

Re-visit Reference Group Theory and the Contrast and Assimilation Effect of the Big-Fish-Little-Pond

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Abstracts

The key purpose to our research is to get a thorough understanding of the impact of school and class context on individual's self-esteem and academic achievement. Two effects are considered with a SEM research model including other's performance on an individual's self-esteem, the contrast and assimilation effect, and different influences from reference groups. The analysis shows that friendship network has a negative effect on an individual's self-esteem while having a positive effect on a student's academic achievement. The effects of friends on an individual's self-esteem are from both the contrast and assimilation. Students will be proud to own an outstanding 'friend' but will feel stressful with outstanding 'friends'. Besides, class and school effect didn't significantly make an impact on students' self-esteem. The study concluded that friends an individual nominated have the most significant influence on students' self esteem and academic achievement, though the influences are oppositely.

Key Words: the Big-Fish-Little-Pond effect, self-esteem, academic achievement, friendship network Reference Group Theory

Re-visit Reference Group and the Contrast and Assimilation Effect of the Big-Fish-Little-Pond Effect

A central tenet the social comparison theory holds is that people evaluate themselves by comparing their attributes and outcomes with others (Festinger, 1954). People feel better when compared with those who are worse and feel down when compared with those outstanding, which implies that students who attend academically selective schools will experience lower academic self-concepts than students who possess equivalent abilities but attend less academically selective schools, representing a so-called negative big-fish-little-pond effect (BFLPE). BFLPE predicts that different school students with the same ability will use correspondingly different frames of reference in evaluating their own academic accomplishments, and this process will affect their academic self-concepts and subsequent academic outcomes. But answers to questions such as how students choose their reference groups as they evaluate their academic achievements, to what extent the impacts of the different reference groups, when will students view their friends as a reference group while making social comparison, and When will they take class or school average academic achievements as their standards to evaluate their own performance still remain unclear. In order to clarify the relationships among one's self-esteem, academic achievement, and others' academic achievement, this study is aimed to differentiate the diverse effects between different reference groups.

The Big-Fish-Little-Pond Effect

Davis (1966) applied the theory of relative deprivation to career decisions of college man and proposed the frog-pond theory, finding out that there was a tendency for students to evaluate their academic ability by comparing theirs with their fellows on the same campus, instead in terms of the criteria which allowed for school differences in ability levels. Marsh (Marsh, 1987; Marsh, 1990; Marsh, 1994; Marsh, Hey et al., 1997; Marsh, Kong et al., 2000; Marsh and Hau 2003; Marsh, Hau et al., 2004) then followed this point of view and proposed the big-fish-little-pond effect, mainly arguing that students' self-esteem will be positively related to their own academic achievement and negatively related to others' academic achievements. Such argument means that a student's self-esteem will get a decline when he or she has high-performance friends or classmates. Following this viewpoints, it seems proper to advice most students to go into a little pond since it's better to be a big frog in a small pond than to be a small frog in a big pond if a student's self-esteem is under a serious consideration.

According to the BFLP theory, two factors are crucial in determining an

individual's self-esteem, namely, the self evaluation maintenance process and the frame of reference, with which his or her perceptions are formed. The present study will later discuss each separately and explore the process how this two factors predict a student's self-esteem.

Self-evaluation maintenance model

The self-evaluation maintenance model (SEM) assumes that persons behave so as to maximize a gain or minimize a loss in their self-evaluation. It also assumes that self-evaluation is partially dependent on one's associations with others. According to the model, others affect an individual's self-evaluation by two processes: a reflection process and a comparison process (Pleban & Tesser, 1987).

Reflection refers to people's tendency to point out their association with others who perform well by noting similarities in background, religion, nationality, etc. For example, Jews will point out that Einstein and Freud were also Jewish. It seems that they point out these associations simply to bask in reflected glory of successful others by merely associating with distinguished individuals or joining highly valued social groups. That is, such associations appear to raise the individual's self-evaluation.

