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Symbolization of mobile phone and life satisfaction among adolescents in rural areas of China: Mediating of school-related relationships

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ABSTRACT

Mobile phone is popular among residents in rural areas of China, especially among the adolescents. The aim of the present research was to investigate how the attitude towards mobile phone as a social status symbol affected life satisfaction of adolescents living in rural areas of China. Teacher-student relationship and student-student relationship as important interpersonal relationship indicators of adolescents were included as mediator variables. Participants were 656 adolescents (316 girls, $M_{age} = 14.43 \pm 1.67$ years), and they were surveyed on the attitude towards mobile phone as a social status symbol, teacher-student relationship, student-student relationship, and life satisfaction in the present research. Results showed that the attitude towards mobile phone as a social status symbol reduced life satisfaction. What's more, attitude towards mobile phone as a social status symbol could reduce life satisfaction via teacher-student relationship, as well as via teacher-student relationship and student-student relationship in sequence. We concluded that the attitude towards mobile phone as a social status symbol is a new risk factor of adolescents' development.

1. Introduction

Nowadays mobile phone, especially the smart phone, is very popular (Vanden Abeele & Roe, 2013), and has become an important element of adolescents' daily life (Subrahmanyam, Garcia, Harsono, Li, & Lipana, 2009). Wirth, Von Pape, & Karnowski (2008) distinguished the pragmatic and symbolic functions of mobile phone. Pragmatic function refers that mobile phone is a pure instrument for persons, and symbolic function refers that mobile phone is a symbol of person's status or identity. Many previous studies focus on the effect of pragmatic function on adolescents' life satisfaction (e.g. Coleman, Hale, Cotten, & Gibson, 2015; Kang & Jung, 2014; King, Wang, & Oh, 2013; Lee & Moon, 2013), whereas there is no study focus on the effect of symbolic function. Mobile phone is popular among adolescents living in the rural areas of China now, and it is important for rural adolescents (Wei & Zhang, 2008). Research finds that about 61.5% adolescents living in rural areas of China own mobile phone, and price of their mobile phone ranges from 1000 to 2000 RMB (about $151.84–$303.68) (Jiang, 2006). According to Lu's (2014) investigation, rural adolescents in China will more likely pursue the symbolic function of the mobile phone than urban adolescents. To sum up, it is significant to study how the symbolic function of mobile phone affect the rural adolescents' life satisfaction. Thus the primary aim of the present study was investigating the effect of mobile phone symbolic function on the life satisfaction of rural adolescents in China.

1.1. Life satisfaction and rural adolescents

Positive subjective well-being is necessary to a good life and a good society (Diener, Oishi, & Lucas, 2003). Life satisfaction as a core element of subjective well-being is important for human development (Diener, 2009). Life satisfaction is a cognitive, judgmental process (Diener, Emmons, Larsen, & Griffin, 1985). People

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will compare their circumstances with an appropriate standard they thought to be, and make the satisfaction judgment (Diener et al., 1985). Adolescence is a key period of the life (Shaffer & Kipp, 2010). Having a satisfying life is very important for adolescents' development. Adolescents with a satisfying life often have good physical health and good school success (Holder, 2012). In detail, having a happy life can improve adolescents' immune system, increase longevity (Holder, 2012), and then prevent the illness (Veenhoven, 2008). Adolescents who report higher levels of life satisfaction tend to report better academic achievement, more positive attitude to the school, better relationships with peers, as well as higher levels of life meaning experience and a healthier lifestyle (Holder, 2012; Marques, Lopez, & Pais-Ribeiro, 2009; Proctor, Linley, & Maltby, 2010). Thus, how to protect and enhance adolescents' life satisfaction become a research hot point in many disciplines such as psychology, education, and sociology.

Adolescents living in rural areas of China mostly live in families with low SES, and their parents often have low educational backgrounds (Liu, Chen, & Cheng, 2015). Parents with lower SES and poorer educational background can give adolescents less high-quality parenting (Votruba-Drzal, Coley, Maldonado-Carreno, Li-Grining, & Chase-Lansdale, 2010). Therefore, rural adolescents are often at high risks of problem behaviors. What's more, some adolescents become left-behind-children and have to live in non-intact families because their parents, especially fathers, migrate to urban areas to seek jobs. The parenting quality of left-behind children is poorer than their counterparts (Fan, Su, Gill, & Birmaher, 2010). Many researches reveal that rural area adolescents, particularly the left-behind-children, experience lower life satisfaction, lower self-esteem, worse school engagement, poorer physical health, and have more depression, social anxiety, loneliness, and deviant behaviors than non-left-behind children (Fan et al., 2010; Sun et al., 2015; Wen & Lin, 2012). The shortage and weakness of educational environment in rural areas, such as small number of schools, poor educational condition, low educational quality, is another risk factor of rural adolescents' positive development in China (Liu et al., 2015). Low-quality parenting and poor educational environment not only are the risk factors against rural adolescents' development, but also work together to form a cumulative risk. The cumulative risk as the co-occurrence of more than one risk factor for a given individual or within a population (Rutter, 1987), will make adolescents feel lower life satisfaction and have a greater power to damage adolescents' positive development than single risk factor (Evans, Li, & Whipple, 2013). In this way research on rural area adolescents' life satisfaction and the factors affecting rural adolescents' life satisfaction is very important.

