

Differences between Chinese and Australian students: some implications for distance educators.

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First year undergraduate Business and Computing Chinese students studying on-campus in Australia and from Confucian cultural heritage societies were compared with first year Australian undergraduate students of the same courses using Entwistle and Ramsden's (1983) Approaches to Studying Inventory (ASI). Results were analysed for each ASI scale using analyses of variance. Significant differences were shown for a number of scales, with implications for the design and delivery of effective off-shore distance education directed towards Confucian heritage cultures. The results are discussed in a context of the factor structure identified for Chinese students by Smith, Miller and Crassini (1998) with a view to informing instructional decision-making.

Introduction

Education providers have not been slow to realise the potential for the Internet to provide education and training across international borders. Tiffin (1998) has provided an analysis of the nine forms of virtual university that he sees emerging in the late 1990s, ranging from the traditional university reinventing itself to provide instruction on the world-wide web, through corporate virtual universities providing on-line education programs to the corporate sector, national virtual universities, cultural virtual universities, to a global virtual university. Caution on the future development of these ventures has been argued forcefully by Cunningham, Tapsall, Ryan, Stedman, Bagdon and Flew (1997) who point out that some of the enthusiasm for virtual universities that find success across international borders and in different cultures ignores local controls and also ignores choices that are made on the basis of local culture. Cunningham et al. use the term 'Death Star' to describe satellites as a technology leading to cultural homogenisation through cultural imperialism. Somewhat more dramatically, Mitchell (1997) has argued that the Internet is an agent for cultural imperialism, and that other languages and cultures are in danger of diminution through the dominance of English as the language of the Internet. The current authors do not share that pessimism for much the same reasons of local influence

that have been argued by Cunningham et al. Additionally, the vast majority of the world's population are a long way off Internet access, have long distances to go to achieve the literacy levels required to result in the difficulties that Mitchell predicts, and the popular culture of the grass roots of societies around the world is more robust than we believe Mitchell allows.

The issues of cultural homogenisation Cunningham et al. draw to attention, and that concern Mitchell, do need to be addressed by responsible educators. It should be our aim to avoid what the current authors call the 'new colonialism' in the provision of education and training on-line in a way that is insufficiently sensitive to other cultures and the learning styles and preferences that are associated with those cultures. Cunningham et al., for example, provide evidence to support the contention that courses and their content may be transferable across cultures, but not necessarily their delivery or organisation.

There has been an amount of research on cross-cultural learning styles and learning behaviours that can help to inform instructional decisions. To assist with analysing and comparing cultures Hofstede (1986) has developed a two-dimensional model which maps *Power Distance* against *Individualism* on one dimension, and *Masculinity* against *Uncertainty* on the second dimension. *Power Distance* refers to the extent to which less powerful people in a society accept inequality in power and consider it to be normal, while *Individualism* is the extent to which individuals look after their own personal interests and those of the immediate family. *Masculinity* is represented by the extent to which men are expected to be assertive and competitive, and women to be caring and to serve; *Uncertainty* is the extent to which people in a culture are nervous about lack of structure, lack of clarity, or unpredictability. Within that two dimensional space, Hofstede suggests that the underlying characteristics of different cultures can be captured and described. Trompenaars (1993), writing more from a cross-cultural business perspective, has similarly identified a number of general dimensions along which cultures vary. Although there are similarities between the Hofstede and the Trompenaars conceptualisations it is Hofstede, writing from an educational perspective, who has translated his model into some insights for the teaching-learning process in terms of:

- the effectiveness of group learning
- forms of questioning in instructional groups
- the expected authority, knowledge and role of the instructor
- the use of academic or plain language by the instructor
- the use of praise by the instructor
- the structure of effective group learning exercises.

Recent papers by Andrews, Dekkers and Solas (1998) and Baron (1998) have addressed the issues of using an open learning approach to education that is provided to people of different cultures. The findings from the Andrews et al. study were consistent with the observations by Ballard and Clanchy (1997) and Watkins and Biggs (1996) that Asian students have difficulty adjusting to an educational environment that was more characterised by independent learning and less instructor supervision and guidance. Making adjustments from a more structured to a less structured learning environment was difficult, as was taking responsibility for their own learning. Andrews et al. (p.169) reported that 'These students felt that the problem lay with them ...rather than with the system'. A weakness in the Andrews et al. research was the selection of a sample of university students who came from a number of different cultures, including Japanese, Chinese, Thai, Indonesian and Nepalese students. That multi-cultural sample clearly masks differences between those cultures and prevents conclusions that are culturally specific.

