

Investigating Academic Self-Concept among EFL College Students of Different Proficiency Levels

Hui-ju Liu

Assistant Professor of Department of English Language,
Da-Yeh University

Abstract

Findings in substantial research studies suggest that students' academic self-concept may be important determinants of their relative performance. This study intends to assess the English self-concept among college students of different proficiency levels in the Taiwanese EFL context. The subjects comprised 181 freshmen who were assigned to different groups for instruction on the basis of their English proficiency before participating in the study. Statistical methods were conducted to investigate: (1) how the full sample perceives their academic confidence, and academic effort, and overall English self-concept? in a more positive or negative direction? (2) whether there are significant differences in academic confidence, perceived academic effort, and overall self-concept among students of different ability levels, and (3) whether there are significant gender differences in academic self-concept. The research findings indicate that the majority of students perceive their academic effort in the positive direction, whereas they appear to have more reservations about questions concerning their perceptions of academic confidence. Also, ability level has a highly significant effect on students' academic confidence, effort, and overall self-concept, with low-ability students having the lowest mean values for these variables and high-ability students having the highest mean values. The only significant gender effect is for perceived academic effort. Females have significantly higher perceived academic effort than their male counterparts. They also have higher academic confidence and overall self-concept, although the differences are not significant.

Keywords : academic self-concept, academic achievement, gender differences

不同能力等級的EFL大學生 學業自我概念之分析

劉慧如

大葉大學英美語文學系助理教授

摘 要

許多的研究結果顯示學業自我概念乃是學習成就的重要決定因素。本研究主要是分析不同能力等級的台灣EFL大學生的英語學業自我概念。研究樣本包括181位大學一年級的新生，他們在參與本研究前就已依其英語能力被編入不同等級的班級。統計方法的使用是在探究下列三個問題：(1) 學生們對自己在英語學業方面的自信、努力與整體自我概念的認知是傾向較為正面或較為負面？(2) 學生們對英語學業方面的自信、努力與整體自我概念的認知是否因不同能力等級而有顯著的差異？(3) 學生的學業自我概念是否存在顯著的性別差異？研究結果顯示大多數的學生對於自己在學業努力方面的認知較為正面，但對與自信相關的問題態度則較為保留。能力等級對學生在英語學業方面的自信、努力與總的自我概念都存在有高度的顯著效果，初級班的學生得到這些變數的最低平均數，而高級班的學生得到最高平均數。唯一顯著的性別差異在於對學業方面努力的自我認知，女性在英語學業方面的努力顯著高於男性，她們也有較高的自信與學業自我概念，但差異並不顯著。

關鍵詞：學業自我概念、學習成就、性別差異

INTRODUCTION

Academic self-concept can be defined as students' perceptions of their competence of, involvement in, and interest in school subjects (Ireson, & Hallam, 2008b; Liu, Wang, & Parkings, 2005). According to a multi-dimensional and hierarchical model of self-concept proposed by Shavelson, Hubner, and Stanton (1976), there are several facets of self-concept. Academic self-concept is one component of overall self-concept, and can be further divided into specific-subject self-concepts in areas such as math and English (Byrne & Shavelson, 1987; Marsh, 1994). Sanchez & Roda (2003) noted that for self-concept at the lower end of the hierarchy the model becomes more specific. A student can have positive self-concept in one specific domain and a negative self-concept in a different domain (Marsh & Hau, 2003). Researchers suggest that there is a need for teachers to be concerned about students' academic self-concepts as they may be important determinants of their relative performance in different academic domains.

Strein (1995) noted that most published self-concept measures now focus on specific self-concepts and support the multifaceted view of the self-construct. One example is the scales, Self-Description Questionnaire (SDQ) I, II, III, used by Marsh and his

colleagues (Marsh, 1990, 1994; Marsh & O'Neill, 1984; Marsh, Relich, & Smith, 1983; Marsh & Yeung, 1997). The academic self-concept used in the present study is operationally defined as students' perception of their competence and "their commitment to, and involvement in and interest in schoolwork," as suggested by Liu, Wang, and Parkins (2005).

