The Relative Effects of Family and School Contexts on Self-Esteem in Early and Middle Adolescence

By

SHUPING TZENG

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This study investigates the relative effects of family and school contexts on self-esteem and changes of these effects in early and middle adolescence. Data derived from Taiwan Youth Project (TYP), a longitudinal survey of Taiwanese teenagers since 2000, are analyzed in the current study. Results showed that both family and school contextual factors exert significant effects on self-esteem in early adolescence; particularly, the relations with family, teacher, and peers have larger effects on self-esteem than academic performance. In middle adolescence, only relations with family and teacher exert significant influence on self-esteem, while the effects of peer relations and academic performance on self-esteem are not significant. These results are considerably different from what have found in the previous studies done in the Western societies. Some possible explanations, particularly the special educational environment of the Chinese societies are discussed.

Key words: self-esteem, family, school, SEM

Teenagers' self-esteem has been a popular issue in academic research. Previous studies have demonstrated that the level of self-esteem is related to teenagers' psychological functions, psychological pathology and behavior, including depression and suicidal thoughts (Brausch & Gutierrez, 2010), mental health problems (Ybrandt & Armelius, 2010), satisfaction with life (Boden, Fergusson, & Horwood, 2008), and deviant or criminal behavior (Caldwell, Beutler, Ross, & Silver, 2006). Regarding the nature of self-esteem, scholars have defined its content by different approaches to show that it is a complicated and multi-dimensional concept (Owens, 1994; Rosenberg & Pearlin, 1978). Many studies suggest that family and school contexts are closely related to development of teenagers' self-esteem, such as parent-child relationship, parenting style, teacher-student relationship, academic performance, and peer relationship (Morris et al., 2002; Wu et al., 2010).

Self-esteem is also an unstable and changeable characteristic in that it changes with individual socialization, social interactions and different environments. Previous studies have suggested, in adolescence, self-esteem rapidly declines, and it gradually increases in adulthood (Baldwin & Hoffmann, 2002). In addition, research has shown that, during late childhood and adolescence, teenagers move their activities from family to school. Their time spending in family activities reduces while they stay in schools and with peers for longer time. As a result, importance and influence of family and school contexts on teenagers start changing (Thornberry, 1987). Therefore, this raises a concern. That is, while the relationships

1. Department and Graduate Institute of Criminology, National Chung Cheng University, 168 University Rd., Min-Hsiung, Chia-Yi 62102, Taiwan. (E-mail address: crmspt@ccu.edu.tw)

with significant others change over time, does the relative importance of family and school contextual factors on self-esteem also change over the different stages of adolescence? However, this issue is lack of examination in the literature. With the longitudinal dataset of Taiwan Youth Project (TYP), it provides a good opportunity to probe into this issue. Accordingly, this study attempts to examine the effects of family and school contextual factors on self-esteem over different developmental stages among Taiwanese teenagers.

Concept of Self-Esteem and Development during Adolescence

Regarding the content and definition of self-esteem, scholars have proposed different views. Rosenberg, the most well-known scholar on self-esteem, suggested that self-esteem is a kind of attitude, including cognitive and affective aspects. Measurement of self-esteem is divided into global self-esteem and specific self-esteem (Rosenberg & Pearlin, 1978). Also, Owens (1994) categorized self-esteem into positive and negative self-esteem, while DeHart (2006) divided self-esteem into implicit and explicit dimensions. These different categorizations reveal that self-esteem is a multi-dimensional and complicated concept.

Self-esteem is also a characteristic that would change due to different events and contexts (Kernis, 2005). Studies have demonstrated that the development of self-esteem presents a curved trajectory (Baldwin & Hoffmann, 2002). Generally speaking, the level of self-esteem is high during childhood. Overall self-esteem starts declining in adolescence, and it increases and gradually becomes stable in adulthood (Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002).

