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ABSTRACT

Researchers have emphasized the domain specificity of academic self-concept. For monolingual students, verbal and math self-concepts have been found to be distinct constructs. However, the assumption of a single distinct verbal construct may be questionable for individuals speaking multiple languages. Primary and secondary school teachers from Hong Kong responded to English, math, Cantonese, and Mandarin self-concept items. Confirmatory factor analysis found support for the distinction of the four domain-specific self-concepts. However, English self-concept had a low correlation with Mandarin self-concept and a negative correlation with Cantonese self-concept. The correlation was negative between Cantonese and Mandarin, even though both were Chinese. These very low correlations did not allow the language constructs to form a single verbal factor. The results challenge the assumption of a single verbal self-concept construct for speakers of multiple languages. The verbal self-concept constructs can be very distinct and unrelated for the trilingual. The self-concept and intent scales used for the study are appended. (Contains 48 references.) (Author/SM)

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Abstract

Researchers have emphasized the domain specificity of academic self-concept. For monolingual students, verbal and math self-concepts have been found to be distinct constructs. However, the assumption of a single distinct verbal construct may be questionable for individuals speaking multiple languages. Primary and secondary school teachers from Hong Kong (N = 437) responded to English, Math, Cantonese and Mandarin self-concept items. Confirmatory factor analysis found support for the distinction of the four domain-specific self-concepts. However, English self-concept had a low correlation with Mandarin self-concept and a negative correlation with Cantonese self-concept. The correlation was negative between Cantonese and Mandarin even though both were Chinese. These very low correlations did not allow the language constructs to form a single Verbal factor. The results challenge the assumption of a single verbal self-concept construct for speakers of multiple languages. The verbal self-concept constructs can be very distinct and unrelated for the trilingual.

Recent research has typically placed a strong emphasis on the domain specificity of academic self-concepts (e.g., Marsh, 1986; Vispoel, 1995; Yeung & Lee, 1999). The emphasis is primarily due to the consistent finding of distinct self-concept constructs and their domain-specific relations to other constructs. For example, studies have often found a nonpositive (often near-zero) correlation between high school students' verbal and math self-concepts (e.g., Marsh, 1987; Marsh, Byrne, & Shavelson, 1988). Findings of a high correlation between verbal and math achievements but a relatively low correlation between verbal and math self-concepts have led to a revision of the original self-concept model proposed by Shavelson, Hubner, and Stanton (1976) to a modified model that separately considers the math and verbal domains (Marsh & Shavelson, 1985). Marsh (1986) also proposed an

internal-external frame of reference (I-E) model to provide a plausible account for the near-zero correlation between math and verbal self-concepts (also see Bong, 1998; Skaalvik & Rankin, 1995; Tay, Licht, & Tate, 1995). In studies on verbal self-concept, there is often an assumption that the student's mother tongue should constitute the verbal construct. For students speaking multiple languages, however, the assumption of a single verbal construct comprising all these languages may be questionable. The present study tests the assumption of a single verbal construct with a sample of Hong Kong teachers speaking three languages, viz., English, Cantonese, and Mandarin Chinese (also known as Putonghua).

Domain Specificity of Verbal Self-Concept

The understanding of academic self-concept is essential because self-concept is an important educational outcome and also an important factor that contributes to other valued educational outcomes (Marsh, 1993). Numerous studies have shown good relations of academic self-concept to academic achievement and academic behavior (e.g., Chapman & Tunmer, 1995, 1997; Eccles & Wigfield, 1995; Hay, 1997; Helmke & Aken, 1995; Marsh & Yeung, 1997a, 1997b; Muijs, 1997; Wigfield & Eccles, 1992; Yeung & Lee, 1999), and these relations are very domain specific. Thus recent research has emphasized the domain specificity of academic self-concept (e.g., Byrne, 1996a; Byrne & Gavin, 1996; Cross & Markus, 1994; Harter, 1996; Hattie, 1992; Marsh, 1993; Marsh, Byrne, & Shavelson, 1988; Marsh & Yeung, 1996, 1998; Yeung & Lee, 1999), and the emphasis has also led to the development of instruments that measure self-concepts in distinctively different areas—for example, the Vispoel (1995) Artistic Self-Perception Inventory, the Marsh (1987, 1992, 1993; also see Marsh & O'Neill, 1984) series of Self-Description Questionnaires (SDQ), and the Marsh (1990) Academic SDQ are some of the promising multidimensional self-concept instruments that have been used worldwide (see review by Byrne, 1996b).

Whereas there is strong support for the domain specificity of academic self-concepts, it may not be clear how specific the constructs can be. For example, when considering math self-concept, researchers may have assumed that the math self-concept construct should be specific enough to capture the respondents' perceptions in all areas related to math. Similarly, it may not be clear whether verbal self-concept would be specific enough to capture the respondents' perceptions in all verbal areas. In most studies on verbal self-concept, researchers have used "Verbal" and "English" self-concept interchangeably with English-speaking samples. Similarly, research in a non-English-speaking culture has assumed that "Verbal" self-concept is equivalent to self-concept in the students' native language (e.g., Yeung & Lee, 1999). However, for a bilingual student, self-concepts in different languages could be quite different and may not be represented by a single verbal self-concept. Thus for individuals using two or more languages, the label "Verbal self-concept" may not be specific enough for describing their self-concepts in different language domains.