Although there is a weak relationship between academic achievement and general self-concept (Byrne, 1988; Hansford & Hattie, 1982), a stronger relationship was found between academic achievement and specific content-related academic self-concept by Marsh and his colleagues (Marsh, Byrne, & Shavelson, 1988; Marsh, Byrne, & Yeung, 1999; Marsh, Kong, & Hau, 2001; Marsh, Parker, & Barnes, 1985; Marsh & Yeung, 1997, 1998). Concerning the relation between academic self-concept and academic achievement, many researchers support the reciprocal effects model, which implies that these two academic variables are related to each other in a reciprocal manner (Guay, Marsh, & Boivin, 2003; Muijs, 1997). It is suggested that teachers should not only foster students' academic achievement but also increase their self-concept. Otherwise, the gains in academic performance may be "short-lived" (Marsh, Hau, & Kong, 2002; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005).

The impact of ability grouping on academic self-concept has also been reported in numerous research studies (Ireson & Hallam, 2008a; Wong & Watkins, 2001). However, there are conflicting results regarding the relationship between the grouping practice and students' self-perceptions. According to Kulik and Kulik (1982), the grouping effect on students' self-concept is negligible. There is no evidence of harmful grouping effect. Ireson, Hallam, & Plewis (2001) found that ability grouping tended to improve the English self-concept of low-performing students. On the other hand, Marsh (1994) proposed that the "Big-Fish-Little-Pond Effect" (BFLPE) results in lower academic self-concept when students compare their academic performance with their higher-ability peers. The BFLPE has clear negative effect on academic self-concept but little or no effect on general self-concepts (Marsh & Hau, 2003; Marsh, Kong, & Hau, 2000). In two studies of the effects of gifted and talented programs on academic self-concept over time, Marsh, Chessor, Craven, and Roche (1995) found that students in G&T programs experienced a decline in three components of academic self-concept, namely reading, math, and school, but the effects on four nonacademic self-concepts were found to be insignificant. Liu et al. (2005) tended to support the above-mentioned BFLPE effect that students

comparing themselves with other high-ability peers are likely to lower their self-evaluations.

Significance of the Study

It is important to determine whether EFL students of different proficiency levels have different perceptions toward their academic self-confidence, effort, and overall academic self-concept. The significance of the study is supported by the following findings in the review of the literature.

First, academic self-concept is one of the constructs that has been extensively researched (Skaalvik & Skaalvik, 2002). It has attracted the interest of numerous researchers in educational psychology in Western countries. Its reciprocal relationship with academic achievement has also been the subject of considerable research. Nonetheless, not much work on this construct has been done in the Taiwanese EFL context.

Second, gender differences have been the focus of numerous research studies. Substantial research from the West have examined gender differences in mathematics self-concept and verbal self-concept of adolescents and consistently revealed that males have higher mathematics self-concept than females, whereas females tend to have significantly higher verbal self-concept (Dai, 2001). Bryne and Shavelson (1987)

suggested that adolescent females have higher English self-concept than males. They also noted that there are inconsistent findings on gender differences in self-concept/achievement relation. While many studies have also assessed gender differences in academic self-concept (Liu & Wang, 2005; Marsh 1989; Marsh & Yeung, 1998), fewer have focused on gender differences in English self-concept (Byrne & Shavelson, 1987; Marsh, Parker, & Barnes, 1985), not to mention research in the Taiwan setting.

Third, organizing students into different ability levels of English classes has become a common pedagogical practice in many universities in Taiwan. Of the research studies conducted in Taiwan in this area, most focus on inquiring into students' attitudes toward the implementation of the grouping practice rather than examining other aspects of their own learning process.