From late childhood to early adolescence, self-esteem declines rapidly. During this period, teenagers are under a stage full of stress and changes (Arnett, 1999). They encounter changes in different aspects, and their physical and emotional states are extremely unstable. They get angry easily, become irritable, and usually fight with their parents. At the same time, teenagers come across the crisis of self-identity and role confusion. They focus on themselves, start introspection and self-evaluation, and construct their own social and occupational directions to gradually adapt to the role as "adults" (Yi, Wu, Chang, & Chang, 2009). In middle adolescence, self-esteem still declines. The development of secondary sexual characteristics is more significant than early adolescence. Therefore, appearance, physical attraction and relationships with the opposite sex can influence adolescents' self-esteem. At this stage, individuals experience the issue of gender identification. They must re-adapt to values and behavior that fit in with their gender (Robins & Trzesniewski, 2005). In later adolescence, teenagers' self-esteem declination is getting minor, stops decreasing from 19 to 22 years old and starts increasing afterward. At this stage, individuals no longer encounter severe physical changes. Their psychological state is more stable, and they have less emotional problems. Also, they begin turning to occupation and stable marital relationships, instead of academic achievement and friendship (Robins & Trzesniewski, 2005). They approach the later stage of "psychological and social development identification/crisis stage" proposed by Erikson, and start entering "intimacy/isolation stage." Some scholars suggest that heterosexual companions

can be individuals' significant others at this stage, and positive heterosexual relationships would increase individuals' self-esteem and occupational expectation (Otto, 1977).

Correlates of Self-Esteem: Family versus School Context

Junior high school (7th to 9th grades) is an important stage for self-esteem development. Adolescents' interactions with significant others, including parents, teachers, and peers, would influence their self-esteem (Blake & Slate, 1993). These interactions mainly occur in families and schools.

Family context

Family is the initial and one of the principal socialization institutions in child and adolescent development (DeLisi, 2003). Because of its importance, many studies have investigated how different aspects of family circumstances, such as parenting practices, parent-child relations, and family processes, are related to adolescent's self-esteem (Blake & Slate, 1993; Goldsmith, 1986). Studies have shown that parenting styles in families would influence children's self-esteem. DeHart (2006) divided parenting into nurturing, authoritative, permissive and overprotective styles, and argued that nurturing style is positively associated with both implicit and explicit self-esteem. Overprotective style reveals negative correlation with implicit self-esteem, while permissive style would directly reduce explicit self-esteem. In a research on Taiwanese adolescents, Jiang, Huang, and Lian (2000) found that children's self-esteem under authoritative and permissive styles would be higher than those with authoritarian and neglect styles.

Parent-child relationship would also affect adolescents' self-esteem (Jiang, et al., 2000). Bulanda and Majumdar (2009) found that greater parental availability is associated with higher levels of self-esteem. When adolescents perceive that parental support are available to them (including affective and material support), their self-esteem would be higher. In addition, when teenagers perceive higher degree of parental involvement and better quality of parent-child relationship, their self-esteem would be higher (Ryan, Stiller, & Lynch, 1994). Additionally, family atmosphere is found to be related to adolescents' self-esteem development (Doyle & Markiewicz, 2005). Siyez (2008) found, when adolescents perceive more conflicts in family, they would have lower levels of self-esteem, and have stronger sense of depression consequently.

School context

School context also plays an important role in the studies on children and adolescents. Research has indicated that, as parents in families, teachers in schools play critical roles in socialization of children and teenagers (Ryan, et al., 1994). By interacting with schools and teachers, participating in school activities, and concentrating on school work, adolescents construct the connections with traditional society and learn the values and behavioral

regulations that fit in with traditional society. These then effect development of their self-concept (Jiang, et al., 2000; Wu, et al., 2010).

First, studies have shown that classroom atmosphere is closely related to teenagers' development. Wu et al. (2010) found, when students perceive the social environment of classroom to be more positive, they have more optimistic evaluations on themselves and peer relationship. Also, Wu et al. (2010) indicated that the interactions between school teachers and classmates are positively correlated with the adolescents' evaluations on their performance on academic, cognitive and work fields. Secondly, as parents in families, teachers are adolescents' significant others in schools and also play an important role in adolescents' self-esteem development. Ryan and Grolnick (1986) and Goodenow (1992) found that students, who have positive view of teachers, such as experiencing their teachers as autonomy supportive and warm, are more likely to feel competent, and to have higher self-esteem than those with negative views of their teachers.

Thirdly, academic achievement is found to be positively correlated to adolescents' self-esteem. Zhang and colleagues (2009) indicated that, students with low academic achievement could increase self-esteem in social relationship if they can hide their inferior academic performance from peers. Also, Ross and Broth (2000) found that prominent academic achievement would result in teenagers' better self-evaluation. Particularly, Taiwan is a society that places a strong emphasis on educational competition. In comparison to physical education, art or other skills, academic performance plays a more important role in Taiwanese teenagers' lives. Studies on Taiwanese adolescents have revealed that students with better academic performance are not only treated nicely in schools and families, but they also have higher self-evaluation (Hu, 2004).