Only a few studies have examined the relations of self-concepts in different languages. In examining the Marsh (1986) I-E theory, Bong (1998) examined the relations between academic achievement and self-concepts in verbal and math areas. In the verbal domain, she included both

English and Spanish in her confirmatory factor analysis (CFA) models. However, the correlation between English and Spanish self-concepts was surprisingly low (r = .2). Lau, Yeung, and Jin (1998) examined the academic self-concepts of Chinese-speaking university students in Hong Kong. The students reported their self-concepts in Chinese which was their mother tongue, English which was the major language for academic studies at the tertiary level, and math which was one of the important selection criteria for science-related courses. They found strong support for the domain specificity of the students' self-concepts in the three language domains. The correlation between math and English (the academic language) was significantly negative (r = -.12). Interestingly, the correlations of Chinese self-concept with math or English self-concepts were both near zero (r = .02 and .08, respectively). With such a low correlation between Chinese and English self-concepts (r = .08), it was unlikely for a single verbal factor to explain the self-concepts in both languages.

Yeung, Chui, Lau, McInerney, Suliman, and Russell-Bowie (2000; also see Suliman, McInerney, & Yeung, 1998) tested 197 Australian students of different language and cultural backgrounds in ninth grade in their perceptions of three skill-specific areas--speaking, reading, and writing in English and in languages other than English respectively. Whereas the correlations among the three skill-specific factors in each language area were all significantly positive, the correlations between the two languages were all negative. These negative correlations made it impossible for a single verbal self-concept factor to represent the self-concepts in the two language domains. The findings also cast doubt on even the meaningfulness of a global verbal self-concept construct.

In sum, these studies with students from different cultural and language backgrounds provided strong support for the domain specificity of academic self-concept. However, they also suggest that even a presumably domain-specific self-concept construct such as verbal self-concept may not be specific enough to describe the diverse self-concepts of bilinguals and polyglots. The present study critically examines whether self-concepts in three language domains (viz., English, Cantonese and Mandarin) should be treated as three distinct constructs, or as two (English and Chinese), or as a single Verbal self-concept constructs. The participants were elementary and high school teachers in the Hong Kong Special Administrative Region (SAR), China. The teachers were taking a 1-year long Mandarin course. Because all these teachers speak Cantonese as their mother tongue, learned English as a second language mainly for academic purposes, and study Mandarin which is the official language of the government of mainland China, the participants constituted an interesting sample for the purpose of the present study.

Method

Participants

The participants were 460 primary and high school teachers (age ranging from 21 to 58) in over 300 schools (45% primary; 55% secondary) from various districts of Hong Kong (21% male),who have taught 1 to 37 years. All teachers were Cantonese-speaking Chinese attending a Mandarin Chinese course (known as "Putonghua Teachers' Training Course") commissioned by the Education Department

of Hong Kong and administered by the Hong Kong Institute of Education. All these teachers also previously learned English as a second language. In a Hong Kong context, English, Chinese and math are considered the most important curriculum areas in both primary and secondary schools. However, the Chinese curriculum is typically taught in Cantonese, a southern Chinese dialect which is spoken by about 99% of Hong Kong people (with a population of around 7 million). In recent years, the Hong Kong SAR has emphasized the importance of "tri-lingual and bi-literate" proficiency, and a budget of HK$87 million was set aside for the training of school teachers in the three languages (English, Cantonese, and Mandarin) in 1997 (HKSAR, 1997). In 1998, the "key result areas" proposed by the SAR Government again emphasized the importance to "enable our students to be bi-literate and tri-lingual" (HKSAR, 1998, p. 114), showing the continuation of the language policy.

Consent to participate in the study was obtained from the teachers before they completed the survey. After listwise deletion of missing data, the analysis used a sample size of 437.

Material

A total of 32 items were used (5 items each for English, Math, Cantonese and Mandarin self-concepts, and 3 items each for teachers' intent to teach English, Math, Chinese and Mandarin. The self-concept items were adapted from Marsh's (1992) SDQ instrument (see Appendix). Byrne (1996b) commented that it was probably one of the best self-concept measuring instruments that assess multiple dimensions of self-concept. The intent items were adapted from Yeung, Chui, and Lau (1999). The intent items asked the participants their intent in choosing respective subject areas in their teaching. All the self-concept and intent items were parallel across four curriculum domains, respectively (see Appendix).

