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i) The development of self-esteem and the role of agency and communion: a longitudinal study among Chinese children

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The Development of Self-Esteem and the Role of Agency and Communion: A Longitudinal Study among Chinese Children

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Abstract There is a long and rich history of research on self-esteem in children. However, little is known about developmental changes in self-esteem and the association between self-esteem and two basic dimensions of social cognition. This study aims to examine the developmental trajectory of self-esteem and its relationships with two basic dimensions of social cognition: agency and communion among 276 Chinese elementary school students by a two-wave one-year longitudinal study. Agentic characteristics aid in achieving goals, while communion refers to qualities that aid in social relationships. Both play a part in children's developing self-esteem to varying degrees. The changes in self-esteem on mean-level and individual-level and the rank-order stability of self-esteem were assessed and the results showed that the development of self-esteem was relatively stable but with some fluctuations during childhood, and no gender difference was found in its development in a Chinese setting. Hierarchical regression was used to test the association of agency and communion with self-esteem and the findings showed that children's self-esteem was dominated by agency over communion in general; however, when grade was taken into consideration, the predictive effect of agency and communion on children's self-esteem changed from communion to agency from younger to older children, respectively. (word count:200)

Keywords: self-esteem, children, development, agency, communion

Introduction

Self-esteem develops during the elementary and secondary school years (Harter, 1983; Wigfield & Eccles, 1994), and it has a significant impact on children's real-world life experiences. Research has linked high self-esteem to many positive outcomes, including better academic achievement (Crocker et al., 2003), better job performance (Judge & Bono, 2001), and life

satisfaction and well-being (Proctor et al., 2009). Conversely, low self-esteem has been linked to a number of problematic outcomes, including poorer mental and physical health, worse economic well-being, and higher levels of criminal activity (Orth et al., 2012; Trzesniewski et al., 2006). Given the important role of self-esteem in children's development and mental health, it is important to understand both the stability and changes of self-esteem and its relationship to the basic dimensions of social cognition.

There is abundant literature on the development of self-esteem during childhood in Western societies. Some of the archival research suggests that the mean-level of self-esteem increases in childhood (less than 12 years old or before Grade 6 in primary school; for a review, see Huang, 2010; Cole et al., 2001). Other research indicates no significant change of mean self-esteem during primary school (Kuzucu et al., 2014; Wigfield & Eccles, 1994). Furthermore, boys and girls do not differ in their global self-esteem during elementary school, but gender differences varied in domains of self-esteem and kept in line with gender-role stereotypes (Cole et al., 2001; Huang, 2010; Kuzucu et al., 2014). For instance, girls perceive themselves as better behaved than do boys, and boys regard themselves as more attractive and better at sports than do girls (Cole et al., 2001, p.1740). Overall, these findings about the developmental change of self-esteem during childhood are not consistent and may not generalize to the Chinese context. In addition, little is known about the longitudinal course of self-esteem in childhood in China. Up to now, only one longitudinal study has investigated the normative degree and direction of change (mean-level change) in self-esteem of Chinese adolescents (Zhang et al., 2015), and another study explored the mean-level change of self-esteem among elementary and secondary school students in rural China (Wu et al., 2014). Thus, there are particular research demands regarding the development of self-esteem of Chinese adolescents, and it is especially true for younger children.

Another question that deserves careful study relates to understanding influential factors on

self-esteem. Based on James's definition (James, 1890), self-esteem relates to achieving goals, such as academic achievements (Crocker et al., 2003). Derived from Sociometer Theory of Self-esteem (Leary, 2005), self-esteem is also influenced by relationships with others, such as best friends (Bushman, Moeller, & Crocker, 2011). Pursuing goals and status and sustaining social relationships reflect the duality of human existence (Bakan, 1966). The former is labeled as agency and refers to qualities relevant to goal-attainment, such as intelligence, competence or persistence. The latter theme is identified as communion, which refers to qualities relevant to the establishment and maintenance of social relationships, such as being kind, fair, or moral (Abele & Wojciszke, 2014; also see Ybarra et al., 2008; Bi et al., 2013).Recent studies have found that adults' self-esteem is mainly based on agency but not communion (Wojciszke et al., 2011; Wojciszke & Sobiczewska, 2013; Wojciszke & Bialobrzeska, 2014). Nevertheless, Gebauer et al. (2013), who found that age moderated the relationship between agency, communion and self-esteem, challenged the agency-over-communion effect for self-esteem. They suggested that the effect of agency on self-esteem decreased as age increased; the relation between agency and self-esteem was particularly strong among individuals under 30 years of age, whereas the relation between communion and self-esteem was particularly strong among individuals over 60. Gebauer et al. (2013) explained that if agentic self-attributes are personally important to an individual, individuals should derive much self-esteem from possessing agentic self-attributes. Conversely, if communal self-attributes are personally important to individual, individuals should derive much self-esteem from possessing communal self-attributes. However, little research has been conducted among children and adolescents.