Finally, from late childhood to early adolescence, individuals start having more opportunities to contact peers of similar ages. Their time spent with friends increases and time spent with parents gradually reduces (Nickerson & Nagle, 2005). Studies have shown that quality of peer relationship and peer support are critical predictors of teenagers' self-esteem and self-efficacy (Wilkinson, 2004). Some studies even show that in early adolescence, influence of peer relationship on self-esteem development is more significant than parents' effects (DuBois, Bull, Sherman, & Roberts, 1998).

The present study

The discussion aforementioned shows that the levels of self-esteem change in different stages of human development. Especially, the overall self-esteem declines in adolescence, and increases and gets stable when entering adulthood. Also, the literature reveals that family and school contextual factors are closely related to the adolescents' self-esteem development. Therefore, the goal of this study is to further examine whether the effects of family and school context on self-esteem development would be different over period of adolescence.

According to the "satellization theory" (Ausubel, 1958), in childhood, parents are the

center of children's lives (as satellites). Parents' positive evaluation would make them having higher self-evaluation, which positively influences their self-esteem (Berzonsky, 1978). However, in adolescence, teenagers are under a process of de-satellization. Their main activity places turn from families to schools and other social networks. They gradually develop their own social networks, and have less attachment with parents. First, they satisfy their needs for intimacy by friendship (Nickerson & Nagle, 2005). Studies have shown that in adolescence, although self-esteem is positively correlated with both parent-child relationship and peer relationship, the importance of parent-child attachment for self-esteem is getting less, whereas peer attachment becomes more critical (Song, Thompson, & Ferrer, 2009).

Secondly, teacher-student relationship and academic performance both play important roles in adolescents' school life. Viewing that individuals' relationships with significant others would change at different stages, compared to the effects of parent-child relationship and peer relationship on adolescents' self-esteem, how does teacher-student relationship affect self-esteem at different stages of adolescence? Also, are the effects of academic performance on self-esteem different over the period of adolescence? According to the satellization theory, the influences of family and school contextual factors on teenagers at different developmental stages should be different. However, this issue is not comprehensively examined, especially in Taiwan, and this is the main research topic of this study. TYP is a longitudinal study which broadly collects data regarding adolescents' development at different stages. The database is rich, and it allows this study to probe into effects of family and school context on Taiwanese adolescents' self-esteem development in early and middle adolescence.

Based on the aforementioned literature review, the hypothesized model is depicted in Figure 1. There are two things about the model worthy further explanation. First, according to Ryan, Stiller, and Lynch (1994), based on attachment theory, the representation of attachment to parents characterizes the primary model from which representations of all subsequent relations would be derived. In other words, this suggests that the relationships with parents may generalize to other relationships outside the family. Therefore, the model depicted in Figure 1 draws a line from family relations to the relationships in school context. Secondly, at each wave, all the variables were measured at the same point of time. Although testing the relationships among variables of interest in wave 1 (7th grade) and then again in wave 3 (9th grade) has developmental importance, the results only reflect the correlational nature of model. A true longitudinal test of these data would require cross-lagged effect in the model. Therefore, in Figure 1, the cross-lagged effects of family and school variables at wave 1 on self-esteem at wave 3 and those of self-esteem at wave 1 on family and school variables at wave 3 are also included.

Methods

Participants

The data used in this study are derived from TYP, a panel study conducted by the Institute of Sociology, Academia Sinica, Taiwan. This project is a longitudinal research with
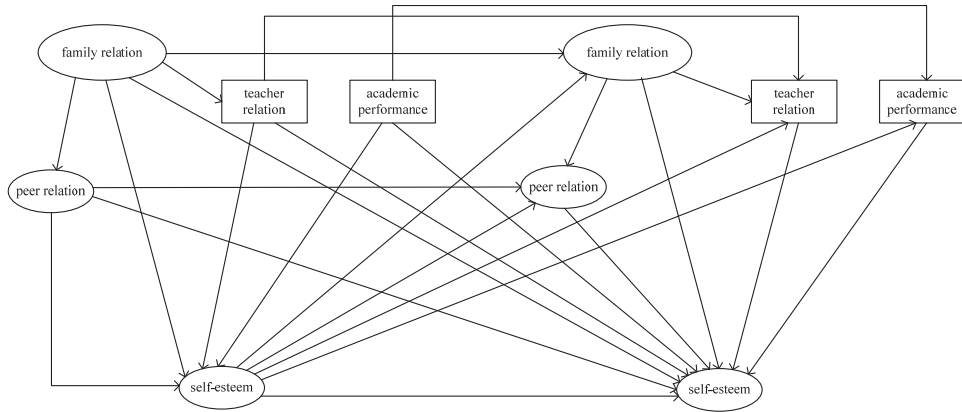
Figure 1. Hypothesized model