1.2. Mobile phone symbolic functions and adolescents

Mobile phone has permeated in every aspect of people's life. Several functions of mobile phone have emerged such as coordination, expressive usages, safety link, texting, multimedia, and Internet usage. These functions refer to that mobile phone can help adolescents do flexible judgment, maintain relationships, and cope with the adverse circumstance (Ling & Bertel, 2013). From the usage characteristic aspect, these functions based on the concrete behaviors of the mobile phone usages, such as calling, texting, and searching the Internet. These functions reflect that people use mobile phone in purely instrumental sense (Wirth et al., 2008). Therefore, we define these functions as the pragmatic functions following Wirth and colleagues' (2008) view.

Besides the pragmatic functions, there are also symbolic functions of the mobile phone (Wirth et al., 2008). Symbolization is a process where artifacts (social or material reality) are bestowed symbolic meanings abstract of the artifacts, and it usually contacts with the particular culture (Zheng, Qu, & Yang, 2009). Apparatgeist theory developed by Katz and Aakhus (2002) provide a framework to explain the consistencies of the social change that come out of the adoption and use of the mobile phone (Campbell & Park, 2008). Basing on this view, the symbolic functions reflect how individuals use the mobile phone in the capacity of prestige object in order to define their identity (Humphreys, Von Pape, & Karnowski, 2013; Wirth et al., 2008), and it can be seen as a strategy of self-presentation (Campbell & Park, 2008). Based on Zheng and colleagues' (2009) view, we define symbolic functions as the efficacy that artifacts present or reveal their symbolic meanings in a particular culture. The symbolic functions of mobile phone are more than one kind, among which researchers focus on the social status symbol most (e.g. Özcan & Koçak, 2003; Vanden Abeele, Antheunis, & Schouten, 2014; Vanden Abeele & Roe, 2013).

Adolescence is a special period, during which individuals' self-concept develops speedily (Brown & Prinstein, 2011). Adolescents can distinct the “I-self” and the “Me-self” (Brown & Prinstein, 2011). I-self is the cognitive processes that define how the individual thinks about the self; and Me-self is the object of one's thinking about the self, self-descriptions and self-evaluations, such as self-esteem (Brown & Prinstein, 2011). Adolescents are greatly concerned about others' evaluation of themselves, and the “imaginary audience” and the “egocentrism” appear during this period (Shaffer & Kipp, 2010). Because of these characteristics, mobile phone will play a key role in adolescents' daily life. Mobile phone can not only help adolescents maintain relationships (Subrahmanyam et al., 2009), but also boost adolescents' self-identity exploration (Vanden Abeele & Roe, 2013). Researchers also suggest that youth media use is strongly connected with their real life identity (Hodkinson & Deicke, 2007). For early and middle adolescents, owning a “cool” mobile phone can let them feel more popular than those without mobile phones (Blair & Fletcher, 2011; Vanden Abeele et al., 2014). “Ritual of passage” and “virtual brotherhood” are two meanings of mobile phone to adolescents (Rosell, Sánchez-Carbonell, Jordana, & Fargues, 2007). Ritual of passage means mobile phone is an object of initiation to adolescence (Rosell et al., 2007). Owning mobile phone implies that adolescents have high level of autonomy (Blair & Fletcher, 2011) and allows adolescents to communicate without parents' monitoring (Rosell et al., 2007). Virtual brotherhood is a sense of fraternity basing on adolescents' sharing emotions and feelings (Rosell et al., 2007). Without mobile phone, adolescents will feel more peer pressures (Campbell, 2005). One study also indicates that the youth who own mobile phones can form a subgroup and who don't own them are seen as the out-group (Walsh, White, & Young, 2009). Owning mobile phones confer the owners' in-group status among youth (Walsh et al., 2009).

Bourdieu (1996) explained that the lower classes have a stronger need for the expensive consumer goods compared with the upper classes. Research finds that adolescents with low SES background and poor academic performance are more likely to have mobile phones than adolescents with high SES background and good academic performance (Skog, 2002). Researchers also find that the proportion of adolescents owning mobile phones is higher in low SES families than in high SES families, and adolescents from low SES families are more likely to see the mobile phone as a social status symbol than those from high SES families (Thomas, Heinrich, Kühnlein, & Radon, 2009). Lu (2014) found that residents in rural areas of China are keen on comparing with their acquaintances, neighbors, and persons who have similar characteristics with them unrealistically. Consumption for daily life is the most important comparison dimension among them (Lu, 2014). Thus, we inferred that adolescents living in rural areas are more likely to pursue the social status of mobile phone.

