But the next best answer is, "Students teaching other students." There is a wealth of evidence that peer teaching is extremely effective for a wide range of goals, content, and students of different levels and personalities.
>
> (McKeachie et al, 1986: 63)

It is possible that this informal level has more effect on students' approaches to learning than the formal one. How schools and tertiary educational institutions could make best use of the possibilities thus opened up seems to me to be a vitally important question for Hong Kong educators (see also Winter, 1987). As a first suggestion, schools and tertiary institutions might make far more use than they do of group work: small group learning, peer-teaching, problem-based learning, and the like. The present purpose, however, is to raise questions not to answer them; certainly the present

findings challenge current stereotypes about Asian students. This work, and the work of others on cross-cultural factors, particularly with regard to attributions for success and failure, and spontaneous collaboration in learning tasks, open a range of possible interventions and innovations in the formal educational context.

Notes

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2. I am indebted to Professors John Balla and Tony Hedley, Faculty of Medicine, University of Hong Kong, for supplying these data.

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Author

J. B. BIGGS, Head, Department of Education, University of Hong Kong, Pokfulam Road, Hong Kong.