annually repeated surveys since 2000. The adolescent sample is selected on a school-based, multi-stage stratified sample scheme. A sample of junior high schools in Taipei City, Taipei County, and Yi-Lan County, stratified by the level of urbanization was selected in the year of 2000. It consists of adolescents of two cohorts: 2,696 seventh graders (J1 sample) and 2,890 ninth graders (J3 sample). Until 2009, for J1 sample, there are 9 years of data available, while there are 8 years of data available for J3 sample. The goal of this project is to use comprehensive research design to cover different aspects of the interplay among family, school, and community, which shape adolescents' future development.

In the current study, data based on the surveys of the 7th graders in 2000 (J1 sample, wave 1) and their follow-up survey in 2002 (wave 3) are utilized[2]. Due to some missing respondents at wave 3 and listwise deletions of missing data on the following statistical procedures, 2,241 students are included in this study.

Measures

The major variables include self-esteem, family relations and school factors that are derived from both the 1st and 3rd waves, and control variables from the 1st wave of survey.

Self-esteem

As the dependent variable in this study, self-esteem is measured by a scale containing 4 items. These four items are derived from the Rosenberg Self-Esteem Scale (1965), including "At times, I think I am not good at all;" "I certainly feel useless at times;" "I take a positive attitude toward myself;" and "I am satisfied with myself." The responses are measured by a 4-point Likert scale with response values from 1 (strongly agree) to 4 (strongly disagree). The values of positive items are reversed; therefore, the higher scores present that respondents have

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2. The reason that this study uses data of waves 1 and 3 is that these two waves represent early and middle adolescence.

better self-evaluation regarding their characteristics and competence. The Cronbach alphas for these questions in the two waves of survey are 0.67 and 0.72. The factor loadings range from .60 to .83 in wave 1 and from .58 to .88 in wave 3.

Family relations

A scale of 6 items is used to measure the family cohesion. Adolescents indicate whether the following statements fit with their own family life: "When I need help or advice, I can rely on my family"; "When making decision, family members would have a discussion"; "Every family member participates in family-related activities"; "My family members like to spend leisure time together"; "Family members accept each other's friends"; "When I feel frustrated, I can always receive comfort from my family". Respondents answer these items with a four-point ordinal scale, with 1 as "strongly agree" and 4 (strongly disagree). The values of these items are reversed and summed up, with an attempt to present the higher scores equal to the greater family relations. The Cronbach alphas for these questions in the two waves of survey are 0.81 and 0.83. The factor loadings range from .55 to .75 in wave 1 and from .53 to .77 in wave 3.

School factors

School factors include three variables. *Relationship with teachers* is measured by one item; students are asked how they are satisfied with their relations with teachers. The responses are measured by a 4-point Likert scale with response values from 1 (very satisfied) to 4 (very unsatisfied). The values of this item are reversed. The higher scores indicate that students feel a better relation with teachers. *Academic Performance* is measured by asking students their rankings of grade within a class in the previous semester. Their grades are coded with five levels (1 = ranks top five, 2= ranks the 6th to 10th, 3 = ranks the 11th to 20th, 4 = ranks the 21th to 30th, and 5 = ranks over the 30th). The values are reversed so that the higher scores present students' better academic performance. *Peer Relation* is measured by 3 items about relations with friends: "They care about me"; "I can obtain help from them"; and "When I am frustrated, they would comfort me". The responses were measured by a 4-point Likert scale with response values from 1 (strongly agree) to 4 (strongly disagree). The values are reversed and summed up in order to present the higher scores equal to the greater peer relations. The Cronbach alphas for these questions in the two waves of survey are 0.80 and 0.88. The factor loadings range from .71 to .79 in wave 1 and from .82 to .89 in wave 3.

