Impacts of Parental Behaviors and School Experiences on Adolescents' Developmental Trajectory of Self-Esteem

Gang-Hua Fan
Institute of sociology, Academia Sinica, Taiwan
fangh@gate.sinica.edu.tw
Chin-Chun Yi
Institute of sociology, Academia Sinica, Taiwan

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Abstract

Low self-esteem among adolescents is constantly found to relate to adverse mental health outcomes and delinquent behaviors. Most Western studies display a rise of self-esteem during adolescence. However, for using cross-sectional data sets, most existing studies in Taiwan are unable to depict the developmental process of self-esteem for teenagers. Therefore, this study attempts to investigate the developmental trajectory of self-esteem among Taiwanese adolescents as well as the structural and relational determinants accounting for the development.

In light of principles proposed by Morris Rosenberg and prior empirical research, we intend to examine the relation of factors within *family context* and *school context,* to self-esteem growth trajectory. These determinants are of great importance to teenagers' daily life, and each consists of factors that illustrate eminent relation to adolescents' self-esteem. Using six waves of longitudinal panel data drawn from Taiwan Youth Project, we applies piecewise linear growth curve analyses to examine the trajectory and mechanism of the self-esteem development from early adolescence to early adulthood. In addition, we investigate possible gender differences in the self-esteem development.

The developmental trajectory of self-esteem for Taiwanese adolescents displays a nonlinear pattern. It declines steeply during the early adolescence, but the rate of changing becomes insignificant from the late adolescence to early adulthood. Both family and school contexts exhibit significant effects on individuals' development on self-esteem. Nevertheless, in terms of the relative magnitude of impacts on self-esteem, school context factors such as relationship with peers and teachers are found to be more essential during the early adolescence, and family context factors such as parental support and family socioeconomic status appear to be more influential during the late adolescence and early adulthood. In general, males display a higher self-esteem than do females. In addition, male's self-esteem development is less responsive to parental control during early adolescence, but more affected by parental control during late adolescence.

Key words: adolescence, self-esteem, family, school, Taiwan

Introduction

Low self-esteem among adolescents tends to result in various adverse health and behavioral outcomes. Research of adolescents in Western society suggests that low self-esteem is associated with depression (Owens 1994; Rosenberg, Schooler, and Schoenbach 1989), delinquent behaviors (Longmore, Manning, Giordano, and Rudolph 2004; Rosenberg, Schooler, and Schoenbach 1989), interpersonal problems (Kahle, Kulka, and Klingel 1980), and suicidal ideation (McGee, Williams, and Nada-Raja 2001). The impacts of low self-esteem during adolescence can even lead to negative consequences during adulthood. Using prospective data collected from New Zealand, Trzesniewski and colleague (2006) found that, compared with adolescents with high self-esteem, adolescents with low self-esteem would have poorer mental and physical health, worse economic prospects, and higher levels of criminal behavior when they became adults. Investigations conducted in Taiwan also reveal the fact that adolescents with low self-esteem are more likely to suffer from anxiety (Chen and Chen 1998, Wong 1985) or depressive symptoms (Lu et al. 2003).

Research conducted in Western societies yields mix results for self-esteem development during adolescence (Marsh 1989; McCarthy and Hoge 1982; Mullis et al. 1992). This could be due to divergent growth trajectories of self-esteem among adolescents (Hirsch and Dubois 1991; Zimmerman et al. 1997). In addition, certain factors within *family context* (e.g., family socioeconomic status, parenting behaviors, parent-child relationships, and sibling relationships) and *school context* (e.g., peer relationships, teacher-student interactions, academic performance, and nonacademic talents) (Bagley et al. 2001; Colarossi and Eccles 2003; Macek and Jezek 2007; Ross and Broh 2000; Tracy and Erkut 2002; Wilkinson 2004; Yeh and Lempers 2004). Four theoretical principles proposed by Morris Rosenberg (1979) are frequently applied to account for the development of self-esteem: reflected appraisals, social comparison

processes, self-attribution, and psychological centrality. In addition, as argued by Rosenberg and others, characteristics of both social structures and social behaviors in specific societies must be taken into consideration when these principles are applied.

Studies of adolescents' self-esteem in Taiwan, mostly conducted by educational psychologists, have identified certain determinants for adolescents' high self-esteem. Chiang, Huang, and Len (2000) found that the "authoritative" parenting (i.e., demanding and responsive) may predict a higher self-esteem for junior high school students. Wu and Chang (2000) also suggested that emotional connections with significant others are associated with higher degree of self-worth for teenagers. In addition, Chu (2002) indicated that six specific domains of self-concept, including math/school, verbal, physical appearance, emotion, parent relations and peer relations, significantly contributed to adolescents' global self-esteem. Nevertheless, by using cross-sectional data sets, these studies are unable to depict the trajectory of self-esteem development, let alone to clarify the possible dynamic relationships between those determinants and adolescents' self-esteem. Consequently, the developmental process of self-esteem among Taiwanese adolescents remains unclear.

Accordingly, this research attempts to investigate the growth trajectory of self-esteem for Taiwanese adolescents as well as the structural and relational determinants accounting for this development. Using six waves of longitudinal panel data collected by Taiwan Youth Project from years 2000 to 2007, we apply piecewise linear growth curve analyses to identify the relation of factors under contexts of family and school to the developmental trajectory of self-esteem from early adolescence to early adulthood. In addition, possible gender differences in the self-esteem development between teenage boys and girls will be contrasted in terms of the developmental trajectory revealed.