Baron's (1998) work represents action research in progress during the development and delivery of an Australian Bachelor of Business Administration via the Internet into Singapore. Baron describes how these developments have taken into account the findings from the literature on Confucian Heritage Culture (CHC). In parallel to the delivery of the program, Baron has been identifying and recording the learning behaviour of the students, and their use of the various on-line features available through the program. Available to students are an announcement area for lecturers and administrators, a Forum providing thematic discussion, an open chat room, and a private chat facility. Although the program provided study group formation to reflect the collaborative learning behaviour that may be expected in a collectivist culture such as CHC, findings to date have shown that these study groups are not widely used, with the students preferring the lecture format provided through the on-line subjects. While the announcements area has been well used, along with the on-line subjects and the resources, the chat facilities are not so far frequently visited, although Baron detects a growing usage. These early experiences concur with the findings of Andrews et al.; Ballard and Clanchy (1997); and Watkins and Biggs (1996) that Asian students, and in this case largely Chinese students of CHC background, have a higher preference than Australian students for structured learning environments and instructor guidance.

Cross-cultural learning styles studies of particular interest in the current research are those that have limited the cultures of investigation to those of Confucian heritage. Findings from Hong Kong research by Biggs (1990, 1991, 1992), using the Studying Process Questionnaire have contradicted the belief (see Samuelowicz 1987; Ballard & Clanchy 1984)

that Asian students are passive and uncritical, relying more on memorisation than on understanding. Biggs has shown that Chinese students are more likely to adopt a deep approach (Marton & Saljo 1976) than are their Western counterparts. Marton, Dall'Alba and Tse (1992) have also shown that the memorisation through repetition behaviour associated with Chinese students is a mechanism used to deepen and develop understanding. These findings indicate that memorisation is not the end-point of the learning, but part of the process to achieve understanding. Similar observations have been made by Marton, Watkins and Tang (1997); Kember (1996) and Watkins, Regmi and Astilla (1991). Sadler-Smith and Tsang (1998, p.81), using the Revised Approaches to Studying Inventory (Entwistle & Tait 1994) identified this too when they wrote "The conception of 'Asian learners as rote learners' is not supported". Importantly from the perspective of the current investigation, Sadler-Smith and Tsang also conclude that approaches to studying must be interpreted in the educational, institutional and cultural contexts within which that study occurs.

Smith, Miller and Crassini (1998), using the Approaches to Studying Inventory (Entwistle & Ramsden 1983) investigated the underlying factor structure of Chinese students in their first semester of study in Business and Computing subjects in two Australian universities. Their findings identified a rather different factor structure for Chinese students than for the Australian students in their sample. The factor analysis indicated three major factors: an *Anxious-Surface Orientation*, a *Self-motivated, Reflective Orientation*, and an *Efficiency Orientation*. These findings lend support to Biggs (1990, 1991, 1992) argument that Chinese students are not surface/rote learners, and to Kember and Gow's (1990) identification of a meaning orientation among Chinese students. Also indicated by Smith et al. (1998) is that anxiousness over a fear of failure among Chinese students is associated with surface learning behaviours, while the Efficiency Orientation indicates that Chinese students are strategic in their selection of what to study, motivated by success in academic results. Specifically, Smith et al. (1998) showed that the Anxious-Surface Orientation was loaded on substantially by ASI scales Syllabus Boundness, Fear of Failure, Improvidence, Surface Approach, Disorganised Study and Globetrotting; the Self-Motivated Reflective Orientation was loaded on by scales Relating Ideas, Deep Approach, Intrinsic Motivation and Achievement Motivation; and the Efficiency Orientation had loadings from Extrinsic Motivation and Strategic Approach.

The design of education programs that are sensitively oriented towards learners from another culture requires more fine-grained information than can be supplied by factor analytic studies. The current study has used the

Smith et al. (1998) Approaches to Studying Inventory data to identify differences between the Australian and the Chinese students on a scale-by-scale basis, comparing the two groups by analyses of variance.