2. Literature review and hypotheses development

2.1. The relation between symbolic function of mobile phone and adolescents' life satisfaction

Previous studies on the relation between mobile phone usage and adolescents' life satisfaction is rare and not consistent. On the one hand, adolescents' mobile phone usage will have adverse effect on life satisfaction directly or indirectly. Some researches find adolescents' mobile phone usage will let them get addiction or nomophobia (King et al. 2013; Vacaru, Shepherd, & Sheridan, 2014), which has been evidenced to affect life satisfaction negatively (Lee & Moon, 2013). In addition, many parents worry that mobile phone usage will let their children experience cyberbullying, and impact on children's healthy sleeping (George & Odgers, 2015). On the other hand, other researchers found either the positive correlation (Kang & Jung, 2014) or no significant correlation (Coleman et al., 2015). These studies mostly indicated that the relation between mobile phone usage and psychological benefits depended on how the mobile phone was used (Hoffner & Lee, 2015). However, these researches mainly focused on the pragmatic functions but not the symbolic functions of mobile phone; and no research has been conducted to explore the relation between mobile phone symbolic functions and adolescents' life satisfaction.

Self-determination theory indicates that competence, autonomy, and relatedness are three basic psychological needs that be satisfied will let people perceive more happiness (Deci & Ryan, 2012; Ryan & Deci, 2000). This theory also explains that external rewards such as fame and economic interests can inhibit the feeling of life satisfaction (Ryan & Deci, 2000), because external rewards thwart the satisfaction of autonomy need (Deci, Koestner, & Ryan, 1999). In this way the attitude towards the mobile phone as a social status symbol (AMPSSS) can be seen as a satisfaction of external rewards. Therefore, according to Ryan and Deci's (2000) suggestion, we put forward the first hypothesis:

H1. AMPSSS will negatively predict life satisfaction of adolescents living in rural areas of China.

2.2. School-related relationships as the mediators

School is an important element of micro system for adolescents (Bronfenbrenner, 1979). Close relationship with peers, positive school experiences, and belonging to a supportive community are key protective factors for adolescents' positive development (Bogenschneider, 1996). Self-determination theory (Deci & Ryan, 2012) also suggests that good school adjustment is beneficial to life satisfaction because it can be seen as the satisfying of both relatedness and competence need. Teacher-student relationship and student-student relationship are two significant interpersonal relationships for adolescents. High quality relationships with teachers and peers are the indicators of adolescents' school adjustment (Raufelder, Jagenow, Drury, & Hoferichter, 2013; Reddy, Rhodes, & Mulhall, 2003), as well as protective factors for adolescents' positive development (Bogenschneider, 1996). Good interpersonal relationship can enhance students' life satisfaction (Holder, 2012). The reason why good interpersonal relationship can improve life satisfaction is that it can be seen as a mark of satisfying the relatedness need basing on the self-determination theory (Ryan & Deci, 2000). It was supported by empirical studies which indicate that high quality teacher-student relationship and student-student relationship can not only improve well-being and mental health, but also prevent internalizing and externalizing problems (Demir & Özdemir, 2010; Hughes, Mulhall, & Willson, 2001; Orejudo, Puyuelo, Fernández-Turrado, & Ramos, 2012; Pham & Murray, 2016; Van Ryzin, Fosco & Dishion, 2012; Wang, Brinkworth, & Eccles, 2013). Research on Chinese rural adolescents also finds that teacher support and student support, which have been evidenced to be associated with high quality relationships (Hughes, Cavell, & Willson, 2001), can enhance adolescents' life satisfaction and healthy lifestyle (Wen & Lin, 2012). Based on these previous researches we put forward another two hypotheses:

H2a. High quality teacher-student relationship will improve life satisfaction of adolescents living in rural areas of China.

H2b. High quality student-student relationship will improve life satisfaction of adolescents living in rural areas of China.

There is no prior study directly examining the relation between the AMPSSS and adolescents' school-related relationships. Prior studies related to AMPSSS have focused on the relation between AMPSSS and attitude to school (Vanden Abeele & Roe, 2013) and academic performance (Hawi & Samaha, 2016; Lepp, Barkley, & Karpinski, 2014). For example, Vanden Abeele and Roe (2013) found that AMPSSS is negatively associated with positive attitude to school. Using mobile phone has a negative effect on academic performance (Hawi & Samaha, 2016; Lepp et al., 2014), and many middle schools in China have banned students' mobile phone use (Gao, Yan, Zhao, Pan, & Mo, 2014). Based on these studies, we infer that teachers will have negative attitude towards students' mobile phone usage. Furthermore, teachers will have negative attitude towards students who have high level of the AMPSSS, because student with high level of the AMPSSS are more likely to play with mobile phone or show off their mobile phone, and these behaviors will have adverse effects on classroom order and their academic performance. Hence, the present study assumed that mobile phone usage will damage the teacher-student relationship, and put forward that:

H3a. High level of AMPSSS will decrease the teacher-student relationship of adolescents living in rural areas of China.