Comparison indicates that people evaluate their own performance in comparison to others' performance and their academic self-concept should decline when he found there are a lot of students better than himself. Comparison is dependent on the interactive combination of closeness and performance. The better the other's superior performance, the greater the blow to one's own self-evaluation if the other is close.

Marsh, Kong and Hau(2000) specifically looked at the juxtaposition of the negative BFLPE and the positive reflected-glory effects and found that the negative BFLPE is the net effect of counterbalancing influences, stronger negative contrast effects, and weaker position assimilation effects so that controlling perceived school status led to purer—and even more negative—contrast effects. In their study, perceived school status were positive relate to one's academic self-concept and school average academic achievement were negative relate to one's academic self-concept. They thought that the positive relationship between perceived school status and self-concept should be viewed as the effects of reflected-glory and the negative relationship between school average achievement and one's own self-concept was the negative BFLPE. Adding the two effects together, average school academic achievement even had more negative effect on self-concept. But the effect of perceived school status could also be viewed as that students' broaden the scope of the frame of reference. How these effects spread out when considering different reference group? This is the first research question we hope to clarify.

Reference-group theory

Reference-group theory asserts that people's self-evaluations are determined not only by their objective position but also by their standing relative to specific persons with whom they compare. Because an individual's self-evaluations can rise or fall depending on which group he looks to when making comparative judgments, specifying the conditions under which people select one or another comparative reference-group would appear to be vital to a more complete elaboration of reference-group theory.

Davis(1966) found that there is a tendency for students to evaluate their academic ability by comparison with their fellows on the same campus, not in terms of criteria which allow for school differences in ability level. Bassis(1977) indicated that students employ a wider comparative referent than that found on their own campus in order to assess their prospects for moving into more broadly based frog ponds upon graduation. But Wong & Watkins (2001) found that students of lower stream classes and lower band of school will tend to have higher self-esteem than those from higher stream classes and band of school. However, as the band factor is more distant and detached from the student's day-to-day experiences, and as the same contextual factors is being shared by all fellow classmates, the effect of band may be smaller than that of stream. To integrate the above-mentioned researches, we still haven't had a clear idea about how students choose their reference group when making comparison. To learn more about reference group and to clarify the effects of different reference group is the second end of this paper.

Friends nominated in the same class should also be viewed as a reference group. Guay, Boivin, & Hodges (1999) compared reciprocated friends' academic performance and nonreciprocated friends' and found that reciprocated friends' performance had negative effect on children's self-esteem but nonreciprocated friends' hadn't. According to this paper, the influence of friends should be taken into consideration when we hope to purify the effect of big-fish-little-pond.

It should be noted that friendship network here we used only included the friends nominated by oneself because of the friends students themselves subjective accepted should have more influences. To avoid the bias from students' subject feeling on their friends, friends' academic achievement here we used are reported by their friends since they are included in our sample.

The Research Model

Figure 1 provides the theoretical model that we proposed in this study. This paper will examine the BFLPE in Taiwan. Based on previous research focus, various

aspects of reference groups (friends, class, school) will be considered in the analysis. Specially, the change of students' self-esteem after high school Basic Competency Tests and into high school will also be presented in this paper. In short, this paper is characterized by the following aspects:

1. To examine the relationships between self-esteem and academic achievement across 3rd grade in junior high school and 1st grade in senior high school, especially focus on the change of self-esteem after taking high school entrance exam and it's relationship with the placements of senior high school.
2. To consider the effect of different reference groups (friends, class, and school) on students' self-esteem and academic achievement.
3. To take into account the positive and negative effect of reference group on self-esteem and to re-visit the BFLPE.

(Figure 1 about here)

Data and Measures

We analyze data from the Taiwan Youth Project (hereafter, TYP), a panel study that began in 2000 conducted by Research Group of Family and Life Course in Academia Sinica, Taiwan, with a random sample of 2696 seven graders of 40 junior high schools in Taipei City, Taipei County, and Yi-Lan County. The annual survey was administered in school from 2000 until 2002, with mail questionnaires or telephone interviews used from 2003 until now. This data set contains the valuable and comprehensive information of adolescents and their parents regarding family life and school life. We only use the third and fourth waves data of TYP, when respondents were 14-15 years old for the specific purpose of this research. Due to incomplete response and sample attrition, we have restricted our sample to adolescents with complete information on all variables used in the study, which resulted in a sample of 1369.

