



Linear Regression Analysis of Contributing Factors to Leadership Development of Chinese Adolescents

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Abstract. Adolescence is the most crucial and optimal stage to develop leadership. Adolescent leadership development refers to the various forms of practices or events initiated to help increase the adolescents' awareness of team-leading, enhance their leadership knowhow and sharpen their leadership skills. This paper, based on a review of studies on the models, ways and specific content of adolescent leadership development globally, analyzes the contributors to adolescent leadership development in China by three linear regression models, and aims to provide some reference for further research on developing leadership among adolescents in China. This study uses survey methods for data collection and R studio for regression analysis. The results show that mother's and father's emotional warmth positively predicts adolescent leadership respectively.

Keywords: Leadership · adolescent · leadership development · parental rearing · linear regression

1 Introduction

Leadership accounts for a crucial research topic in domains like social psychology, human resources management, and organizational behavior studies, drawing increasing attention from researchers across the globe. As research on leadership deepens, more and more researchers maintain that leadership is not unique to several or a minority of leaders; rather, every adolescent has the potential to grow into a leader. Leadership is not a natural gift, but a quality nurtured as one grows up. In this logic, adolescents who are malleable and have the potential to grow into future leaders rise to a focus of attention among researchers. Lu [1], and Martinek et al. [2], and Wu [3] all argue that adolescence is a crucial stage of transition in life. At this stage, adolescents are shaping

their characters, eager to try and explore, starting to acquire all kinds of living skills including leadership, so this stage is a crucial and the most optimal years to develop leadership.

Adolescent leadership development bears great significance for both individual growth and social progress [4, 5]. Over the years of adolescence, targeted leadership fostering activities in line with the adolescents' physical and psychological characteristics cannot only allow adolescents to develop in an all-round manner but also reduce blind and inefficient investment of resources [6]. This paper intends to give a brief summary of theories on adolescent leadership development from the aspects of notions, models, ways and content.

2 Definitions of Notions Regarding Adolescent Leadership Development

Notions of leadership are as many as the researchers who try to give definitions to these notions. The varied definitions given by scholars to adolescent leadership are mainly made from two perspectives: (1) adolescent leadership is a skill that adolescents already on a leading position have or are expected to have [7]; (2) adolescent leadership refers not only to their skills to lead themselves, but to their skills to lead others or motivate collaborations with others to move toward the joint goal or vision. Specifically, adolescents' skills to identify their own strengths and weaknesses, set models and provide guidance for others all belong to the skillset of adolescent leadership [8].

The two definitions mentioned above about adolescent leadership have been widely acknowledged and applied in practice and have positive implications on development and improvement of leadership among adolescents [9]. A further probe, however, reveals differences between the two definitions: (1) the first does not get all adolescents involved, and the purpose of training is to help leaders acquire or improve the skills required to exert their power of leading; whereas the latter indicates that all adolescents have the potential to be a leader, so the goal of training turns to guiding them to recognize, develop and utilize this potential. (2) Compared with the latter definition, the former has more emphasis on the leader per se, but overlooks the impacts of the followers and interaction scenarios. As Zhu [10] pointed out, leadership training refers to exerting targeted, planned, and organized impacts on the trainees based on some moral codes and leadership theories to equip the trainee with the power of leading. Zeldin and Camino [11] defined adolescent leadership development as a series of highly-structured or unstructured experiences that will help adolescents to develop in the long term the skills required to lead others. Weng and Lin [12] have defined different notions including leadership education, leadership training, and leadership development.

3 Studies on Adolescent Leadership Development Globally

3.1 Models of Adolescent Leadership Development

Adolescent leadership has some unique characteristics in its shaping. For instance, the adolescents' cognition develops from inside outwards, that is, their attention shifts gradually from themselves to others as they grow up. Meanwhile, adult leadership is more

about authority and power, whereas adolescent leadership focuses more on competence (skills, knowledge, and natural gifts). In other words, adolescent leadership differs from adult leadership. Some scholars, taking into account this difference, attempted to analyze the process of developing adolescent leadership and construct models based on the characteristics and patterns of adolescent leadership development.

