# Self-Regulated Learning in Tertiary Students:

# The Role of Culture and Self-Efficacy on Strategy Use and Academic Achievement

**Stefanie Chye , Richard A. Walker and Ian D. Smith**

***School of Educational Psychology, Measurement and Technology***

***The University of Sydney, Australia ****

ochan@extro.ucc.su.oz.au (Stefanie Chye) ; r.walker@edfac.usyd.edu.au (Richard Walker)

This paper reports the results of a study that investigated the self-regulated learning of tertiary students. Specifically, the present study examined the role of culture and self-efficacy on university students' use of learning strategies and academic achievement. Subjects comprised of (1) Australian residents studying in Australia, (2) Singaporean students studying in Singapore, and (3) Singaporean overseas students studying in Australia. The investigation provided evidence in support of previous research which has examined the relationship between self-efficacy, strategy use and academic achievement. In addition, the present study found that differences in cultural and educational contexts result in variations in the self-regulated learning behaviour of students. Self-efficacy was further found to be a better predictor of strategy use than cultural influences. These results are discussed with reference to a social cognitive perspective.

## Introduction

Self-regulated learning is a relatively new construct in research on student achievement in classroom academic settings but it is important for all students as well as educators. This view becomes even more compelling as the lifelong learning concept continues to be defined and expanded in societal policies and educational forecasting. Self-regulated learning theories provide a description of how and why students actively control their cognition, motivation, affect, and behaviour for academic tasks.

Distinctive attributes typifying good self-regulators of learning are manifold, but they can be essentially characterised as confident, diligent, resourceful (Zimmerman, 1990b), purposeful,

strategic and persistent (Purdie, Hattie, and Douglas, 1996), in their academic endeavours. Self-regulated learning therefore entails the integrative use of students' 'skill' and 'will' (Pintrich and DeGroot, 1990).

**Social Cognitive Perspectives on Self-Regulated Learning**

The social cognitive view of self-regulated learning finds its genesis in the broader framework of Bandura's (1986) social cognitive theory. In the social cognitive model of self-regulated learning, personal, environmental, and behavioural processes are assumed to operate separately, but interdependently as students engage in academic tasks (Zimmerman, 1990a). Personal, behavioural, and environmental influences are neither equal in their strength nor simultaneous in their occurrence. Since reciprocal influences do not all transpire concurrently, this makes it possible to investigate the various subsystems of the entire interactive process (Purdie, 1995). To attempt to understand and explain the entire process at any one time is an unrealistic task, but "clarifying how the various subsystems function interactively advances understanding of how the superordinate system operates" (Bandura, 1986, p. 25).

Two essential characteristics of students' self-regulated academic learning have been identified - their behavioural use of strategies and their personal perceptions of self-efficacy (Zimmerman, 1990b). Self-regulated learning strategies are actions and processes directed at acquiring information or skill that involve agency, purpose, and instrumentality perceptions by learners (Zimmerman, 1989). Perceived self-efficacy is defined as beliefs concerning one's capabilities to organise and implement actions necessary to attain designated levels of performance (Bandura, 1986). Another major determinant of students' self-regulated learning is environmental. The generic notion of the environment allows for an extension of this concept to include other more specific external sources of influence, such as cultural and contextual factors. Consequently, it is possible to investigate culture as part of the environmental parameter. Since, the three classes of self-regulatory determinants (personal, behavioural and environmental) are interdependent, students' perceptions of self-efficacy and their use of learning strategies would also be assumed to interact reciprocally with the cultural context (Figure 1).

**Figure 1 A Social Cognitive Model of Self-Regulated Learning**

**Review of Literature**

Researchers have been increasingly concerned to identify the role that the behavioural self-regulation of learning plays in academic performance. Self-regulated learning behaviour is

often interpreted in the light of students' use of learning strategies for the self-regulation of cognition and behaviour (Garcia, 1995), and this is an important aspect of students' learning and academic performance (Corno and Mandinach, 1983; Corno and Rohrkemper, 1985). There is a wealth of empirical evidence documenting the role that the use of learning strategies plays in the optimisation of academic performance (e.g., Pintrich, 1989; Pintrich and Garcia, 1991; Purdie and Hattie, 1996; Zimmerman and Martinez-Pons, 1986, 1988, 1990). These investigations have yielded consistent results. Higher achievers tended to report a greater use of most strategies than lower achieving students.