Due to lack of understanding of students' perceptions toward themselves as the foreign language learners, it is important to conduct this study to examine students' English self-concept and further to investigate whether proficiency level and gender have any significant effects on the specific-subject self-concept of the EFL students in Taiwan. The findings should provide useful reference for English teachers who are facing the great challenge of instructing students of a wide disparity in

language proficiency.

Research Questions

The purpose of the present study is to address the following research questions: (1) Do EFL students generally perceive their academic self-confidence, academic effort, and overall English self-concept in a more positive or negative direction? (2) Does proficiency level has any significant effect on students' academic self-confidence, academic effort, and overall English self-concept? (3) Are there significant gender differences in students' academic self-confidence, academic effort, and overall English self-concept? The results are expected to serve as an important reference for teachers in understanding and enhancing students' academic self-concept.

METHOD

Subjects

The subjects were 181 college freshmen, 78 (43%) males and 103 (57%) females, from a regular private university in central Taiwan. No matter their majors, all were assigned to different ability groups for English instruction on the basis of their performance in the intermediate level GEPT listening and reading tests after entering the university. Two classes of students from each ability level, namely basic,

不同能力等級的EFL大學生學業自我概念之分析

intermediate, and advanced, were selected as participants. They were all administered the academic self-concept instrument at the

beginning of their first academic year. Table 1 presents the numbers and percentages of subjects of each sex in each ability group.

Table 1

Numbers and Percentages of Males and Females of Different Ability Levels

	Basic N (%)	Intermediate N (%)	Advanced N (%)	Total N (%)
Male	25 (46.3%)	35 (59.3%)	18 (26.5%)	78 (43.1%)
Female	29 (53.7%)	24 (40.7%)	50 (73.5%)	103 (56.9%)
Total	54	59	68	181

Instrument

A 19-item questionnaire adapted from Liu, Wang and Parkins's (2005) academic self-concept (ASC) scale was administered to students at the beginning of the semester shortly after being grouped. It comprised two subscales, the academic confidence (AC) and the academic effort (AE) subscales. Liu et al. (2005) established that students' perceived academic confidence and effort are two first-order factors of ASC scale. After the scale was revised and translated into a Chinese version to be used in the Taiwanese context, the scale was a 6-point Likert-type response format, ranging from strongly disagree (1) to strongly agree (6). Reliability (internal consistency) of the ASC scale, the AC, and the AE subscales in the

current study were found to be .89, .87 and .83, respectively.

Data Analysis

In order to have a better understanding of EFL student English self-concept, statistical analyses were conducted to address the research questions. First, to investigate how students perceive their academic confidence, academic effort, and overall self-concept in English, percentages of the full sample's responses to the questionnaire were calculated. Second, to assess whether students of different ability levels and gender differ in their academic self-concept, a two-way (2 x 3) multivariate analysis of variance (MANOVA) was used to analyze the data.

RESULTS AND DISCUSSION

Analysis of Percentage Differences

In order to have a better understanding of EFL students' academic self-concept in English, percentages of the 181 participants' responses to the ASC scale were calculated (see Table 2). The questionnaire used in the study was divided into two subscales, the 9-item academic confidence (AC) subscale and the 10-item academic effort (AE) subscale. Academic

confidence subscale assesses students' competence perceptions in learning English as a foreign language. The academic effort subscale examines students' willingness to work hard in English coursework and their involvement and interest in learning the language.

For the 9-item academic confidence subscale, the only two questions that the overwhelming majority of the full sample responded to in the positive academic

