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THE MATHEMATICS ACHIEVEMENT AND ASPIRATIONS OF CHINESE-AUSTRALIAN GIRLS AND ANGLO-AUSTRALIAN GIRLS IN AUSTRALIA

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ABSTRACT

This study examined achievement in mathematics and aspirations of Chinese-Australian and Anglo-Australian girls in Australia, in light of their culture, achievement goals, academic subjects that they thought girls should excel in and influence of their significant others. Participants included 78 Chinese-Australian girls and 47 Anglo-Australian girls. The results indicated that mathematics achievement was related to the participants' achievement goals. Participation in mathematics and science subjects was related to mathematics achievement and academic subjects that the participants thought girls should excel in. Chinese-Australian girls who had been in Australia longer and who identified more with Chinese culture performed better academically. The implications of the findings for service provision were discussed.

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INTRODUCTION

Since 1976 there has been a rapid increase in Asian immigration to Australia (Jones 1992). Many immigrants were Chinese to the extent that Chinese-Australians, according to the 1991 census, constitute the third largest non-English speaking group in Australia (Castles 1993). Consequently, an understanding of the adjustment of this group to Australian society is important, particularly for the provision of appropriate social services.

This study examines adjustment through a focus on academic achievement and participation (selection of academic subjects) of Chinese-Australian adolescent girls in comparison to Anglo-Australian girls. The focus on mathematics achievement and academic participation is based on research that indicates that females tend to underachieve in mathematics and science subjects.

Moreover, females tend to be under-represented in these disciplines and have stereotyped choices of academic subjects and careers (e.g. Commonwealth Schools Commission 1987; Poole & Beswick 1989; Stein & Bailey 1973). In contrast, many Chinese students are academically successful and tend to be highly represented in mathematics and science (Chen, Lee & Stevenson 1996; Stevenson & Lee 1996; Sue & Kirk 1972). However, these studies often failed to examine gender differences and provided little insight into whether achievement and participation in mathematics and science is gender specific. Furthermore, these studies were culturally limited since most compared Chinese students with their North American counterparts. The present study examines mathematics achievement and participation of Chinese-Australian and Anglo-Australian girls and explores immigrant adolescent acculturation to the academic practices and attitudes of the host country.

Meanings of Success

According to Maehr's (1984) theory of personal investment, individuals differ in ideas about the nature of successful achievement and their perception of the meaning of success determines behavior and personal investment in various situations. Maehr defined meaning of success within constructs associated with goals, action possibilities and self.

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Goals refer to how a person defines situational success and failure (Maehr 1984). Maehr discussed four goal categories consisting of social solidarity, ego, extrinsic rewards and task. Social solidarity goals are associated with gaining social approval. Ego goals are socially competitive and relate to succeeding socially defined standards. Extrinsic rewards are related to earning money, or a prize etc. Task goals are twofold involving embracing a performance situation, where the individual is totally absorbed in the task in the absence of social comparison, and competence motivation. Task goals are also related to learning goals which focus on mastery and competence (Ames 1987).

Task goals are associated with self-actualization. Maslow (1968) and Rogers (1955, 1964) contend that human beings strive positively toward individual capacities and self-actualization refers to the realization of individual potential. In this instance, social comparison is entirely relevant as each person strives toward his or her own potential. In defining success, self-actualization is similar to task success with a lack of social comparison and an emphasis on completing tasks consistent with one's ability or potential. Both concepts also emphasize developing competence, mastery and self-determination. In fact, Maehr (1984) considers that self-actualization may serve to integrate theories of motivation.

With regard to the relationship between academic achievement and meanings of success, individuals who performed well in school endorse task goals more than ego goals (Nicholls 1984). LeMay and Damm (1968) found that self-actualization tendency scores were positively related to academic achievement among American college students. The concept of action possibilities (Maehr 1984) is also relevant to academic achievement. Individuals whose family and culture value academic achievement (Rosenthal & Feldman 1991) are more likely to regard this as an appropriate action possibility.

Action possibilities refer to the behavioral alternatives or options available in various situations (Maehr 1984) and are influenced by sociocultural norms. Sense of self is regarded as a collection of perceptions, including a sense of competence that entails a subjective judgement of one's ability to perform effectively (Maehr). A sense of competence is likely to influence choices and preferences and is based upon past experiences of success or failure.