A substantial body of evidence has accrued exemplifying the role of self-regulated learning behaviour in academic achievement. Much of this research has however, been conducted with Western students in Western educational settings. A wide range of educational and cultural differences could contribute to differences in the self-regulated learning behaviour of Western and Asian students. Whilst research investigating cultural influences on the self-regulated learning of students is meagre, there is reason nevertheless, to expect that the self-regulated learning behaviour of students may vary between cultures.

The two recent studies conducted by Purdie, Hattie, and Douglas (1996) and Purdie and Hattie (1996), directly investigated the role of cultural influences and educational context on Western and Asian students' use of learning strategies. These studies signify an unprecedented attempt to investigate cultural differences in the self-regulated learning behaviour of students. The results of these two studies provide support for the role of culture in influencing both Australian and Japanese students' self-regulated use of learning strategies. In addition, findings arising from the study by Purdie and Hattie (1996) suggest that the role of educational contexts are also likely to have an effect on students' self-regulated learning behaviour.

Although the use of learning strategies are important for academic achievement, they are necessary, but insufficient, in themselves to enhance academic performance. The pertinent role of motivational components operating in concert with the use of learning strategies to enhance achievement has increasingly been acknowledged and is particularly noteworthy. As indicated by McKeachie, Pintrich, and Lin (1985), knowledge of learning strategies does not necessarily lead to better academic performance; students must also develop the motivation to use those strategies. Correspondingly, Pintrich and DeGroot (1990) have noted that students need both "will" and "skill", if they are to use learning strategies successfully. As a consequence, it is important to explore the theoretical and empirical relations between motivation and cognition, which taken together, form an integral part of students' academic self-regulation and achievement.

The role of self-efficacy beliefs in students' self-regulated learning behaviour has important implications for academic outcomes. A learner's perceptions of self-efficacy affects his or her degree of self-regulation by influencing the active use of cognitive study skills and learning strategies. These learning activities in turn promote the development of educational competencies (Zimmerman, 1995a). A high sense of self-efficacy is similarly accompanied by the extensive use of self-directed learning strategies (Zimmerman and Martinez-Pons, 1990). Compared with students low in perceived self-efficacy, those with a high sense of perceived self-efficacy make greater use of cognitive strategies, manage their time and learning environments better, and monitor and regulate their learning more closely (Pintrich

and Schrauben, 1992). As a consequence, these students also achieve better on academic tasks.

Empirical support for the central role of self-efficacy beliefs in students' use of learning strategies, and in students' academic achievement has been demonstrated in a number of correlational (e.g., McKeachie, Pintrich, and Lin, 1985; Pintrich, 1989; Pintrich and Garcia, 1991; Pintrich and DeGroot, 1990; Zimmerman and Martinez-Pons, 1990) and training studies (Schunk, 1982, 1989, 1990, 1991) which have investigated the relationship between self-efficacy and strategy use. Overall, the results from these studies are congruent. Findings clearly demonstrate the importance of self-efficacy beliefs in students' cognitive engagement and academic achievement. Self-efficacy in correlational studies was found to be positively related to various measures of strategy use and actual academic performance. Similarly, training studies found that self-efficacy was causally related to students' use of learning strategies and achievement.

**Rationale**

Although self-regulated learning is a "pivotal construct in contemporary accounts of effective academic learning" (Pintrich, 1995a, p. 173), the current research on academic self-regulation has mostly focused on K-12 students. There are important reasons, however, for suggesting that research on self-regulated learning may be more relevant to tertiary students than to K-12 students. In contrast to students in K-12 education, a majority of tertiary students have more control over their own study schedules, time management and how they approach their learning and studying. At the same instance, many tertiary students have difficulty with this freedom in terms of the amount of time and cognitive effort they devote to studying and learning (Pintrich, 1995b). If students can learn to control their study time and learning, they will be better able to balance these demands with their social activities (Zimmerman, Greenberg, and Weinstein, 1994). As it was not till recently that research with tertiary students has been undertaken to complement the research on K-12 students, the current study sought to contribute to this new trend of research by investigating the self-regulated learning of students in the area of postsecondary education.