For student-student relationship, mobile phone usage can maintain adolescents' relationships with friends and peers (Campbell, 2005; Rosell et al., 2007), but it refers to the pragmatic functions rather than the symbolic functions. Group socialization theory explains that culture transmission is a process from parents' peer group to adolescents' peer group (Harris, 1995). In other words, parents can influence adolescents' socialization via parents' peer group, such as the parent committee. If many parents think, and they do indeed, using mobile phone has many disadvantages to adolescents, such as the negative association between AMPSSS and the attitude to school (George & Odgers, 2015; Vanden Abeele & Roe, 2013), they may tell their children using mobile phone is not a good behavior and ban them from using mobile phones. Then if many students in one class get the similar view from their parents, a group atmosphere will appear that using mobile phone is not a good behavior. At last, basing on this atmosphere, adolescents will alien those who often use mobile phone, and think these adolescents are not good students. Thus the present research put forward that:

H3b. High level of the AMPSSS will decrease the student-student relationship of adolescents living in rural areas of China.

Summarizing the H2a, b and H3a, b, we hypothesized that:

H4. School-related relationships (teacher-student relationship and student-student relationship) will be mediators in the relation between the AMPSSS and life satisfaction of adolescents living in rural areas of China.

Some research finds that teacher-student relationship is

positively associated with student-student relationship (Hoferichter, Raufelder, & Eid, 2014; Raufelder, Hoferichter, Schneeweiss, & Wood, 2015), and good teacher-student relationship can diminish student victimization (Lucas-Molina, Williamson, Pulido, & Pérez-Albéniz, 2015). Basing on these researches, the present research hypothesized that:

H5. Teacher-student relationship will positively predict student-student relationship, and they will play the serial multiple mediator roles in the relation between the AMPSSS and life satisfaction of adolescents living in rural areas of China.

3. Methods

3.1. Participants

The participants consisted of 656 adolescents from a rural area of Southwest China. Participants were composed of 316 girls and 333 boys (7 participants did not report their gender on the questionnaire). The average age of participants was 14.43 ± 1.67 years which ranged from 11 to 18. All participants were recruited from ten classes of four high schools (two junior high schools and two senior high schools), among which 255 from grade seven, 136 from grade eight, 140 from grade ten, and 125 from grade eleven. Four hundred and ninety (74.7%) participants reported having mobile phone of their own. As schools banned students' mobile phone usage during workday, the time length of participants' mobile phone use was short on workday. For example, the length of calling was 0.31 ± 0.47 h, online chatting was 0.76 ± 1.12 h, social networking sites use was 0.47 ± 0.78 h, playing games was 0.40 ± 0.79 h, and listening to music and watching videos was 1.03 ± 1.19 h.

3.2. Measures

3.2.1. The AMPSSS

The scale used to measure AMPSSS was developed by Vanden Abeele et al. (2014). The original scale consisted of 16 items of 3 dimensions: fashion, time poverty, and popularity. In the present study, we used the fashion and popularity dimensions. Time poverty measuring the effect of mobile phone on individuals' busy schedule was not suitable for adolescents because that the schedule of high school students were arranged by the school. The two dimensions were consisted of 12 items, such as "It's important that my mobile phone has the latest features". Participants rated each item on a four-point scale (1 = "*completely disagree*" to 4 = "*completely agree*"). The higher scores participant got, the more positive attitude they own. We translated and revised the scale into Chinese. In present research the Cronbach's α coefficient was 0.78 for the fashion dimension, 0.75 for the popularity dimension, and 0.86 for the whole scale. The composite reliabilities were 0.80 and 0.75 for each dimension, and the average variance extracted (AVE) values were 0.40 and 0.37. The confirmatory factor analysis revealed that this revised scale had a good structural validity among Chinese rural adolescents (χ^2/df = 4.06, CFI = 0.94, TLI = 0.93, RMSEA = 0.069).

3.2.2. Life satisfaction scale

Self-reported life satisfaction scale was developed by Diener et al. (1985) and was widely used. In present study, we used Chinese version revised by Cai, Lin, Wu, Yan, and Huang (2008). The scale consisted of five items which were rated on a seven-point Likert-style scale (1 = "*completely disagree*" to 7 = "*completely agree*"). The higher scores the participants got, the more satisfaction they feel of their life. Cronbach's α coefficient of this scale was 0.80 in present research. The composite reliability was 0.80 (AVE = 0.45). The confirmatory factor analysis revealed that this revised scale had a good structural validity among Chinese rural adolescents (χ^2/df = 6.32, CFI = 0.97, TLI = 0.94, RMSEA = 0.090).