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Sense of self, action possibilities and achievement goals are relevant in understanding the relationship between meanings of success and academic participation. A choice of various academic subjects is likely to be influenced by perceived competence in these subjects. In turn, perceived competence is likely to be influenced by past achievement in these areas. Within an academic environment, the choice of subjects is influenced by achievement in the area (e.g. Baldwin 1990; Ainley, Robinson, Harvey-Beavis, Elsworth & Fleming 1994). In relation to action possibilities toward academic participation, the influence of culture and family is important (e.g., Stein & Bailey 1973; Meece, Eccles Parsons, Kaczala, Goff & Futterman 1982). Types of participation and achievement (e.g. achievement and participation in particular subject areas) that the family or cultural group value, promote, reward and facilitate are important in determining action possibilities. The choice of academic subjects is also related to achievement goals or meanings of success. For example, students emphasizing personal achievement (ego goals) and monetary gain (extrinsic rewards) prefer science subjects (Thomas 1990; Ware & Lee 1988). In contrast, arts students prefer social interaction and often regard their degree as an end in itself (Thomas 1990). Social interaction and completing a course as an end in itself are consistent with social solidarity goals and task goals, or self-actualization.

Female Achievement Motivation, Academic Achievement and Academic Participation

In their conceptualization of female achievement motivation, Parsons and Goff (1978) argued that traditional achievement motivation models do not fully define female achievement because they neglect the communal perspective of achievement. Parsons and Goff distinguished agentic success and communion success as forms of achievement. Agentic success is related to social comparison and or social competitiveness (Berglas 1986) and material possessions whereas communion success represents "the desire to be at one with others and to gain rewards through one's interaction with others" (Parsons & Goff 1978, p.94). Women are more likely to endorse communion success or achievement than agentic success or achievement (Parsons & Goff). Social solidarity achievement goals are similar to communion success and ego achievement goals and extrinsic rewards are related to agentic success.

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Meece et al (1982) developed a model of academic choice to explain female achievement and participation in mathematics and science. In this model, students' achievement and participation are influenced by their perception of their sense of competence, achievement goals and task characteristics. These perceptions are in turn influenced by students' perception of their significant socializers' behavior and values. Females have a lower self-perception of their ability in mathematics and these are often sustained by the attitudes of their socializers (Meece et al.). In

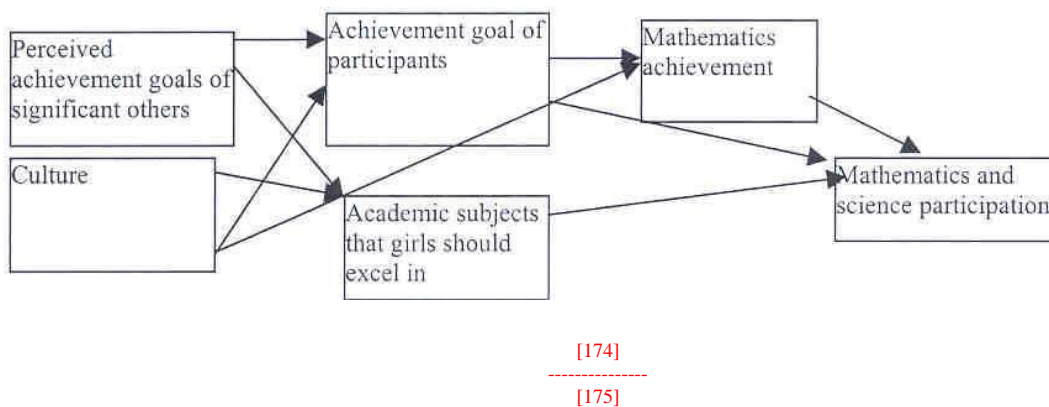
addition, while females often value communion success (Parson & Goff), mathematics and science subjects are perceived as masculine and related to objects rather than people (Meece et al; Yates 1993; Kelly 1987). Consequently, females under-participate in mathematics and science subjects. Self perception and perception of mathematics and science and meanings of success are also related to sense of competence, action possibilities and achievement goals in Maehr's (1984) theory of achievement motivation.