Children strive for academic performance and are also influenced by peers. Which quality is more associated with Chinese children's self-esteem? On the one hand, Chinese culture is considered communion-oriented, emphasizing (in relative terms) the interpersonal realm and

social harmony to a greater extent than Western cultures (Bi et al., 2013). On the other hand, Chinese culture values school performance, and students are expected to achieve high academic goals. Thus, it could be expected that both agency and communion could serve as sources of self-esteem for children in China.

In this study, our objectives were (a) to examine the developmental trajectory of self-esteem during childhood and (b) to assess the effect of agency versus communion on children's self-esteem. To examine the development of self-esteem, we measured self-esteem among grade 1 to grade 5 students with a one-year, two-wave longitudinal study. Three indices were used to obtain comprehensive information about changes in self-esteem: mean-level change, individual-level change, and rank-order stability. Mean-level change refers to the magnitude of change in the average scale scores over time for a given population. Individual-level change refers to a significant change in a level of a trait that cannot be accounted for solely by measurement error or regression to the mean; i.e., as a result of chance. The rank-order stability refers to the consistency of the relative ordering of individuals over time and provides an indicator of the extent to which participants maintain their relative position in a group over time (For a full discussion of different kinds of change, see Caspi & Roberts, 1999 and Cummings et al., 2013). To examine the effect of agency and communion, we utilized hierarchical regression analysis to test the relationship between agency, communion and self-esteem during childhood.

Method

Participants

Participants were recruited from two primary schools in two mid-level cities with comparable social demographic characteristics within Mainland China. A total of 276 students in Grade 1, 2, 3, 4 and 5 (157 boys and 119 girls) participated in one-year-interval 2 waves survey. Students in

Grade 6 were excluded as they graduated and could not attend the Wave 2 survey. The mean age for Grade 1 was 6.47 years, *SD* = 0.62; the mean age for Grade 2 was 7.50, *SD* = 0.48; the mean age for Grade 3 was 9.73, *SD* = 1.02; the mean age for Grade 4 was 10.49, *SD* = 0.75; and the mean age for Grade 5 was 11.26, *SD* = 0.66.

All participants received a gift for participation and gave written, informed consent in accordance with procedures and protocols approval by the Review Board for Psychological Research of the participating schools.

Procedure

Two primary schools were invited to participate in this study. Parental consents were obtained prior to the survey. Two classes were randomly selected from each grade. Considering that the students in Grade 1 and 2 might have difficulties understanding the questionnaire, individual interview was conducted. The research team interviewed children with each item and recorded their answers. For children in Grades 3-5, self-administered questionnaire was used in classroom surveys.

In order to test the potential effect due to the different survey methods used in Grades 1-2 and Grades 3-6 (interview vs. self-administered), after interviewing children of Grade 2 in Wave 2, we used self-administered questionnaires to survey these children at the interval of one month. Paired-samples *t*-test showed no significant difference between the results from two survey methods, *ts* (33) $\leq$ 0.39, *ps* > 0.05, indicating that the results of two survey methods are compatible and comparable.

Measures

Global self-esteem

The 10-item Rosenberg Self-Esteem Scale(Rosenberg, 1965)was used to measure children's

global self-esteem. Children responded to items in Mandarin version utilizing a 4-point Likert scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). Higher score indicated higher level of self-esteem. Cross-cultural studies have testified to its broad applicability and adequate reliability (Schmitt & Allik, 2005). In the current study, Cronbach α's were 0.71, 0.70 for Wave 1 and Wave 2 respectively.