Adolescent self-esteem. Adolescent self-esteem in this study includes two factors of the concept. Every factor includes 2 items, measured as 4-pointed scale. The first factor is "self-satisfaction", and the questions include "I treat myself with optimism. I am satisfied with myself." The second factor is "self-efficiency", and the questions are "Sometimes I feel like I am useless. Sometimes I feel that I don't have any desirable quality."

Academic Achievement. School Achievement at 3rd grade was measured by having adolescent response a question regarding what rank of school achievement was.

Rating range from 1 = within rank 5 in the class to 4 = beyond rank 21 in the class. Ratings were reverse coded for the purpose of analyses and presentation; therefore, high scores reflect a better school achievement at primary school and low scores reflect a poorer school achievement.

We wish to use the score on high school Basic Competency Tests to represent the indicator of school achievement at 1st grade in senior high school. But there so many students in our sample forgot their exam scores when we collected data. So Students' High School Basic Competency Test score is measured by a proxy taken average on High School Basic Competency Test of the students in the same senior high school.

Friends' academic achievement. To clarify the influence of friends' academic achievement, two indicators are used in the model. The first is 'one of nominated friends' class rank is in top 5' when students are 3rd in junior high school and 'one of nominated friends' is studying in top senior high schools'. The second indicator is 'average academic achievement of nominated friends' when students are 3rd in junior high school and 'average proxy scores of high school Basic Competency Tests of nominated friends'. To avoid the bias from students' subject feeling on their friends, friends' academic achievement here we used are reported by their friends since we had collected the data of their friends.

Class-average/ school-average academic achievement. Class-average/ school-average academic achievement is taken the two indicators average of students' in the same class/ school.

Strategy of Analysis

We will first present descriptive statistics of all variables used in the analysis. Then, structural equation models are utilized to assess the effect of students' academic achievement and friends-average/class-average/school-average academic achievement on adolescent self-esteem. According to the research framework on Figure 1, two-wave data are integrated to analysis system to examine the big-fish-little-pond effect on adolescent self-esteem in Taiwan.

Result

The descriptive statistics of variables are shown in table 1.

(Table 1 about here)

According to the BFLPE, friends' average, class-average, and school-average academic achievement will have negative BFLPE on self-esteem. From figure2 to

figure 4, we can see some differences among different reference groups. The negative BFLPE of friends and school aren't so significantly, but the influence of class is very notable. Students studying in high average academic achievement class in 3rd grade of junior high school had lower self-esteem than those studying in low average class. After taking the high school entrance exam, students' self-esteem will have big change corresponding to the senior high school they entrant. It is possible that the BFLPE is temporary and it will change by the changing context. But how will the effect spread out when we take the influences of the three different reference groups together? Will this effect of class as strong when controlling friends' effect? We then used structural equation model analysis to answer this question.

(Figure 2 about here)

Structural equation modeling (SEM) was used to examine the influence of adolescent self-esteem by considering the mediating effects of their academic achievement, friends' academic achievement, and class/school average academic achievement. The LISREL8.5 program was utilized to perform the SEM procedures. Latent variable were almost measured with single indicators, except self-esteem. The estimation tests the reduced, recursive model. The SEM results of the relationships among latent variables were presented in table 2.

(Figure 3 about here)

(Figure 4 about here)

From table 2, we can see that J3 academic achievement, J3 one friend class rank in top 5, and class-average academic achievement significantly associated with adolescent H1 academic achievement. Also, J3 self-esteem, J3 one friend class rank in top 5, and J3 friends' average academic achievements were significantly related to H1 self-esteem. Unlike previous studies have indicated, when control the effects of friends' academic achievement on students' self-esteem, class-average and school-average academic achievement weren't significantly associated with H1 self-esteem. The Goodness of Fit index indicated the model is acceptable (RMSEA=.036, GFI=.99, AGFI=.97, CN=800.2).