Cultural Issues

Meanings of success, achievement motivation and goals are affected by the wider sociocultural context in which people live (Maehr & Braskamp 1986). While there is a cross-culturally generalizable achievement factor stressing work, knowledge and freedom (Fyans, Maehr, Salili & Desai 1983), there is also cultural variation in the emphasis on family, femininity, competition and championship (Maehr & Braskamp 1986). Success also has been found to have different meanings in different cultures (Maehr & Nicholls 1980). In this study, the possible cultural differences in meanings of success will be explored.

The relationships among the variables are presented in Figure 1.

Figure 1. Proposed Model on Academic Achievement and Participation



Other Influences

In the above discussion, mathematics achievement and participation of high school students are related to meanings of success or achievement goals and sense of competence. In relation to immigrant students, mathematics achievement may also be influenced by various factors such as their length of residence in the host country, their reasons for migration (e.g. whether they were migrants or refugees) or their ethnic identification (Berry 1997). Indeed, length of residence in the host country tends to be positively related to academic achievement (Luckey & Jupp 1990). In addition, Chinese students from migrant backgrounds, in comparison to those from refugee backgrounds, are more academically successful (Chan 1987). This may be due to the disruption in education of refugees during the escape or time spent in in refugee camps. Furthermore, Chinese students who retained more Chinese cultural values achieved better academic results than those who retained fewer Chinese values (Chan 1987).

The aims of this study are threefold. First, to examine the relationship between achievement motivation, mathematics achievement and participation of a group of Chinese-Australian girls and Anglo-Australian girls. Second, to investigate whether Chinese-Australian girls differ from Anglo-Australians girls in achievement motivation, mathematics achievement and participation. Third, to investigate whether mathematics achievement and participation of Chinese-Australia girls are related to their length of residence in Australia, their reasons for migration and their ethnic identification. Following Maehr's (1984) notion that self-actualization could be the integrating concept in theories of motivation, the focus is on self-actualization as an achievement goal and its relationship with mathematics achievement and participation.

METHOD

Participants

Participants were 78 Chinese-Australian and 47 Anglo-Australian girls living in Melbourne, Australia. Language spoken at home (a Chinese dialect) was used as the defining criterion for selection of Chinese-Australian girls as language is regarded as an important aspect of culture (Berry 1997). Country of origin was not used as the defining criterion as Chinese immigrants came

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to Australia from many different countries (Kee 1988). Anglo-Australian girls were born in Australia or an English-speaking country and English was the only language used at home. The mean age of the participants was 14.5 years (s.d. = 1.6). Chinese-Australian girls were older (mean = 14.9, s.d. = 1.8) than the Anglo-Australian girls (mean = 13.9, s.d. = 1.0). The majority (66.4%, n=83) of participants attended state co-educational secondary colleges while others attended state girls secondary colleges, Catholic girls colleges and independent schools. The schools were selected on the basis of number of Chinese students enrolled. Schools with at least 40 Chinese students enrolled (20 for single-sex schools) were selected.

Chinese-Australian girls came from various countries including China (n = 9), Hong Kong (n = 14), Malaysia (n = 9), Taiwan (n = 7), Timor (n = 5), Vietnam (n = 21) and others (n = 9) while four were born in Australia. Participants from Hong Kong, Taiwan, China, Singapore and Malaysia generally came to Australia as migrants while those from Vietnam, Cambodia and Timor came as refugees or for humanitarian reasons (Kee 1988).

Materials

Data was gathered by a largely closed format questionnaire, written in English, since all participants were studying in schools where English was the medium of instruction. Furthermore, the questionnaire was examined by school authorities and was regarded as appropriate for the students. The questionnaire sought information in the following areas:

Culture and Auspices of Immigration¹

Participants were requested to indicate the language spoken at home, their own and their parents' places of birth. As discussed above, culture was determined in terms of places of birth of

participants and language spoken at home. According to Kee (1988), Chinese in Australia could be broadly and roughly divided into two groups. These groups include those who came as migrants (usually born in China, Hong Kong, Taiwan, Singapore and Malaysia) and those who came as refugees or for humanitarian reasons (usually born in Vietnam and East Timor).