Statistical Analyses

Preliminary analysis included alpha estimates of internal consistency of each of the a priori measures and principal component analysis with the 20 self-concept items to test their ability to form the expected factors. Confirmatory factor analysis (CFA) models were then tested. The conduct of CFA has been described elsewhere (e.g., Bollen, 1989; Byrne, 1998; Joreskog & Sorborm, 1993; Marsh & Hocevar, 1985; Pedhazur & Schmelkin, 1991) and is not further detailed here. All analyses throughout this paper were conducted with the SPSS version of PRELIS and LISREL (Joreskog & Sorbom, 1988). The goodness of fit of models is evaluated based on suggestions of Marsh, Balla, and McDonald (1988) and Marsh, Balla, and Hau (1996) with an emphasis on the Tucker-Lewis index (TLI), but we present also the chi-square test statistic and the relative noncentrality index (RNI). For an acceptable model fit, the values of TLI and RNI should be greater than .9.

A series of CFA models were tested based on a 32 x 32 (20 self-concept items + 12 intent items) covariance matrix. Figure 1 shows the models tested in the present study. Models 1 to 4 used 20 self-concept items to examine the structure of the self-concept constructs (Table 1). Model 1 tested whether the self-concept structure was multidimensional such that 20 self-concept items should form four domain-specific factors (Model 1). Other models tested whether these 20 items should form one single

factor (Model 2), or a Verbal and a Math factor (Model 3) as suggested by the Marsh and Shavelson (1985) revised academic self-concept structure, or two Verbal factors (English and Chinese) and a Math factor (Model 4). Support for a multidimensional model in which the four factors are distinct from each other would require Model 1 to fit better than all the other three models. Support for a Verbal factor comprising the self-concepts of English, Cantonese and Mandarin would require Model 3 to fit better than the other three models. Support for a "Chinese" factor comprising the self-concepts in Cantonese and Mandarin would require Model 4 to fit better than the other three models.

Table 1. Goodness-of-fit Summary for Models

Models using 20 items	$\chi 2$	df	TLI	RNI	Null $\chi 2$	df	FacCoeff
1. 4 self-concept factors	825.83	164	.937	.945	12269.48	190	.72 to .99
2. 1 self-concept factor	9523.15	170	.135	.226	12269.48	190	-.25 to .96
3. 1 verbal + 1 math factor	5827.11	169	.473	.532	12269.48	190	-.25 to .99
4. English, Chinese, Math	3832.76	167	.655	.697	12269..48	190	-.13 to .99
Models using 32 items							
5. 4 self + 4 intent factors	1443.69	436	.943	.950	20460.07	496	.73 to .99
6. 1 factor	16932.73	464	.118	.175	20460.07	496	-.34 to .94

Note: N = 437. RNI= Relative noncentrality index. TLI= Tucker-Lewis index. FacCoeff=Factor Coefficient.

To further scrutinize the domain specificity of the self-concept constructs, Models 5 and 6 used 32 items. The intent measures were included in the models as external criteria (see Yeung, Chui, & Lau, 1999; Yeung & Lee, 1999) to test their domain-specific relations with the self-concept constructs. Support for such domain-specific relations would require Model 5 positing four self-concept and four intent constructs to fit better than Model 6 positing a single factor (Table 1). Strong support for domain specificity would require Model 5 to display higher correlations between self-concept and intent constructs in matching domains than in nonmatching domains. Thus English self-concept, for example, should be correlated with intent to teach English but not with intent to teach math, Cantonese or Mandarin.

Results

Preliminary Analysis

The alpha reliability estimate for each of the a priori self-concept scales (alpha = .96, .98, .93, .97) and for the intent scales (alpha = .93, .93, .94, .92) was good for English, Math, Cantonese and Mandarin respectively. For preliminary construct validation, we conducted principal component analysis with the 20 self-concept items with varimax rotation. The analysis yielded the four distinct factors as expected with factor coefficients ranging from .85 to .98. These preliminary results show that each of the four scales could satisfactorily form a distinct factor. We then tested four CFA models with the 20 self-concept items. A summary of the goodness of fit for each model is given at Table 1.

Model 1: Four Domain-specific Self-concept Factors

Model 1 (Table 1) positing four domain-specific self-concept factors provided a good fit to the data (TLI = .94, RNI = .95). The factor coefficients were also good (.72 to .99). The parameter estimates found in Model 1 are identical to those found in Model 5 and can be found in Table 2. Model 1 provided good support for the domain specificity of the self-concept constructs. Math self-concepts had very low correlations with self-concepts in all three languages (r = .17 with English; r = .02 with Cantonese; r = .08 with Mandarin). The results support the Marsh and Shavelson (1985) separation of the Math and Verbal self-concept constructs. Interestingly, the correlations among the self-concepts of the three languages were either close to zero (English and Mandarin r = .09) or negative (English and Cantonese r = -.19; Cantonese and Mandarin r = -.11). Such low correlations would render inappropriate the consideration of a verbal self-concept comprising these three languages.

Model 2: One Self-concept Factor

Model 2 (Table 1) positing a single self-concept factor derived from 20 items did not fit the data (TLI = .14, RNI = .23). The factor coefficients were unreasonable (Table 1). Compared to Model 1, there was no support for Model 2 positing a unidimensional self-concept structure.