The current study was also undertaken to achieve another purpose; that of facilitating in the elucidation of a multifaceted construct as self-regulated learning. Recent research suggests that a complex set of factors operate to make students more or less self-regulated in their learning (Pressley, 1995; Zimmerman, 1995b). Thus far, research has examined a range of factors related to self-regulation in learning such as academic achievement (Zimmerman and Martinez-Pons, 1986), self-efficacy (Schunk, 1990), and cultural context (Purdie, Hattie, and Douglas, 1996; Purdie and Hattie, 1996). Extant research has however, generally examined the relationship of self-regulated learning with only one or two of these variables. To assist in the unravelling of the complex relationship amongst factors affecting self-regulation, it was considered important to investigate several variables concurrently as well as to explore the interrelationships amongst these variables. Although considerable progress has been made in identifying the behaviour of self-regulated students, their personal functioning, and their learning environments, a meagre number of studies have focused on the cultural and educational contexts which are likely to have had a significant influence on

these components. The present investigation as a consequence, sought to examine the influence of self-efficacy and cultural context on the Australian and Singaporean students' use of strategies for self-regulated learning and academic achievement.

**Research Issues**

The current study addressed three main research issues:

The first research issue pertained to the relationship between self-regulated learning behaviour, motivation and academic achievement. Specifically, the present study sought to assess the association between students' use of learning strategies, self-efficacy and scholastic performance. It was expected that this investigation would replicate the findings of previous studies (e.g., McKeachie, Pintrich, and Lin, 1985; Pintrich, 1989; Pintrich and Garcia, 1991; Pintrich and DeGroot, 1990; Zimmerman and Martinez-Pons, 1990) which have found a positive association between students' strategy use, perceptions of self-efficacy and academic achievement.

The second research interest addressed the role of cultural and contextual influences on the self-regulated learning behaviour of students. It was hypothesised that the self-regulated learning behaviour, in terms of the use of learning strategies, demonstrated by the three groups of students in this study: Australian students, Singaporean students, and Singaporean students studying overseas in Australia (overseas students) would differ as a result of dissimilarities in cultural contexts. A further subsidiary issue of interest was the identification of changes in the self-regulated learning behaviour of Singaporean students after exposure to a Western educational system as a consequence of the role played by educational context. It was predicted that their pattern of strategy use would indicate a movement away from their peers in Singaporean universities and toward the pattern of use exhibited by the Australian students, thereby suggesting the influence of educational context on how students approach their learning.

The third research issue concerned the extent to which these components of self-regulated learning behaviour, personal perceptions of self-efficacy, and cultural context supported social cognitive models of self-regulated learning was investigated.

## Methodology

### Participants

The present study reports data gathered from 451 university undergraduates in Australia and Singapore. Participants were all enrolled in their first to fourth year of study in one of twenty faculties. Participants were classified into three groups: (1) Australian residents studying in Australia (Australian students), (2) Singaporean students studying in Singapore (Singaporean students) and (3) Singaporean students studying overseas in Australian tertiary institutions (overseas students). The Australian students ($n$ = 150) came from six universities in the Sydney metropolitan area, but excluded all overseas students. The Singaporean students ($n$ = 200) were students from the only two universities in Singapore. The Singaporean students studying in Australia (overseas students) ($n$ = 101) attended the same six universities as the sample of Australian students. The sample of Australian and Singaporean students were obtained primarily by administering the survey in the respective universities or through friends of the participants involved. The sample of overseas students were obtained mainly through the Sydney University Singapore Society (SUSS) or the Singapore Students Association (SSA) of Australia.