3.2.3. Teacher-student relationship scale

The teacher-student relationship scale was originated from one subscale of the *My Class Scale* developed by Jiang (2002). This scale measured the degree of the relationship between adolescents themselves and their teacher of the participants perceived. The scale consisted of eight items rated on a five-point Likert-style scale (1 = "*completely not true*" to 5 = "*completely true*"). The higher scores participants own, the better relationship they perceived. Cronbach's α coefficient of this scale was 0.91 in present study. The composite reliability was 0.91 (AVE = 0.56). The confirmatory factor analysis revealed that this revised scale had a good structural validity among Chinese rural adolescents (χ^2/df = 5.99, CFI = 0.97, TLI = 0.95, RMSEA = 0.087).

3.2.4. Student-student relationship scale

The student-student relationship scale was originated from another one subscale of the *My Class Scale* developed by Jiang (2002). This scale measured the degree of the relationship between adolescents themselves and other students of the participants perceived. The scale consisted of eight items rated on a five-point Likert-style scale (1 = "*completely not true*" to 5 = "*completely true*"). The higher scores participants own, the better relationship they perceived. Cronbach's α coefficient of this scale was 0.77 in present study. The composite reliability was 0.79 (AVE = 0.33). The confirmatory factor analysis (CFA) revealed that this revised scale had a good structural validity among Chinese rural adolescents (χ^2/df = 3.77, CFI = 0.95, TLI = 0.93, RMSEA = 0.065).

The original items of all questionnaires were in the Appendix.

3.3. Procedure

The investigation was conducted in classrooms after informed consents were approved from the teacher and the participants themselves. Trained undergraduate students administered the survey. They explained the requirements of the questionnaires to the participants using standard instructions, and emphasized the authenticity, independence and integrity of all the answers. The investigation was approved by the Institutional Research Board (IRB) before data collection. Of the 670 questionnaires distributed, 656 valid questionnaires were returned after incomplete questionnaire were excluded, the rate of return was 97.9%.

3.4. Data analysis

Descriptive information and correlation matrix was calculated first. Then we analyzed the sequence mediation effect of teacher-student relationship and student-student relationship on the relation between AMPSSS and life satisfaction. As the students were nested directly in the class, and different class environment may affect our results. Thus, the class effect needed to be eliminated in the regression analysis. Since the number of class (n = 10) was too small to conduct to hierarchical linear model, the fixed effect model was used to eliminate the class effect following Cohen et al. (2003) suggestion. In the fixed effect model, the class variable were transformed to the dummy variables, and then included in the regression model. The PROCESS 2.15 Macro for SPSS (Model 6) developed by Hayes (2013) was used to analyze the serial multiple mediator model, and this macro could conduct the fixed effect model as well. This macro used bootstrapping technique to test the significance of the direct and the indirect. This method is powerful

to test the direct and indirect effects by repeatedly sampling cases from the dada and estimating the model in each resample (Kim, Wang, & Oh, 2016). In present study, we generate 95% bias-corrected accelerated confidence intervals on the basis of 5000 bootstrap samples, estimating multiple mediators simultaneously. As the SPSS macro did not report the standardized regression coefficients, we transformed the raw scores of variables included in the model to *Z*-scores before conducted the mediation effect analysis, and this transformation could let the macro report the standardized regression coefficients.

4. Results

Pearson correlation was conducted to analyze the association between the AMPSSS, teacher-student relationship, student-student relationship and life satisfaction. Results showed that the AMPSSS significantly correlated with teacher-student relationship, student-student relationship, and life satisfaction negatively; teacher-student relationship, student-student relationship, and life satisfaction significantly correlated with each other positively (see Table 1). These indicated that, the higher scores on AMPSSS adolescents reported, the lower scores on teacher-student relationship, student-student relationship, and life satisfaction they reported, and the higher scores on teacher-student relationship and student-student relationship adolescents reported, the higher life satisfaction scores they reported. Therefore, H1 was supported.

As all variables were correlated with each other, the mediation effect analysis was conducted. After the fixed effect model was used to control the class effect, AMPSSS significantly negatively predicted life satisfaction without any mediation variables ($\beta = -0.16$, $p < 0.001$) (total effect, Model 1). This indicated that adolescents who report more positive attitude towards the mobile phone as a social status symbol have lower life satisfaction. Results also showed that AMPSSS significantly negatively predicted teacher-student relationship ($\beta = -0.20$, $p < 0.001$) (Model 2), which indicated that the more positive attitude towards the mobile phone as a social status symbol adolescents had, the worse teacher-student relationship they felt. Teacher-student relationship positively predicted student-student relationship ($\beta = 0.41$, $p < 0.001$), but AMPSSS did not significantly predicted student-student relationship ($\beta = -0.02$, $p = 0.54$) in the multiple regression model showed in the Model 3. These indicated that good teacher-student relationship would enhance peer relationship, but the attitude towards the mobile phone as a social status symbol could not affect the student-student relationship. Shown in model 4, the multiple regression results revealed that teacher-student relationship ($\beta = 0.16$, $p < 0.01$) and student-student relationship ($\beta = 0.20$, $p < 0.001$) positively predicted life satisfaction significantly, and the direct effect of AMPSSS on life satisfaction was significant ($\beta = -0.10$, $p < 0.01$). These indicated that better teacher-student relationship and student-student relationship would enhance life satisfaction, but the attitude towards mobile phone as a social status symbol impaired it. Taken together, H2a, H2b, H3a, and H5 were supported, H4 was partial supported, but H3b was not. Table 2 showed the results of multiple regression of the mediation effect testing.