Model 3: A Single Verbal Factor and A Math Factor

Model 3 (Table 1) positing a single Verbal self-concept factor comprising English, Cantonese and Mandarin self-concept items did not fit the data (TLI = .47, RNI = .53). The factor coefficients were unreasonable (Table 1). There was no support for considering the self-concepts in three language domains all together as a single Verbal factor.

Model 4: Cantonese and Mandarin as a Single Construct

Model 4 positing one English, one Chinese, and one Math constructs did not fit the data well (TLI = .66, RNI = .70) and the factor coefficients were poor. Considering Models 1 to 4, there was support for four distinct self-concept constructs: English, Math, Cantonese, and Mandarin.

Model 5: Four Self-concept Factors Validated With Four Intent Measures

In Model 5 we included 12 Intent items (see Appendix) as external criteria to further scrutinize the domain-specific model (Model 1). The solution of Model 5 is presented in Table 2. This model positing four self-concept and four intent constructs provided a good fit to the data (TLI = .94, RNI = .95) and.the factor coefficients were good (.73 to .99). The parameter estimates for the self-concept constructs were similar to those found in Model 1 that supported a domain-specific self-concept structure. The parameter estimates for the intent constructs also provided support for domain specificity (Table 2). Except for the correlation between Cantonese and Mandarin that was significantly positive (r = .14), the correlations among the intent constructs were either close to zero or even negative. An important concern in Model 5 was the relations between domain-specific self-concept and intent constructs. In an inspection of the factor correlations we found significantly high correlations between self-concept and intent constructs in matching domains (.66, .78, .26, and .73 for English, Math, Cantonese and Mandarin respectively). These correlations were higher than any of the other correlations although the correlation

between self-concept and intent in Cantonese seemed surprisingly low (r = .26) even though statistically significant because of the large sample size. The pattern of high correlations between self-concept and intent constructs in only matching domains provided further support for the distinctiveness and domain specificity of the self-concept structure of the trilingual sample. With the very low correlations among the self-concepts in the three language domains, it was impossible to argue for a single verbal self-concept to represent the self-concepts in these distinct domains.

Model 6: One Factor Model

As expected, Model 6 positing a single factor derived from 32 items did not fit the data (TLI = .12, RNI = .18) and the factor coefficients were unreasonable (-.34 to .94). Considering Models 5 and 6, there was strong support for the domain specificity of the four self-concept constructs considered here.

Table 2. CFA Solution for Model 5

	ENGSELF	MATSELF	CANSELF	MANSELF	ENGINT	MATINT	CANINT	MANINT
Variable	**Factor Coefficients**							
Item1	.89*	.93*	.76*	.91*	.98*	.97*	.99*	.97*
Item2	.89*	.94*	.73*	.89*	.99*	.98*	.99*	.98*
Item3	.90*	.94*	.90*	.95*	.76*	.77*	.77*	.75*
Item4	.94*	.98*	.96*	.95*	--	--	--	--
Item5	.96*	.97*	.95*	.97*	--	--	--	--
Uniquenesses								
Item1	.21*	.13*	.43*	.18*	.03*	.05*	.02*	.06*
Item2	.22*	.11*	.47*	.20*	.02*	.04*	.01	.29*
Item3	.19*	.11*	.20*	.10*	.42*	.41*	.41*	.43*
Item4	.12*	.03*	.08*	.10*	--	--	--	--
Item5	.09*	.05*	.10*	.06*	--	--	--	--
Factor Correlations								
ENGSELF	--							
MATSELF	.17*	--						
CANSELF	-.19*	.02	--					
PUTSELF	.09	.08	-.11*	--				
ENGINT	.66*	.06	-.20*	.05	--			
MATINT	.04	.78*	.05	.06	.08	--		
CANINT	-.30*	-.10*	.26*	.13*	-.27*	-.05	--	
PUTINT	.04	.02	-.06	.73*	.08	.09	.14*	--

Note: N = 437. The domain-specific self-concepts are English (ENGSELF), Math (MATSELF), Cantonese (CANSELF) and Mandarin (MANSELF). Intentions to teach in respective areas are ENGINT, MATINT, CANINT, and MANINT. Parameters estimates are completely standardized.
*p < .05

Discussion

As expected, the finding of a very low correlation between math and verbal (whether it be English, Cantonese, or Mandarin) self-concepts is consistent with previous studies (e.g., Marsh, 1986, 1990, 1993; Marsh & Shavelson, 1985; Marsh & Yeung, 1998; Yeung & Lee, 1999). The finding supports the

domain specificity of the academic self-concept constructs that has been emphasized in recent self-concept research. The significant correlations between self-concept and intent to teach in matching academic domains that are notably higher than correlations in nonmatching domains provided further support for the domain-specific relations of self-concept to other constructs.