### Preliminary Interview

Since the present study represented an initial attempt to utilise one version of the Motivated Strategies for Learning Questionnaire or MSLQ in both Australia and Singapore, it was necessary to first establish the construct validity and feasibility of the MSLQ in these two countries. The MSLQ was developed and utilised in the United States, and thus might not be readily applicable to the Australian students or Singaporean, and Singaporean overseas students studying in Australia. Consequently, prior to the actual administration of the questionnaire, a preliminary interview was conducted to determine the final field test version of the MSLQ.

The 1990 version of the Self-Regulated Learning Interview Schedule (SRLIS) originally developed by Zimmerman and Martinez-Pons (1986, 1988, 1990) formed the basis by which the format of the preliminary interview was constructed. The preliminary interview prompted students to describe their responses to eight learning situations commonly encountered in university. 15 respondents participated in the preliminary interview; 5 Australian residents studying in Australia, 5 Singaporean students studying in Singapore, and 5 Singaporean overseas students studying in Australia.

The structured interview procedure had certain advantages for the purposes of this preliminary study, which was to ascertain if the learning strategies used by Singaporean, Australian and overseas students were similar and comparable to those learning strategies

included in the MSLQ. The interview allowed for the participants' free expression and tapped their own prior knowledge and experience with regard to their use of learning strategies. A content analysis of these interviews was carried out and this indicated that most responses were generally identifiable as belonging to one of the categories of learning strategies presented in the MSLQ. Consequently, it was concluded that the learning strategies used by all three groups of students were sufficiently similar to the categories in the MSLQ for the instrument to be used in both Australia and Singapore.

As the primary objective of the present study was to examine the relationships between components of self-regulated learning, cultural context, and their relationship with academic achievement, a modified version of the MSLQ (Postsecondary version) (Pintrich, Smith, Garcia, and McKeachie, 1991) was utilised in the study.

**Instrumentation**

The Learning Survey for Tertiary Students (LSTS) used in the present study is an adapted version of the relevant sections from the MSLQ (Postsecondary Version), developed by Pintrich, Smith, Garcia, and McKeachie (1991). The LSTS incorporated the learning strategies section and the scale of self-efficacy for learning and performance from the MSLQ. The LSTS, as with the MSLQ, is a self-report instrument designed to assess college students' motivational orientations and learning strategies. As the MSLQ was originally designed to assess college students' motivational orientations and their use of learning strategies for a particular college course, adaptation of the instrument necessitated a rewording of the items to suit the sample in the present study. Since the present sample comprised of tertiary students across all years and across different faculties and courses, items were reformulated in a generic and more encompassing form so as to ensure applicability to all students.

The LSTS was administered to all participants. Participants were not compelled to provide their names on the instrument thus assuring them of anonymity and confidentiality. Information on academic achievement was acquired in the study by asking respondents to indicate all the grades that they obtained in the most recent university examinations, using the grading system appropriate to their institution.

Prior to statistical analyses, academic grades were converted to z-scores to standardise for differences in grading systems in both Singapore and Australia, as well as across all educational institutions.

## Results

The three research issues under investigation in the study were examined primarily through correlations, and analyses of variance (ANOVAS). Post hoc tests using Tukey-HSD procedures were computed and a series of multiple regressions were run as a means of further exploratory analyses.

## Correlational Analyses

The first research issue was concerned with investigating the associations between self-efficacy, strategy use and academic achievement. To assess these relationships, Pearson product-moment correlations were computed between students' scores on total strategy use, self-efficacy, and academic grades. Table 1 presents the correlations obtained.

**Table 1 Correlations between Total Strategy Scores, Self-Efficacy and Academic Grade**

| **Variable** | Strategy Use | Self-Efficacy |
|---|---|---|
| Self-Efficacy | **.47** (***n*** **= 451)** ***P*** **< .01*** | |
| Academic Grade | **.18** (***n*** **= 426)** ***P*** **< .01*** | **.16** (***n*** **= 426)** ***P*** **< .01*** |

* ***p*** **< .01 (Significant)**

As shown in Table 1, self-efficacy was found to be significantly correlated with strategy use ($p < .01$). Strategy use and self-efficacy was also shown to be significantly correlated with academic grade ($p < .01$). Specifically, higher levels of self-efficacy was found to be associated with higher levels of strategy use. Further, both higher levels of strategy use and self-efficacy were found to be associated with higher academic grades.