Background

Development of Self-Esteem during Adolescence

Research on self-esteem development conducted in Western societies yields mix findings. While many studies suggest that, in general, self-esteem rise stably during the adolescence (Demo 2001; McCarthy and Hoge 1982; Mullis, Mullis, and Normandin 1992; O'Malley and Bachman 1983; Prawat, Jones, and Hampton 1979; Roeser and Eccles 1998), some studies show decline (Keltikangas-Jarvinen 1990; Robins et al. 2002) or no change (Block and Robins 1993) of self-esteem development during adolescence. Still others found a curvilinear pattern of self-esteem development. To illustrate, Marsh (1989) indicated that the level of self-concept decline during pre-adolescence and early adolescence, stay in a stable level in middle adolescence, and then increase in late adolescence and early adulthood. Most existing studies of self-esteem in Taiwan applied cross-sectional data sets (e.g., Chiang, Huang, and Len 2000; Chu 2002; Wu and Chang 2000), so the pattern of trajectory has not been addressed.

Robins and colleagues (2002) indicate that some of these inconsistencies may result from gender differences in self-esteem development. Prior studies suggest that during adolescence, boys tend to increase and girls tend to decrease in self-esteem (Block and Robins 1993; Chubb, Fertman, and Ross 1997). As suggested by Hirsh and Dubois (1991), examining merely changes of sample means could mask the heterogeneity of developmental trajectory within a population. Using seven years of panel data, Baldwin and Hoffmann (2002) successfully examine intraindividual self-esteem changes from early adolescence to early adulthood. Their findings show that the trajectory during adolescence is in a curvilinear pattern. Self-esteem decrease in early adolescence and then increase again in the early adulthood.

To explain the diverse phenomena of self-concept formation, Morris Rosenberg

(1979) advanced four theoretical principles: reflected appraisals, social comparison processes, self-attribution, and psychological centrality. While the first two explanations emphasize the significance of interpersonal context, the last two address the individuals' subjective interpretation on objective facts. He emphasized that these principles apply equally to both adults and children.

The principle of reflected appraisals proposes that: We define ourselves through the appraisals we receive from others. The principle of social comparisons suggests that: We develop our self-esteem by comparing certain characteristics of us to that of surrounding others. The principle of self-attributions is: We know ourselves by observing and interpreting our own behavior and its outcomes. Lastly, the principle of psychological centrality suggests: The impact of certain component on our global self-esteem depend on its importance in our cognitive structure. These principles have been widely tested and applied for explanations in empirical studies (e.g., Carr and Friedman 2005; Gecas and Seff 1990; McGee, Williams, and Nada-Raja 2001; Rosenberg et al. 1995; Wiltfang and Scarbecz. 1990). In addition, as argued by Rosenberg and others, characteristics of both social structures and social behaviors in specific societies must be taken into consideration when these principles are applied.

Determinants of Self-Esteem Development for Adolescents

Adolescents' self-esteem is associated with certain social stimuli. Considering family and school are the two main arenas for adolescents' life, most risk factors related to adolescents' self-evaluation are encompassed within these two contexts. Therefore, factors within the context of family and school need to be taken into close consideration while studying adolescents' self-esteem development.

Family Context

According to Rosenberg (1979), individuals selectively receive reflected

appraisals from significant others. Since family members are most likely to be most significant to any individuals, family context are of great importance in terms of the development of self-esteem for adolescents. Family socioeconomic status has been found to positively relate to adolescents' self-esteem. Individuals from families occupied higher social positions are more likely to have a higher self-evaluation than those who are from families in lower social positions (Demo and Savin-Williams 1983; Francis and Jones 1996; Rosenberg and Pearlin 1978; Savin-Williams and Demo 1983). One thing noteworthy is that, different measures of social class appear to correlate with self-esteem in different degrees. For instance, occupation and education tend to have higher links with self-esteem than income does (Twenge and Campbell 2002). Wiltfang and Scarbecz (1990) also suggested that while father's education, a traditional class measure, has only weak association with adolescents' self-esteem, nontraditional class measures such as father's unemployment status, neighborhood unemployment, family welfare status can better predict adolescents' self-esteem.

In addition, the relationship between social class and self-esteem varies over the life course. The association is usually found to be weaker among children and adolescents, and is stronger among adults (Demo and Savin-Williams 1983; Rosenberg and Pearlin 1978; Twenge and Campbell 2002). Rosenberg and Pearlin (1978) interviewed 2,625 pupils aged 8 to 18 among 25 schools at Baltimore City to examine the association between social class and self-esteem. They found no association between social class and self-esteem among the 8-11-year-olds and a modest association for early adolescents and for later adolescents. Also, to investigate the relationship between SES and self-esteem, Twenge and Campbell (2002) conducted a meta-analysis of 446 studies. Results show the association between family SES and self-esteem is positive and continually increases from age 5 to age 22.

In order to explain this dynamic relationship, Rosenberg and Pearlin (1978) argued that children live in a relatively homogeneous world, where most people in it have the same socioeconomic status, so they are hardly aware of the socioeconomic differences between themselves and others and are less likely to be judged on their class by these people. While children grow up, they have more chances to build on self-concepts through evaluating their own academic and occupational performances.

Studies apply the approach of self-attributions stressed that, compared to status ascribed from parents, the status achieved from own efforts has more eminent impacts on one's self-concepts. For instance, Gecas and colleagues (1983; 1989) argued that, the impacts of social class on self-esteem are largely mediated by occupational conditions. Bohrnsted and Fisher's (1986) evaluated effects of childhood and adolescent peer and parental relationships compared with the effects of current role performances on self-esteem in young adults. Results showed that current role performance display stronger effects than childhood and adolescence experience on adults' current self-esteem. Nevertheless, one's achieved SES can be a function of ascribed SES, for advantages or disadvantages related to parental status can be passed on to their children. While Wiltfang and Scarbecz (1990) indicated that adolescent variables, such as school grades, group leadership, and peer relationships, have stronger effects than parental class variables on adolescents' self-esteem, they also emphasized that adolescent variables actually mediate the impacts of parental social status. Huurre, Aro, and Rahkonen (2003) followed 2,091 Finnish individuals from aged 16 to age 32 to investigate the effects of both parental and their own social class on self-esteem. Results showed that individuals of manual class origin displayed lower self-esteem from adolescence to adulthood than those from a non-manual background. They also found that parental SES has both direct effects and indirect effects on early adult and adults' psychological well-being. The indirect effects of

parental SES are mainly mediated by respondents' own SES. These findings imply that family SES appears to be no less important than the achieved SES in terms of the development of adolescents' self-esteem, for the impacts of family SES on self-esteem are likely to be mediated through achieved SES.