Table 2

Percentages of Students' Responses to Questions about Academic Self-Concept

Item Number	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
AC subscale						
1.	1.7	3.3	12.2	47.0	27.1	8.8
3.	8.8	16.6	35.9	27.6	10.5	0.0
5.	0.6	2.2	6.1	30.9	37.0	23.2
7. *	3.9	3.3	19.9	35.9	29.3	7.7
9. *	5.5	16.0	24.9	32.6	15.5	5.0
11. *	5.0	12.7	23.8	31.5	18.2	8.8
14.	7.2	14.4	33.7	24.9	16.0	3.3
16. *	5.5	13.8	22.7	29.3	21.0	7.7
18	8.3	15.5	44.8	24.3	6.1	1.1
.....						
AE subscale						
2. *	13.8	30.4	23.2	26.0	5.0	1.7
4. *	13.8	32.6	23.8	23.8	5.5	0.6
6.	1.1	0.6	19.3	40.9	28.7	9.4
8.	0.6	5.0	18.8	37.0	32.6	5.5
10.	2.2	6.6	22.1	34.8	22.1	12.2
12.	0.0	0.0	5.5	33.7	45.3	15.5
13.	2.8	1.7	6.6	9.9	27.1	51.9
15. *	3.9	9.9	29.3	37.6	9.4	8.8
17.	1.1	1.1	16.6	44.2	29.8	6.6
19. *	19.9	30.4	32.0	12.2	5.0	0.6

Note. AC = Academic Confidence; AE = Academic Effort

* negatively worded items

不同能力等級的EFL大學生學業自我概念之分析

self-concept direction were questions 1 and 5. Over 80% of the full sample showed varying degree of confidence about questions concerning whether they think they can easily follow the lessons in English class and whether they believe they can achieve their academic goal if they work hard. The majority of students answered three of the questions in the negative direction (questions 3, 7, and 18), which indicates low academic confidence. Students show more dispersion in their responses to the other 4 questions in the AC subscale. For instance, when asked if they think that their teachers feel that they perform poorly in their English coursework, 53.1% responded in the negative direction, while 46.4% responded in the positive direction. As to the AE subscale, the majority of students answered 9 of the 10 questions in the positive academic effort direction. The only question in which

there is more deviation among responses is question 15, which asks students whether they always wait for the English lessons to end. The findings show that students are more likely to perceive their academic effort in the positive direction, whereas they tend to have more reservations about questions concerning their perceptions of academic confidence. Further examination of the descriptive statistics also reveals that students have lower means of item scores in terms of academic confidence when compared with perceived academic effort.

Analysis of Mean Differences

Table 3 presents the means and standard deviations of the ASC scale and subscale total scores for students of different ability levels. As shown in both Table 3 and Figure 1, students grouped in the lower-ability level have the lowest means of ASC scale and

Table 3

Descriptive Statistics of Students' Self-Concept Scale and Subscale Scores

	Basic Level		Intermediate Level		Advanced Level	
	Male	Female	Male	Female	Male	Female
AC subscale						
Mean	26.24	28.79	32.17	31.92	33.89	34.34
SD	6.58	8.00	7.29	5.51	7.35	6.74

AE subscale						
Mean	36.92	40.83	41.69	44.00	44.11	46.08
SD	7.59	7.17	6.74	5.32	6.89	6.11

ASC scale						
Mean	63.16	69.62	73.86	75.92	78.00	80.42
SD	11.75	13.59	12.97	8.16	12.61	11.34

Note. AC = Academic Confidence; AE = Academic Effort; ASC = Academic Self-Concept

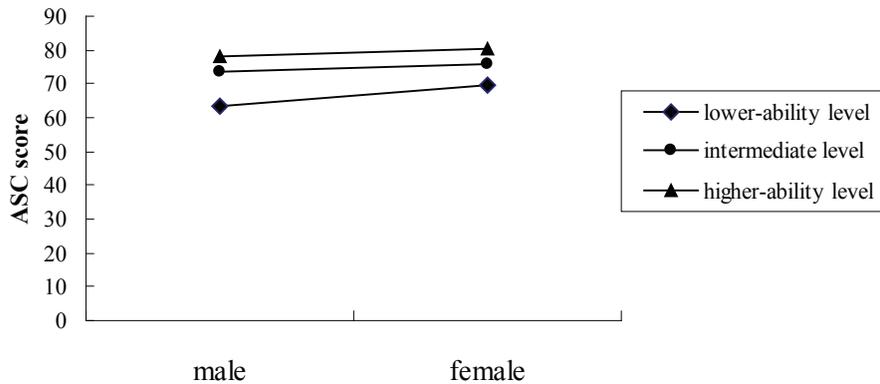


Figure 1: Cell Means of Overall ASC Scores for Each Sex and Ability Level

subscale scores, while high-achieving students have the highest means for all scale and subscale scores. Students in the intermediate level have the second highest mean scores as compared with their peers in the other two ability groups.

