Student-Teacher Relationship and Its Influencing Factors among Middle School Students in Guangdong

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ABSTRACT

The student-teacher relationship is a basic interpersonal relationship formed by mutual communication and interaction between teachers and students in education and teaching, mainly including teaching, ethical, interpersonal, and legal relationships (Chen Qi & Liu Rude, 1997). Teachers are important others for middle school students. The relationship between teachers and students is an important interpersonal relationship for middle school students, which significantly impacts their socialization. The aim of this paper was to explore the characteristic of student-teacher relationship of middle school students in Guangdong Province, China, and analyze its influencing factors. Stratified random sampling method was used to select 1011 middle school students from 3 cities in Guangdong province. They were investigated with Student-Teacher Relationship Scale (STRS), General Big Five Personality Factor Scale (GFFS), Emotional Support Questionnaire for Middle School Students to Understand Teachers (ESQUT) and a self-compiled questionnaire for influencing factors of middle students’ student-teacher relationship. The survey results indicated the following three points: First, the total scores of STRS and ESQUT were (85.30±17.3) and (49.53±10.29), respectively; Second, the scores of 5 dimensions of GFFS were (45.37±12.33), (52.70±9.60), (54.11±9.81), (53.08±11.43) and (51.20±8.80), respectively; Third, the result of multivariate stepwise linear regression showed that the following 13 factors including grade, family economic status, mother’s education level, father’s education level, academic performance, teachers’ main role, teachers’ attitude to the popular culture, teachers’ class management style, teachers’ educational style, respect, encourage, openness and altruism were positively correlated with the total score of STRS (β=188～803, all P<01), and the following 6 factors including origin, school location, only child or not, the greatest shortcoming of teachers, students’ attitude to the popular culture and sociality were negatively correlated with the total score of STRS (β=-203～-699* all P<05). It is therefore suggested that the student-teacher relationship of middle school students in Guangdong is very good, and the social cultural atmosphere, family educational concept, rearing style, teaching, and education style may be the main influencing factors of student-teacher relationship for middle school students.

Keywords: Middle School Students, Multivariate Stepwise Linear Regression, Influencing Factor, Student-Teacher Relationship.

I. INTRODUCTION

The student-teacher relationship is a basic interpersonal relationship formed by mutual communication and interaction between teachers and students in the process of education and teaching, mainly including teaching relationship, ethical relationship, interpersonal relationship, and legal relationships (Chen & Liu, 1997). Teachers are the important others of middle school students. The relationship between teachers and students is an important interpersonal relationship of middle school students, which has a significant impact on their socialization. Good student-teacher relationship helps middle school students form positive emotions and attitudes towards learning and school, improve their learning investment and participation in school activities, promote the development of their school adaptability, peer relationship, psychological resilience and self-awareness (especially learning self-concept), avoid vicious behaviors such as campus bullying and peer aggression, and reduce psychological obstacles such as loneliness, depression and social withdrawal, so it is conducive to maintaining the comprehensive mental health of middle school students (Yan et al., 2018; Liu, 2015; Karine et al., 2012; Zhang et al., 2020; Engels et al., 2016; Christopher & Kimber, 2005; Zhang et al., 2020; Huang et al.; 2020; Wu et al., 2021;
Pianta, 1999; Liu & Wo, 2005). Clarifying the formation mechanism and influencing factors of middle school students' student-teacher relationship is of great significance for building a good student-teacher relationship and promoting the all-around development of middle school students.

The previous domestic research mostly focused on the role of the student-teacher relationship and there were few studies on the influencing factors of the relationship between middle school students and teachers.

Based on the above analysis, this study intends to take Guangdong Province as an example and explore the characteristics and influencing factors of student-teacher relationships among middle school students with a large sample and multi-center survey model.

II. OBJECTS AND METHODS

A. Objects

1) Sample size estimation

The minimum sample size is calculated by G * power 3 (Franz et al., 2007). Previous studies have shown that the test effect value of domestic research on the student-teacher relationship of middle school students is at the medium level, that is, the D value is 0.50–0.80 (Liu, 2015; Karine et al., 2012; Zhang et al., 2020; Engels et al., 2016; Christopher & Kimberly, 2005; Zhang et al., 2020). In this study, we set the effect value d=0.70, and the statistical test power of 1-β=0.80, the type I error probability α=0.05. Since there are 32 independent variables in this study, the minimum sample size required for the survey is calculated as 480. Due to a 20% of possible follow-up loss rate, the minimum sample size is determined as 600.