For the indirect effect, 95% bootstrap confidence intervals (CI) without "*zero*" indicated the significant mediation effect. It showed that the total indirect effect was significant, the standardized indirect effect was −0.06, 95% CI was [−0.09, −0.03], the ratio of indirect effect to total effect was 34.0%. Specifically, AMPSSS could predict life satisfaction via teacher-student relationship, the standardized indirect effect was −0.03, 95% CI was [−0.06, −0.01], the ratio of indirect effect to total effect was 20.5%, and via the teacher-student relationship and student-student relationship successively, the standardized indirect effect was −0.02, 95% CI was [−0.03, −0.01], the ratio of indirect effect to total effect is 10.6%. No significant simple mediation effect was found of the student-student relationship in the relation between AMPSSS and life satisfaction. These results indicated that teacher-student relationship and student-student relationship had the partial mediation effect on the relation between AMPSSS and life satisfaction (Fig. 1).

Table 1
The correlation matrix of the AMPSSS, teacher-student relationship, student-student relationship, and life satisfaction.

	M (SD)	1	2	3
1 AMPSSS	2.06 (0.52)	1.00		
2 Teacher-Student Relationship	3.68 (0.88)	−0.17***	1.00	
3 Student-Student Relationship	3.41 (0.65)	−0.13***	0.27***	1.00
4 Life Satisfaction	4.10 (1.29)	−0.18***	0.29***	0.27***

Note. $N = 656$.
AMPSSS = the attitude of mobile phone as a social status symbol.
***$p < 0.001$.

5. Discussion

5.1. The relation between the AMPSSS and life satisfaction

Mobile phone is affordable in our daily life. The present research tested the relation between the attitude towards mobile phone as a social status symbol and adolescents' life satisfaction, as well as the mediation roles of school-related relationships among adolescents living in rural areas of China. The results showed that the attitude towards mobile phone as a social status symbol is negatively associated with life satisfaction. This coincides with the self-determination theory (Deci & Ryan, 2012; Ryan & Deci, 2000). Self-determination theory considers that monetary rewards, competition, and threats can thwart the satisfaction of autonomy need, and then undermine the internal motivation. Social status symbol of the mobile phone, as an indicator of pursuit of external reward, can thwart the autonomy need and undermine the internal motivation, then lower adolescents' life satisfaction. Culture taste theory (Bourdieu, 1996) reveals that individuals from low SES background are more likely to pursue the external rewards than ones from high SES background. Since most adolescents living in rural areas of China are from lower SES background and like to compare their wealth with their neighbors or acquaintances unrealistically (Lu, 2014), they prefer to pursue the symbolic functions of mobile phone, and compare their mobile phone with other students. This unrealistic comparison can affect adolescents' positive development. Owning mobile phone can divide youth into two groups, the in-group and the out-group. Youth without mobile phone comprise the out-group and will perceive being excluded by the in-group (Walsh et al., 2009). Their relatedness need unable to be satisfied makes them feel less life satisfaction according to self-determination theory (Ryan & Deci, 2000). In the present research there were about 25% adolescents without mobile phone, and these adolescents will be seen as the out-group by youth who own mobile phones. If they have high level of the attitude towards the social status symbol of the mobile phone, they will perceive being excluded more, and then feel less life satisfaction.

The present research also reveals that teacher-student relationship and student-student relationship are two mediators in the relation between the attitude towards mobile phone as a social status symbol and life satisfaction. It means that adolescents endorsing more positive attitude towards the social status symbol of mobile phone have worse teacher-student relationship. Previous studies reveal that mobile phone usage has a negative effect on

Table 2
Multiple regression analyses of the mediation effect.[a]

	Model 1 (LS)		Model 2 (T-SR)		Model 3 (PR)		Model 4 (LS)	
Predictors	β	t	β	t	β	t	β	t
AMPSSS	-0.16^{***}	−4.27	-0.20^{***}	−1.27	−0.02	−0.61	-0.10^{**}	−2.83
TSR					0.41^{***}	8.61	0.16^{**}	3.28
SSR							0.20^{***}	5.24
adj-R^2	0.15^{***}		0.45^{***}		0.19^{***}		0.22^{***}	
F	11.05		51.96		13.22		14.57	

Note. N = 656.
AMPSSS = the attitude of mobile phone as a social status symbol, LS = life satisfaction, TSR = teacher-student relationship, SSR = student-student relationship.
$^{**}p < 0.01$ $^{***}p < 0.001$.
[a] As the PROCESS Macro of SPSS does not report the regression coefficients of the control variables directly, the class in present models, when the fixed effect models were conducted, therefore this table does not present the regression coefficient of the class which as the control variable in present analyses.