Agency and communion

Taking into account the different linguistic competence of children from Grade 1 to 6, we devised three self-descriptive questionnaires. Each of these questionnaires included half agentic traits (such as *Clever, Competent, Efficient*) and half communal traits (such as *Fair, Good-natured, Honest*) that were selected from a pool of 300 traits (Han et al., 2015). We selected 32 traits for the lower age group children (Grade 1-2) on scales ranging from 1 (*definitely doesn't apply to me*) to 4 (*definitely applies to me*). Children in middle age group (Grade 3-4) were assessed by 48 traits on scales ranging from 1 to 4, and children in higher age group (Grade 5) used 48 traits on scales ranging from 1 (*definitely doesn't apply to me*) to 7 (*definitely applies to me*)[1]. In the present study, Cronbach α's of agency were 0.82, 0.78, 0.75 in Wave 1 and 0.76, 0.75, 0.81 in Wave 2 for lower, middle, higher groups respectively. Cronbach α's of communion were 0.76, 0.78, 0.81 in Wave 1 and 0.78, 0.82, 0.75 in Wave 2 for lower, middle, higher groups respectively.

Data analyses

We used three indices of developmental change in self-esteem: mean-level change, individual-level change, and rank-order stability. First, in order to avoid geographical effects between two schools, Z-score for self-esteem was used to replace raw-score self-esteem in order to estimate

the mean-level change of self-esteem. We evaluated mean-level effects via repeated-measures ANOVAs for the change in Z-score from Wave 1 to Wave 2. We also examined if Z-score for self-esteem differed by gender and grade (repeated-measures ANOVAs and one-sample *t*- test). Second, to analyze the individual-level change of self-esteem, we compared the difference between the two tests with the standard error of measurement (SE). If the difference was larger than one standard error, the participants were categorized as *improved* or *deteriorated* (depending on the direction). If the difference was within one standard error, the participants were categorized as *unchanged.* Then we conducted Chi-square tests to test individual distribution and to examine whether the distribution of participants was the same for boys and girls. Third, we assessed rank-order stability via the test-retest Pearson correlation coefficients for self-esteem between Waves.

Moreover, we examined the predictive effect of agency and communion on self-esteem both in Wave 1 and Wave 2 by hierarchical regression and further examined the possible moderation effect of age in the relationship between agency, communion and self-esteem. Here predictive variables were centered except for gender and grade; namely, predictors were adjusted by subtracting their mean (Whisman & McClelland, 2005).

Results

The results about the mean-level change of self-esteem all illustrated in Table 1. We found that self-esteem between Wave 1 and Wave 2 indicated no mean-level change across 12 months, F (1, 275) = 0.46, $p > 0.05$, $\eta^2 < 0.01$, there were no significant changes in overall children's self-esteem within one year.

To evaluate the grade and gender influence on the change of mean self-esteem, two-way ANOVA showed main effect of grade, F (4, 1375) = 9.81, $p < 0.001$, $\eta^2 = 0.13$. Neither the main

effect of gender nor its interaction with grade was significant, *p's* > 0.05. One-sample *t*- test indicated that self-esteem of Grade 1, t (37) = -3.62, $p < 0.05$, $d = 0.59$, and Grade 2, t (33) = -3.26, $p < 0.05$, $d = 0.56$, decreased significantly in Wave 2, but for Grade 4, t (71) = 2.23, $p < 0.05$, $d = 0.26$, and Grade 5, t (52) = 3.39, $p < 0.05$, $d = 0.46$, self-esteem increased in Wave 2. No change was found for Grade 3, t (78) = -0.01, $p > 0.05$. This showed that mean self-esteem dropped significantly for children of Grade 1 and Grade 2, while it rose quickly for children of Grade 4 and Grade 5.

We also detected significant individual-level change in self-esteem at Wave 2. The majority of children exhibited an increase or decrease in their level of self-esteem; self-esteem of 9.1% of the participants had not changed. In each grade, the proportion of increasing or decreasing was far higher than the proportion remaining unchanged (see Table 2).

Meanwhile, grade difference was found in individual-level change of self-esteem. Specifically, more participants' self-esteem decreased in Grade 1 and 2, while more increased in Grade 5. There was no statistical difference between the proportion of the increased and the decreased in Grades 3 and 4. A series of χ^2 tests for gender differences showed that boys and girls exhibited comparable rates of individual-level change at all grades, *p's* > 0.05 (Table 2).