Existing works on adolescent leadership development models can be divided into two categories. The first focuses on the process of developing adolescent leadership, and typical works in this regard include those by Van Linden, Fertman, Ricketts and Rudd. Van Linden and Fertman [13], through theoretical analysis and empirical investigation, divided the process of adolescent leadership development into three distinct stages. The first stage is “awareness”, in which adolescents become aware of their potential to lead with intentional or unintentional help from others; the second stage is “interaction”, which describes the stage when the adolescents hone their leadership abilities through interaction with others; in the third stage, termed “mastery”, adolescents master the leadership skills for specific domains or social life. Ricketts and Rudd [14] extended this development model by organically connecting the three stages of leadership development with five procedures (understanding, analysis, utilization, integration, and evaluation), and put forth a adolescent leadership education and training model, which they then empirically examined. This education and training model, to some extent, surpasses Van Linden and Fertman’s model.

The other category is achievement- or outcome-oriented and overlooks the process for adolescent leadership development. Studies in this category maintain that leadership is shaped through some specific practice. Though theories on adolescent leadership is far from perfection, studies are plenty on adolescent leadership development programs and practice guide [15]. These works stress the crucial role of self-reflection, coherence behaviors, partnership built through collaborations [16], protection and sharing of adolescents’ views, and engagement of adolescents in decision-making and rule setting [17]. Adolescent leadership cannot be shaped overnight; it is an incremental process which requires competence (cognitive abilities, communication and interpersonal skills) as well as contextual and resource support.

Based on Van Linden and Fertman’s model [13] and Ricketts and Rudd’s model [14], the author of this study combines adolescent leadership development with support of contextual practice, and proposes a theoretical model for adolescent leadership development. The new model divides adolescent leadership development into four stages: awareness and cognition stage, learning and mastery stage, utilization and practice stage, and evaluation and improvement stage. In the awareness and cognition stage, contextual support (structured education of leadership) is leveraged to help the adolescents recognize the importance of leadership as well as the ways and methods to lead, that is, to increase their awareness of leadership [18]. In the learning and mastery stage, multiple channels and methods are employed to help adolescents acquire the skills of leadership. In the utilization and practice stage, contextual support (experience learning) is employed to provide opportunities for adolescents to practice leadership, cement their leading skills and equip them with more leading techniques [19, 20]. In the evaluation and improvement stage, tests and checks are performed to strengthen the adolescents’ awareness of

leadership and improve their capacity to lead. This theoretical model needs verification and improvement through further empirical studies.

3.2 Content of Adolescent Leadership Development

There is no consensus on the definition and composition of leadership in the academia; moreover, the purpose and focus vary from one leadership development program to another. As a result, the content of adolescent leadership development differs as well. Some theoretical and empirical studies on adolescent leadership development center on personality, characteristics and abilities of the young. For instance, Kleon and Rinehart [21] put forth 11 key contributors to adolescent leadership: oral communication, leadership, initiative, planning/organizing, decision-making/judgment, behavioral flexibility, assertiveness, objectivity, perception, sensitivity, and collaborativeness. Ward and Ellis [22] summarized six characteristics of young leaders that encourage followership: willingness to provide social support, willingness to enter into close friendships, opportunity for increased social status through affiliation with a popular leader, similarity of values, possibility for idealized influence, and little potential for interpersonal rivalry. Some works focused on the processes and behaviors of young leaders. For instance, Kouzes and Posner [23] concluded five qualities of effective student leaders: name the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. In China, however, theoretical and empirical studies on the components of adolescent leadership are rare. Tong [24] put forth an eight-factor structure of adolescent leadership, that is, subjective thinking, positive interest, tolerance and integrity, influence effect, mindfulness and self-discipline, abilities and strengths, experience build-up, and communication abilities, and this structure was considered applicable to young students from Grade 4 to Grade 12. Sui [25] pointed out that developing leadership of students needs to foster a range of skills involved in leadership, such as communication, expression and interpersonal skills, and they need first to know how to lead themselves before try to lead the followers.

4 Research Methods and Data

To promote healthy development of adolescents, China started to encourage all-round education or “quality-oriented” education nationwide in 1982. Social adaptability is the goal of all-round education, and it is also the aim of adolescent leadership development. Meanwhile, it is aligned with the parents’ expectation to see their children grow healthily to excellence and contribute to the society. Whether one can gain the leadership qualities and grow into a competent leader accounts for a crucial measure of excellence of kids. In the course of growth, parents’ expectation and their way of parental rearing will leave far-reaching impacts on the adolescents’ future development. Thus, in this study, the correlation between adolescent leadership development and parental rearing is explored.