2) Sampling

A total of 1160 middle school students are selected from 3 cities including Guangzhou, Zhanjiang, and Shaoguan, Guangdong Province by stratified random sampling. 1011 valid questionnaires are collected, with an effective rate of 87.2%. The age ranges from 13 to 19 years old, with an average age of (16.36±1.38) years old. Among them, there are 535 boys and 476 girls; 842 only children and 169 non-only children; 601 urban students and 410 rural students; 182 in grade 7, 178 in grade 8, 174 in grade 9, 183 in grade 10, 164 in grade 11 and 130 in grade 12; 109 from wealthy families, 265 from well-off families, 472 ordinary families, 104 from families with financial difficulties and 62 from poor families.

B. Tools

1) Student-Teacher relationship scale, STRS

It is compiled by Pianta (1999) and revised by Liu and Wo (2002) into Chinese version. STRS has 23 questions in total, which are divided into three dimensions: “intimacy”, “cooperation” and “initiative”. The Likert 5-point scoring method is used to score from 1 to 5 points corresponding to “completely non-compliant” to “completely compliant”. The higher the total score, the better the student-teacher relationship. In this study, the split half reliability of the total scale is 0.907; and the split half reliability of three dimensions are 0.887, 0.830 and 0.807 respectively.

The Cronbach's a coefficient of the total scale is 0.935, and the Cronbach's a coefficient of three dimensions are 0.884, 0.841 and 0.834, respectively.

2) General big five-factor personality scale, GFFS

It is compiled by Costa and McCrae (Don et al., 2000) and revised by Zhang (2000) into Chinese version. There are 25 questions in total, which are divided into five dimensions: “adaptability”, “sociality”, “altruism”, “openness” and “moral sense”, with 5 questions in each dimension. Each question has two descriptive words with opposite meanings, and the score between the two words is 1-5 points. The subjects are asked to choose the corresponding number according to the proximity between the words and themselves. In this study, the Cronbach's a coefficient of the total scale is 0.852, and the Cronbach’s a coefficients of 5 dimensions are 0.734, 0.770, 0.809, 0.776 and 0.801, respectively.

3) Emotional support questionnaire for middle school students to understand teachers, ESQU
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It is compiled by Gao et al. (2017). There are 18 items divided into four dimensions: “understanding”, “care”, “respect” and “encouragement”. The Likert 5-point scoring method is used to score from 1 to 5 points corresponding to “completely non-conforming” to “completely conforming”. The higher the total score, the higher the level of emotional support of teachers perceived by the subjects. In this study, the Cronbach’s coefficient of the total scale is 0.897, and the Cronbach’s coefficients of the four dimensions are 0.776-0.849.

4) Self-compiled questionnaire on the influencing factors of student-teacher relationship among middle school students

The CNKI, Wanfang database, Baidu, PubMed, and other search engines are used to search the literature about the student-teacher relationship among middle school students (247 in Chinese and 1533 in foreign languages). Based on that, the basic contents of the questionnaire are constructed, with a total of 22 items. Combined with the results of 3 rounds of in-depth collective discussions with 12 middle school students and 6 experts of middle-school education, one item is deleted, and two items are added. The final questionnaire on influencing factors of Student-teacher Relationship among middle school students involves 23 items, which include gender, age, grade, only child or not, family economic status, origin, class cadre or not, academic performance, school category, class category, subject category, father's occupation, mother's occupation, father's education, mother's education, city category, school area, the main role of teachers, the greatest shortcoming of teachers, teachers’ attitude towards pop culture, students’ attitude towards pop culture, the main benefit of receiving education, the way teachers manage classes and teachers' education style.