Method

Participants were 394 on-campus students drawn from two universities in Australia. Australian students (n=202) were defined on the basis that Australia was their country of birth and English was their native language. The Chinese students (n=192) were from Hong Kong, Malaysia or Singapore and were selected on the basis that a Chinese dialect was their first language. All students were in their first semester of study and were undertaking Business or Computing undergraduate programs. The Chinese students were also in their first semester of study in Australia. That criterion of selection was important in the research design to minimise the possible changes in learning style that may occur as a function of exposure to Australian culture and education.

The Approaches to Studying Inventory (ASI) was administered to the students during scheduled classes after their written consent to participate had been obtained. Students were instructed to respond to the ASI in terms of their general approach to study, and not in terms of the specific programs in which they were enrolled. The ASI consists of 64 items measuring 16 subscales. The 16 subscales are:

- Deep Approach
- Inter-relating Ideas
- Use of Evidence
- Intrinsic Motivation
- Surface Approach
- Syllabus Boundness
- Fear of Failure
- Extrinsic Motivation
- Strategic Approach
- Disorganised Study
- Negative Attitudes
- Achievement Motivation
- Comprehension Learning
- Globetrotting
- Operation Learning
- Improvidence

Results

Table 1 shows the means and standard deviations for the Chinese and Australian samples by gender for each scale of the ASI.

TABLE 1
Means and standard deviations for each ASI scale – Chinese and Australian samples

ASI scale	Chinese students (n=202)		Australian students (n=192)	
	Mean	Std Devn	Mean	Std Devn
Deep Approach	11.98	1.80	10.94	2.14
Relating Ideas	11.43	1.92	10.72	2.23
Use of Evidence	10.94	2.06	10.19	2.18
Intrinsic Motivation	9.92	2.17	9.64	2.68
Surface Approach	16.09	2.90	15.81	2.68
Syllabus-Boundness	9.35	1.31	9.25	1.72
Fear of Failure	8.67	1.70	7.64	2.00
Extrinsic Motivation	12.16	2.34	10.81	2.56
Strategic Approach	11.71	2.10	11.48	2.08
Disorganised Study*	10.14	2.48	10.91	2.71
Negative Attitude*	8.54	2.76	7.74	2.81
Ach't Motivation	11.99	1.98	11.54	2.20
Comp. Learning	9.96	2.13	9.95	2.68
Globetrotting	9.74	2.13	9.28	2.10
Operation Learning	12.06	1.70	11.29	1.94
Improvvidence	10.95	2.14	9.17	2.16

* reversed scoring

Table 2 shows the F-ratios and probability levels for each ASI scale, by cultural group (Australian and Chinese) by gender, and the cultural group by gender interaction. It is acknowledged that this fine-grained scale by

scale analysis increases the probability of Type 1 error by applying multiple statistical tests to the same sample.

TABLE 2
Summary of analyses of variance by cultural group, by gender, and the cultural group x gender interaction (significance levels at or beyond p=0.05 are in bold).

ASI scale	Cultural Group		Gender		Interaction	
	F-ratio	p	F-ratio	p	F-ratio	p
Deep Approach	27.13	.000	0.25	.620	0.09	.768
Relating Ideas	10.19	.002	1.17	.280	0.31	.580
Use of Evidence	13.16	.000	1.22	.270	2.71	.101
Intrinsic Motivation	1.33	.250	0.001	.974	6.94	.009
Surface Approach	0.93	.335	0.003	.958	0.00	.987
Syllabus Bound	0.51	.475	0.05	.824	2.05	.153
Fear of Failure	27.55	.000	1.89	.171	0.61	.435
Extrinsic Motivation	29.68	.000	0.90	.764	0.36	.551
Strategic Approach	1.47	.226	1.02	.312	3.36	.067
Disorganised Study	7.87	.005	0.62	.433	0.70	.405
Negative Attitude	8.43	.004	0.52	.473	2.72	.100
Ach't Motivation	6.85	.009	10.67	.001	5.55	.019
Comp. Learning	0.11	.743	3.56	.060	0.03	.865
Globetrotting	5.85	.016	3.08	.080	0.21	.646
Operation Learning	17.47	.000	0.49	.484	0.98	.323
Improvidence	67.80	.000	0.50	.478	3.85	.050

A scale by scale summary of findings follows. Where no significant differences were identified between the two groups, the ASI scale is not mentioned below:

- Deep Approach – Chinese students score significantly higher than Australian students.
- Relating Ideas – Chinese students score significantly higher than Australian students.