Parenting behaviors are constantly found to be associated with adolescents' self-esteem. Parental control and parental support.represent two aspects of parenting behaviors. While parental control refers to "the degree to which parents attempted to limit their child's autonomy and direct his or her activities," parental support refers to parents helping their children, showing affection for them, and expressing approval for their actions" (Gecas and Schwalbe 1986: 39). Existing evidence shows mixed results regarding the effects of parental control on adolescents' self-esteem. While some studies show that it is positively associated with self-esteem (Chiang, Huang, and Len 2000; Gecas and Schwalbe 1986), others suggest that higher level of parental control may result in lower level of self-competence for adolescents (Amato 1989).

On the other hand, higher level of parental support is consistently found to be associated with higher degree of self-worth for adolescents (Amato 1989; Gecaas 1971, 1972; Gecas and Schwalbe 1986; Ross and Broh 2000). Parental attachment and perceived relationships to parents are consistent predictors of self-esteem and self-efficacy to adolescents (Macek and Jezek 2007; Wikinson 2004). Perceived parental rejection and conflict between a parent and an adolescent predict poorer self-esteem (Bagley et al. 2001; Robertson and Simons 1989). Demo, Small, and Savin-Williams (1987) indicated that, while adolescents and parents have similar (but distinct) perceptions of their relationships, adolescents' perceptions of the relationships better predict their own self-esteem. Besides, Colarossi and Eccles (2003) suggested that male adolescents perceived more support from fathers than female adolescents did, and no gender differences were found in perceptions of support from

mothers.

Moreover, sibling relationships are also linked to adolescents' self-evaluation. Teenagers who have better relationships with their siblings tend to have higher self-esteem and better friendships (Amato 1989; Yeh and Lempers 2004). The quality of an earlier sibling relationship can also predict the quality of a later friendship for adolescents. On the other hand, comparisons among siblings can also affect adolescents' self-feeling. Clark and Barber (1994) indicated that adolescents who perceived their fathers as more interested in their siblings had lower self-esteem than those who said their fathers treat all children equally.

School Context

The appraisals from peers and teachers at school are important sources for the enhancement of adolescent's self-evaluation. Perceived relationships to friends and peers are consistent predictors of self-esteem and self-efficacy for adolescents (Macek and Jezek 2007; Wikinson 2004; Wu and Chang 2000). Compared to teenage boys, teenage girls perceived more support from friends (Colarossi and Eccles 2003). Consequently, peer relationships have stronger effects on self-esteem on teenaged girls (Macek and Jezek 2007). Evidence also shows that teachers' support and positive responses during class discussions are associated with higher self-evaluation for teenage students (Colarossi and Eccles 2003; Verkuyten and Thijs 2004; Roeser and Eccles 1998; Wu and Chang 2000).

In addition, schooling experience provides opportunities for adolescents to build up their self-esteem through self-attributions. Adolescents with better academic performance at schools tend to have higher self-esteem (Demo and Savin-Williams 1983; Rosenberg, Schooler, and Schoenbach 1989; Ross and Broh 2000). Besides, researchers indicated that nonacademic activities provide alternative channels for students to develop self-esteem (Crain 1981; Murtaugh 1988). Participation in sports

or other nonacademic activities appears to result in higher degree of self-esteem for adolescents.

In summery, due to the lack of longitudinal studies in the past, the growth trajectory of self-esteem for Taiwanese adolescents remains unclear. Prior research shows that family context and school context are highly related to individuals' daily life during the period of adolescence. Factors within these two contexts illustrate eminent correlation to adolescents' self-esteem development. Accordingly, the purposes of this study attempts are to delineate the developmental pattern of self-esteem for Taiwanese adolescents and to examine how factors within family and school context affects the growth curve of self-esteem. We also investigate possible gender differences in the developmental process of self-esteem. Theoretical principles such as reflected appraisals, social comparisons, and self-attribution are employed to explain these relations. Finally, by displaying the relative importance of these determinants to the developmental process for adolescents, results of this study contribute to the discussions of psychological centrality.

Methods

Data and Samples

This research will use the data drawn from the Taiwan Youth Project (TYP), a panel study conducted at the Institute of Sociology, Academia Sinica, Taiwan. The project was started in year 2000, and has conducted 8 waves of interviews since then. The original respondents of this project include 2,800 7^{th} graders (1^{st} grade of the junior high) and 2,800 9^{th} graders (last year of the junior high) as well as one of their parents and their head master of the class. The goal of the comprehensive research design is to cover various aspects of the interplay among family, school and community, which shape adolescents' future development.

These students were sampled from junior high schools located in the northern part of Taiwan in the year of 2000, including Taipei City, Taipei County, and Yi-Lan County. As Taipei is the largest metropolitan city in Taiwan, the economic activities in Yi-Lan are mostly agriculture-based, and Taipei County is in-between these two regions, the sample covers various levels of urbanization and economic structure. The sampling method applied by TYP was divided into two stages. In the first stage, they decided to select one thousand students each in Taipei City and Taipei County, and five hundred students in Yi-Lan County. In the second stage, they used the stratified sampling method to determine the number of schools to be chosen from each of the three city or counties based on the number of student registered. They finally chose 40 schools, among them 16 are from Taipei city, 15 from Taipei County, and 9 from Yi-Lan County. In each of the schools, the investigators randomly chose two classes and surveyed all the students and their parents in the 81 classes. In each class, the head master was asked to administer one questionnaire for each student in his/her class to comment on their school performance.