Control variables

Two socio-demographic background characteristics that prior studies have identified as relevant to adolescents' self-esteem, family-related and school-related factors aforementioned are controlled in the following analyses (eg., Chang & Yi, 2004; Liu, 2006). These structural variables include gender (boy = 1, girl = 0), and socio-economic status (SES) measured by father's education. Father's education is categorized into seven levels (from low to high levels: 1

= elementary school or below, and 7 = graduate school).

Statistical Analysis

The Analysis of Moment Structures (AMOS) program (Arbuckle, 2005) with full-information maximum likelihood estimation procedure is used to evaluate the hypothesized model (Figure 1). After the estimates are obtained, several fit indices are adopted to evaluate whether the substantive model is consistent with the data, including the model chi-square (χ^2), Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). A model is considered a good model fit when the χ^2 test fails to reject the null hypothesis of perfect fit in the population at the .05 level (Bollen & Long, 1993; Kline, 2005). CFI assesses the relative improvement in fit of the hypothesized model compared with a baseline model. The CFI coefficient value ranges from zero to 1.00, with values greater than .90 indicating reasonably good fit of the hypothesized model (Hu & Bentler, 1999). Values of RMSEA range from zero to 1.00; a value of zero implies the best fit and higher values suggest worse fit (Byrne, 2001; Kline, 2005). A rule of thumb is that RMSEA of about .05 or less indicates a close approximate fit of the model; values between .05 and .08 suggest a reasonable error of approximation; values ranging from .08 and .10 indicate mediocre fit; and those greater than .10 signify poor fit (MacCallum, Browne, & Sugawara, 1996).

Additionally, in order to examine the relative impacts of family and school contexts on self-esteem and determine whether contextual effects on self-esteem vary from early to middle adolescence, equality constraints are included in the model (Byrne, 2001; Kline, 2005). The χ^2 values produced by the models with and without constraints are then compared. If the model without constraints has significantly reduced chi-square values compared to the model with equality constraints, it is concluded that the effects do vary over time or that the relative effects of family and school factors are different.

Results

Sample Characteristics

Table 1 shows the characteristics of 2,241 adolescents in the sample. The adolescents in wave 1 are 13 to 14 years old. The mean score of self-esteem scale is 11.19 in the 1st wave and reduces to 10.69 in the 3rd wave, and the difference in these two waves are statistically significant ($t = 9.72$, $p < .05$). The downward tendency is consistent with the development of self-esteem from early to middle adolescence addressed by Robin and colleagues (2002). Also, the mean scores of relations with family and teacher decline while those of peer relations rise. And the decreases reach statistical significance as well ($t = 17.39$ and 15.90 respectively, $p < .05$). The mean score of peer relation is 9.73 in wave 1 and 10 in wave 2, and the difference is statistically significant ($t = -6.96$, $p < .05$). The finding conforms to the view of the satellization theory (Ausubel, 1958). Parent relationships during adolescence are gradually replaced by de-satellization. Their dependence on parents progressively turns to others, especially peers.

Table 1 Sample characteristics (N = 2,241)

	Wave 1		Wave 3	
Gender				
Boy	1,131	50.5%		
Girl	1,110	49.5%		
	Mean	(SD)	Mean	(SD)
Age	13.29	0.46		
Father's Education	3.16	1.68		
Family Relations	18.16	3.80	16.82	3.64
Teacher Relations	3.11	0.73	2.83	0.68
Academic Performance	3.10	1.17	3.05	1.21
Peer Relations	9.73	1.63	10.01	1.66
Self-Esteem	16.15	2.93	15.39	2.97

Estimation of the Hypothesized Model

Figure 2 shows the estimated model of the contextual effects on Taiwanese adolescents over the two-year period. The model χ^2 statistic is 2380.7 (df = 407, p <.001). Since χ^2 is very sensitive to minor discrepancies between model and data with such a large sample in this study, this study does not solely rely on χ^2 statistic to assess the overall model fit. The value of RMSEA is .043, which is a close model fit. For CFI, the value is .929 signifying a reasonably good fit of the model. Overall, the results indicate that the model fits the data fairly well.