(Table 2 about here)

The indicators of the exogenous variables had significant loadings(see table 3).

Table 3 and table 4 also presents the covariance among latent variables. These result suggested that these indicators were appropriate measures to represent the corresponded latent variables.

(Table 3 about here)

(Table 4 about here)

Conclusions and Discussions

BFLPE argues that Students' self-esteem will positively relate to their own academic achievement and negatively correlate with others' performance and this illustrates the reason why students' self-esteem will decline when they are getting along with high performing friends, classmates, or schoolmates. Following these statements, we should suggest students to go to a little pond since it's better to be a big frog in a small pond than a small frog in a big pond when considering students' self-esteem.

Two factors are crucial in determining an individual's self-esteem, namely, self-evaluation maintenance process and the frame of reference. Different reference groups will have diverse effects on individual's self-esteem and different ways of self-evaluation maintenance processes will have distinct influences on self-esteem. To understand the process how students maintain their self-esteem and to clarify different effect of reference group on their self-esteem, that's the reason this study going on.

From the Pearson correlation analysis, we can see that the simultaneous effects of friends, class, and school upon students' self-esteem are significant but the lag effects are not. Most of the simultaneous effect and lag effect of friends, class, and school on students' academic achievement are significant. We further used the descriptive analysis to display the contextual impacts on self-esteem and found that the class-average academic achievement has the most apparently negative BFLPE. We then used SEM to consider the different influence of reference group. The results of SEM show that one of nominated friends' class rank in top 5 and class-average academic achievements have a significant negative effect on students' academic achievement. One of nominated friends' class rank in top5, and friends' average academic achievement are significantly related to students' self-esteem but the class and school effect are not significant in this study. However, the impacts of the friends are oppositely. It is interesting noting that the students' self-esteem will increase when you have a well-performed friend but decrease if friends' average academic achievements are excellent. According to the self-evaluation maintenance model, it can be viewed that there are a reflection process and a comparison process

both existing in the model. Having a well-performed friend will increase one's self esteem by reflected glory but being together with well-performed fiends will decrease one's self-esteem through the comparison process.

Comparing the effects of reference groups, we can obviously see the class and school effect were not significant when we include the friends' influences. To avoid this bias from students' subjective feelings on their friends, friends' academic achievement here we used are reported by their friends selves since we had collected the data of their friends. Using these objective data, the negative BFLPE were still significant and the class and school effect were disappear after controlling the friends' influence. This finding did not differ from past researches (Marsh 1987; Marsh, Kong et al. 2000; Marsh and Hau 2003; Marsh, Hau et al. 2004), but it is worthy noticed that objective friends academic achievement still have a negative effect on students' self-esteem. However, friends' influences are contradictory, negative on self-esteem and positive on students' achievement when considering students' academic achievement. In this paper we can see that there is a significantly change of self-esteem after entrancing high schools and that friends have the contradictory influences on student's self-esteem and academic achievement. Since we have not control the conditions of 1st and 2nd grades in junior high school, therefore, the transition from junior high school to senior high school cannot be demonstrated clearly. Future research is needed on this issue.

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Figure 1: The research model