- Use of Evidence – Chinese students score significantly higher than Australian students.
- Intrinsic Motivation – No significant differences between cultures or genders, but an interaction (see figure 1) indicates that Chinese males score significantly higher than Australian males on this scale, but that Australian females score significantly higher than Chinese females on this scale.
- Fear of Failure – Chinese students score significantly higher than Australian students.
- Extrinsic Motivation – Chinese students score significantly higher than Australian students.
- Disorganised Study – Australian students scored significantly higher than Chinese students, but the scoring on this scale is reversed. Accordingly, the result indicates Chinese students have a significantly higher degree of disorganised study than do Australian students.
- Negative Attitude to Study – Chinese students scored significantly higher than Australian students, but this scale is also reversed, indicating that negative attitude to study is greater among Australian students than among Chinese students.
- Achievement Motivation – Chinese students scored significantly higher than Australian students; and male students scored significantly higher than female students. A significant Culture by Gender interaction (see figure 2) shows that Australian female students have a much lower score on Achievement Motivation than Chinese females, while the two male groups are reasonably close together. The majority of the main Culture and gender effects are attributable to this much lower score for Australian females.
- Globetrotting – Chinese students scored significantly higher than Australian students.
- Operation Learning – Chinese students scored significantly higher than Australian students.
- Improvidence – Chinese students scored significantly higher than Australian students, and a significant Culture by Gender interaction (see figure 3) shows that Chinese females score slightly higher than their male compatriots on this scale, while Australian females score slightly lower than Australian males.

Figures 1, 2 and 3 respectively show the interaction effect between cultural group and gender for each of the scales Intrinsic Motivation, Achievement Motivation, and Improvidence.