Among the several groups of subjects contained in the TYP, this research adopts the sample of the original 7^{th} graders in the first wave. The size of this student sample successfully interviewed in the first wave was 2,690. In the eight wave, there are still 1,739 student cases remained in the sample (the attrition rate is 35.35%).

Since this study attempts to examine the impacts of school context on the development of self-esteem during both the early and late adolescence, only respondents who attend vocational schools, junior college, or high schools are included in the analyses. Thus, those who discontinue their education after graduated from junior schools (about 3.8% among all respondents) are left out from the analyses. In addition, respondents with missing values in independent variables are listwised. The final sample size of this study is 1,471.

Measures

Self-esteem, the dependent variable in this study, is measured by a scale containing six questions. Four questions in this scale are drawn from the Rosenberg Self-Esteem Scale (1989), and the rest two were created by the investigators in TYP. These questions were asked in the 1st, 2nd, 3rd, 4th, 6th, and 8th wave of surveys. The six questions are: 1) I cannot solve some of my problems; 2) I cannot control what happens on me; 3) I take a positive attitude toward myself; 4) I am satisfied with myself; 5) I certainly feel useless at times; and 6) At times I think I am no good at all. The responses are measured by a 4-point Likert scales. The Cronback alphas for these questions in each survey range from .0.65 to 0.78.

Family Context contains four factors: *family socioeconomic status (SES), parental control, parental support,* and *sibling comparison on academic performance*. Family SES and sibling comparison on academic performance were measured at the first wave of survey. Parental control and parental support are measured at both the first and the fifth waves of survey, and fathers' and mothers' behaviors are measured separately. For all the correlation between father's and mother's parenting behaviors are less than 0.77, including both parent's behavior should not cause serious multicollinearity problems. Measurements of these factors are described as below.

(1) Father's education is used as an indicator of respondents' family SES. The measure includes seven levels of educational attainment (1 = elementary school or below, 7 = graduate school). Due to missing values of this variables scatter during interviews, the first three waves of surveys are used to derive this information.

(2) Parental control is measured at the first and the fifth wave of survey. In the first wave, it is measured by a 6-item scale. Respondents were asked whether the how often the following situation happen to their father and mother: "Does your mother/father know where you go everyday?" "Does your mother/father know your

companions when you were not at home?" "Does your mother/father know whether you have come home and gone to bed?" "Does your mother/father care if you don't do what she/he tells you to do?" "Does your mother/father punish you if you do something she/he tells you not to do?" and "Does your mother/father do punish you when she/he decides to do so?" Responses to each of these questions is measured by a 5-point Likert scale (1 = never, 5 = always). The Cronbach alpha of father's and mother's control at the first wave are 0.74 and 0.72, respectively.

In the fifth wave of survey, parental control is measured by a 2-item scale. The three questions are: "Does your mother/father know where you go everyday?" and "Does your mother/father know your companions when you were not at home?" Answers are also coded with the 5-point scale (1 = almost never, 5 = always). The alphas for father's and mother's control at the fifth wave are 0.77 and 0.66, respectively.

(3) Parental support was measured in both the first and the fifth surveys. In the first wave of survey, it is measured by a 3-items scale: "When you really need her/him, your mother/father will be there;" "Your mother/father understands what you think;" "Your mother/father often cares about your feelings or your problems." Responses were recorded with a 4-point scale (1 = never, 4 = always). The alphas for father's and mother's support at the first wave are 0.80 and 0.78, respectively.

In the fifth wave of survey, fathers' and mothers' support were each measured by three questions: "Does your father/mother care about your emotion or your problems?" "Does your mother/father help you when you face difficulties in your daily life?" and "Does your mother/father understand you?" Each of these questions are coded in a 5-point scale (1=almost never, 5 = always). The alphas for father's and mother's support at the fifth wave are 0.75 and 0.70, respectively.

(4) *Sibling comparison on academic performance* is measured by how often

parents compare elder brothers'/sisters' experience of taking the school entrance exams to the respondents at the first wave. Response for those having elder brothers or sisters were coded from 1 (never) to 3 (very often). Those who do not have no elder siblings was coded as 0.

S**chool Context** comprises four factors: *peer relations, interactions with teachers, academic performance, stress related to academic performance* and *nonacademic talents,* for they have been found empirically associated with adolescents' self-respect. All these four factors were measured at the junior high and senior high years.

(1) *Peer relations* is measured by both the positive aspect (the number of friends) and the negative aspect (worry of being unpopular or having no friends) about friendship. In the first wave of survey, adolescents were asked the proportion of classmates who are nice to them (1 = almost none, 5 = almost everyone) and whether they worried themselves were unpopular in class (1 = never, 4 = always). The correlation of these two items is -0.22 ($p< 0.01$). In the fifth wave of survey, respondents report the number of their best friends (range from 0 to 25) and whether they worry about having no good friend (1 = not at all, 4 = very much). The correlation between these two items is -0.07 ($p < 0.01$).

(2) *Interactions with teachers* is measured by students' evaluation about the treatment of teachers in both junior high and senior high years. In the first wave, students were ask how many teachers like them and how many teachers dislike them (0= none, 5 = five or more). In the fifth wave, students report the degree to which they are satisfied to their class master (1 = very unsatisfied, 4 = very satisfied).

(3) *Academic performance* is measured by the rankings of students' grade within a class during the first year of junior school and during the second year of vocational school, junior college, or senior high school. In the first wave, students' grades were

categorized into five levels: (5 = ranks top five, 4 = ranks 6th to 10th, 3 = ranks 11th to 20th, 2 = 21st to 30th, and 1 = over the 30th). In the fifth wave, students' grades were also recorded to five levels: (5 = top 20%, 1 = bottom 20%).

(4) *Stress related to academic performance* reflects the pressure caused by school entrance exams (in the first wave) or academic performance at school (in the fifth wave). The stress caused by continuing education after junior high school was measured by a dummy variable (1 = yes), and the worry of academic performance was measured by a 4-point scale (1 = not at all, 4 = very much).