The test of the four domain-specific self-concepts against the single-factor model may not be too interesting, given the known multi-faceted nature of self-concept. In contrast, the more interesting tests were those regarding the verbal constructs, and in particular the test of whether Mandarin and Cantonese should be one or two constructs, given the fact that they are both Chinese. In this respect, the present study provided an important extension of previous findings.

In examining the results in the present study, we found that a presumably representative construct of Verbal self-concept may be problematic in capturing the characteristics of multiple language domains. The negative correlation between Cantonese and English self-concepts in the present study (r = - .19) did not allow a single Verbal self-concept construct to represent the self-concepts in both the respondents' first language and their second language used mainly for academic purposes in a Hong Kong context (Table 2). The correlation between English and Mandarin self-concepts was also very low (r = .09). This correlation is similar to Bong's (1998) finding of a low correlation between self-concepts in a first language and a second language (i.e., English and Spanish in her study), and also similar to Lau, Yeung, and Jin's (1998) finding of a low correlation between English and Chinese self-concepts in university students of Hong Kong (r = .08). It is also consistent with the Yeung et al. (2000) finding of a negative correlation between self-concepts of English and languages other than English. Thus even though both Chinese and English languages presumably pertain to the verbal domain, they were not even positively correlated. This result casts doubt on the meaning of a single Verbal construct when the individual has two or more languages.

The finding of a negative correlation between Cantonese and Mandarin self-concepts (r = -.11) is most interesting. Even for the two Chinese languages that presumably pertain to a single Chinese domain, the self-concepts of these teachers in the two language domains were not even positively correlated. Together with previous findings, the present results cast doubt on the meaningfulness of a global verbal self-concept construct representing the distinctively different self-concepts of a trilingual in different language domains. In essence, verbal self-concepts could be more domain-specific than researchers might have assumed.

With the weak correlation between the self-concepts of the language domains considered in the present study, perhaps Marsh and Shavelson's modified model need to be further modified for speakers of multiple languages such that self-concepts in different language areas are considered separately. This consideration also seems to be supported by the I-E patterns found in the studies of Bong (1998), Lau et al. (1998) and Yeung et al. (2000). Hence the patterns found in the present study have important implications for further self-concept research. If the Verbal self-concept construct that is presumably representative of perceptions in all verbal areas can be questionable, we may start to be skeptical of the

representativeness of the math self-concept, and likewise all other constructs that have been assumed to be representative of a wider range of perceptions.

One major limitation for generalizing the finding that Mandarin and Cantonese are two separate constructs lies perhaps with the fact that it was an adult sample learning Mandarin as a new dialect. One may argue that for these adults, learning Mandarin would be like learning a second language such as English. Hence it would not be surprising that the self-concept of the second language would stand out as a separate construct. Thus the present finding of the distinctiveness of Mandarin and Cantonese self-concepts would need replication with younger samples for generalization. It would also be interesting to replicate the present findings with a sample of teachers teaching English. Because the proficiency of some English teachers could be even better than their own proficiency in Cantonese, the relationship of their self-concepts in English, Cantonese and Mandarin with their proficiency in these respective language domains would probably yield an interesting, complex pattern consistent with the Marsh (1986) I-E theory.

In sum, the present study has extended research based on self-concept models proposed by Shavelson et al. (1976) and Marsh & Shavelson (1985) that have provided a strong theoretical framework for self-concept research. In the present study, we found good support for the distinction of the Cantonese, Mandarin, English and Math self-concepts of the trilingual participants but did not find support for a single Verbal construct comprising more than one language. Thus future research with samples speaking multiple languages may require reconsideration of the "Verbal" self-concept construct that has often been assumed to be representative of self-concepts in all language domains.

References

Bollen, K.A. (1989). Structural equations with latent variables. New York: Wiley.

Bong, M. (1998). Tests of the internal/external frames of reference model with subject-specific academic self-efficacy and frame-specific academic self-concepts. Journal of Educational Psychology, 90, 102-110.

Byrne, B. M. (1996a). Academic self-concept: Its structure, measurement, and relation to academic achievement. In B. A. Bracken (Ed.), Handbook of self-concept (pp. 287-316). New York: Wiley.

Byrne, B. M. (1996b). Measuring self-concept across the lifespan: Issues and instrumentation. Washington, DC: American Psychological Association.

Byrne, B. M. (1998). Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming. Mahwah, NJ: Lawrence Erlbaum.

Byrne, B. M., & Gavin, D. A. W. (1996). The Shavelson model revisited: Testing for the structure of academic self-concept across pre-, early, and late adolescents. Journal of Educational Psychology, 88, 215-228.

Byrne, B. M., & Shavelson, R. J. (1987). Adolescent self-concept: Testing the assumption of equivalent structure across gender. American Educational Research Journal, 24, 365-385.

Chapman, J. W., & Tunmer, W. E. (1995). Development of young children's reading self-concept: An examination of emerging subcomponents and their relationship with reading achievement. Journal of Educational Psychology, 87, 154-167.

Chapman, J. W., & Tunmer, W. E. (1997). A longitudinal study of beginning reading achievement and reading

self-concept. British Journal of Educational Psychology, 67, 279-291.