FIGURE 1
Culture by gender interaction – Intrinsic motivation

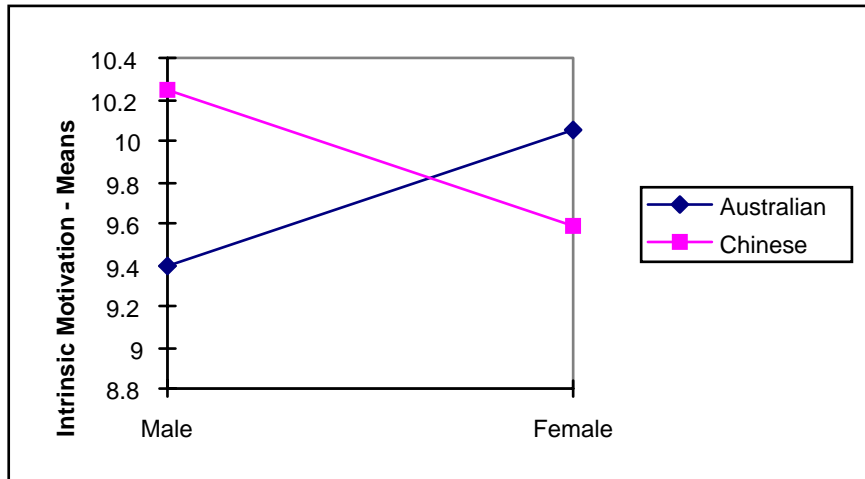


FIGURE 2
Culture by gender interaction – achievement motivation

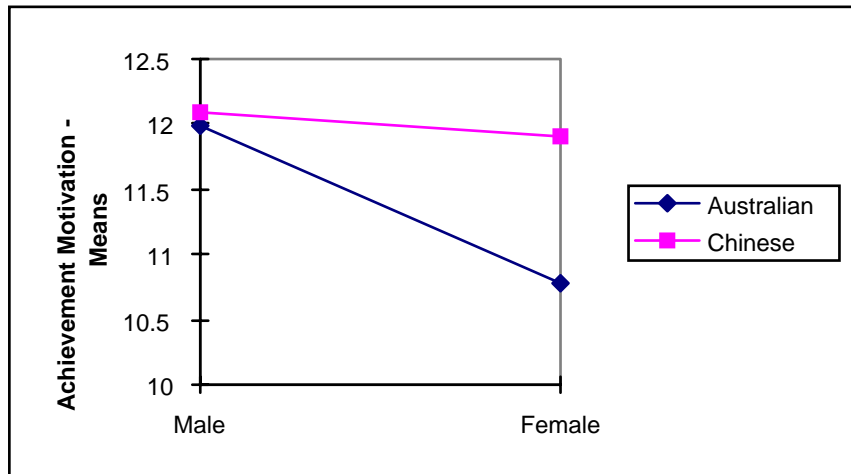
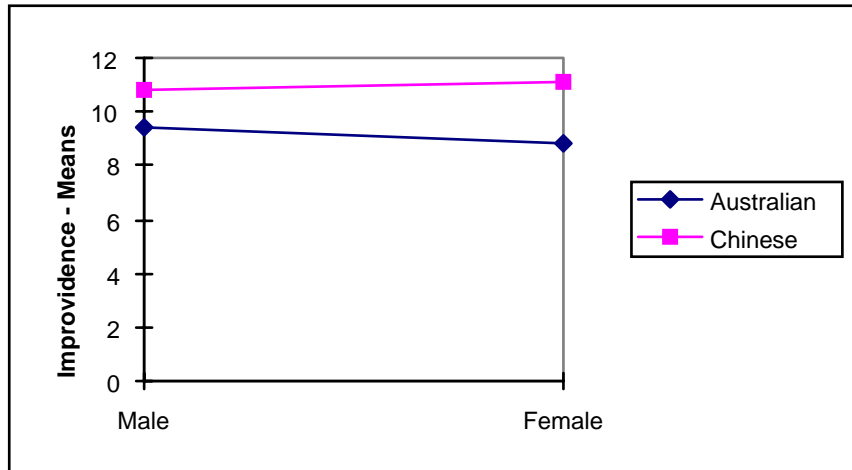


FIGURE 3
Culture by gender interaction – Improvidence



Discussion

The Smith et al. (1998) research has shown that among the Chinese students in that study there is an identifiable Self-Motivated Reflective orientation. At the same time, the current research has shown higher scores by the Chinese students on Deep Approach, Relating Ideas, and Use of Evidence than were shown for the Australian sample. Those results provide further evidence for the Biggs (1990, 1991, 1992) position that Asian students are not surface learners, and that they have a strong orientation towards the development of understanding. Also indicated by our results is that in the construction of understanding the Chinese students relate ideas from different parts of their study programs, and employ a strategy of using evidence in that construction. These findings have several implications for the provision of education into the Confucian heritage cultures. First, it is clearly important that resource materials are available to these students, either in local libraries, through host institutions, or electronically. Baron's findings that students make use of her electronic resources area bear out the importance of making this provision. It also appears clear from Baron's work that the development of study groups to assist students to construct knowledge through peer to peer interaction is important, but requires consistent effort to encourage students to make use of study groups. Garrison (1995, p.138) emphasises the importance of peer to peer and student to instructor interaction when he warns against what he calls 'naive constructivism' where 'educators have a blind faith in the ability of students to construct

meaningful knowledge on their own'. However, the issues of providing the supports to students to construct meaning are complex when teaching across cultures. Throssell and Le (1997) make the point that it is quite difficult for people of different backgrounds and languages to necessarily share precise meaning and concepts, nor to construct them in the same way.

In a context of teaching Chinese students off-shore, where there is an orientation among the students to construct meaning, to relate ideas, and to use evidence in argument, the issues associated with the construction of different meaning, and how that construction occurs, are important. Gayeski's (1991) work on the development of a Participatory Design Model is useful here, and advocates the inclusion of the target audience in the design of teaching programs and the expectations resulting from them. It would appear prudent to involve the target culture in these design features to enable some latitude and variation in the construction of meaning that may result from a different target group – meanings that may not normally be associated with the delivery of the program on-shore to Australian students. An additional mechanism for the development of meaningful instruction to off-shore groups is available through the Cunningham et al. (1997) observation that local delivery, or delivery support, may assist in the transferability across cultures of courses and their contents. These matters require sensitive handling in an educational context where the quality of the award to be provided by the host institution needs to be maintained and where, indeed, the attraction of the off-shore student to the program may be the perceived quality of the qualification and the provider institution. There is room to consider program delivery and assessment adjustments that enable some variations in the meanings constructed by the offshore students in a paradigm of 'different but equal'.