(5) *Nonacademic activities participation* is a possible alternative where students may gain self-confidence. In the first wave, it is measured by the number of nonacademic talents students report during junior high school (range from 0 to 5). In the fourth wave, the only measure we have is whether or not they attend students clubs or organizations.

Analytical Strategies

The three aims of this research are (1) to depict the general growth trajectory of self-esteem for Taiwanese adolescents, (2) to demonstrate whether and to what extent that factors within family context and school context impact this development, and (3) to explore the possible differences in growth trajectory as well the determinants of self-esteem for teenage boys and girls. To reach these aims, we apply latent growth curve analysis. This modeling skill is well recognized for its ability to delineate changes over time. Regarding the possible non-linear growth curve of self-esteem shown in Figure 1, we use piecewise model to delineate the trajectory. We divide the survey period to two sections: time 1 covers the first three years of the period, during which respondents were in junior high schools; time 2 covers the rest seven years of the survey period. The reasons of this division include both theoretical (before and

after the finish of compulsory education) and empirical (the steep decline of self-esteem during the first three years compared to the relative stable static growth in the later years, shown in Figure 1). Applications of latent growth curve analysis usually require more than three repeated measures. For each time section in this study contains three observations, the estimation of piecewise model in this research should be robust.

(Figure 1 is about here)

In addition, by using the piecewise model, we can include family and school factors measured in both early and late adolescence to predict the development of self-esteem in different time section, that is, before and after junior high school graduation. We use measures in the first wave of survey to predict the self-esteem development in time 1, and measures in the four and fifth wave of survey (as well as gender and father's education measured in the first wave of survey) to predict the development in time 2. In order to investigate the relative importance among the family and school factors to the self-esteem development, we standardize most predictors before we put them into the model. Further, to identify possible gender differences in self-esteem establishment, we test interactions between gender and predictors in our model. The significant interactions are displayed in results.

The statistical software I will employ to carry out statistical analyses include SPSS 13.0 and HLM 6.04. According to Raudenbush and colleagues (2004), when the aim of a research is to collect certain observations per participant according to a fixed design, an unrestricted hierarchical multivariate linear model (HMLM) is appropriate for estimating individual changes. Since all participants in TYP are supposed to be interviewed in all six waves of survey, we apply unrestricted HMLM to estimate the latent growth curve model of self-esteem.

Findings

Table 1 displays the bivariate relationships between predictors measured in wave one and respondents' self-esteem during early adolescence. Being male is positively associated with higher self-esteem on wave 2 and wave 3. Among the family context factors, father's educational attainment, and both parents' controlling and supporting behaviors are positively associated with adolescents' self-esteem. Being compared with elder siblings, on the other hand, is negatively associated with self-esteem. Among the school context factors, having more nice friends in class, being liked by more teachers, performing better in exams, having more non-academic talents are positively associated with self-esteem during the junior high years. Worrying about being unpopular at class, being disliked by more teachers, worrying about incoming high school entrance exam are negatively associated with adolescents' self-esteem.

(Table 1 is about here)

The bivariate association between predictors and self-esteem during late adolescence and early adulthood is presented in Table 2. Being male still exhibits a positively relation to self-esteem. Having a father with higher education, however, is only significantly associated with higher self-esteem measured in wave 4. Against to our expectation, attending extracurricular activity clubs is negatively associated with one's self-esteem. Both parents' controlling and supporting behaviors are significantly associated with higher self-esteem. It is noticeable that, those attending vocational school exhibiting a lower self-esteem in wave 4, but a higher self-esteem in wave 6. On the contrary, those who attain high schools have higher self-esteem at wave 4, but show no significant difference in self-esteem later. Among the school context factors, having more good friends and being more satisfied with their class master are associated with higher self-esteem. In contrast, worrying about having no good friends or worrying about school grades are associated with a lower self-esteem.

Against to our expectation, having better academic performance is only associated with a higher self-esteem at wave 6, not at other waves.

(Table 2 is about here)

Results of analyses applying piecewise linear growth curve analyses are presented in Table 3. We include the family and school context factors stepwisely to detect the possible mediating effects of gender on self-esteem. With the adjustment of gender, the estimated intercepts in Model 1 demonstrate the developmental pattern of self-esteem from early adolescence to early adulthood. According to Model 1, the growth rate at time 1 is significantly negative, but the growth rate at time 2 is statistically insignificant. This implies that individuals' self-esteem declines during the early adolescence (when they are in junior high schools), and it stop to decrease and remain in stable during the late adolescence to early adulthood.

(Table 3 is about here)

Model 1 also shows that males tend to have a higher self-esteem initially, but the growth rate of their self-esteem is not significantly different from that of females at both time 1 and time 2. When family context factors are controlled in Model 2, male's self-esteem at the initial status becomes not significantly different from female, but its growth rate at time 1 becomes positively significant. That is, adjusted for family context factors, male's self-esteem growth curve start at a level no different from that of females', but its decreasing during time1 tend to be less steeper. When we add school context factors in Model 3, no significant differences between male and female trajectories of self-esteem are found. This implies that gender difference in growth curve of self-esteem is likely due to their different experiences within family and school contexts.

Model 4, the full model in our analyses, displays both the main effects of all predictors and certain significant interaction effects on self-esteem. Since most family

and school factors have been standardized before included into the model, we are able to compare the magnitudes of impacts for these factors on the self-esteem development.

In the model for initial status, eight factors appear to be significantly associated with the initial status of self-esteem. Ranked by their magnitude of impacts, they are: 1) worry about popularity at class (-0.555), 2) non-academic talents (0.337), 3) being liked by teachers (0.337), 4) nice friends in class (0.274), 5) worrying about incoming school entrance exam (-0.256), 6) father's control at wave 1 (0.228), 7) mother's support at wave 1 (0.193), and 8) being disliked by teachers (-0.185). Accordingly, in terms of the magnitude of impacts on the initial status of self-esteem development, the two family context factors are less influential than those school context factors. In addition, the interaction between gender and father's control is found to be significant (-0.260). This suggests that the net effect of father's control is negatively associated with males' initial self-esteem (0.228-0.260 = -0.032). Also, compared to females, the impacts of father's control have smaller effects on male's self-esteem.