C. Data Collection and Sorting

The investigation method of centralized test is adopted. Before the investigation, the researchers participating in the survey are trained uniformly, and the investigation process and evaluation standards are unified. The consistency test (kappa=0.81–0.90) meet the requirements of psychometrics.
The questionnaires with an answer missing rate ≥50% are eliminated, and the missing values of the effective questionnaires are estimated and filled with the average. Two researchers independently input the same data using epidata 3.0 software and conduct a unified logic check to ensure the accuracy of the data.

D. Data Processing

Data is exported from epidata 3.0 to SPSS 20.0 software for statistical analysis. First, the average score and standard deviation of each scale and dimension (subscale) are calculated by descriptive statistics. Second, Pearson product-moment correlation, independent sample t-test, and one-way ANOVA are used to explore the correlation between various variables. Finally, multiple stepwise linear regression is used to analyze the main related factors of the total score of STRS.

III. RESULTS

A. Descriptive Statistics

It can be seen from Table I that the total score of STRS and the scores of three dimensions are >3.5, which are high scores; The total score and four dimension scores of ESQUT are all higher than 2.5 and lower than 3.5, belonging to the medium level; The scores of openness, sociality and moral sense are at the medium level, the scores of adaptability are on the high side, and the score of altruism is on the low side.

TABLE I: DESCRIPTIVE STATISTICS OF SCORES OF STRS, GFFS AND ESQUT (n=1011)

| Dimension       | Number of items | X±s            | Min  | Max  |
|-----------------|-----------------|----------------|------|------|
| Intimacy        | 9               | 32.71±7.82     | 9.00 | 45.00|
| Cooperation     | 8               | 29.17±6.41     | 8.00 | 40.00|
| Initiative      | 6               | 23.42±5.03     | 6.00 | 30.00|
| Total score of STRS | 23          | 85.30±17.31    | 23.00| 115.00|
| Adaptability    | 5               | 45.37±12.33    | 20.00| 77.00|
| Sociality       | 5               | 52.70±9.60     | 22.00| 73.00|
| Openness        | 5               | 54.11±9.81     | 21.00| 80.00|
| Altruism        | 5               | 53.08±11.43    | 20.00| 70.00|
| Moral Sense     | 5               | 51.20±8.80     | 27.00| 69.00|
| Understanding   | 5               | 12.48±2.48     | 4.00 | 20.00|
| Care            | 5               | 12.68±2.24     | 7.00 | 18.00|
| Respect         | 5               | 12.25±2.03     | 5.00 | 19.00|
| Encourage       | 5               | 12.82±2.73     | 6.00 | 18.00|
| Total score of ESQUT | 18          | 49.53±10.29    | 20.00| 73.00|

B. Correlation Analysis Between the Scores of Each Scale

It can be seen from Table II that the total score of STRS and the scores of the three dimensions are significantly correlated with each dimension of GFFS and ESQUT (P<0.05).

C. Multiple Stepwise Linear Regression Analysis of Relevant Factors of Student-Teacher Relationship Among Middle School Students

1) Variable assignment

First, values are assigned to the possible situations (alternative answers) of demographic and psychosocial classification variables that may affect the total score of STRS, and the results are shown in Table III.

TABLE II: ANALYSIS OF CORRELATION BETWEEN SCORES OF STRS, GFFS AND ESQUT (n=1011)

| Dimension       | Intimacy | Cooperation | Initiative | STRS  |
|-----------------|----------|-------------|------------|-------|
| Adaptability    | 0.244**  | 0.312**     | 0.250**    | 0.273**|
| Sociality       | -0.159** | -0.087*     | -0.117*    | -0.129*|
| Openness        | 0.081*   | 0.138**     | 0.079*     | 0.108* |
| Altruism        | 0.216**  | 0.183**     | 0.251**    | 0.225**|
| Moral Sense     | 0.374**  | 0.153**     | 0.341**    | 0.291**|
| Understanding   | 0.398**  | 0.107*      | 0.177**    | 0.239**|
| Care            | 0.431**  | 0.092*      | 0.261**    | 0.266**|
| Respect         | 0.395**  | 0.472**     | 0.231**    | 0.377**|
| Encourage       | 0.412**  | 0.317**     | 0.379**    | 0.388**|
| ESQUT           | 0.409**  | 0.240**     | 0.301**    | 0.317**|

2) Multiple stepwise linear regression analysis of factors related to the student-teacher relationship among middle school students

Taking the total score of STRS as the dependent variable, the 5 dimensions of GFFS and 4 dimensions of ESQUT, as well as 23 demographic classification variables that may be related to the total score of STRS as independent variables, a multiple stepwise linear regression analysis is carried out within 95% confidence interval.