**Analyses of Variance (ANOVAS) and Tukey-HSD post hoc tests**

The second research issue was primarily concerned with the role of cultural context on students' self-regulated learning behaviour. To assess differences in strategy use between the three groups of students in the sample population, a series of ANOVAS were conducted. Means and standard deviations and F-probability levels, for the three groups of students on all categories of learning strategies are presented in Table 2.

**Table 2 Means, Standard Deviations and One-way Analysis of Variance (ANOVAS) of Strategy Scores for the Three Groups of Students**

| **Strategy** | **Singaporean (n = 200)** | | **Australian (n = 150)** | | **Overseas (n = 101)** | | **F Probability** |
|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | |
| Total Strategy Score | 4.67 | (0.64) | 4.56 | (0.55) | 4.50 | (0.90) | 0.10 |
| **Cognitive Strategies** | 4.80 | (0.78) | 4.76 | (0.69) | 4.62 | (1.07) | 0.20 |
| Rehearsal | 4.73 | (1.08) | 4.62 | (1.11) | 4.43 | (1.05) | 0.08 |
| Elaboration | 4.98 | (0.95) | 5.02 | (0.86) | 4.89 | (1.07) | 0.54 |
| Organisation | 5.07 | (0.99) | 5.13 | (0.90) | 4.75 | (1.30) | 0.01* |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Critical Thinking | 4.45 | (1.02) | 4.29 | (0.98) | 4.36 | (1.27) | 0.41 | |
| **Metacognitive Strategies** | 4.51 | (0.76) | 4.39 | (0.71) | 4.48 | (0.89) | 0.36 | |
| Metacognitive Self-Regulation | 4.51 | (0.76) | 4.39 | (0.71) | 4.48 | (0.89) | 0.36 | |
| **Resource Management Strategies** | 4.57 | (0.74) | 4.42 | (0.66) | 4.40 | (0.88) | 0.09 | |
| Management of Time and Study Environment | 4.65 | (0.88) | 4.54 | (0.85) | 4.29 | (1.03) | 0.01* | |
| Effort Regulation | 5.03 | (1.06) | 4.66 | (1.08) | 4.44 | (1.46) | 0.00* | |
| Peer Learning | 4.34 | (1.28) | 4.11 | (1.33) | 4.48 | (1.28) | 0.07 | |
| Help-Seeking | 4.54 | (1.03) | 4.36 | (0.98) | 4.55 | (1.01) | 0.19 | |
| | | | | | | | | |

*** p £ .01**

The ANOVAS (See Table 2) calculated to compare the three groups of students on individual strategy scores revealed significant differences (*p £* .01) amongst the three groups on three learning strategies: (1) organisation, (2) management of time and study environment and (3) effort regulation. Consequently, Tukey-HSD post hoc tests with a significance level of *p* = .01 was used to determine which group means differed significantly from one another. Results obtained from the Tukey-HSD post hoc tests showed that in terms of reporting the use of organisational strategies, only the group of overseas students differed significantly from the Singaporean and Australian students. Overseas students had significantly lower scores on organisational strategies as compared to the Singaporean and

the Australian students. Tukey-HSD tests computed on management of time and study environment showed only significant differences between overseas students and the Singaporean students. Overseas students reported significantly less use of this learning strategy as compared to the Singaporean students. With respect to effort regulation strategies, Tukey-HSD post hoc tests revealed that the Singaporean students studying in Singapore were found to differ significantly from both the Australian and the overseas students. Singaporean students made greater use of effort regulation strategies than the Australian or Singaporean overseas students.

**Regression Analyses**

Thus far, results from the correlations and ANOVAS have primarily examined (1) the association between students' self-efficacy with their use of learning strategies and academic grades; and (2) the influence of culture on students' use of learning strategies. However, these analyses did not allow for any predictions or inferences to be made concerning causality, nor for the strength of influence of each of the variables to be assessed. Accordingly, a series of multiple regressions were computed. Results of the regression analyses are summarised in a model presented in Figure 2.