Cross, S. E., & Markus, H. R. (1994). Self-schema, possible selves, and competent performance. Journal of Personality & Social Psychology, 86, 423-438.

Eccles, J. S., & Wigfield, A. (1995). In the mind of the actor: The structure of adolescents' achievement task values and expectancy-related beliefs. Personality and Social Psychology Bulletin, 21, 215-225.

Gonzalez-Pienda, J. A., Nunez-Perez, J. C., & Valle-Arias, A. (1992). Procesos de comparacion externa/interna, autoconcepto y rendimiento academico (External/internal processes of comparison, self-concept, and academic performance). Revista de Psicologia General y Aplicada, 45, 73-81.

Harter, S. (1996). Historical roots of contemporary issues involving self concept. In B. A. Bracken (Ed.), Handbook of self-concept (pp. 1-37). New York: Wiley.

Hattie, J. (1992). Self-concept. Hillsdale, NJ: Erlbaum.

Helmke, A., & van Aken, M. A. G. (1995). The causal ordering of academic achievement and self-concept of ability during elementary school: A longitudinal study. Journal of Educational Psychology, 87, 624-637.

HKSAR. (1997). Policy objectives: the 1997 policy address. Hong Kong: Hong Kong Special Administration Region Government.

HKSAR. (1998). Policy objectives: the 1998 policy address. Hong Kong: Hong Kong Special Administration Region Government.

Joreskog, K. G., & Sorbom, D. (1988). LISREL 7: A guide to the program and applications. Chicago: SPSS.

Joreskog, K. G., & Sorbom, D. (1993). LISREL 8: Structural equation modeling with SIMPLIS command language. Chicago: Scientific Software International.

Lau I. C. Y., Yeung, A. S., & Jin, P. (1998, July). Academic self-concept structure of higher education students. Paper presented at the annual conference of the Higher Education Research and Development Society of Australasia in Auckland, New Zealand. (ERIC Document Reproduction Service No. ED423771).

Lau, I. C. Y., Yeung, A. S., Jin, P., & Low R. (1999). Toward a hierarchical, multidimensional English self-concept. Journal of Educational Psychology, 91, 747-755.

Marsh, H. W. (1986). Verbal and math self-concepts: An internal/external frame of reference model. Educational Research Journal, 23, 129-149.

Marsh, H. W. (1987). The hierarchical structure of self-concept and the application of hierarchical confirmatory factor analysis. Journal of Educational Measurement, 24, 17-39.

Marsh, H. W. (1990). The structure of academic self-concept: The Marsh/Shavelson model. Journal of Educational Psychology, 82, 623-636.

Marsh, H. W. (1992). Self-Description Questionnaire II: Manual. New South Wales, Australia: University of Western Sydney, Macarthur, Faculty of Education, Publication Unit.

Marsh, H. W. (1993). Academic self-concept. Theory measurement and research. In J. Suls (Ed.), Psychological perspectives on the self (Vol. 4, pp. 59-98), Hillsdale, NJ: Erlbaum.

Marsh, H. W., Balla, J. R., & Hau, K. T. (1996). An evaluation of incremental fit indices: A clarification of mathematical and empirical process: In G. A. Marcoulides & R. E. Schumacker (Eds.), Advanced structural equation modeling techniques (pp. 315-353). Hillsdale, NJ: Erlbaum.

Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indices in comfirmatory factor analyses: the effect of sample size. Psychological Bulletin, 103, 391-410.

Marsh, H. W., Byrne, B., & Shavelson, R. J. (1988). A multifaceted academic self-concept: its hierarchical structure and its relations to academic achievement. Journal of Educational Psychology, 80, 366-380.

Marsh, H. W., & Hau, K. T. (1996). Assessing goodness of fit: Is parsimony always desirable? The Journal of Experimental Education, 64, 364-380.

Marsh, H. W., & Hocevar, D. (1985). The application of confirmatory factor analysis to the study of self-concept. First and higher order factor structures and their invariance across age groups. Psychological Bulletin, 97, 562-582.

Marsh, H. W., & O'Neill, R. (1984). Self-Description Questionnaire III (SDQIII): The construct validity of multidimensional self-concept ratings by late-adolescents. Journal of Educational Measurement, 21, 153-174.

Marsh, H. W., & Shavelson, R. J. (1985). Self-concept: Its multifaceted, hierarchical structure. Educational Psychologist, 20, 107-125.

Marsh, H. W., & Yeung, A. S. (1996). The distinctiveness of affects in specific school subjects: An application of confirmatory factor analysis with the National Educational Longitudinal Study of 1988. American Educational Research Journal, 33, 665-689.

Marsh, H. W., & Yeung, A. S. (1997a). Causal effects of academic self-concept on academic achievement -- structural equation models of longitudinal data. Journal of Educational Psychology, 89, 41-54.

Marsh, H. W., & Yeung, A. S. (1997b). Coursework selection: Relations to academic self-concept and achievement. American Educational Research Journal, 34, 691-720.