From Table IV, it can be seen that the following 13 factors including grade, family economic status, mother’s education level, father’s education level, academic performance, teacher’s main role, teacher’s attitude to the popular culture, teacher’s class management style, teacher’s educational style, respect, encourage, openness and altruism are positively correlated with the total score of STRS (β=0.188~0.803, all P<0.01), and the following 6 factors including origin, school location, only child or not, teachers’ main shortcoming, students’ attitude to the popular culture and sociality are negatively correlated with the total score of STRS (β=-0.203~0.699, all P<0.05).

IV. DISCUSSION

The total score of STRS in this group is (3.71±0.75), which belongs to the high score (Pianta, 1999; Liu & Wo, 2005); The total score of ESQUT is (2.75±0.57), belonging to the medium level (Gao, 2017); The scores of the five dimensions of GFFS are (45.37±12.33), (52.70±9.60), (54.11±9.81), (53.08±11.43) and (51.20±8.80), which are consistent with the results of previous studies (Nie et al., 2008; Mu, 2013; Qu et al., 2010). It is suggested that the level of openness, sociality and moral sense of middle school students is general, and their adaptability and altruism are poor. Specifically, this group of middle school students have a poor level in the dimension of altruism (low score), which is characterized by suspicion, aggression and selfishness (Don et al., 2000; Zhang, 2000); In the dimension of adaptability, the level is poor (high score), which is characterized by personality characteristics such as excitement, anxiety, vigilance and high tension (Don et al., 2000; Zhang, 2000); The level of openness is general, which is manifested in the lack of curiosity, creativity and abstract thinking; General sociality is manifested in insufficient activity, freedom, initiative and sociability in social occasions, and low interest in the external world; The level of moral sense is general, which is manifested in that the
mastery of moral concepts is not in place, the moral attitude is not correct, the moral behavior is not standardized or even anomied, and the self-control ability needs to be improved.

The results of multiple stepwise linear regression show that 13 factors such as grade, family economic status, mother's education level, father's education level, academic performance, teachers' main role, teachers' attitude towards popular culture, teachers' class management style, teachers' educational style, respect, encouragement, openness and altruism are positively correlated with the total score of STRS, and other six factors including origin, school area, only child or not, the greatest deficiency of teachers, the students' attitude towards popular culture, sociality are negatively correlated with the total score of STRS.

| TABLE III: VARIABLE ASSIGNMENT |
|--------------------------------|
| **Item** | **Options and Variable Assignment** |
| Grade | 0=grade 7, 1=grade 8, 2=grade 9, 3=grade 10, 4=grade 11, 5=grade 12 |
| Gender | 0=male, 1=female |
| Only child or not | 0=no, 1=yes |
| Family economic status | 0=poverity, 1=with financial difficulties, 2=food and clothing, 3=well-off, 4=wealth |
| Origin | 0=city or town, 1=countryside |
| Class cadre or not | 0=no, 1=yes |
| School category | 0=general middle school, 1=key middle school |
| Class category | 0=parallel class, 1=key class |
| Subject category | 0=liberal arts, 1=Science |
| City category | 0=remote city, 1=second tier city, 2=first tier city |
| Area school is located | 0=urban area, 1=rural area, 2=rural-urban fringe |
| Academic performance | 0=poor, 1=lower middle, 2=medium, 3=good, 4=excellent |
| Main role of teachers | 0=seller of knowledge, 1=controller of teaching, 2=guide of culture and thought, 3=best friend of life |