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Meanings of Success of Parents, Teachers, Classmates and Participants

Following Maehr's (1984) conception of achievement goals as meanings or definitions of success and Maehr and Nicholls' (1980) suggestions that achievement goals should be measured using simple and direct questions, participants were asked to define success themselves. Participants were requested to list their meanings of success (at the time of the study and at the age of 25) and that of their socializers, (i.e., parents, teachers and classmates) via five open-ended questions. The decision to determine participants' perception of the opinions of their significant socializers (parents, teachers and classmates) was based upon adolescent perceptions of their parents' aspirations for their children being strongly associated with their own aspirations (Majoribanks 1984). Responses were grouped into five categories by a group of 9 assessors (3 Australians and 6 Chinese people with backgrounds in education or psychology). A 5-point scale with 25 items corresponding to each of these five categories was developed and four judges rated the responses of participants (written answers to the open-ended questions) on this scale. The inter-rater reliability was above .7 for the majority of items. The five categories were matched by a group of 40 psychology students to see which corresponded with a meaning of success in terms of self-actualization. Single sample chi-square analysis was used to determine whether a significant majority of the judges deemed a particular meaning of success category as corresponding to self-actualization and the results were significant. The details of the construction of the scales and the matching procedures are reported in Fan and Karnilowicz (1997).

Since the categories representing self-actualization, ego goals and extrinsic rewards represent the traditional achievement goals in theories of achievement motivation, emphasizing personal and individual success (Maehr & Nicholls 1980), they were grouped together for the meanings or definitions of success of parents, teachers and peers. The raw scores of items in these categories were summed to form a new variable named "perceived achievement goals of significant others". A high score indicated that significant others defined success more in terms of personal and individual success. For the participants' meanings or definitions of success, the raw scores of items under the category representing self-actualization were summed to form the variable "achievement goal of participants". A high score indicated that the participant defined success more in terms of self-actualization.

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Mathematics Achievement

Mathematics achievement was measured by grades awarded in mathematics, based on a separate questionnaire completed by the participants' teachers. All participants' teachers supplied the information. Teachers' rating of student achievement was found to be consistent with actual

student achievement as measured on achievement tests (Leder 1989). Due to constraints on time, results from achievement tests were not used.

Mathematics and Science Participation

This was determined by the number of academic subjects in mathematics and physical science areas (e.g., mathematics, physics, chemistry) that the participants planned or intended to choose for their future Victoria Certificate of Education (VCE) course, the final year course in the secondary education system in Victoria, Australia.

Academic Subjects That Girls Should Excel In

To measure participants’ opinions of academic subjects suitable for girls or feminine in nature, participants were requested to list academic subjects that girls should excel in via an open-ended question. Due to the theoretical interest in girls’ participation in and perception of science subjects, the number of academic subjects in the physical science areas (e.g. physics, mathematics, chemistry) was tabulated and used as the measurement of academic subjects that girls should excel in.

Demographic Information

Length of residence in Australia was ascertained by open-ended questions. Socioeconomic status was determined by father’s occupation, as measured on the ANU2 Scale (Broom, Duncan- Jones, Jones & McDonnell 1973). Chinese identification was measured by means of a single ordinal item with four alternatives (3 - Chinese; 2 - mostly Chinese, a little Australian; 1 - mostly Australian, a little Chinese; 0 - Australian). A high score indicated high Chinese identification.

Procedures

The participants completed the questionnaires in group sessions organized within the participating schools. The principal author who also answered queries in relation to the questionnaire supervised each session. Prior to the administration of questionnaires, parental consent was obtained via school administrators.

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RESULTS

The means and standard deviations of responses by participants on various variables are shown in Table 1.

Table 1. Means and Standard Deviations of the Participants on Various Variables

Variables	All Participants Mean (SD)	Anglo-Australian Girls (<u>n</u> = 47) Mean (SD)	Chinese-Australian Girls (<u>n</u> = 78) Mean (SD)	Significance
Achievement goal of participants (self- actualization)	2.7 (1.1)	2.9 (1.2)	2.6 (1.1)	N.S.