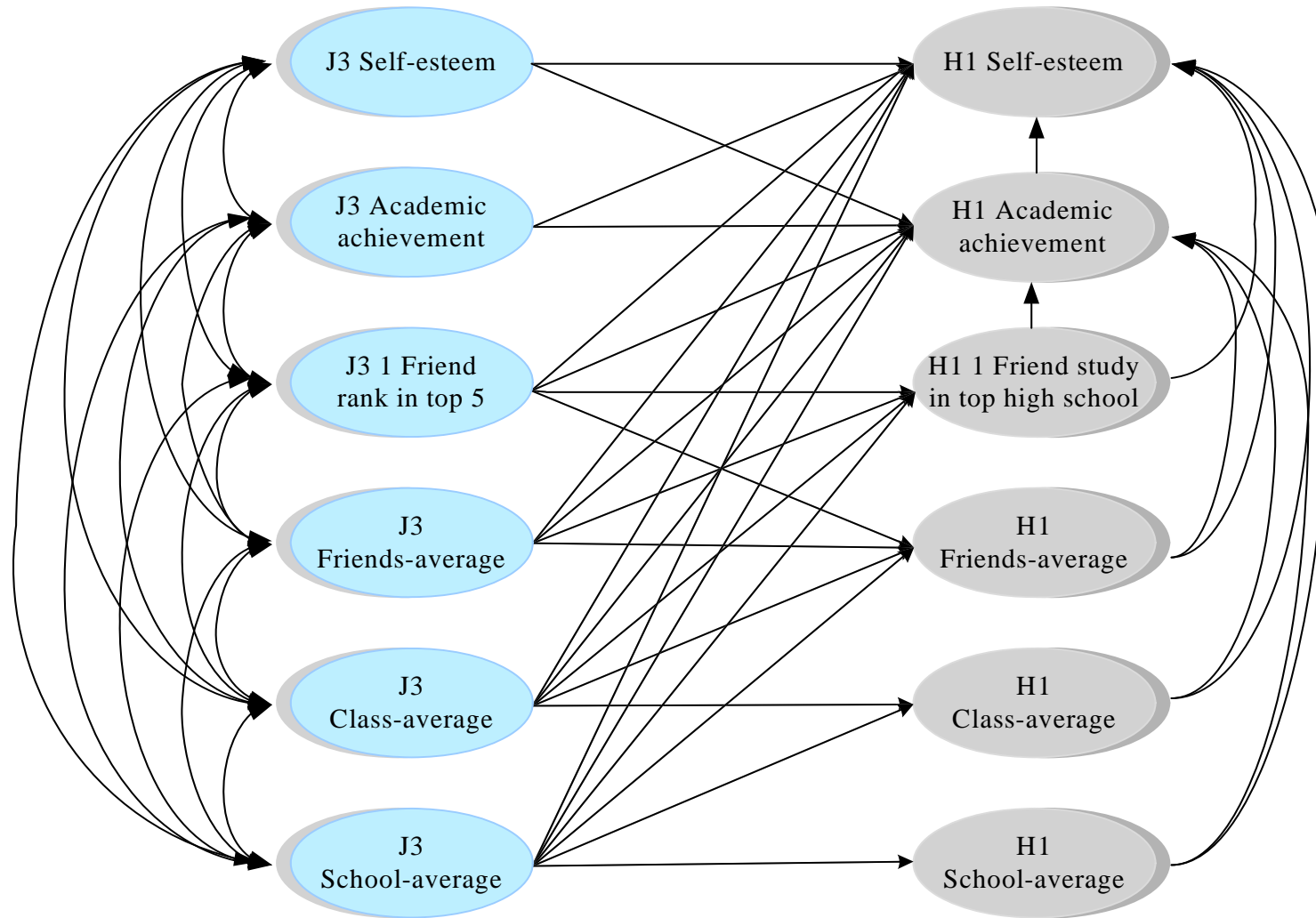
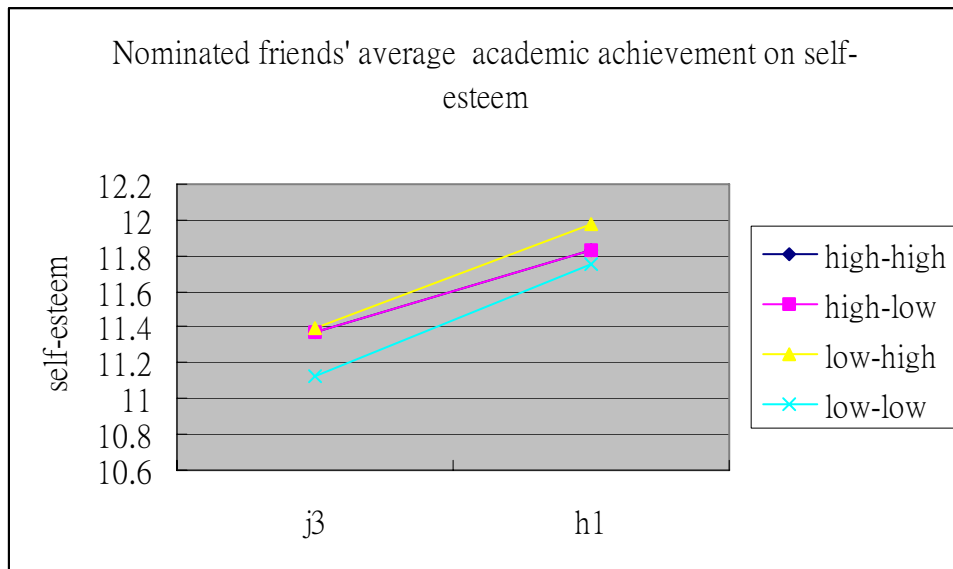