| TABLE IV: MULTIPLE STEPWISE LINEAR REGRESSION ANALYSIS OF FACTORS RELATED TO THE TOTAL SCORE OF STRS |
|-----------------------------------------------|
| **Dependent Variable** | **Independent Variable** | B | SE | β | t Value | P Value | R² | R² adj |
|------------------------|--------------------------|---|----|----|----------|--------|----|--------|
| STRS Total Score       | Grade                    | 3.334 | 0.463 | 0.408 | 4.880 | 0.001 | 0.556 | 0.552 |
|                        | Origin                   | -4.677 | 0.414 | -0.381 | -6.225 | 0.001 | –     | –     |
|                        | School Area              | -4.159 | 0.509 | -0.412 | -3.958 | 0.001 | –     | –     |
|                        | Family economic status   | 9.960 | 1.668 | 0.539 | 9.011 | 0.001 | –     | –     |
|                        | Only child or not        | -4.147 | 1.448 | -0.203 | -3.806 | 0.001 | –     | –     |
|                        | Mother's education       | 6.363 | 0.578 | 0.744 | 6.550 | 0.001 | –     | –     |
|                        | Father's education       | 4.622 | 0.451 | 0.566 | 8.279 | 0.001 | –     | –     |
|                        | Academic performance     | 38.884 | 5.745 | 0.803 | 6.430 | 0.001 | –     | –     |
|                        | Teachers' main role      | 14.450 | 1.513 | 0.726 | 5.691 | 0.001 | –     | –     |
|                        | Teachers' greatest       | -32.445 | 2.820 | -0.699 | -6.757 | 0.001 | –     | –     |
|                        | shortcoming              | –      | –     | –     | –     | –     | –     | –     |
|                        | Your attitude towards    | -0.374 | 0.144 | -0.307 | -7.370 | 0.001 | –     | –     |
|                        | popular culture          | –      | –     | –     | –     | –     | –     | –     |
|                        | Teachers' attitude       | 2.724 | 0.833 | 0.188 | 3.119 | 0.001 | –     | –     |
|                        | towards popular culture  | –      | –     | –     | –     | –     | –     | –     |
|                        | Teachers' management of  | 1.228 | 0.237 | 0.438 | 2.261 | 0.024 | –     | –     |
|                        | classes                  | –      | –     | –     | –     | –     | –     | –     |
|                        | Teachers' educational    | 3.689 | 0.915 | 0.338 | 3.718 | 0.002 | –     | –     |
|                        | style                    | –      | –     | –     | –     | –     | –     | –     |
|                        | Respect                  | 7.488 | 1.354 | 0.499 | 5.595 | 0.001 | –     | –     |
|                        | Encouragement             | 9.569 | 1.936 | 0.654 | 5.477 | 0.001 | –     | –     |
|                        | Openness                 | 8.499 | 1.480 | 0.417 | 4.551 | 0.001 | –     | –     |
|                        | Altruism                 | 13.669 | 1.893 | 0.586 | 7.992 | 0.001 | –     | –     |
|                        | Sociality                | -4.155 | 0.905 | -0.335 | -4.010 | 0.001 | –     | –     |
Grade positively predicts the student-teacher relationship of middle school students, inconsistent with the results of previous research (Zhang et al., 2012), which may be due to different sampling. The results of this study suggest that the middle school stage is an important stage of the development of student-teacher relationship. During this period, the relationship between teachers and students shows a trend of improvement on the whole, which reason may be that the influence of adolescent psychological atresia is gradually reduced, and the needs and abilities of interpersonal communication (including student-teacher communication) are improved with the growth of grade (David & Shaffer, 2002).

Family economic status, mother's education level and father's education level positively predict the student-teacher relationship of middle school students, which is consistent with the results of previous studies (Luo et al., 2021), suggesting that family living conditions and cultural atmosphere promote education. The better the economic situation of the family, the better its material living conditions, and the higher the educational level of parents, the stronger the family cultural atmosphere. Good material living conditions and strong family cultural atmosphere are easy to give birth to a strong intention to receive education, which is conducive to the formation of good relationship between teachers and students.

The student-teacher relationship of non-only children is significantly better than that of only children, which is consistent with the results of previous studies (Chen, 2007), suggesting the impact of relationship among family members on school interpersonal relationship. Only children are often the central figures of the family and get the greatest degree of care and accommodation from families, which makes them not good at caring for others and establishing and maintaining interpersonal relationships (including student-teacher relationship).