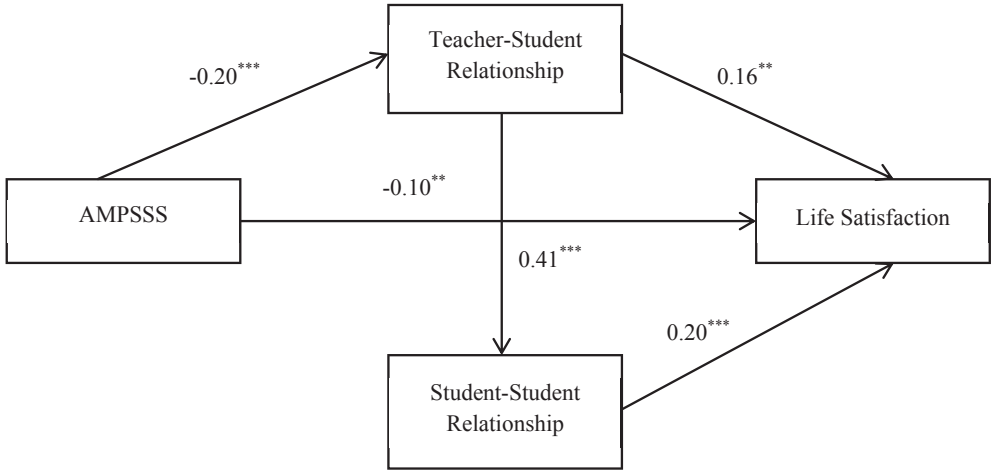

Fig. 1. The mediation effect of teacher-student relationship and student-student relationship in the relation between AMPSSS and life satisfaction. $^{**}p < 0.01$ $^{***}p < 0.001$.

school performance and academic achievement (Lepp et al., 2014; Polos et al., 2015), some middle schools even have banned students to bring mobile phones into school (Gao et al., 2014). Thus, we infer that teachers always have a negative attitude to students' mobile phone usage and regard the students who have high level of positive attitude to the symbolization of mobile phone as "bad students". Thus, the present research considers that the attitude towards mobile phone as a social status symbol can reduce the teacher-student relationship. This research also finds that teacher-student relationship positively predicts life satisfaction. This result is in accordance with Holder's (2012) conclusion. High quality teacher-student relationship is a protective factor for adolescents' development (Bogenschneider, 1996), because it can decrease adolescents' internalizing and externalizing problems (Hoferichter et al., 2014; Lucas-Molina et al., 2015) and contribute to the development of social adjustment (Pham & Murray, 2016) and academic self-regulation (Raufelder et al., 2015). Moksnes et al. (2016) also found high stress from interaction with teachers will decrease adolescents' life satisfaction. In addition, compared with low quality teacher-student relationship, high quality teacher-student relationship has a contribution to let adolescents receive more support from teachers (Hughes et al., 2001). Social support can enhance one's life satisfaction or well-being (Chen & Choi, 2011; Trepte, Dienlin, & Reinecke, 2015). To sum up, the present research considers that the attitude towards mobile phone as a social status symbol can reduce adolescents' teacher-student relationship and then decrease their life satisfaction. Teacher-student relationship plays a mediator role in the relation between the attitude towards mobile phone as a social status symbol and adolescents' life satisfaction.

In addition, the present research also finds a serial multiple mediation effect that the attitude towards mobile phone as a social status symbol affects life satisfaction via teacher-student relationship and student-student relationship in sequence. The results of the present research are in accordance with many previous researches which found that teacher-student relationship and student-student relationship have positive correlation with life satisfaction (Holder, 2012; Olsen, Parra, & Bennett, 2010; Orejudo et al., 2012). China, as a representation of the collective culture (Sivadas, Bruvold, & Nelson, 2008), encourages obedience to teachers and social learning in school education (Chang et al., 2011). Therefore, students tend to interact with the students who are liked by teachers. If students have positive attitude towards mobile phone as a social status symbol, teacher will regard them as deviators, then other students will not want to interact with them. Thus this reveals that the attitude towards mobile phone as a social status symbol can reduce teacher-student relationship and in turn reduce the student-student relationship, at last decrease the life satisfaction. To sum up, the attitude towards mobile phone as a social status symbol affects life satisfaction not only via teacher-student relationship, but also via teacher-student relationship and student-student relationship in sequence.