Figure 2: Nominated friends' average academic achievement on self-esteem



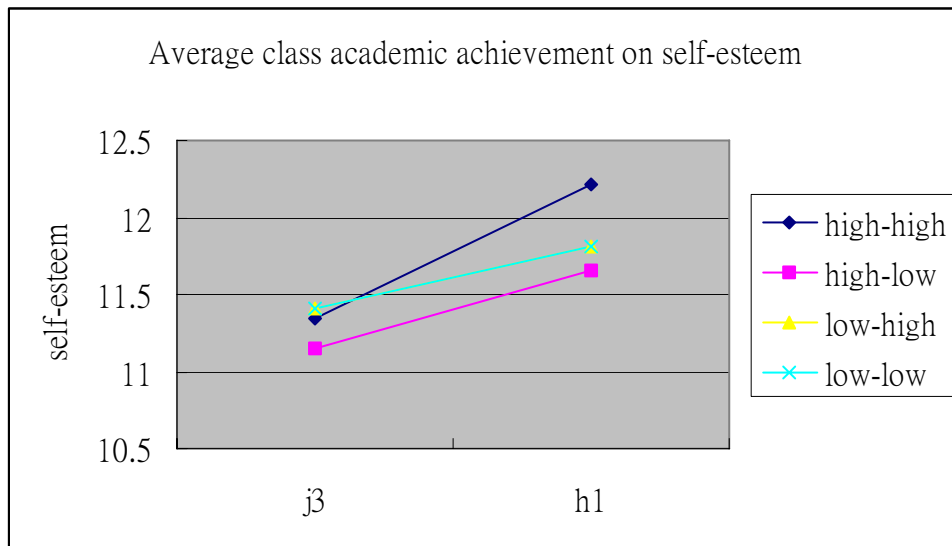
*high-high: high friends' average academic achievement in junior and senior high school

*high-low: high friends' average academic achievement in junior and low in senior

*low-high: low friends' average academic achievement in junior and high in senior

*low-low: low friends' average academic achievement in junior and senior high school

Figure 3: Average class academic achievement on self-esteem



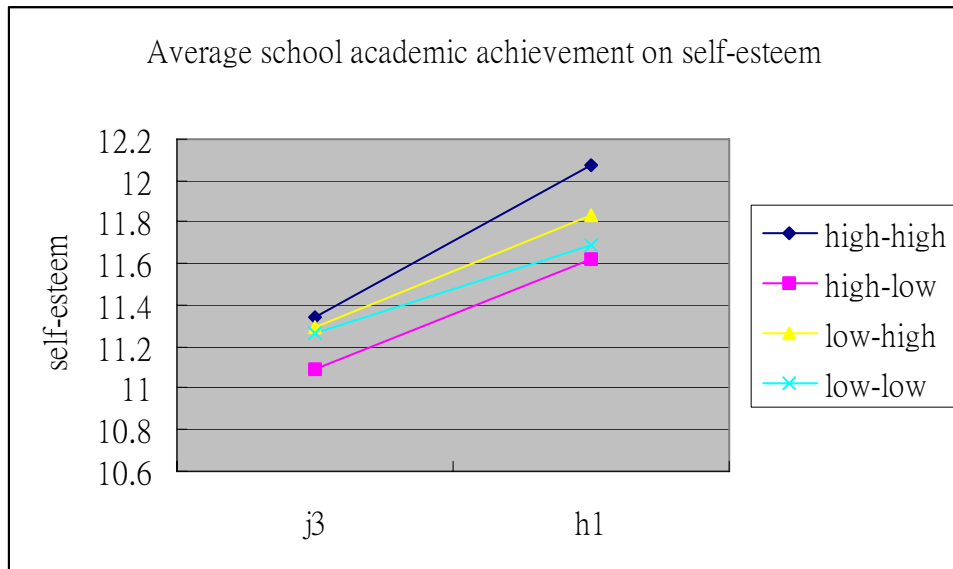
*high-high: high class-average academic achievement in junior and senior high school