**Figure 2 Model Showing Predictors of Strategy Use and Academic Grade as Tested by Regression Analyses**

**Contact Author for a Copy.**

As can be seen from the model (Figure 2), regression analyses revealed that strategy use was the best predictor of academic grade, although self-efficacy exerted an indirect effect on academic grade with strategy use as a mediating variable. In addition, it was found that self-efficacy was a better predictor of strategy use than cultural influences. All other results were insignificant.

**Discussion of Research Results and Conclusions**

The present study provides a number of important findings. One research issue that the study purported to investigate was the relationship between self-efficacy, strategy use and academic achievement. Results from the correlational analyses revealed significant positive correlations between these variables. Students who reported a higher perception of self-efficacy, also reported a greater use of learning strategies and higher academic achievement. Although the correlational data cannot address causality, it appears that students who perceived themselves as being more capable, not only used a greater number of learning strategies, but were also higher achievers. These results are in accord with previous studies which have also investigated the associations between self-efficacy, the

use of learning strategies and academic achievement (e.g., Pintrich, 1989; Pintrich and DeGroot, 1990; Pintrich and Schrauben, 1992; Zimmerman and Martinez-Pons, 1992).

A collation of the results obtained from the three groups of Singaporean students, Australian students, and overseas students were conducted mainly to allow for the investigation of the research issue pertaining to the role of cultural and educational context on students' self-regulated learning behaviour. The present study aimed to identify some of these differences in the self-regulated learning behaviour of students by investigating differences in their use of learning strategies which may have been a result of the influence of cultural and educational context.

ANOVA results indicated significant differences between the Australian students, Singaporean students, and the overseas students on three learning strategies: organisation, management of time and study environment, and effort regulation; thus providing some support for the hypothesis that cultural influences and the role of educational context would result in differences in the self-regulated learning behaviour of students.

Significant differences in the use of learning strategies, found between the group of Singaporean students studying in Singapore and the Australian students provide some support for the hypothesis that cultural factors would be likely to have a significant influence on students' self-regulated learning behaviour. That the present study found Singaporean students studying in Singapore to report a greater use of effort regulation strategies when compared with the Australian students is consistent with the prolific body of cross-cultural literature on students' learning and motivation, that have depicted Asian students as being industrious (e.g., Yee, 1992), and have found Asian students to exert greater effort and persistence on academic tasks, when compared to their Western counterparts (e.g., Chen and Stevenson, 1995; Hau and Salili, 1989; Stevenson and Stigler, 1992; Yan and Gaier, 1991). This is often explained in terms of the Confucianist orientation of the Asian people. In Asia, the emphasis on effort and the belief in the maximisation of abilities through hard work are derived from Confucian philosophy (Bond, 1986, 1991, 1996; Stevenson and Stigler, 1992). In modern day Singapore however, although Confucian values may still play a role, their importance seems to have eroded somewhat (Chua, 1995a, b). Presently, the highly competitive lifestyle in a 'pressure cooker', may better explain the greater effort regulation manifested by the Singaporean students (Chua, 1995a, b; Chua and Kuo, 1991).

Some support for the role of educational context is provided by the present study. When the overseas students were compared with the Singaporean students and the Australian students, they were found overall, to be more similar to the Australian students in their use of learning strategies. One significant difference was found between the overseas students and the Australian students on the use of organisational strategies. On the other hand, comparisons between the overseas students and the Singaporean students revealed three significant differences. This result suggests that the similarity between overseas students and the Australian students, may be due at least in part to the overseas students' exposure to a Western educational system. Their patterns strategy use may be an indication of a movement away from the patterns of strategy use exhibited by their counterparts in Singapore towards that of their Australian peers. Alternatively, it may be that pre-existing

differences between the Singaporean students and the overseas students may have resulted in these pattern of results. However, the nature of the present study does not permit any conclusions to be drawn in this respect. Future research is needed to clarify this issue.