5.2. Implications

This is the first research focusing on the relation between the attitude towards mobile phone as a social status and life satisfaction among adolescents living in rural areas of China. For

theoretical implication, on the one hand, present research distinguishes, as well as identifies the pragmatic and symbolic functions of mobile phone. This is beneficial for integrating the related studies to put forward a new aspect on the function of mobile phone. On the other hand, this research offers empirical evidence for the effect of symbolic functions of mobile phone on adolescents' well-being, based on the self-determination theoretical framework. According to the self-determination theory (Deci & Ryan, 2012), the present research declares that the social status symbol of the mobile phone as the external reward is a risk factor of adolescents' well-being. The more adolescents pursue the social status symbol of the mobile phone, the lower well-being they will perceive. Thus, this research offers a diversified aspect, and enriches the empirical researches on the relation between mobile phone usage, even mobile devices usage, and adolescents' well-being.

For the practical implication, the present research explores the risk factors of adolescents' positive development. This research finds that attitude towards the mobile phone as a social status symbol is a risk factor of adolescents' well-being. This indicates that parents and teachers should educate adolescents to pay more attention to what they should do, such as studying, rather than the symbolic function of the mobile phone. In addition, the present research declares that teacher-student relationship and student-student relationship play mediator roles in the relation between the attitude towards mobile phone as a social status symbol and life satisfaction. In school education, high quality teacher-student relationship can help adolescents' to build or maintain good relationships with other students. High quality teacher-student relationship and student-student relationship can weaken the disadvantage influence of the attitude towards mobile phone as a social status symbol on adolescents' well-being. Therefore, teachers should pay more attention to building good relationships with students as well as helping students build and maintain good relationship with other students.

5.3. Limitations and future directions

Underscoring some limitations is also important. First, this research only investigated adolescents from rural areas of China. Because this research focused on the adolescents who live in rural areas, this sampling limited the external validity of the present results. In future, research can sample adolescents from both urban and rural areas, and to do a comparison study on whether the relation found in present research has differences between residents in urban and rural areas. Second, all scales used in this research are self-report measures, which may lead to common method biases and social desirability. Whereas, Haugland and Wold (2001) declared that adolescents older than 14-year-old can evaluate and report their mental health condition reliably, thus though self-reported scales were used in the present research, we can confirm the reliability and validity of our results. However, if multiple-source measurement is conducted in future studies, the conclusion will be more persuasive. At last, some factors, such as the mobile phone brand, price, social economic status, and parent-adolescent relationship, can influence the relation between the attitude towards mobile phone as a social status symbol and life satisfaction of adolescents living in rural area of China, but are not included in present research. Therefore, more related variables should be included in future studies in order to strengthen the results tested in present research.

6. Conclusion

Presents research investigated the relation between the attitude towards mobile phone as a social status symbol and life satisfaction of adolescents living in rural areas of China. We put forward that the attitude towards the social status symbol of mobile phone can reduce adolescents' life satisfaction. The present research also concluded that teacher-student relationship and student-student relationship play the serial multiple mediator roles in the relation between the attitude towards mobile phone as a social status symbol and life satisfaction, which implies that the positive attitude towards the social status symbol of mobile phone can reduce teacher-student relationship and student-student relationship in sequence then decrease adolescents' life satisfaction. This research revealed that the attitude towards mobile phone as a social status symbol is a new risk factor of adolescents' development.

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Appendix

The original items of variables

The AMPSS (Fashion dimension)
It's important that my mobile phone has the latest features.
I am interested in the newest mobile phone models.
A good mobile phone is always an expensive mobile phone.
A fancy or expensive mobile phone functions as a status symbol for me.
It's important to have a cool mobile phone.
My mobile phone does not have to be fancy or expensive, but reliable.*
You look more stylish with a cool mobile phone.
The AMPSS (Popular dimension)
You feel left out if you do not have a mobile phone.
You are more popular if you get a lot of texts of the opposite sex.
If you do not have mobile phone, you are old-fashioned.
Receiving a lot of texts means you are popular.
You are more popular when you have a mobile phone.
Life satisfaction
In most ways my life is close to my ideal.
The conditions of my life are excellent.
I am satisfied with my life.
So far I have gotten the important things I want in life.
If I could live my life over, I would change almost nothing.
Teacher-student relationship
Students like the head teacher.
Our head teacher is reasonable.
Our head teacher is affable.
Our head teacher truly cares about students.
We can trust our head teacher.
Our head teacher encourages students.
Our head teacher considers students' self-esteem.
Our head teacher is a person easy to get close to.
Student-student relationship
If anyone has concerns, the other students will care for him/her.
There is a lack of friendly affection among classmates.
Our class is relatively united.
Many students harm others for their own good.*
Classmates support and encourage each other.
Classmates can tell the truth to each other.
Classmates will offer advice and find ways together to deal with issues in the class.
Students in need will receive other classmates' care and help.

Note. Head teacher is the teacher in charge of the class.
Asterisk means the reversed coding.

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