In the model for growth rate at time 1, the ranks among significant factors are: father's control at wave 1 (-0.134), father's education (0.122), worry about popularity at class (0.090), non-academic talents (-0.066), and academic performance at wave 1 (-0.062). It is noticeable that the three factors that are significant in both initial model and growth rate model in time 1 (i.e., father's control at wave 1, worry about popularity at class, and non-academic talents) exhibit different directions of impacts in these two models, and the directions of impacts they show in the growth rate at time 1 do not make sense (e.g., worrying about popularity at class has "positive" effects on the growth rate of self-esteem). This could be that when the trajectory for a group like them displays a higher (or lower) initial status, they tend to have more "space" than other groups for the following change. Hence, for these three factors, the

direction of their impacts on self-esteem should be defined based on their signs in the model for initial status. Accordingly, father's control at wave 1 and non-academic talents are positively associated with self-esteem, and worrying about popularity is negatively associated with self-esteem. As shown above, father's education is positively associated with the growth rate of self-esteem at time 1. That is, the decline of self-esteem during early adolescence for individuals with a higher educated father is in a slower pace. Against our expectation, academic performance at wave 1 is negatively associated with the growth rate of self-esteem. That means those who performed better at wave 1 experience a steeper decline of self-esteem during the early adolescence. Further investigations are needed to explain this phenomenon.

More over, three significant interactions are found in the model for growth rate at time 1. First, the interaction of gender to father's control is positively associated with the growth rate of self-esteem, meaning at the same level of father's control, males experience a milder decrease in self-esteem than do females (-0.134 + 0.229 = 0.095). If we combine this finding with that one exhibited from the interaction in the model of initial status, we find that the impact of father's control on self-esteem appears to be less to males than to females. Second, the interaction between gender and comparison with siblings is significantly associated with the growth rate of self-esteem. Male experienced this comparison exhibit a less steep decline of self-esteem, and the more comparisons they experienced before, the less steep the decline is. Third, the interaction of gender and nice friends in class is negatively associated with the growth rate of self-esteem. This suggests that, compared to teenaged girls, teenaged boys with the same number of nice friends in class tend to experience a steeper decline of self-esteem during the early adolescence.

The model for growth rate at time 2 displays the impacts of the family and school factors on self-esteem development from late adolescence to early adulthood.

Ranked by the magnitude of regression coefficients, the seven significant predictors are: 1) attending vocational school (0.079), 2) father's support at wave 5 (0.068), father's education (-0.062), 4) worrying about school grades (-0.052), 5) worrying about having no good friends (-0.042), having satisfied class master (0.027), and 7) having more good friends at wave 5 (0.027). It is noticeable that father's education is negatively associated with the growth rate of self-esteem at time 2, meaning individuals with a higher educated father tend to experience a decline of self-esteem during the late adolescence to early adulthood. Also, looking at the rankings, we find the two family factors (father's support at wave 5 and father's education) rank in front of the school factors (except for attending vocational school), which is opposite what is found in the model for the initial status. This implies that while the school factors such as relations with peer and teachers have stronger effects on self-esteem development during early adolescence, family factors such as father's support and father's education appear to be more influential on self-esteem during the late adolescence to the early adulthood.

Two significant interactions are found in the model for growth rate at time 2. First, the interaction between gender and mother's control is negatively associated with the self-esteem during time 2, meaning that while being controlled by mothers has no significant effects on female's self-esteem, it results in a decline of self-esteem for males during late adolescence to early adulthood. Second, the interaction of gender to academic performance in wave 5 is negatively associated to the growth rate of self-esteem at time 2. This suggests that having better academic performance results in a decline in self-esteem for males, but not for females.

Discussion

This paper delineates the developmental trajectory of self-esteem for Taiwanese youths. Results suggest a steep decline of self-esteem during the early adolescence

and a relative static status of it during the late adolescence to early adulthood. Both family context and school context play important roles in the developmental process of the development of youth's self-esteem. In terms of the magnitude of impacts on self-esteem, school context factors such as relations with peers and teachers, non-academic talents, and worries to academic performance appear to be more influential during the early adolescence; parenting behaviors and family economic status exhibit stronger effects during the late adolescence to early adulthood. In consistent with prior studies, males on average report higher self-esteem than do females. Certain predictors appear to act differently on male's and female's development of self-evaluation. Parental control tends to result in lower self-esteem for males, but not for females. In addition, male's self-esteem development is less responsive to parental control during early adolescence, but more affected by it during late adolescence.

The two major limitations of this paper both come from the measurements applied in the analyses. First, prior research has indicated that the construct of self-esteem consists of self-worth and self-efficacy. The measure adopted in this study is unable to differentiate and address these two aspects. Second, The measures such as parenting behaviors and peer relations adopted in this study are not fully corresponding in the two time sections, so that the reliability issue could be a concern. However, in our defense, youths tend to be treated differently by parents or teachers in different stages, so measures comprised with different indicators in different stage could be reasonable.

The impact of family socioeconomic status on self-esteem is not monotonous. Having a higher educated father seems to buffer the decline of self-esteem during the early adolescence, but it is associated with a continuous decreasing of self-esteem during late adolescence to early adulthood. It is possible that fathers with higher

educational attainments tend to have higher expectation on their children's achievements. Higher parental aspiration may help children to maintain a stable self-esteem when they are younger, but cause a stress later when their achievements do not meet their parent's expectation (Large and Marcussen 2000; Marcussen 2006).