Results from the regression analyses indicated that while strategy use was the best predictor of academic achievement, self-efficacy was important in motivating students' use of learning strategies which in turn enhances their academic performance. Further it was found that while both self-efficacy and cultural influences exerted an influence on strategy use, self-efficacy was a better predictor of students' use of learning strategies. These findings suggest that individual differences such as self-efficacy, seem to be a better predictor of strategy use than are group differences like culture.

In keeping with social cognitive theory, the importance of the influence of personal factors (self-efficacy) and environmental influences (cultural context) on students' self-regulated learning behaviour (strategy use) has been borne out.

Taken together, the importance of self-efficacy and strategy use to self-regulated learning and academic achievement has been underscored in the present study. The role of culture in influencing self-regulated learning has also been evidenced. One implication for educational practices arising out of these findings suggests that, in order to optimise students' scholastic achievement, educators play a prominent role in teaching students a set of self-regulatory skills. Particularly a suite of learning strategies which students know when and how to apply appropriately. In addition, educators should aim to foster positive perceptions of self-efficacy in their students. However, it is important to note that instructional programs developed in one culture or educational context may not be viable in another, after taking into consideration cultural differences in students' self-regulated learning behaviour.

**References**

Bandura, A. (1986*). Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, New Jersey: Prentice-Hall.

Bond, M. H. (Ed.). (1986). *The Psychology of the Chinese People.* Hong Kong: Oxford University Press.

Bond, M. H. (1991). *Beyond the Chinese Face: Insights from Psychology.* Hong Kong: Oxford University Press.

Bond, M. H. (Ed.). (1996). *Chinese Psychology.* New York: Oxford University Press.

Chen, C., and Stevenson, H. W. (1995). Culture and academic achievement: Ethnic and cross-national differences. *Advances in Motivation and Achievement, 9*, 119-151.

Chua, B. H. (1995a). *Communitarian ideology and democracy in Singapore.* London: Routledge.

Chua, B. H. (1995b). *Culture, multiracialism and national identity in Singapore. Department of Sociology Working Papers (No. 125),* National University of Singapore.

Chua, B. H., and Kuo, E. C. Y. (1991). *The making of a new nation: Cultural construction and national identity in Singapore. Department of Sociology Working Papers (No. 104)*, National University of Singapore. Paper presented at the "Cultural Policy and National Identity Workshop" at East-West Center, Honolulu, Hawaii (June, 1990).

Corno, L., and Mandinach, E. B. (1983). The role of cognitive engagement in classroom learning and motivation. *Educational Psychologist, 18*, 88-100.

Corno, L., and Rohrkemper, M. (1985). The intrinsic motivation to learn in classrooms. In C. Ames and R. Ames (Eds*.), Research on motivation: The classroom milieu* (Vol. 2., pp. 53-90). New York: Academic Press.

Garcia, T. (1995). The role of motivational strategies in self-regulated learning. In P. R. Pintrich (Ed.), *Understanding Self-Regulated Learning: New Directions for Teaching and Learning*, (Number 63, pp. 29-42). USA: Jossey-Bass Inc., Publishers.

Hau, K. T., and Salili, F. (1989). Attribution of examination results: Chinese primary students in Hong Kong. *Psychologia, 32*, 163-171.

McKeachie, W. J., Pintrich, P. R., and Lin, Y. G. (1985). Teaching learning strategies. *Educational Psychologist, 20*, 153-160.

Pintrich, P. R. (1989). The dynamic interplay of student motivation and cognition in the college classroom. In C. Ames and M. Maehr (Eds.), *Advances in motivation and achievement: Motivation enhancing environments*, (Vol. 6, pp. 117-160). Greenwich, CT: JAI Press.

Pintrich, P. R. (1995a). Current issues in research on self-regulated learning: A discussion with commentaries. *Educational Psychologist, 30,* 171-172.

Pintrich, P. R. (1995b). Understanding self-regulated learning. In P. R. Pintrich (Ed.)., *Understanding self-regulated learning: New directions for teaching and learning* (Number 63). San Francisco, Jossey-Bass Publishers.