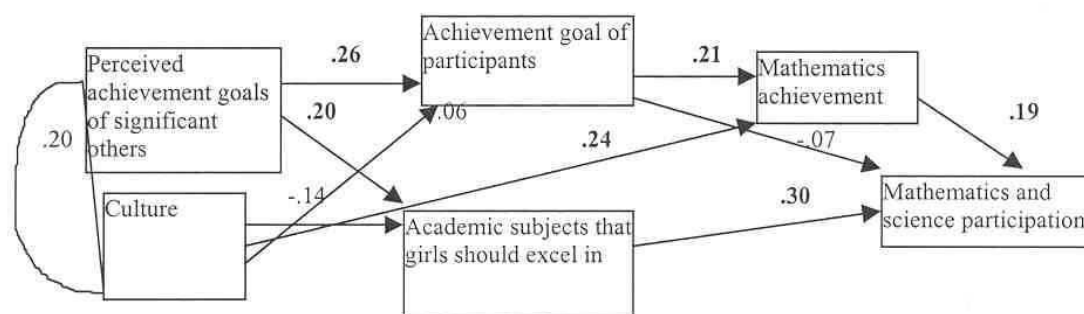
Perceived achievement goals of significant others (personal and individual success)	15.2 (3.6)	16.1 (3.2)	14.7 (3.7)	.024
Mathematics and science participation	1.8 (1.1)	1.7 (1.1)	1.9 (1.0)	N.S.
Academic subjects girls should excel in	1.5 (1.0)	1.4 (1.1)	1.6 (.9)	N.S.
Mathematics achievement	3.8 (1.3)	3.4 (1.3)	4.0 (1.2)	.015

Path analysis was used to test whether the data was consistent with the model as presented in Figure 1. The endogenous variables were achievement goal of participants (self-actualization), academic subjects that girls should excel in, mathematics achievement and mathematics and science participation. The exogenous variables were culture and perceived achievement goals of significant others (personal and individual success). Box's M test for homogeneity of dispersion matrices produced $F_{15, 37906} = .74, p > .05$, confirming homogeneity of variance-covariance matrices. Length of residence in Australia ($r = .74, p < .001$) and Chinese identification ($r = -.84, p < .001$) correlated highly with culture and they were excluded from the path analysis due to problems of multicollinearity.² The results are shown in Figure 2.

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Figure 2. Diagram Showing the Relationship among Variables



Achievement goals of participants was related to perceived achievement goals of significant others ($\beta = .26, p < .05$). Girls whose significant others defined achievement or success more in terms of personal and individual success defined achievement or success more in terms of self-actualization than girls whose significant others defined achievement or success less in terms of personal and individual success. Academic subjects that girls should excel in was also related to perceived achievement goals of significant others ($\beta = .20, p < .05$). Girls whose significant others defined achievement or success more in terms of personal and individual success listed more science subjects as subjects that girls should excel in, compared to girls whose significant others defined success or achievement less in terms of individual and personal success.

Mathematics achievement was related to achievement goal of participants ($\beta = .21, p < .05$) and culture ($\beta = .24, p < .05$). Girls who defined achievement or success more in terms of self-actualization achieved better results in mathematics than those who defined achievement or success less in terms of self-actualization. Chinese-Australian girls performed better in mathematics than Anglo-Australian girls. Mathematics and science participation was related to mathematics achievement ($\beta = .19, p < .05$) and academic subjects that girls should excel in ($\beta = .30, p < .05$). Girls who achieved better results in mathematics selected more science subjects than those who did not perform as well. Girls who listed more science subjects as subjects that girls should excel in chose more science subjects than those listing fewer subjects.

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The amount of variance explained, and the various goodness of fit indices of the theoretical model and the data are shown in Table 2.

While the above model is central to the thesis of this study, there is also the possibility of competing or alternative path models. For example, an alternative model may fix the path between culture and mathematics achievement. The rationale for fixing this path is that cultural differences in mathematics achievement may be due to cultural differences in achievement goals. The amount of variance explained and the goodness of fit indices of this alternative model is presented in Table 2.