Table 3 presents the results of the rank-order stability of self-esteem. For the combined sample, the one-year test-retest correlation was 0.43. The correlation was 0.42, 0.44 separately for boys and girls (*p's* < 0.01). Self-esteem evidenced moderate rank-order stability and had no gender difference. However, self-esteem stability was lower with insignificant correlations during Grades 1 and 2 and moderate degree of stability from Grades 3 to5.

For the predictive role of agency versus communion in self-esteem, multiple regressions showed that gender had no significant effects on self-esteem in either Wave 1 or Wave 2 (see Table 4). Self-esteem in both Wave 1 and Wave 2 was dominated by agency over communion.

The findings suggested an agency-dominates-self-esteem perspective. Besides, grade significantly associated with self-esteem and moderated the effect of communion. In both Wave 1 and Wave, 2 the grade × communion items were significant. Simple slope analysis was conducted for lower group (including Grade 1-2), middle group (including Grade 3-4) and higher group (including Grade 5-6). As shown in Table 5, only self-esteem in Wave 1 for children in lower age group was predicted by communion, while the other age groups of children's self-esteem in both Wave 1 and Wave 2 were predicted by agency. The findings indicated that the predictive effect of agency and communion on children's self-esteem evolved from communion to agency.

Discussion

Longitudinal Course of Self-Esteem

To our knowledge, this was the first longitudinal study to simultaneously investigate change and stability of self-esteem among Chinese children. Overall results indicated that self-esteem was relatively stable during childhood, with no significant mean-level change. This finding was consistent with some Western samples, which suggested no time effect in children's global self-esteem (Kuzucu et al., 2014; Wigfield & Eccles, 1994).The results also indicated that the change in self-esteem shows some fluctuation over one year. First, the study detected significant grade-level differences in children's mean self-esteem. Differing from the previous studies by Wu et al. (2014) and Wigfield and Eccles (1994), our study examined within-grade differences. Specifically, the present study compared the difference of mean self-esteem between Wave 1 and Wave 2. We found that self-esteem dropped significantly for children of Grade 1 and Grade 2, while it rose quickly for children of Grade 4 and Grade 5. Grade 3 was the turning period. Second, similar to Block and Robins' (1993) research, the current study also found that more children (about 91%) exhibited a significant level of self-esteem changes in 12 months, indicating

individual-level difference of children's self-esteem. Third, we found that the test-retest correlation coefficient for all children was 0.43 and was very close to the results of a meta-analysis done by Trzesniewski et al. (2003), which found that self-esteem stability was significantly lower during childhood (r= 0.40). This result indicated moderate rank-order stability, suggesting that levels of self-esteem show some fluctuation over time. For example, a child identified as having the highest level of self-esteem at baseline may not necessarily show the highest level of self-esteem in the next year. In addition, the results for the stability of each grade showed that the coefficient changed from Grade 1 to Grade 5 and changed from insignificant level to significant level. This indicated that the stability of children's self-esteem during childhood was very low but it gradually increased with age.

Self-esteem is an indicator of environmental adaptation and interpersonal relationships. Between kindergarten and third grade (ages 5 to 8 years), most children undergo noteworthy social and cognitive changes (Cole et al., 2001, p1724). On entry into primary school, young children's self-esteem is highly positive because their views of self are unrealistically optimistic (Robins et al. 2002). Over the next several years, however, competence-related feedback becomes more frequent, evaluations of children become increasingly performance based, criteria for success become more objective, and children's performances are judged more by comparison to others. This new school environment and its new requirements for interpersonal skills may all negatively affect children's self-esteem (Cole et al., 2001; Ford & Collins, 2010; Harter, 1983). Cognitive developments complement this process. Children's capacity and motivation for self-evaluation based on objective criteria and inter-individual comparisons also increase (for reviews, see Harter, 1983; Robins et al., 2002). The almost inevitable result of these transitions is that young children discover that they have relative strengths in some domains but weaknesses in others (Cole et al., 2001) and thus develop more balanced and accurate self-views. According to

our results, young children experience these changes. In lower grades, children's mean self-esteem decreased by 0.99-1.15 standard deviations.