Parental control exhibit different impacts on male's and female's self-esteem Males are more likely than females to respond negatively to parental control. This correspond the common observations that teenage males tend to be more rebellious than teenage females (e.g., Loukas, Paulos, and Robinson 2005). Parental support, on the other hand, is found to produce positive impacts on self-esteem for both males and females, which is in consistent with prior findings. One thing noteworthy is that, while mother's support is found to be significant during early adolescence, father's support is more eminent during late adolescence. More investigations are needed to determine whether father's or mother's support does have different impacts at different stage of life course. As to the impacts of comparison with elder siblings on academic performance, results are against to our expectation. Bivariate association shows comparisons with siblings are significantly associated with lower self-esteem only at the first two waves of survey. This could be the reason why it is not significant in the piecewise linear growth curve analyses. Nevertheless, the later analyses do show that males' growth rate of self-esteem during early adolescence is positively associated with comparisons with siblings. More investigations are needed to clarify this mechanism.

In additional to parents, adolescents received reflected appraisals from other significant others in their lives. Results show that relations with peers and teachers are positively related to adolescents' self-esteem development, and the former tend to have a greater influence to youth's self-concept than do the later. It is noticeable that worrying about being unpopular is more influential to one's self-evaluation than the

actual number of friends one has. The bivariate correlations between the number of friends and worries of having no good friends are –0.217 and –0.071 during early and late adolescence, respectively. This implies that being unrecognized by peers is constantly a source of anxiety for adolescents, and this anxiety does not disappear easily even one already has many friends.

In a society like Taiwan which highly emphasize the educational attainment, we are surprised to find that academic performance do not exhibit a significant positive correlation with one's self-esteem. Better academic performance even results in a steeper decline of self-esteem, especially for males during late adolescence to adulthood. It suggests that academic performance may not be the major source of self-attribution as we expected. In contrast, better grades at school may be associated with some unknown mental construct that decreases one's self-esteem, particularly for teenage boys. On the other hand, having non-academic talents during the early adolescence is highly associated with higher self-esteem. In terms of the magnitude of influence, the impacts of having talents on one's feeling of self-worth even surpass that resulted from better relations with friends or teachers. Since this study is unable to trace the impacts of talents on self-esteem during the late adolescents, more studies are needed to find out whether this mechanism exists.

Using panel data, this study yields valuable findings on the developmental trajectory and the mechanism of individual's self-esteem development from early adolescence to early adulthood. As more and more longitudinal data sets are available, studying the developmental process of self-esteem is more promising than before. The multidimensional construct of self-esteem needs to be further addressed. Also, in additional to the family contexts and schooling experience, we recommend future researchers to include factors such as romantic relationship or working experience in the studies of youth's self-esteem.

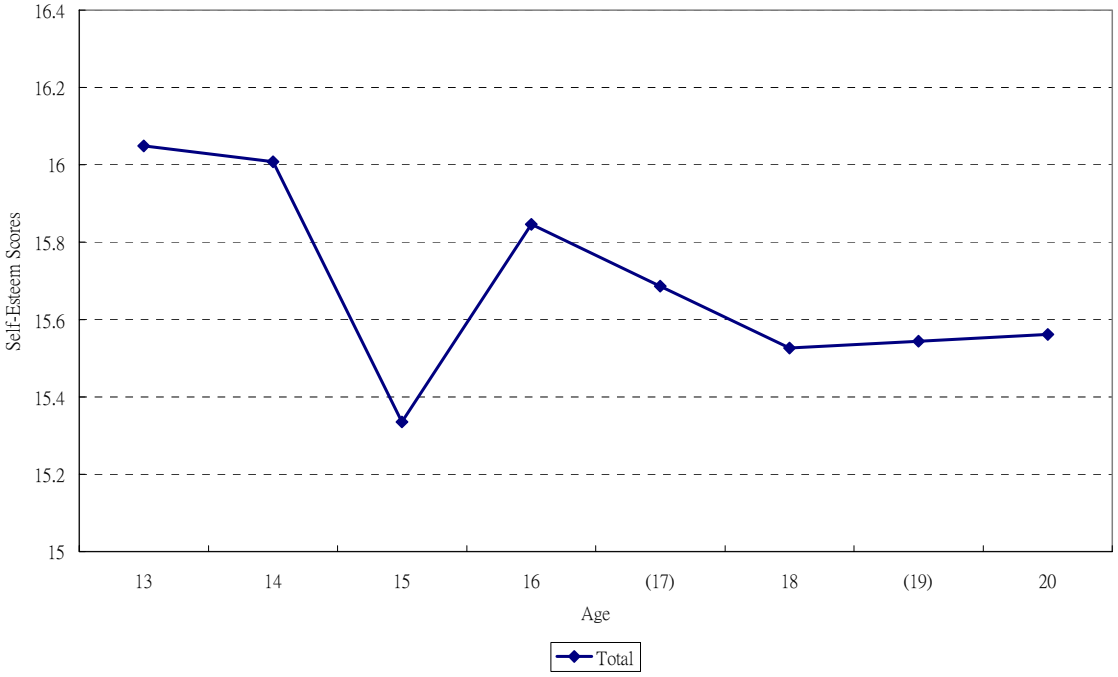

Figure 1. Mean Self-Esteem Scores from Early Adolescence to Early Adulthood

Table 1. Bivariate Relationships between The First Three Waves of Self-Esteem and Predictors at Wave 1