To address the second and third research questions concerning whether

there are significant level and gender differences in academic self-concept, a two-way multivariate analysis of variance (MANOVA) was conducted. First, the MANOVA test was used to analyze whether there are significant level and gender differences in academic confidence (see Table 4).

不同能力等級的EFL大學生學業自我概念之分析

Table 4

Multivariate Analysis of Variance Test Results for Academic Confidence

Source of Variation	df	Mean Square	F	F-prob.
Level	2	609.38	12.58	.000 **
Sex	1	34.32	0.71	.401
Level x Sex	2	29.17	0.60	.549
Error	175	48.45		

** p < .001

Results show that there are significant level differences in students' academic confidence. Since there is no significant interaction effect between level and sex, the Scheffe test was employed to make post hoc comparisons among these three group means. The results indicate that the lower-achieving group has significantly lower mean value than the intermediate and the advanced group. The intermediate level and advanced level are grouped as a subset because their mean difference in academic confidence is not significant. The gender effect on academic confidence is also non-significant.

Second, MANOVA test was used to

assess students' perceived academic effort. The results are reported in Table 5. The findings reveal that both level effect and gender effect are significant. There is no significant interaction effect between level and sex. Students in the lowest ability level have the lowest mean value as compared with the other groups. The high-achieving group has the highest mean value of academic effort. The Scheffe follow-up test result reveals no significant level differences between the average group and the advanced group. Findings also show that female students have significantly higher mean value than their male counterparts.

Table 5

Multivariate Analysis of Variance Test Results for Academic Effort

Source of Variation	df	Mean Square	F	F-prob.
Level	2	530.39	12.13	.000 **
Sex	1	304.57	6.96	.009 *
Level x Sex	2	14.37	0.33	.720
Error	175	43.74		

** p < .001

Table 6

Multivariate Analysis of Variance Test Results for Academic Self-Concept

Source of Variation	df	Mean Square	F	F-prob.
Level	2	2275.11	16.10	.000 **
Sex	1	543.36	3.85	.051
Level x Sex	2	81.03	0.57	.565
Error	175	141.33		

** p < .001

Finally, multivariate analysis of variance was used to examine students' overall English self-concept. Table 6 presents the findings. There is statistically significant main level effect on overall academic self-concept. Both the gender and interaction effect between level and sex are non-significant. Results of post hoc multiple comparisons consistently show that students in the advanced level have the highest mean value of academic self-concept. The lower-achieving group has the lowest mean value. The mean difference in English self-concept between the intermediate group and advanced group is non-significant.

SUMMARY AND CONCLUSION

Since not much work has been done in Taiwan to examine the academic self-concept of college students, the focus of the present study is on assessing the academic

confidence, perceived effort, and the overall academic self-concept of Taiwanese college students. Also, this study assesses level and gender effects on the English self-concept of these EFL students.

The results suggest that students tend to give higher scores to questions concerning self-perceived academic effort on English coursework than to questions about their academic confidence in learning this foreign language. When asked about perceived academic confidence, they tend to have more reservations.

There are highly significant level effects on all of the students' academic self-concept scale, academic confidence, and academic effort subscale scores. Not surprisingly, post hoc test results reveal that lower-ability students have the lowest academic self-concept, while high ability students have the highest mean scores for the construct and its subscale scores. Although students placed in the average

group have lower English self-concept than their higher-ability counterparts, the difference was found to be statistically non-significant. It has to be acknowledged that this investigation was conducted shortly after the grouping practice started. The research findings not only show support for the existence of academic self-concept/achievement relationship, but also suggest that academic self-concept is the consequence of prior academic performance.