*high-low: high class-average academic achievement in junior and low in senior

*low-high: low class-average academic achievement in junior and high in senior

*low-low: low class-average academic achievement in junior and senior high school

Figure 4: Average school academic achievement on self-esteem



*high-high: high class-average academic achievement in junior and senior high school

*high-low: high class-average academic achievement in junior and low in senior

*low-high: low class-average academic achievement in junior and high in senior

*low-low: low class-average academic achievement in junior and senior high school

Table 1: Descriptive Statistics of Variables

	Variables	3 rd grade in Junior high school(J3)						1 st grade in senior high school(H1)							
		SS	SE	AA	1FT5	FAA	CAA	SAA	SS	SE	AA	1FTS	FAA	CAA	SAA
J3	self-satisfaction(SS)	1.6253	0.3233	0.0070	-0.0050	0.0244	-0.02675	-0.0205	0.3628	0.2484	-0.0048	-0.0010	-0.0034	-0.0059	-0.0053
	self-efficiency(SE)	0.6605	2.5685	0.1134	-0.0112	0.0614	-0.0141	-0.0244	0.2602	0.3846	0.1495	0.0511	0.0452	0.0343	0.0491
	academic achievement(AA)	0.0107	0.2179	1.4387	0.1794	0.3190	0.2033	0.1713	0.0713	0.1158	0.6926	0.0885	0.1239	-0.0074	-0.0320
	one friend class rank on top 5(1FT5)	-0.0030	-0.0085	0.1022	0.2257	0.6173	0.1017	0.0483	0.0123	0.0074	0.1295	0.4287	0.3747	0.0448	0.0266
	friends' average academic achievement(FAA)	0.0289	0.0916	0.3558	0.2727	0.8646	0.2515	0.2129	0.0168	0.0090	0.2135	0.3141	0.4752	0.0072	-0.0293
	class-average academic achievement(CAA)	-0.0087	-0.0058	0.0624	0.0124	0.0598	0.0654	0.8464	-0.0128	0.0001	0.0346	0.0013	-0.0117	0.1127	0.0195
	school-average academic achievement(SAA)	-0.0056	-0.0085	0.0445	0.0050	0.0429	0.0469	0.0469	-0.0043	-0.0134	0.0017	-0.0504	-0.0525	0.0261	0.0333
H1	self-satisfaction(SS)	0.5827	0.5253	0.1077	0.0074	0.0196	-0.0041	-0.0012	1.5873	0.2947	0.0849	0.0124	0.0500	0.0631	0.0671
	self-efficiency(SE)	0.4131	0.8043	0.1812	0.0046	0.0109	0.0000	-0.0038	0.4844	1.7022	0.1135	0.0289	-0.0022	0.0391	0.0372
	Academic achievement(AA)	-0.3048	11.8650	41.1304	3.0447	9.8270	0.4385	0.0184	5.2953	7.3298	2450.9115	0.2261	0.3111	0.3637	0.3296
	one friend study in top senior high school(1FTS)	-0.0004	0.0289	0.0374	0.0718	0.1030	0.0001	-0.0038	0.0055	0.0133	3.9482	0.1244	0.4116	0.3182	0.3053
	friends' average academic achievement(FAA)	-0.2238	3.7884	7.7663	9.3027	23.0927	-0.1567	-0.5944	3.2932	-0.1530	804.9202	7.5863	2731.4450	0.3712	0.3374
	class-average academic achievement(CAA)	-0.1358	0.9921	-0.1603	0.3842	0.1201	0.5208	0.1020	1.4357	0.9208	325.2970	2.0277	350.5201	326.4853	0.9075
	school-average academic achievement(SAA)	-0.1102	1.2848	-0.6264	0.2061	-0.4455	0.0814	0.1180	1.3809	0.7922	266.6884	1.7593	288.1470	267.9683	267.0521