The current study also showed, in the ASI scales relating to the Anxious-Surface orientation identified by Smith et al. (1998), that the Chinese students in the present study are more likely to be concerned about a fear of failure than are their Australian counterparts. This fear of failure produces a powerful mixture where it is coupled with off-shore study at a distance, together with the possible development of meanings that are different from those constructed by Australian students, and the possible need for the student to develop those meanings in a second language and convince an assessor of their value. This mixture has the potential to increase the probability of failure or of withdrawal. Baron has also shown the student desire for greater structure, also noted by other writers such as Ballard and Clanchy (1997) and Andrews et al. (1998). It is likely, therefore, that the off-shore delivery of programs to Chinese learners may require considerable attention to be paid to the development of structure

in study strategies, assessment requirements, study sequences, and the use of feedback from peers in study groups and from instructors. The structuring of learning material and advice on its use for the development of meaning and for assessment is likely to be more important among these students than among Australian distance education students. The higher score on the Improvidence scale for Chinese students converges with these findings, and suggests that Chinese students may also benefit from advice on how to use study materials and resources to develop a conceptual framework.

The Chinese students showed a more disorganised approach to study than the Australian sample on the Disorganised Study scale. That scale is measured by questions associated with time management, procrastination with study tasks, ease of distraction, and slowness to commence study sessions. It is suggested that the poorer performance among the Chinese students may be related to their preference for more structured programs and instructor guidance (Ballard & Clanchy 1997; Andrews et al. 1998; Baron 1998), and is consistent with the identification of an Anxious-Surface orientation. Possibly the transition to more independent study required in the Western instructional environment has resulted in these students perceiving weaknesses in their study habits. Andrews et al. (p.169) noted, for example, that the Asian students in their sample saw these problems as their own fault rather than faults in 'the system'. An alternative possibility, but not mutually exclusive, may be that the higher motivational characteristics of the Chinese students, and their higher fear of failure, result in greater self criticism of their own study methods and a self-perception of more disorganised study. It is reasonable to conclude, however, that the Chinese students would benefit from assistance with the development of independent study techniques that are effective in a less structured educational environment, some assistance with the necessary transitions, and opportunity to build their confidence in the effectiveness of their own study methods.

Within the ASI set of scales relating to the Anxious-Surface orientation, the Chinese students showed a significantly higher score than the Australian students for Globetrotting. The Globetrotting scale is associated with a propensity to come to conclusions without waiting for sufficient evidence, but is also measured by a student perception that other people don't always follow their explanations and logic, and that there is criticism for the introduction of irrelevant material into an argument. The performance of the Chinese students on the Globetrotting scale provokes a number of questions which the current research is unable to answer. The association of the Globetrotting scale finding with the finding that the Chinese students see themselves as making better use of evidence may indicate a different benchmark for the use of evidence, or

may indicate that these students believe a great deal more evidence is required prior to coming to a conclusion. In other words, although the use of evidence scale shows Chinese students to be higher than the Australian students, it may be that the Chinese students also have a higher expectation of themselves in the use of evidence and, therefore, still believe they make inadequate use of evidence. Also interesting is the perception on the part of the Chinese students that they use irrelevant material in argument, or that the logic of their arguments is not always understood. This raises questions about the ability to express ideas and arguments in a second language, but it also raises the possibility that the arguments and evidence provided by these students are sound, but different from Australians due to different cultural constructions. Should that possibility be valid, it may be that it is Australian instructors who are failing to see the meanings constructed by these students (see Throssell & Le 1997). These possibilities require further research prior to a conclusion being reached, but there may be profound implications for educators providing teaching into different cultures.