MANOVA test results reveal that there are no significant gender effects on academic confidence and overall academic self-concept. The only significant gender effect was found for perceived academic effort. The result is consistent with Liu and Wang's (2005) findings that females have higher perceived academic effort scores than males. However, this study disagrees with Liu and Wang's (2005) findings that male students have higher academic confidence than their female counterparts, though the difference is non-significant. This current investigation suggests that female students not only have higher perceived academic confidence but also higher overall academic self-concept than their male counterparts, although the differences are not significant.

Academic self-concept has been regarded as an important component of student learning process. As aforementioned, many researchers agree that academic

self-concept and achievement are likely to influence each other in a reciprocal manner (Guay, Marsh, & Boivin, 2003; Marsh & Yeung, 1997). Analysis of longitudinal data shows that academic self-concept can be a cause and an effect of academic accomplishments (Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005). In order to enhance student school performance, teachers should help students attain more positive self-concept in related academic domains, so that the gains in school performance can be long-term and stable (Marsh, Hau, & Kong, 2002; Marsh, Trautwein, Lüdtke, Köller & Baumert, 2005). Helping students maintain a positive self-concept should be one of the most important objectives in educational practice.

One major limitation of the current study is that the data were collected on only one occasion. Research findings have shown that academic self-concept is subject to change over the course of study, particularly during adolescence. In order to have a more comprehensive understanding of academic self-concept, a longer term longitudinal investigation of the construct is needed. An important direction for subsequent research is to assess (1) various factors resulting in the change in academic self-concept and (2) the relation between academic self-concept and academic performance with longitudinal data collected in the Taiwan setting.

REFERENCES

- Byrne, B. M. (1988). Adolescent self-concept, ability grouping and social comparison: Reexamining academic track differences in high school. *Youth & Society*, 20 (1), 46-67.
- Byrne, B. M., & Shavelson, R. J. (1987). Adolescent self-concept: Testing the assumption of equivalent structure across gender." *American Educational Research Journal*, 24 (3), 365-385.
- Dai, D. Y. (2001). A comparison of gender differences in academic self-concept and motivation between high-ability and average Chinese adolescent. *Journal of Secondary Gifted Education*, 13(1), 22-32.
- Guay, F., Marsh, H. W., & Boivin, M. (2003). Academic self-concept and academic achievement: developmental perspectives on their causal ordering. *Journal of Educational Psychology*, 95, 124-136.
- Hansford, B. C., & Hattie, J. A. (1982). The relationship between self and achievement/performance measures. *Review of Educational Research*, 52(1), 123-142.
- Ireson, J., & Hallam, S. (2008a). Academic self-concepts in adolescence: Relations with achievement and ability grouping in schools. *Learning and Instruction*, 18 (4), 1-12.
- Ireson, J., & Hallam, S. (2008b). Raising standards: is ability grouping the answer? *Oxford Review of Education*, 25 (3), 343-357.
- Ireson, J., Hallam, S., & Plewis, I. (2001). Ability grouping in secondary schools: Effects on pupils' self-concepts. *British Journal of Educational Psychology*, 71, 315-326.
- Kulik, C. -L. C. & Kulik, J. A. (1982). Research synthesis on ability grouping. *Educational Leadership*, 39 (8), 619-621.
- Liu, W. C., & Wang, C. K. J. (2005). Academic self-concept: A cross-sectional study of grade and gender differences in a Singapore secondary school. *Asia Pacific Education Review*, 6 (1), 20-27.
- Liu, W. C., Wang, C. K. J., & Parkins, E. J. (2005). A longitudinal study of students' academic self-concept in a streamed setting: The Singapore context. *British Journal of Educational Psychology*, 75, 567-586.
- Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology*, 81, 417-430.
- Marsh, H. W. (1990). The structure of academic self-concept: The Marsh/Shavelson model. *Journal of Educational Psychology*, 82 (4), 623-636.
- Marsh, H. W. (1994). Using the national longitudinal study of 1988 to evaluate theoretical models of self-concept: The