Over the ensuing primary school years, however, children can build up new peer relationships or friendships and adapt to academic demands, thus helping their social connection and self-esteem rise (Huang, 2010). As is shown in this study, children's self-esteem increased in Grades 4 and 5. The increased self-esteem among older children is also the result of a general motivation to construct and maintain a positive self-image, coupled with an increasing repertoire of social-cognitive strategies for maintaining and enhancing one's conception of self. These strategies include overestimation, selective social comparison, and the strategic association with others whose successes yield vicarious benefits (Cole et al., 2001; Harter, 1983). Furthermore, Chinese children usually have much stronger collectivism than their Western counterparts, which can serve as a protective factor in rebuilding social connection and quick recovery of self-esteem. Studies have indicated that highly collectivist cultures promote the development of global self-esteem, that is, generalized self-liking (Cai et al., 2007).

Not surprisingly, there were no gender differences in the change and stability of global self-esteem over time. This is consistent with the previous studies on global self-esteem (Huang, 2010; Kuzucu, et al.et, 2014; Robins, et al., 2002; Trzesniewski et al., 2006; Wigfield & Eccles, 1994). However, Kuzucu et al. (2014) have resulted that inconsistencies were from multidimensional self-esteem. In addition, gender stereotype, which may cause the gender difference in domains of self-esteem, may not emerge significantly before adolescence (Block & Robins, 1993; Cole et al., 2001; Kuzucu et al., 2014).

Agency versus Communion as Predictors of Self-esteem during Childhood

The results showed that in general, children's self-esteem was dominated by agency over communion. The result was consistent with an agency–dominates–self-esteem perspective both in

Western adult samples (Wojciszke et al., 2011; Wojciszke & Sobiczewska, 2013;Wojciszke & Bialobrzeska, 2014) and in Chinese samples of junior school and college students (Bi et al., 2013; Li & Bi, 2013). The findings provided evidence that agency dominating individual self-evaluation is a cross-cultural phenomenon (Wojciszke & Bialobrzeska, 2014).

The present study also showed that the predictive effect on pupils' self-esteem was changed from communion to agency, and this transition occurred in the later stages among a younger age group (children in lower age group in Wave 2). This finding about the younger age children, which has not been reported in previous studies, could be partly attributed to the age of participants as well as the cultural setting. Age clearly reflected a change toward privileging agency over communion as a predictor of individual self-esteem (Gebauer et al., 2013) due to the different effects of agency and communion on the self-esteem of adults and children, respectively.

Chinese culture generally emphasizes the interpersonal realm and social harmony relative to many cultures such as those from Western Europe and North America (Leung & Au, 2010). Advocating social harmony means avoiding conflict and promoting positive communal traits such as kindness, caring, friendliness, and honesty. The communal dimension serves as a set of social standards that influence people's daily behaviors. The emphasis on communion is also evident in child-rearing traditions. Researchers have reported that once children become involved in conflict or violence, they are less liked by their peers and are more likely to experience psychological distress (Chen & Wei, 2011). In contrast, young children who express more uniform endorsement of social norms are associated with better adjustment (Li et al., 2003). Given these cultural norms and the results of these studies, the impacts of communal aspect on self-esteem for younger children might be stronger in a Chinese cultural context.

Besides, communal traits, by nature, affect others; they can be directly beneficial for other

people when positive, or directly harmful when negative (Abele & Wojciszke, 2014). People with positive communal traits are more likely to make connection with others and be accepted by a group. On entry into elementary school, peer relations, classmate relations and teacher-student relations are vital to younger children. Denissen et al. (2008) suggested that the quality and quantity of individuals' social relationships have profound influence on one's self-esteem. Children with positive communal traits are more popular in their classes and make friends more easily with others, whereas those with negative communal traits, such as being unsocial, were more likely to be peer isolated and ridiculed. This poor peer relationship would directly affect children's self-esteem (Liu et al., 2014). This is in accordance with the implication of Sociometer Theory (Leary, 2005). Leary proposed that self-esteem evolved to help people monitor their social acceptance. The experience of low or high self-esteem would serve as a signal to people of the extent to which they were succeeding in establishing social connections with others or were at risk for social devaluation and rejection.