4.1 Participants and Procedures

The participants are high-school students from Yunnan. Six hundred pencil-paper questionnaires were distributed and 551 valid questionnaires were returned, with an effective rate of 92%.

4.2 Measures

The research is performed using the Eгна Minnen Beträffande Uppfostran (S-EMBU) self-report questionnaire, one for fathers and one for mothers, each having the same 23 items that are involved in three dimensions: emotional warmth, rejection, and over-protection. There are 7 items for the dimension of emotional warmth, 7 for rejection and 9 for over-protection, and the questionnaire is a four-point scale.

In this study, linear regression models are used to predict adolescent leadership, where parents' emotional warmth, rejection and over-protection are independent variables, and duration that the adolescent stays on a leading position in his/her class is the dependent variable. As the data from both the father and the mother are collected in the questionnaire survey, the impact of the father and that from the mother on adolescent leadership shaping can be analyzed separately. The first model (1) is used to analyze whether the mother's emotional warmth, rejection and over-protection will predict the length that the adolescent serves as a leader in his/her class; and the second model (2) is assessment on the father's side. The third model (3) is used to perform an overall analysis of all the six items on both the father's and the mother's sides to identify whether there are the factors can stably and reliably predict adolescent leadership.

$$Y_{\text{Adolescent leadership}} = a + b_1 * x_{1\text{Mother Emotional Warmth}} + b_2 * x_{2\text{Mother Rejection}} + b_3 * x_{3\text{Mother Overprotection}} \quad (1)$$

$$Y_{\text{Adolescent leadership}} = a + b_1 * x_{1\text{Father Emotional Warmth}} + b_2 * x_{2\text{Father Rejection}} + b_3 * x_{3\text{Father Overprotection}} \quad (2)$$

$$Y_{\text{Adolescent leadership}} = a + b_1 * x_{1\text{Mother Emotional Warmth}} + b_2 * x_{2\text{Mother Rejection}} + b_3 * x_{3\text{Mother Overprotection}} + b_4 * x_{4\text{Father Emotional Warmth}} + b_5 * x_{5\text{Father Rejection}} + b_6 * x_{6\text{Father Overprotection}} \quad (3)$$

4.3 Research Result

The correlation between parental rearing and adolescent leadership at school is analyzed based on the three dimensions mentioned above, and the mean value for each dimension is compared. The result shows that emotional warmth is correlated to adolescent leadership at school, as the mean value of emotional warmth of students who are class leaders is higher than those who are not, with a difference over 4% (Fig. 1).

Model 1 analyzes the linear correlation between mother emotional warmth, rejection and over-protection with the duration of the adolescent's class leadership, and Table 1 shows the analysis result. As shown in Table 1, mother emotional warmth is positively correlated to the duration of adolescent leadership at school ($b = 0.068$, $p < 0.001$); mother rejection and over-protection, however, have no significant correlation to the duration of adolescent leadership at school ($p > 0.05$).

Model 2 parses the correlation between father emotional warmth, rejection and over-protection with adolescent leadership (Table 2). As Table 2 shows, father emotional

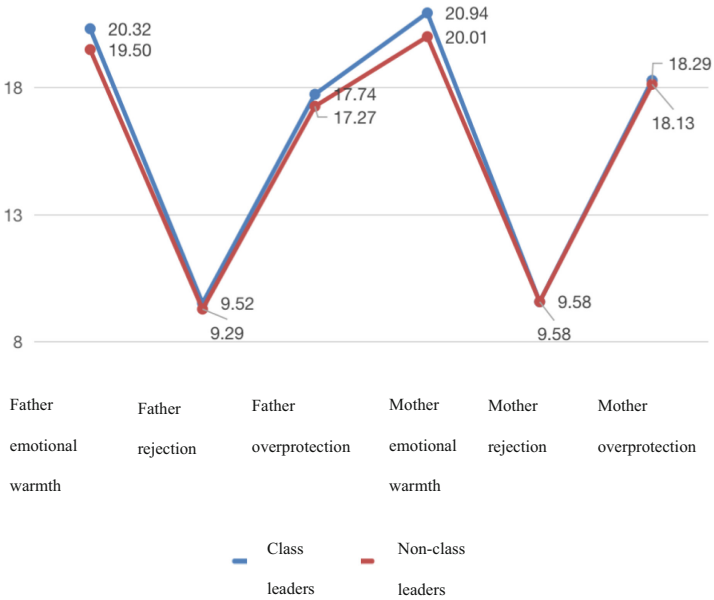


Fig. 1. The differences of perceived parenting rear styles between class leaders and non-class leaders