不同能力等級的EFL大學生學業自我概念之分析

- self-description questionnaire. *Journal of Educational Psychology*, 86, 439-456
- Marsh, H. W., Byrne, B. M., & Shavelson, R. (1988). A multifaceted academic self-concept: Its hierarchical structure and its relation to academic achievement. *Journal of Educational Psychology*, 80, 366-380.
 - Marsh, H. W., Byrne, B. M., & Yeung, A. S. (1999). Causal Ordering of Academic Self-Concept and Achievement: Reanalysis of a Pioneering Study and Revised Recommendations. *Educational Psychologist*, 34 (3), 155-167.
 - Marsh, H. W., Chessor, D., Craven, R., & Roche, L. (1995). The effects of gifted and talented programs on academic self-concept: The big fish strikes again. *American Educational Research Journal*, 32 (2), 285-319.
 - Marsh, H. W. & Hau, K. T. (2003). "Big fish little pond effect on academic self-concept: A cross-cultural (26 country) test of the negative effects of academically selective schools." *American Psychologist*, 58, 364-376.
 - Marsh, H. W., Hau, K.-T. & Kong, C.-K. (2002). Multilevel causal ordering of academic self-concept and achievement: Influence of language of instruction (English compared with Chinese) for Hong Kong students. *American Educational Research Journal*, 39 (3), 727-763.
 - Marsh, H. W., Kong, C.-K., & Hau, K.-T. (2000). Longitudinal multilevel models of the big-fish-little-pond effect on academic self-concept: counterbalancing contrast and reflected-glory effects in Hong Kong schools. *Journal of Personality and Social Psychology*, 78 (2), 337-349.
 - Marsh, H. W., Kong, C.-K., & Hau, K.-T. (2001). Extension of the internal/external frame of reference model of self-concept formation: Importance of native and nonnative languages for Chinese students. *Journal of Educational Psychology*, 93 (3), 543-553.
 - Marsh, H. W. & O'Neill, R. (1984). Self description questionnaire III: The construct validity of multidimensional self-concept ratings by late adolescents. *Journal of Educational Measurement*, 21 (2), 153-174.
 - Marsh, H. W., Parker, J., & Barnes, J. (1985). Multidimensional adolescent self-concepts: Their relationship to age, sex and academic measures. *American Educational Research Council*, 22, 422-444.
 - Marsh, H. W., Relich, J. D., & Smith, I. D. (1983). Self-concept: The construct validity of interpretations based upon the SDQ. *Journal of Personality and Social Psychology*, 45 (1), 173-187.
 - Marsh, H. W., Trautwein, U., Lüdtke, O., Köller, O. & Baumert, J. (2005). Academic self-concept, interest, grades, and standardized test scores: reciprocal

- effects models of causal ordering. *Child Development*, 76 (2), 397-416.
- Marsh, H. W., & Yeung, A. S. (1997). Causal effects of academic self-concept on academic achievement: Structural Equation models of longitudinal data. *Journal of Educational Psychology*, 89 (1), 41-54.
 - 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 Educational Psychology*, 67, 263-277.
 - Sanchez, F. J. P., & Roda, M. D. S. (2003). Relationships between self-concept and academic achievement in primary students.” *Electronic Journal of Research in Educational Psychology and Psychopedagogy*, 1, 95-120.
 - 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., & Skaalvik, S. (2002). Internal and external frames of reference for academic self-concept. *Educational Psychologist*, 37 (4), 233-244.
 - Strein, W. (1995). Assessment of self-concept. *ERIC Digest*. Retrieved from <http://www.ericdigests.org/1996-3/self.htm>
 - Wong, M. S. W. & Watkins, D. (2001). Self-esteem and ability grouping: a Hong Kong investigation of the Big Fish Little Pond Effect. *Educational Psychology*, 21 (1), 79-87.