The Chinese students' scores on the Negative Attitude to Study scale, and on the Achievement Motivation scales indicate positive study approaches on the part of these students, and relate also to the finding of higher Extrinsic Motivation, and the higher Intrinsic Motivation score for the Chinese males, as shown by the significant interaction. It is noteworthy that Australian males showed the same level of Achievement Motivation as the Chinese students, but Australian females were significantly lower. For the Chinese students, this converging motivational and attitudinal framework places responsibilities on the part of providers to deliver a well organised course and delivery, and to provide responsiveness to student need. The results indicate that there is a higher self-expectation on the part of these students than is the case with the Australian students, and that they will be demanding as clients, consistent with the Efficiency orientation identified by Smith et al. (1998). These demands are likely to translate into high expectations of quality learning materials, competent program administration, and effective support mechanisms. The approach taken by Baron in carefully developing the program and its delivery to meet with the CHC context of Singapore is one that is likely to succeed, provided continual evaluation of client services and their effectiveness is present. Several writers (e.g. Marton, Dall'Alba & Tse 1992; Kember 1996; Watkins & Biggs 1996) have commented on the apparent paradox of Asian learners, where an apparent surface approach yields superior performance outcomes. Those same studies, and the current study, have shown that the stereotype of the surface approach is not sustained by the research evidence. It is likely, that the superior academic performance of Chinese students is at least partially associated with the higher motivation and lower negative study attitudes that have been indicated in the present

study. The Smith et al. (1998) study was interesting in its finding of a Non-Academic orientation among the Australian sample, but no such orientation was identified for the Chinese sample.

The higher score of the Chinese students on the Operation Learning scale is consistent with the Baron (1998) observation of the need for structure, and the Smith et al. (1998) finding that Chinese students are strategic in their approach. For distance educators the implications of the finding relate to the provision of structured programs of instruction where the logic of that structure is transparent to the student, and effective in enabling the student to approach learning in a structured and sequential way. Likewise, the higher score on Improvidence also indicates a higher need for structure, and for structured student response. It also indicates a need for instructors to provide encouragement to students to be more confident in the use of their own ideas, and perhaps some assistance to students in the development of responses that do make use of the students own views.

Conclusion

Care needs to be exercised in comparative studies that a significant statistical difference is not interpreted as the presence of a characteristic in one group, and its absence in another. Apart from being an illogical conclusion to draw, polarisation of that sort will yield inappropriate responses on the part of instructional designers and teachers. Both groups of students in the current research display the characteristics measured by each ASI scale but, in those cases where a significant difference has been shown, it is prudent to consider adjusting teaching and support strategies to reflect those differences. Failure to take account at all of those differences runs the danger of being new colonialists who assume that the organisational, knowledge and belief structures that we develop in the English speaking West will transfer without adaptation to another culture. For example, the design of distance learning programs for Chinese learners can confidently build in, the necessity for deep processing and the provision of strategies for collecting and using evidence, contrary to the stereotype of them as surface and syllabus-bound learners. At the same time, there is wisdom in providing sample assessment material to enable students to form a benchmark. That provision may help in the reduction of the fear of failure, and also assist in the development of meaning from the supplied materials. Material provided to assist in the effective organisation of study, and the development of conceptual frameworks, would also be useful.

The research reported in this paper will be of value to individuals and institutions designing and delivering distance education to students off-

shore, and particularly in the Confucian heritage cultures. The current research has been designed to limit the samples to a well-defined cultural group, and has been critical of previous research that has failed to so limit the sample. For that reason, it is not suggested that the results in the current study are applicable to other cultural groups. Indeed, it is suggested that separate research is needed to inform decisions on the design and delivery of programs to other groups. Additionally, there is value in repeating the current research with Chinese students studying at a distance and living in their own country. Clearly, there is the possibility that student learning styles identified in the current study may have been influenced by engagement in study in a different cultural environment.

The use of a Western constructed instrument, such as the ASI, also provides for some caution. The constructs measured by the ASI, and the conceptualisations involved in the formulation of the question and their responses, are also based in the cultures of the West. While there is some value in that, to inform Western education providers, it is also acknowledged that there is a need for the development of similar instruments that are based on the constructs and conceptualisations of other cultures. The research project reported in this paper is envisaged to extend next into an investigation of constructs that may have greater relevance in the Confucian cultures.

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