Marsh, H. W., & Yeung, A. S. (1998). Longitudinal structural equation models of academic self-concept and achievement: Gender differences in the development of math and English constructs. American Educational Research Journal, 35, 705-738.

Muijs R. D. (1997). Predictors of academic achievement and academic self-concept - a longitudinal perspective. British Journal of Education Psychology, 67, 263-277.

Pedhazur, E. J., & Schmelkin, L. P. (1991). Measurement, design, and analysis: An integrated approach. Hillsdale, NJ: Erlbaum.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept validation of construct interpretations. Review of Educational Research, 46, 407-441.

Skaalvik, E. M., & Rankin, R. J. (1995). A test of the internal/external frame of reference model at different levels of Math and Verbal self-perception. American Educational Research Journal , 32, 161-184.

Suliman, R., McInerney, D. M., & Yeung, A. S. (1998, April). Relations between students'motivational goals, linguistic proficiency and academic achievement. Paper presented at the annual conference of the American Education Research Association in San Diego, CA.

Tay, M. P., Licht, B. G., & Tate, R. L. (1995). The internal/external frame of reference in adolescents' math and verbal self-concepts: A generalization study. Contemporary Educational Psychology, 20, 392-402.

Vispoel, W. P. (1995). Self-concept in the arts. An extension of the Shavelson model. Journal of Educational Psychology, 87, 134-145.

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. Developmental Review, 12, 1-41.

Yeung, A. S., Chui, H. S., & Lau I. C. Y. (1999). Hierarchical and multidimensional academic self-concept of commercial students. Contemporary Educational Psychology, 24, 376-389.

Yeung, A. S., Chui, H-S., Lau, I. C-Y., McInerney, D. M., & Russell-Bowie, D., & Suliman, R. (2000). Where is the hierarchy of academic self-concept? Journal of Educational Psychgology, 92, 556-567.

Yeung, A. S., & Lee, F. L. (1999). Self-concept of high school students in China: Confirmatory factor analysis of longitudinal data. Educational and Psychological Measurement, 59, 431-450.

Appendix

Self-concept and Intent Scales in the Present Study

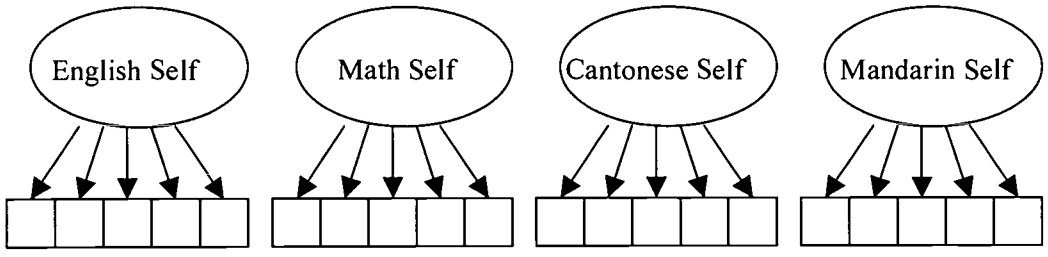
	English	Math	Cantonese	Mandarin
Alpha Reliabilities of Self-concept Scales	.96	.98	.93	.97
1. Compared to other subjects I am good at (domain)				
2. I often get good marks in (domain) courses				
3. (Domain) is easy for me in my daily work				
4. I learn things quickly in (domain)				
5. I do things well with (domain)				
Alpha Reliabilities of Intent Scales	.93	.93	.94	.92
1. If I can choose again I will surely teach (domain)				
2. If I can choose now I will certainly teach (domain)				
3. I will not teach (domain) if I don't have to.				

Note: The wording of items in the self-concept and intent scales was parallel across four domains. The responses of self-concept and intent items ranged from 1 (strongly agree) to 8 (strongly disagree) and were coded such that higher scores reflected more favorable responses.

Figure 1. CFA Models Tested

Note: * correlation expected to be statistically significant ($p < .05$)

Model 1



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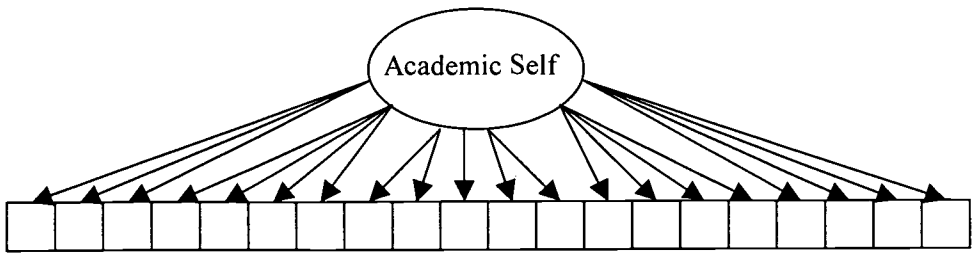