*The upper triangle is the correlation matrix and the lower triangle is the variance-covariance matrix of variables.

Table 2: Structural Equation Models

	H1SS		H1AA		H1FS		H1FAA		H1CAA		H1SAA	
	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.
J3 self-esteem((J3SS)	.99***	.07	.04+	1.13								
J3 academic achievement(J3AA)	.06	.04	.71***	.71								
J3 one friend class rank on top5(J3FR)	.12**	.08	-.05*	2.21	.35***	.02	.10***	2.91				
J3 friends' average academic achievement(J3FAA)	-.14**	.05	-.02	1.26	.13***	.01	.46***	1.55				
J3 class-average academic achievement(J3CAA)	.00	.24	-.12**	6.46	.05	.06	-.01	8.17	.35***	1.34		
J3 school-average academic achievement(J3SAA)	.03	.27	.00	7.35	-.13**	.07	-.14***	9.86	-.27***	2.59	.03	2.04
H1 Academic achievement(H1AA)	.00	.00										
H1 one friend study in top senior high school(H1FS)	-.01	.09	.05**	2.64								
H1 friends' average academic achievement(H1FAA)	-.02	.00	.10***	.02								
H1 class-average academic achievement(H1CAA)	.00	.00	.32***	.12								
H1 school-average academic achievement(H1SAA)	.00	.00	.02	.07								

+:p<.1 *:p<.05 **:p<.01 ***:p<.000

Table 3: Covariances and Indicator Loadings of Exogenous Variables

	J3SS		J3AA		J3FS		J3FAA		J3CAA		J3SAA	
	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.
J3 self-esteem((J3SS)	.99***	.11										
J3 academic achievement(J3AA)	.14**	..05	1.41***	.05								
J3 one friend class rank on top5(J3FR)	-.01	.02	.09***	.02	.23***	.01						
J3 friends' average academic achievement(J3FAA)	-.07*	.03	.35***	1.03	.27***	.01	.84***	.03				
J3 class-average academic achievement(J3CAA)	-.01	.01	-.06***	.01	.01**	.00	.06***	.01	.06***	.00		
J3 school-average academic achievement(J3SAA)	-.01	.01	.04***	.01	.00	.00	.04***	.01	.05***	.00	.05***	.00
<u>Indicator loadings</u>												
J3 self-satisfaction(SS)	.62											
J3 self-efficiency(SE)	.54	.05										

*:p<.05 **:p<.01 ***:p<.000

Table 4: Covariances and Indicator Loadings of Endogenous Variables

	H1SS		H1AA		H1FS		H1FAA		H1CAA		H1SAA	
	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.	Est.	s. e.
H1 self-esteem(H1SS)	.01	0.06										
H1 academic achievement(H1AA)			.33***	31.86								
H1 one friend study in top senior high school(H1FS)					.81***	.00						
H1 friends' average academic achievement(H1FAA)					.21***	.40	.73***	76.40				
H1 class-average academic achievement(H1CAA)					.30***	.16	.36***	23.33	.97***	11.99		
H1 school-average academic achievement(H1SAA)					.30***	.15	.35***	21.26	.91***	10.63	1.00***	10.16
<u>Indicator loadings</u>												
J3 self-satisfaction(SS)	.54											
J3 self-efficiency(SE)	.58***	.07										

+:p<.1 *:p<.05 **:p<.01 ***:p<.00