Origin is an independent predictor of the relationship between teachers and students at middle school students, which is consistent with the results of previous studies (Zhao & Wang, 2017), suggesting the influence of subculture background on educational behavior. Since most cities or towns take diploma as the basic requirement for employment and promotion, with the increasing professional competition, urban employers have higher and higher requirements for employees' academic qualifications in recent years, prompting people to do their best to improve their education level, so they attach great importance to the interaction and communication with schools and teachers, and the student-teacher relationship is relatively good; There are two ways to obtain employment in rural areas. One is to obtain a high degree and apply for social institutions. The other is to work in agriculture. The requirements for diploma in agriculture are significantly lower than those of employers in cities and towns. As the employment channels are more diversified, receiving higher education and obtaining a higher degree are not the necessary employment conditions for rural students. Rural students pay less attention to school education than urban students and would rather pay more attention to operational skills, which hinders the establishment and stability of the student-teacher relationship to a certain extent.

The area where the school is located is an independent predictor of the student-teacher relationship of middle school students, which is consistent with the results of previous studies (Hu, 2018), suggesting that the uneven distribution of educational resources has a negative impact on the concept of education. Generally speaking, the allocation of educational resources in rural and suburban areas is backward and unreasonable, which is mainly reflected in the shortage of school education funds, the obvious backwardness of infrastructure, especially the construction of educational informatization, and the insufficient of teachers, which makes students unable to obtain high-quality education like urban students. The enthusiasm of students and parents to participate in indigenous education is not high, and even transfer to urban schools one after another, which greatly hinders the establishment and stability of the relationship between teachers and students.

Academic performance, teachers' main role, teachers' attitude towards popular culture, teachers' class management, teachers' educational style, respect and encouragement positively predict the relationship between teachers and students; The greatest deficiency of teachers is the negative predictor of student-teacher relationship, which is consistent with the results of previous studies (Chen, 2007; Hu, 2018). It is suggested that teaching and educational factors play an important role in the relationship between teachers and students. On the whole, those with good academic performance have more benign interaction with teachers and have deeper mutual student-teacher understanding. Teachers who have a positive attitude toward popular culture can be more welcomed, resonated and recognized by students. Teachers who treat students equally and teach students according to their aptitude, adopt democratic management of classes, and are willing and good at expressing respect and encouragement to students can better stimulate students' potential and achieve their better academic performance and all-round physical and mental development, so as to get more love from students and promote the development of student-teacher relationship. On the contrary, if teachers' ideas are old and deeply estranged from students' ideas, it is most likely to cause students' disgust or even dislike and inaccessible. In addition, inadequate teaching level, poor teaching attitude and narrow knowledge will also hinder the relationship between teachers and students (Luo, 2009). To sum up, the compatibility of thoughts and hobbies is the most important basis for the relationship between teachers and students, which is consistent with other interpersonal relationships (Hou & Kuang, 2021).

Openness and altruism positively predict the student-teacher relationship; Sociality and students' attitude towards popular culture negatively predict the student-teacher relationship, which is consistent with the results of previous studies (Chen, 2007; Zou & Li, 2009). It is suggested that students' personal characteristics are an important internal cause of the relationship between teachers and students. As mentioned above, teachers who have a positive attitude towards popular culture can get more resonance and recognition from students, but most teachers don't agree with popular culture. In the view of these teachers, students
who agree with popular culture are derelict, wasting time, damaging to health, apostasy and need strict restrictions. Therefore, students' approval and follow of popular culture has become one of the main reasons for the conflict between teachers and students. Similarly, in the view of teachers, students with strong sociality are often too gregarious and eager to communicate to be able to study at ease. Most teachers severely criticize these students and lack recognition and encouragement, making it difficult for these students to approach them; On the contrary, students with high altruism or openness are more likely to be appreciated and welcomed by teachers. The reason is that students with high altruism are usually friendly, helpful, and modest to others, and good assistants for teachers to manage the class; Students with high openness have strong curiosity, rich imagination, and high abstract thinking ability. They often put forward enlightening ideas in learning, enrich teachers' understanding, and form a good class atmosphere.

V. CONCLUSION

The student-teacher relationship of middle school students in Guangdong is very good. The social cultural atmosphere, family educational concept, rearing style, teaching, and education style may be the main influencing factors of the student-teacher relationship of middle school students.

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