Predicting Variables	**Mean**	**Correlation Coefficient**		
	(S.D.)	Wave 1	Wave 2	Wave 3
Independent Variables at Wave 1				
Male	0.51	0.04	0.11**	0.11**
	(0.50)			
Father's education	3.21	0.03	0.06*	0.08**
	(1.71)			
Father's control	3.52	0.09**	0.11**	0.08**
	(0.85)			
Mother's control	3.77	0.06*	0.07**	0.07**
	(0.77)			
Father's support	3.57	0.17**	0.15**	0.14**
	(0.83)			
Mother's support	3.89	0.19**	0.16**	0.17**
	(0.81)			
Being compared with siblings	1.09	-0.05†	-0.07**	-0.04
	(1.10)			
Proportion of nice friends in the class	3.90	0.21**	0.14**	0.14**
	(0.87)			
Worrying about being unpopular in the class	2.40	-0.26**	-0.23**	-0.24**
	(0.89)			
Number of teachers like you	2.55	0.20**	0.16**	0.15**
	(1.81)			
Number of teachers dislike you	0.66	-0.13**	-0.07**	-0.08**
	(1.18)			
Academic Performance	3.29	0.11**	0.08**	0.06*
	(1.14)			
Worrying about incoming entrance exams	0.76	-0.11**	-0.13**	-0.12**
	(0.43)			
Number of non-academic talents	1.32	0.16**	0.09**	0.09**
	(0.99)			

Note: N = 1,471

† p<.10; * p<.05; ** p<.01

Table 2. Bivariate Relationships between The Last Three Waves of Self-Esteem and Predictors at Wave 1, Wave 4, and Wave 5

Predicting Variables	**Mean (S.D.)**	**Correlation Coefficient**		
		Wave 4	Wave 6	Wave 8
Independent Variables at Wave 1				
Male	0.51 (0.50)	0.06*	0.13**	0.08**
Father's education	3.21 (1.71)	0.09**	0.02	-0.03
Independent Variables at Wave 4				
Participation in extracurricular activity clubs	0.19 (0.39)	-0.06*	-0.02	-0.03
Independent Variables at Wave 5				
Father's control	3.50 (1.18)	0.13**	0.10**	0.10**
Mother's control	4.09 (0.94)	0.08**	0.07*	0.07*
Father's support	3.34 (0.96)	0.24**	0.20**	0.18**
Mother's support	3.79 (0.84)	0.16**	0.10**	0.14**
Attaining vocational school	0.42 (0.49)	-0.06*	0.01	0.06†
Attaining junior college	0.06 (0.23)	0.00	-0.01	-0.02
Attaining senior high school	0.52 (0.50)	0.06*	-0.01	-0.05
Number of best friends	6.58 (5.38)	0.07**	0.12**	0.11**
Worrying about having no good friends	2.05 (1.00)	-0.19**	-0.22**	-0.19**
Degree of satisfaction to the class master	3.17 (0.70)	0.10**	0.07*	0.09**
Academic Performance	3.34 (1.26)	0.01	0.06*	-0.03
Worrying about school grades	3.01 (0.83)	-0.08**	-0.23**	-0.15**

Note: N = 1,471

† p<.10; * p<.05; ** p<.01;

Table 3. Unrestricted Hierarchical Multivariate Linear Model

Fixed effects	Model 1	Model 2	Model 3	Model 4
Model for initial status				
Intercept	16.159**	16.229**	16.190**	16.202**
Male	0.268†	0.135	0.181	0.186
Father's education^z		0.011	-0.043	-0.042
Father's control at wave 1^z		0.182	0.115	0.228†
Mother's control at wave 1^z		-0.107	-0.039	-0.019
Father's support at wave 1^z		0.193†	0.103	0.104
Mother's support at wave 1^z		0.362**	0.202*	0.193*
Compared with siblings^z		-0.084	-0.054	-0.057
Nice friends in class^z			0.272**	0.274**
Worry about popularity at class^z			-0.556**	-0.555**
Number of teachers like you^z			0.282**	0.280**
Number of teachers dislike you^z			-0.177*	-0.185**
Academic performance at wave 1^z			0.102	0.103
Stress for continuing education			-0.258**	-0.256**
Non-academic talents^z			0.338**	0.337**
Male × father's control				-0.260†
Model for growth rate at time 1				
Intercept	-0.325**	-0.332**	-0.318**	-0.330**
Male	0.115	0.130†	0.107	0.106
Father's education^z		0.107**	0.125**	0.122**
Father's control at wave 1^z		-0.056	-0.039	-0.134*
Mother's control at wave 1^z		0.043	0.044	0.027
Father's support at wave 1^z		0.002	0.007	0.005
Mother's support at wave 1^z		-0.084†	-0.047	-0.048
Compared with siblings^z		0.063†	0.054	0.003
Nice friends in class^z			-0.047	0.019
Worry about popularity at class^z			0.088*	0.090*
Number of teachers like you^z			-0.057	-0.054
Number of teachers dislike you^z			0.045	0.046
Academic performance at wave 1^z			-0.062†	-0.062†
Stress for continuing eduction			0.029	0.028
Non-academic talents^z			-0.067†	-0.066†
Male × father's control				0.229**
Male × compared with siblings				0.104*
Male × nice friends in class				-0.131**

Table 3. Unrestricted Hierarchical Multivariate Linear Model (*continued*)

Fixed effects	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Model for growth rate at time 2				
Intercept	-0.013	-0.010	-0.029	-0.032
Male	-0.011	-0.021	-0.058	-0.059
Father's education^{z}		-0.079**	-0.064**	-0.062**
Father's control at wave 5^{z}		0.0002	-0.009	-0.006
Mother's control at wave 5^{z}		0.004	0.009	0.032
Father's support at wave 5^{z}		0.069**	0.067**	0.068**
Mother's support at wave 5^{z}		-0.021	-0.024	-0.026
Vocational school attendance			0.082*	0.079*
Junior college attendance			0.071	0.076
Number of good friends at wave 5^{z}			0.025†	0.027†
Worry about having no good friends^{z}			-0.043**	-0.042**
Satisfied class master^{z}			0.027†	0.027†
Academic performance at wave 5^{z}			-0.014	0.014
Worry about school grades^{z}			-0.053**	-0.052**
Extracurricular activity participation at wave 4^{z}			-0.002	-0.004
Male × mother's control				-0.049†
Male × academic performance at wave 5				-0.054†

† p<.10; * p<.05; ** p<.01;

^{z}: standardized variable

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