The results show that, in early adolescence, both family and school contexts exert significant effects on adolescents' self-esteem. Adolescents, who have closer relations with

Note: * p < .05   ** p < .01   *** p <.001
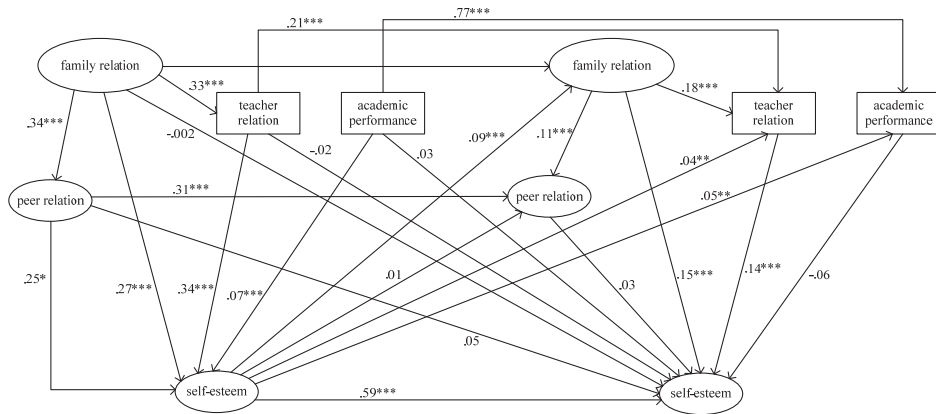
Figure 2. Estimated model

family, teacher, and peers and have better academic performance, report higher level of self-esteem. In order to examine the relative impact of family and school contexts in early adolescence, equality constraints are imposed in the model. The results are shown in Table 2. Both family relations and relations to teacher have positive effects on adolescents' self-esteem. When the equality constraints are imposed to these two paths, the difference of relative impacts is not statistically significant ($\Delta\chi^2 = 0.002$, $p > .05$). Also, the results show that the relative impacts of family relations versus peer relations and those of teacher relations versus peer relations are not statistically significant either ($\Delta\chi^2 = 0.18$ and 0.25 respectively, $p > .05$). But, the results show that family relations, teacher relations, and peer relations all exert greater impacts on self-esteem than academic performance ($\Delta\chi^2 = 23.46$, 46.02, and 19.94 respectively, $p < .05$).

The cross-lagged effects are also included in the analyses[3]. The results show that family relations, teacher relations, and peer relations at wave 1 exert significant effects on self-esteem

Table 2 Comparisons between models with and without constraints: relative impacts of family and school contextual factors on self-esteem at waves 1 and 3.

	Equality constraints are imposed on	$\Delta\chi^2$	df	p
The 1st wave	family relations→self-esteem vs. relations to teacher→self-esteem	0.002	1	n.s.
	family relations→self-esteem vs. peer relations→self-esteem	1.181	1	n.s.
	family relations→self-esteem vs. academic performance→self-esteem	23.461	1	p < .05
	relations to teacher→self-esteem vs. peer relations→self-esteem	0.247	1	n.s.
	relations to teacher→self-esteem vs. academic performance→self-esteem	46.024	1	p < .05
	peer relations→self-esteem vs. academic performance→self-esteem	19.943	1	p < .05
The 3rd wave	family relations→self-esteem vs. relations to teacher→self-esteem	0.412	1	n.s.
	family relations→self-esteem vs. peer relations→self-esteem	2.867	1	n.s.
	family relations→self-esteem vs. academic performance→self-esteem	10.046	1	p < .05
	relations to teacher→self-esteem vs. peer relations→self-esteem	2.254	1	n.s.
	relations to teacher→self-esteem vs. academic performance→self-esteem	14.103	1	p < .05
	peer relations→self-esteem vs. academic performance→self-esteem	1.75	1	n.s.

Note: n.s. = not statistically significant at the level of .05

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3. For the sake of clear presentation, the coefficients and paths are not shown in Figure 2.

at wave 2, accounting for self-esteem at wave 1 (β= 0.12, 0.11, and 0.09 respectively, $p < .05$). Further, self-esteem also has positive influence on subsequent family and school factors. In particular, self-esteem at wave 1 exerts significant effects on family relations and academic performance at wave 2 when the family relations and academic performance at wave 1 are controlled (β= 0.16 and 0.04 respectively, $p < .05$). The findings indicate that, students have higher levels of self-esteem tend to enhance their relations with family and improve their performance on school work.

After family variables, school variables, and self-esteem at wave 1 and cross-lagged effects are taken into control, the results show that, in middle adolescence, only the relations with family and teacher have significant effects on adolescents' self-esteem. Contrary to expectation, peer relations and academic performance do not have significant effects on self-esteem (Figure 2). Regarding the relative impacts of family relations and teacher relations on self-esteem, as in early adolescence, the difference is not statistically significant ($\Delta\chi^2 = 0.412$, $p > .05$). But, both family relations and teacher relations exert greater influences on self-esteem than academic performance ($\Delta\chi^2 = 10.41$ and 14.10 respectively, $p < .05$).