Therefore, for younger children, improving and developing the communal aspect is not only the premise of adapting to a new school environment and forming sound interpersonal relationships; it is also a demand from school and society across different cultural backgrounds. School or social members should be honest, kind and have some other positive communal traits. This kind of social standard has significant influence on children's self-esteem. Over the next several years, children gradually establish stable social relationships with teachers and peers. On the other hand, competence-related feedback becomes more frequent; evaluations of children become increasingly performance based; criteria for success become more objective; and children's performance are judged more by comparison to others or to what extent they appear "smart" (Cole et al., 2001). All of these indicate that experience of success, especially academic success, is vital to older children who become more concerned with how to get ahead rather than

how to get along with others. Communal norms generally tend to be stable and positive and lie in the direction of social desirability (Bi et al., 2013). Therefore, the general nature of such norms can often mask or make it difficult for children's 'true' communal character to come through, as the norm is to have high communal standing. For example, the standard that a class member should be good and do no harm to classmates is the same for every student. In order to attain this standard, children would express positive communal traits and avoid negative ones. Under these circumstances, group life appears to make it difficult for children to stand out on the communal dimension. Therefore, traits related to communion may be necessary for social acceptance, but they are not sufficient to uphold one's self-esteem after a period of time. In contrast, agency can better serve as the indicator of social distinction because agentic traits, especially the positive ones, are regarded as more diagnostic and difficult to fake (Tausch et al., 2007). So older children can make clear social distinction on this dimension and feel worthy and distinct from their peers. According to Gebauer et al. (2013), what should drive people's judgments of self-worth is the degree to which they endorse agency related traits or the communal sides of their personality. Then we can argue that, to a certain extent, communal dimension is relatively more important to younger children's self-esteem due to children's social-related goals; conversely, agentic dimension is relatively more important to older children's self-esteem due to the importance of performance-related goals. In conclusion, when children are accepted by others and have built their interpersonal relationships well, their focus should swing to the agentic aspect, and correspondingly, their self-esteem can become dominated by agency.

This is the first systematic study of the longitudinal characteristics of self-esteem among primary school children in Chinese context. The current findings are especially important in view of recent debates about whether agentic or communal individuals possess higher self-esteem (Gebauer, Wagner, Sedikides, & Neberich, 2013). Our findings thus do not suggest either of these

two aspects is more important, rather, the findings support that communion and agency are equally important in developing children self-esteem. For example, given the dominating role of agency in children's self-esteem, the provision of agentic content in education must be strengthened, such as assisting children to be independent and self-fulfilled persons. The findings also show that communion functions as a key protective factor of self-esteem for younger children, which implies that social education regarding interpersonal relationships such as peer relations, classmate relations and teacher-student relations are vital to childhood. Overall, primary school educators should focus on students' development in a comprehensive and harmonious manner and highlight both agency and communion.

Although these findings further clarify the developmental features of children's self-esteem and its important interrelationships with communion and agency in Chinese context, several limitations must be considered when interpreting these results. First, only global self-esteem was measured; it cannot address the developmental distinctions among different aspects of self-esteem, such as cognitive self-evaluations and affective self-regard. Second, the findings are limited by the relatively short duration of 12 months. Despite these limitations, the current study provides interesting and initial results. It also shows the direction for further study. First, extended longitudinal studies are needed to generate richer and more comprehensive information concerning the evolution of self-esteem and its developmental relationship with agency and communion. It would also be worthwhile to examine if there are various subtypes of developmental trajectories of self-esteem in childhood (Birkeland, Melkevik, Holsen, & Wold, 2012). For example, the developmental trajectory of subtypes of self-esteem may be different. The difference in subtypes' trajectories could explain why there may be some degree of individual-level change over time, but no overall course of change. Moreover, future research could explore the antecedents and consequences of differential trajectories of self-esteem, as

children's low self-esteem and psychological factors are longitudinally interrelated (Trzesniewski et al., 2006; Wu et al., 2014). Work of this kind is likely to contribute substantially to knowledge of the self-esteem construct and, in turn, to methods for fostering children's psychological well-being.

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Informed consent

All participants (primary school students) gave written, informed consent in accordance with procedures and protocols approval by the International Review Board (IRB) of the Faculty of Psychology, Southwest University. We declare that ethical standards were in line with the Helsinki declaration and its later amendments or comparable ethical standards.

Author Contributions

FFC and CZB: designed the study. FFC: conducted substantial data analysis and wrote the first draft of the manuscript. SMZ and CZB: provided further inputs and added various sections of the manuscript.