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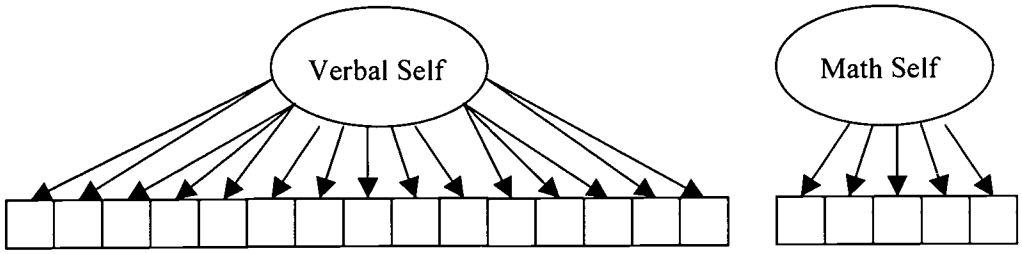

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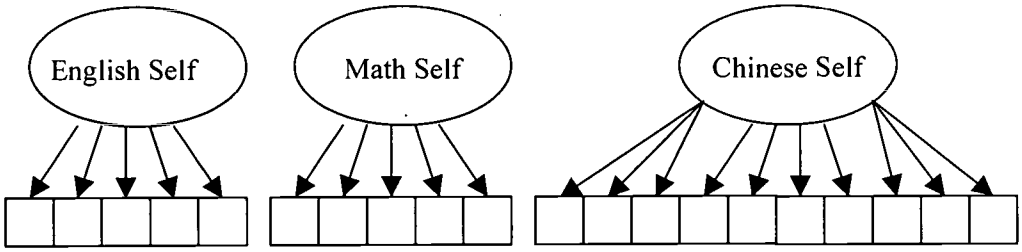

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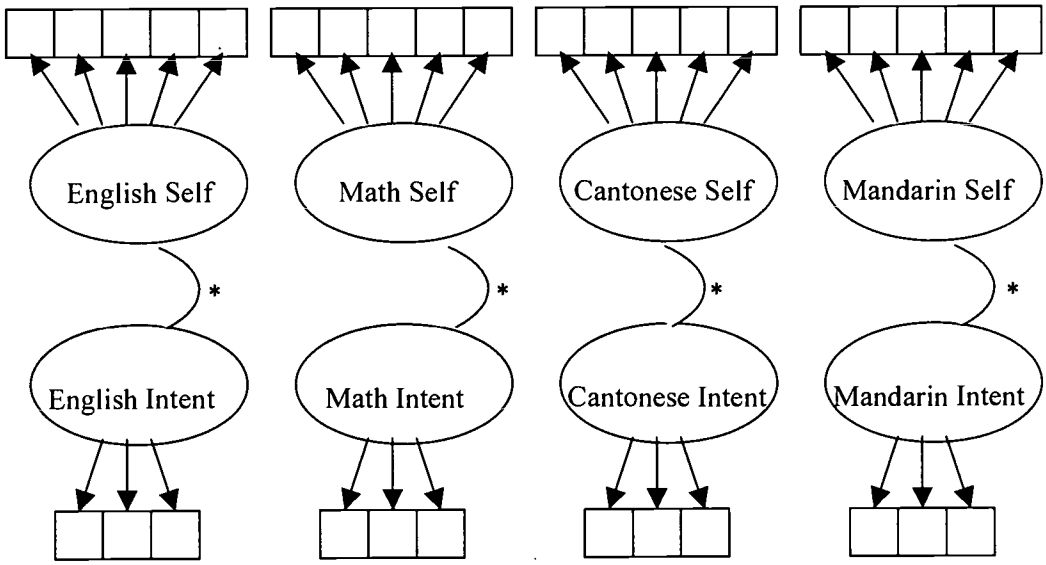
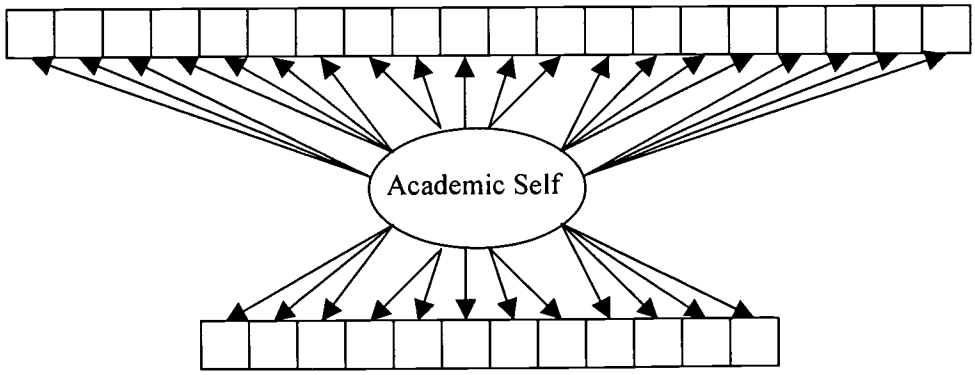


Model 6



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