Additionally, equality constraints are further included into the model to examine whether the contextual effects of family and school change over time (Table 3). For family relations and teacher relations, although the levels of family relations and teacher relations decrease from early to middle adolescence, the effects of these two factors on self-esteem do not have statistically significant difference ($\Delta\chi^2 = 0.22$ and 3.81 respectively, $p > .05$). At the same time, although the levels of peer relations increase from early to middle adolescence, the effects of peer relations on adolescents' self-esteem show a downward tendency over time ($\Delta\chi^2 = 9.30$, $p < .05$). Also, the effects of academic performance on adolescents' self-esteem are getting weaker as well ($\Delta\chi^2 = 4.43$, $p < .05$). In particular, the effects of peer relations and academic

Table 3 Comparisons between models with and without constraints: impacts of family and school contextual factors on self-esteem vary over 2-year period.

Equality constraints are imposed on	$\Delta\chi^2$	df	p
family relations → self-esteem wave 1 vs. wave 3	0.218	1	*n.s.*
relations with teacher → self-esteem wave 1 vs. wave 3	3.810	1	*n.s.*
peer relations → self-esteem wave 1 vs. wave 3	9.302	1	$p < .05$
academic performance→self-esteem wave 1 vs. wave 3	4.432	1	$p < .05$

Note: *n.s.* = not statistically significant at the level of .05

performance on self-esteem turn to statistical insignificance from early to middle adolescence. These findings are considerably different from the perspectives of the satellization theory and research findings in prior studies (Ausubel, 1958; Song, et al., 2009).

Discussion

This study examines the relative effects of family and school contextual factors on Taiwanese adolescents' self-esteem development in early and middle adolescence. Consistent with previous research, the results show that the development of self-esteem from early to middle adolescence presents a downward tendency (Robins, et al., 2002). Also, as the satellization theory assumed, the relations with family and teachers decrease whereas the peer relations increase over the 2-year period. The analyses show that both family and school contexts exhibit significant associations with the development of adolescents' self-esteem. In terms of the relative impacts on self-esteem, relations with family, teacher and peers have stronger effects than academic performance during the early adolescence, whereas relations with family and teacher are relatively more influential during the middle adolescence. Moreover, unlike the viewpoint of satellization theory and findings in previous studies, this study finds that the effects of peer relations and academic decrease from early to middle adolescence; particularly, the effects of these two factors turn from significance to insignificance during the two-year period.

Results of this study show that, during early and middle adolescence, relations with family and teachers play an important role in Taiwanese adolescents' development of self-esteem. Family and school are principal socialization institutions, and parents and teachers are significant others that have great influence on adolescent development. Researchers have indicated, the center of adolescent socialization would gradually move from family to school. Parents' influence on child would start to decline in early adolescence (Thornberry, 1987). However, studies have found that parents' influences on child's development do extend the whole period of adolescence, and are independent of peers and school (Jang, 1999). That is, although the affective relationships between individuals and parents in adolescence are not as close as childhood, the focus of parent-child relationships changes from purely affective needs to instrumental needs. Perhaps, adolescents might seek affective comfort from peers, but they would turn to parents for advices concerning career plan and development (De Goede, Branje, Delsing, & Meeus, 2009). Also, regarding student-teacher relationships in school, teachers not only play the role as instructors of academic skills, but they are also the important others from whom adolescents can learn and seek advice. For adolescents in Taiwan, time they spend with teachers in school might exceed time they are with parents. Consequently, teachers' impacts on adolescents progressively increase, and relations with teacher further become one of the important factors affecting development of adolescents' self-esteem (Ma, Shek, Cheung, & Tam, 2002).

Also, the results may reflect the special environment of advancing to higher education

in the Chinese societies. In Taiwan and other Chinese societies, children's expectations of academic achievement are influenced by significant others, especially parents and teachers. In Taiwan, the 9th-grade students are busy and anxious in preparing the "Basic Competence Test for Junior High School Students", which matters whether they can enter better senior high schools to obtain higher educational achievement in the future. In such an important time of considering future plans and goals, adolescents might turn to parents and teachers for assistance and emotional support. Therefore, parents' and teachers' expectations of academic achievement can influence children unobtrusively. When adolescents can be aware of and accomplish parents' and teachers' expectations, and when they can obtain positive feedback, it is conducive to enhance their self-esteem. These are two possible reasons why parents and teachers have significant effects on teenagers during early and middle adolescence in the Taiwanese sample.