warmth has a positive correlation with the duration of adolescent leadership at school ($b = 0.068, p < 0.001$), but father rejection and over-protection show no significant correlation with the duration of adolescent leadership at school ($p > 0.05$).

The first two models reveal that the father and the mother have similar impacts on adolescent leadership, because emotional warmth, be it from the father or from the mother, is found to have a positive correlation with adolescent leadership, whereas rejection and over-protection show no significant correlation with adolescent leadership. Model 3 puts together the six factors to identify the differences between the father’s and the mother’s impacts on adolescent leadership (Table 3). As Table 3 shows, emotional warmth, both on the father’s and the mother’s part, no longer significantly correlates to the duration of adolescent leadership at school ($p < 0.05$), but it should be noted that emotional warmth on the mother’s part verges towards significance ($p < 0.10$), which is the only variable among the six that shows marginal significance of correlation with adolescent leadership.

Table 1. The predictive role of mother emotional warmth, rejection and over-protection in adolescent leadership

	Estimate	Std. Error	<i>t</i>	<i>p</i>
(Intercept)	0.16	0.62	0.260	0.795
Emotional warmth	0.07	0.02	3.517	<0.001
Rejection	0.03	0.03	0.767	0.443
Over protection	-0.03	0.02	-1.265	0.206

Residual standard error: 1.857 on 547 degrees of freedom

Multiple R-squared: 0.03, Adjusted R-squared: 0.02

F-statistic: 5.457 on 3 and 547 DF, p-value: 0.001059

Table 2. The predictive role of father emotional warmth, rejection and over-protection in adolescent leadership

	Estimate	Std. Error	<i>t</i>	<i>p</i>
(Intercept)	0.09	0.62	0.154	0.877
Emotional warmth	0.07	0.02	3.422	<0.001
Rejection	0.06	0.03	1.716	0.087
Over protection	-0.04	0.02	-1.706	0.089

Residual standard error: 1.86 on 547 degrees of freedom

Multiple R-squared: 0.03, Adjusted R-squared: 0.02

F-statistic: 4.812 on 3 and 547 DF, p-value: 0.00257

Table 3. The predictive role of father's and mother's emotional warmth, rejection and over-protection in adolescent leadership

	Estimate	Std. Error	<i>t</i> value	<i>p</i>
(Intercept)	-0.03	0.66	-0.035	0.972
Father emotional warmth	0.01	0.04	0.350	0.726
Mother emotional warmth	0.06	0.04	1.704	0.089
Father rejection	0.06	0.04	1.401	0.162
Mother rejection	-0.01	0.04	-0.282	0.778
father over protection	-0.03	0.04	-0.694	0.488
Mother over protection	-0.01	0.04	-0.334	0.739

Residual standard error: 1.859 on 544 degrees of freedom

Multiple R-squared: 0.03, Adjusted R-squared: 0.02

F-statistic: 3.054 on 6 and 544 DF, p-value: 0.00602

5 Conclusion

As implied in what has been presented above, it is not hard to see that scholars worldwide have acknowledged the necessity to study adolescent leadership development. Studies on this topic has been increasing with growing popularity. In this study, a statistical analysis of the potential impact of family factors on adolescent leadership. As the research result shows, the mother's emotional warmth has significantly positive correlation with adolescent leadership, and this also applies to emotional warmth from the father. However, when both the mother's and the father's influences are considered, the father's emotional warmth no longer has significant correlation with adolescent leadership, and the correlation of the mother's emotional warmth with adolescent leadership reduces to marginal significance. To sum up, both theories and practice of adolescent leadership development are still at the stage of research, and the impacts from parental rearing are by no means singular, so the impacts of family-related factors on adolescent leadership need to be further explored from different aspects and dimensions.

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