Pintrich, P. R., and DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82,* 33-40.

Pintrich, P. R., and Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. Maehr and P. R. Pintrich (Eds.), *Advances in motivation and achievement: Goals and self-regulatory processes,* (Vol. 7., pp. 371-402). Greenwich, CT: JAI.

Pintrich, P. R., and Schrauben, B. (1992). Students' motivational beliefs and their cognitive engagement in classroom tasks. In D. H. Schunk and J. Meece (Eds.), *Student perceptions in the classroom: Causes and consequences* (pp. 149-183). Hillsdale, NJ: Lawrence Erlbaum Associates.

Pintrich, P. R., Smith, D. A. F., Garcia, T., and McKeachie, W. J. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ).* Michigan: National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL).

Pressley, M. (1995). More about the development of self-regulation: Complex, long-term, and thoroughly social. *Educational Psychologist, 30*, 207-212.

Purdie, N. (1995). Strategies for self-regulated learning: A cross-cultural comparison. *Paper presented at the Annual Meeting of the American Educational Research Association* (San Francisco, CA, April 18-22, 1995) (ERIC Document Reproduction Service, ED 385653).

Purdie, N., and Hattie, J. (1996). Cultural differences in the use of strategies for self-regulated learning. *American Educational Research Journal, 33(4),* 845-871.

Purdie, N., Hattie, J., and Douglas, G. (1996). Student conceptions of learning and their use of self-regulated learning strategies: A cross-cultural comparison. *Journal of Educational Psychology, 88(1),* 87-100.

Schunk, D. H. (1982). Verbal self-regulation as a facilitator of children's achievement and self-efficacy. *Human Learning, 1,* 265-277.

Schunk, D. H. (1989). Self-efficacy and cognitive skill leaning. In C. Ames, and R. Ames (Eds.), *Research on motivation in education: Goals and cognitions*, (Vol. 3). New York: Academic Press, Inc.

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist, 25(1),* 71-86.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist, 26*, 207-231.

Stevenson, H. W., and Stigler, J. W. (1992). *The learning gap: Why our schools are failing and what we can learn from Japanese and Chinese education.* New York: Summit Books, USA.

Yan, W., and Gaier, E. L. (1991). Causal attributions for college success and failure: An American-Asian comparison. *Paper presented at the Annual Meeting of the American Educational Research Association* (Chicago, IL, April, 1991). ERIC document, ED 334906.

Yee, A. H. (1992). Asians as stereotypes and students: Misperceptions that persist. *Educational Psychology Review, 4(1),* 95-132.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81(3),*329-339.

Zimmerman, B. J. (1990a). Self-regulated academic learning and achievement: The emergence of a social cognitive perspective.*Educational Psychology Review, 2(2),* 173-201.

Zimmerman, B. J. (1990b). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25(1),* 3-17.

Zimmerman, B. J. (1995a). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies,* (Ch. 7., pp. 202-231). New York, USA: Cambridge University Press.

Zimmerman, B. J. (1995b). Self-regulation involves more than metacognition: A social cognitive perspective. *Educational Psychologist, 30,* 217-221.

Zimmerman, B. J., Greenberg, D., and Weinstein, C. E. (1994). Self-regulating academic study time: A strategy approach. In D. H. Schunk and B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications,* (Ch. 8., pp. 181-202). Hillsdale, New Jersey: Lawrence Erlbaum Associates Publishers.

Zimmerman, B. J., and Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal, 23*, 614-628.

Zimmerman, B. J., and Martinez-Pons, M. (1988). Construct validation of a strategy model of student self-regulated learning.*Journal of Educational Psychology, 80(3),* 284-290.

Zimmerman, B. J., and Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology, 82*, 51-59.

Zimmerman, B. J., and Martinez-Pons, M. (1992). Perceptions of efficacy and strategy use in the self-regulation of learning. In D. Schunk, and J. L. Meece (Eds.), *Student Perceptions in the Classroom*, (Ch. 8., pp. 185-207). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc., Publishers.