Table 2. Amount of Variance Explained and Goodness of Fit Indices

	Proposed Model	Alternative Model
Squared multiple correlation for structural equations for definition of success (self-actualization)	.079	.069
Squared multiple correlation for structural equations for number of science subjects that girls should excel in	.048	.011
Squared multiple correlation for structural equations for mathematics achievement	.091	.062
Squared multiple correlation for structural equations for choice of science subjects	.126	.080
Total coefficient of determination for structural equation	.174	.079
Chi square (d.f. = 5)	.70 (p = .98)	13.80 (p = .055)
Adjusted goodness of fit	.99	.92
Root mean square residual	.023	.067

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The various indices of goodness of fit indicated that the overall fit of the original proposed model (the model as shown in Figure 1) was good and the data was consistent with the model. On the other hand, the squared multiple correlation for structural equations (a measure of the strength of relationship between variables) and the total coefficient of determination for structural equations (a measure of the strength of several relationship together) were not very high. This suggested the need to include additional variables to further explain the variance in the model. For example, intelligence may have been considered a legitimate variable; however the practical difficulties associated with the administration of an intelligence test did not allow for its inclusion. Furthermore, type of school or age of the participants might be other factors. However, school type did not differ significantly in terms of the perceived achievement goals of significant others, achievement goal of participants, academic subjects that girls should excel in, mathematics achievement or mathematics and science participation, ($F_{18, 345} = 1.53, p > .05$). There was a significant negative correlation between age and mathematics achievement among Chinese-Australian girls ($r = -.38, n = 79, p = .001$) but the relationship between age and mathematics achievement was not significant for Anglo-Australian girls ($r = -.22, n = 43, p > .05$). The other possibility was that Chinese-Australian girls might not be a homogeneous group and factors may contribute differentially to their achievement in mathematics and participation. Further analysis involving specific groups of Chinese-Australian girls is warranted.

Two standard multiple regression analyses were performed, including only Chinese-Australian girls. In each case, the dependent variables were mathematics achievement and mathematics and science participation. The independent variables were length of residence in Australia, Chinese identification and reasons for migration (migrants or refugees). For mathematics achievement, the regression R was significantly different from zero, $F_{3,73} = 3.6, p < .05$. Chinese identification ($\beta = .28, p < .05$) and length of residence in Australia ($\beta = .40, p < .005$) were predictive of mathematics achievement and indicated that the longer Chinese-Australian girls had been in Australia and the more they identified with Chinese culture, the better their mathematics achievement. The variance accounted for was 36% (13% adjusted). The independent variables, however, failed to predict choice of science subjects among Chinese-Australian girls, $F_{3,73} = 1.7.6, p > .05$.

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DISCUSSION

In terms of the relationship between achievement goals, mathematics achievement and participation, common to both Anglo-Australian and Chinese-Australian high school girls, the results indicated that mathematics achievement was related to the achievement goal of participants (self-actualization). Mathematics and science participation were related to mathematics achievement and to the number of science subjects that the participants thought that girls should excel in. The results also indicated that the achievement goal of participants (self-actualization) and number of science subjects that the participants thought girls should excel in were related to the perceived achievement goals of significant others (personal and individual

success). The results were consistent with the findings of Ainley, Jones, and Navaratnam (1990), Ainley and Sheret (1992), Kelly (1987), and Meece et al. (1982). The results support the relationships between task goals and academic achievement and between sense of competence and action possibilities and academic participation. In addition, the influence of significant others on the adjustment of adolescent girls was demonstrated. Apart from an adolescent girl's achievement goals, encouragement and support from parents and teachers are important in influencing girls' academic achievement and participation. The implication is that policies aiming to improve the achievement and participation level of girls in mathematics/science subjects should be targeted towards students, as well as parents and teachers as they significantly influence adolescent girls' decision making.

With regard to cultural differences, the path between culture and mathematics achievement was significant and Chinese-Australian girls performed better in mathematics than Anglo-Australian girls. The results were consistent with Chen et al. (1996) and Stevenson and Lee (1996). There was, however, no cultural difference in terms of achievement goals or academic subjects that girls should excel in.

For issues specific to Chinese-Australian girls or acculturation issues, among Chinese-Australian girls, length of residence in Australia and degree of Chinese identification were related to mathematics achievement. The results were consistent with Chan (1987) and Luckey and Jupp (1990).