Additionally, this study also finds that the impacts of peer relations and academic performance on self-esteem are not significant during middle adolescence. This contradicts what we would expect from the literatures in the Western societies. Prior studies have shown that individuals would go through the process of de-satellization as they grow up (Ausubel, 1958; Nickerson & Nagle, 2005). When adolescents gradually extend their activity center from home to school, the effects of peer attachment on self-esteem increase, and even get beyond parental influence. However, the result about Taiwanese adolescents is considerably different. This study finds that the effects of peer relations on self-esteem are smaller than family relations in both early and middle adolescence. This may indicate that, on one hand, even though peers have a tendency to replace parents in terms of intimacy, peer attachment cannot completely take the place of parents for the sense of security. That is, the essences of parental attachment and peer attachment are different. Particularly, when they faces the problem about money, advance to higher education, and future plan, adolescents would turn to parents for advices, instead of depending on peers (Sebald & White, 1980). Although the individuals' social scopes get larger, family is still the security base for them as well as the foundation to support them to develop outwardly (Lempers & Clark-Lempers, 1992).

On the other hand, the finding reveals that peers do not necessarily play a role of strengthening adolescents' self-esteem. Perhaps, peers are able to threaten adolescents' self-esteem. Berndt (2002) points out that competitions and conflicts are unavoidable even among best friends. Also, positive peer relations do not increase adolescents' self-esteem as predicted, but negative peer relations have negative effects instead. Academic performance is one of the competitions among peers during adolescence. Teenagers' self-evaluations are not only influenced by their own grades, but also by social comparisons. When friends' grades are better, adolescents' self-esteem would reduce accordingly. But, when friends' grades are worse, their self-esteem would not increase. Perhaps, when friends have worse academic performance, they would not be the target of comparison (Guay, Boivin, & Hodges, 1999). This can possibly explain, for the 9th-grade students in Taiwan, why the effects of peers on self-esteem reduce. Under a highly-competitive situation, peers may be no longer the sources to provide affective

support, but they are competitors in the academic field instead.

Regarding the insignificant effects of academic performance on self-esteem during middle adolescence, this study provides three possible reasons. First, students do not care about academic performance probably due to self-handicapping (Tice & Baumeister, 1990). When they find they do not perform well on school work, they may want to run away from the reality. They may indulge themselves in not doing their best to prepare the exams. In so doing, they can claim that they do not do well on the exams not because they are not smart, but because they do not study at all or they do not want to study. Self-handicapped adolescents maintain their own self-evaluation through denying academic results. Hence, the influence of academic performance on self-esteem might reduce consequently. Secondly, adolescents can enhance self-esteem by developing special skills and achievements in many fields other than academic performance. For example, attending extracurricular activities, such as students' clubs or interscholastic competitions, is beneficial to increase self-evaluation. Adolescents have different ways to demonstrate their abilities, and academic performance is not the only way (Steitz & Owen, 1992). Finally, from the perspective of educational system in Taiwan, the "Basic Competence Test for Junior High School Students" is a very important exam in 9th-grsde students' lives. Research has shown that most 9th-grade students confront great pressure of this exam (Fu, 2007). They spend lots of time in preparing it because it is the key to enter their desirable senior high schools. Consequently, 9th-grade students seem not to care the work and regular exams in schools as much as the Basic Competence Test. In this study, the measure of "academic performance" is to ask students their rankings of grade within a class in the previous semester. Therefore, it is reasonable to speculate that this is one of reasons why the effects of academic performance on self-esteem decrease from early to middle performance.

This study uses J1 sample of TYP data to examine the relative impacts of family and school contexts on adolescent's self-esteem in early and middle adolescence. This study also investigates the changes of family and school contextual effects over the two-year period. Results show that, in Taiwan, family still exerts large influences on teenagers' self-esteem. However, school context does not impact self-esteem that much as shown in the previous studies, especially the effects of peer relations. To some extent, the results highlight the special educational environment in the Chinese societies. TYP provides an excellent opportunity to examine the development of adolescents' self-esteem, and family and school contextual effects on self-esteem. Viewing that the plentiful data and longitudinal nature of TYP project, future studies can explore issues other than self-esteem with TYP data.

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