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Table 1

Means and standard deviation of self-esteem and standard scores for Wave 2

			Wave 1		Wave 2		*Z*-Wave 2	
		N	*M*	*SD*	*M*	*SD*	*M*	*SD*
Grade	1	38	3.44	0.34	3.22	0.37	-0.68	1.15
	2	34	3.43	0.31	3.26	0.32	-0.55	0.99
	3	79	2.89	0.36	2.88	0.39	-0.02	1.06
	4	72	2.92	0.40	2.98	0.38	0.24	1.02
	5	53	2.83	0.36	3.08	0.42	0.50	1.12
Combined	Boys	157	2.99	0.43	3.01	0.39		
	Girls	119	3.07	0.44	3.08	0.42		

Notes. Z-score of Wave 2 = (Mean of Wave 2 – Mean of Wave 1 based on grade) / standard deviation of Wave 1 of corresponding grade). Data collection of Wave 1 was in November 2013, and Wave 2 was in November 2014.

Table 2

Percentages of children who exhibited significant individual-level change in self-esteem

Grade	*N* (%)			Individual-Level Change		Gender Differences	
	Decrease	Stable	Increase	χ^2	*p*	χ^2	*p*
1	24 (63.2)	3 (7.9)	11 (28.9)	17.74***	< 0.001	3.76	0.153
2	20 (58.8)	5 (14.7)	9 (26.5)	10.65**	0.005	1.40	0.497
3	38 (48.7)	5 (6.4)	35 (44.9)	25.62***	< 0.001	3.06	0.217
4	26 (36.1)	9 (12.5)	37 (51.4)	16.58***	< 0.001	1.04	0.596
5	12 (22.6)	3 (5.7)	38 (71.7)	37.40***	< 0.001	1.15	0.562
Combined	120 (43.6)	25 (9.1)	130 (47.3)	73.27***	< 0.001	2.19	0.334

Notes. ***p< 0.001, **p< 0.01, *p< 0.05
SEM standard error of measurement; *decrease* has passed SEM in the negative direction; *stable* has passed neither criterion; *increase* has passed SEM in the positive direction.

Table 3

Correlations of self-esteem by grade and gender over one year

Grade	*r* (*n*)	*r*-boy (*n*)	*r*-girl (*n*)
1	0.27 (38)	0.25 (19)	0.28 (19)
2	0.33 (34)	0.22 (17)	0.36 (17)
3	0.27* (79)	0.32* (49)	0.19(30)
4	0.40** (72)	0.47**(48)	0.29 (24)
5	0.48** (53)	0.49*(24)	0.43*(29)
Combined	0.43**(276)	0.42**(157)	0.44**(119)

Notes. Measured as Wave 1 to Wave 2. ***$p<$ 0.001, **$p<$ 0.01, *$p<$ 0.05.

Table 4

Regression of self-esteem on grade, gender, agency and communion

		F(model)		Adj.R^2		β		*t*	
		Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Step 1		42.44***	3.70*	0.23	0.03				
	Grade					-0.48	-0.14	-9.11***	-2.93*
	Gender					0.07	0.08	1.24	1.27
Step 2		39.95***	19.67***	0.36	0.15				
	Agency					0.49	0.71	3.76***	4.52***
	Communion					-0.08	-0.19	-0.58	-1.16
Step 3		34.44***	20.83***	0.42	0.05				
	Grade ×Agency					-0.06	-0.58	-0.15	-1.10
	Grade ×Communion					-1.55	-1.38	-3.26***	-2.56*

Notes. ***p< 0.001, **p< 0.01, *p< 0.05
Prediction variables are centralized except for gender, grade and interaction items. Predictors of agency and communion have been centralized by distracting their mean.

Table 5

Regression of self-esteem on agency and communion for each group

Group		*F* (model)		Adj. *R2*		*β*		*t*	
		Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Lower		18.77***	33.87***	0.33	0.48				
	Agency					0.24	0.51	1.67	3.86***
	Communion					0.40	0.24	2.86**	1.79
Middle		19.29***	16.74***	0.20	0.17				
	Agency					0.38	0.34	3.76***	3.39***
	Communion					0.11	0.12	1.06	1.13
Higher		22.21***	26.96***	0.45	0.50				
	Agency					0.56	0.63	4.10***	5.20***
	Communion					0.17	0.14	1.27	1.18

Notes. ***p< 0.001, **p< 0.01, *p< 0.05
Children are divided into three groups based on their grade. The lower group includes children in Grade 1 and 2, the middle group includes children in Grade 3 and 4, the higher group includes children in Grade 5 and 6.