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In conclusion, for high school students, including Chinese-Australian and Anglo-Australian girls, mathematics achievement is related to their achievement goals and mathematics and science participation is related to mathematics achievement and the number of science subjects that they think girls should excel in. As immigrants, the mathematics achievement of Chinese-Australian girls is also related to issues specific to their immigrant status, including length of residence in the host society and degree of Chinese identification.

The lack of relationship between the achievement goal of participants and mathematics and science participation was contradictory to the findings of Thomas (1990) and Ware and Lee (1988). However, their findings were based on interviews with tertiary students who, in most cases, had to major in one field of study (e.g. humanities or science) whereas, high school students could select subjects from both humanities and science fields. It is possible that many high school students, in order to leave options open, might choose both humanities and science subjects and their definitions of success might be more influential in their decision making when having to decide upon their fields of study or work.

The lack of cultural differences in the achievement goal of participants warrants some discussion. First, it is possible that the achievement goal measured in this study is similar to the universal achievement goal as indicated by Fyans et al. (1983). Second, the Chinese-Australian girls in the present study lived in Australia for some time and their values may have been influenced by the Australian culture. Fan and Karnilowicz (1997) found that among Chinese

immigrant girls in Australia, definition of success in terms of self-actualization was positively related to length of residence in Australia and negatively related to degree of Chinese identification.

The present results suggest that although self-actualization as an achievement goal is a useful construct in predicting individual differences in mathematics achievement, it is less useful in predicting inter-group differences in mathematics achievement. This paradox is also evident in other research on Chinese achievement. For example, Rosenthal and Feldman (1991) found that variables such as family environment measures (e.g., restraint and industry) which were associated with individual differences in academic achievement did not account for differences between

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Chinese and Australian/North American adolescents. It is likely that a single theoretical model aiming to identify variables accounting for individual differences within an ethnic group and inter-group outcomes, might not be entirely appropriate. The results of the present study also indicate that Chinese girls are not a homogeneous group and within the immigrant Chinese community there are specific factors, such as length of residence in the host country and degree of Chinese identification, which are related to their mathematics achievement. These factors would need to be taken into account in future cross-cultural research.

As to the best variable predicting inter-group differences in mathematics achievement, the findings of this study or Rosenthal and Feldman (1991) do not offer a conclusive answer. One possible explanation is that Chinese girls are not a homogeneous group and different groups of Chinese girls achieve academically via different pathways or different variables are responsible for the achievement of different groups of Chinese girls. Fan and Karnilowicz (1997) found that length of residence in Australia was negatively related to endorsement of self-actualization whereas Fan (1996) found that length of residence in Australia was negatively related to degree of Chinese identification. It is possible that Chinese girls who have been in Australia for a relatively long time endorse self-actualization more and this kind of achievement motivation is at least in part responsible for their achievement, in accordance with Maehr's (1984) model. Among Chinese girls who have been in Australia for a short time, their Chinese identification and endorsement of Chinese values might be in part responsible for their achievement (Chan 1987).

While the high academic success of Chinese students is well documented (e.g. Biggs 1996; Chen et al. 1996), the present results indicated that Chinese-Australian girls were not academically equally successful. Chinese-Australian girls who have been in Australia for a short period of time are more likely to experience difficulties with academic work and their needs should not be neglected in the light of the successful performance of other Chinese girls. Service providers, such as teachers and school counselors, should be flexible and sensitive to the needs of different groups of Chinese-Australian girls, rather than treating them as one homogeneous group.

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FOOTNOTES

1. The variable auspices of immigration is applicable only to Chinese immigrant girls.
2. To determine socioeconomic status, 82 participants provided adequate information regarding their fathers' occupation for classification to be made according to the ANU2 Scale (Broom et

al., 1977). An additional 17 participants did not give an adequate description of their fathers' employment for classification. Eighteen participants (Chinese-Australian girls) reported that their fathers were unemployed. Eight participants did not answer the question on their fathers' occupation. Among the 82 participants whose fathers' occupations could be classified, socioeconomic status was not significantly related to the variables chosen for inclusion in path analysis and therefore was not included in the model. Among the 18 participants whose fathers were not employed, the majority ($n = 16$) of the mothers were also not employed.

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