The Relationship between Parental Internet Mediation and Internet Usage of Chinese Children: The Mediation Role of Personality Trait

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Abstract. This study investigated how personality traits mediated the relationship between the parental Internet mediation and Internet usage (time and engagement) of Chinese children. A sample of 975 children from two Chinese primary schools, average age was 10.26 years old, was asked to report their Internet use time (daily and weekend), Internet engagement (information, entertainment and social interaction), parental Internet mediation, and their personality traits (extraversion and neuroticism personality). Results indicated: 1) the restrictive mediation was negatively linked to children’s Internet use time, and the other two mediation dimensions (active and co-use) were positively linked to children’s Internet engagement. 2) The extraversion personality mediated the association between the three mediation dimensions and children’s internet engagement, and the neuroticism personality only mediated the relationship between active mediation and use time. The present study highlights the importance of children’s personality as a link between parental role and children’s Internet-related behavior.

Introduction

With the rapid advances in information and communication technology, Internet is more and more widely spread and accessible for children than ever. The report about Chinese children Internet use (China Internet Network Information Center, 2019) showed that the number of children use Internet is still in fast growth. The average time Chinese primary students spend on Internet per week was 26 hours. On one hand, Internet provides children with a visual world to make their lives more interesting: search information, watch animations, chat with others, make friends, play games, go shopping and so on. On the other hand, Internet may bring lots of undesirable influences on children development: harmful engagements and inappropriate interactions[1,2]. Children Internet use carries a serious question, which needs to be carefully explored by considering the role of parents and children’s characters together.

Previous research on children Internet usage was mainly from two aspects: time and engagement. Both children’s Internet use time and engagement are important factors affecting children’s development. Some researchers found that the time children spent online was negatively correlated with their academic score, learning process, and psychological health[3]. As for children’s Internet engagement, different online activities have their own effect: Information usage affected children’s cognitive development, and improved academic performance and life satisfaction[4]. The entertainment usage is associated with emotional and social development of children. Social interactions usage is correlated with children’s self-esteem, self-concept and interpersonal relationships. However, lots of studies on children Internet usage have primarily focused on the impacts of children Internet usage on psycho-social adaption, less research on the causes of children’s Internet usage instead. In order to better understand the cause of children behavior on Internet and guide their behavior, it’s necessary to answer the question how environmental factors and individual...
factors are correlated with children’s Internet usage time and engagement together. Thus, in this study, we choose parental Internet mediation as the environmental factor and personality traits as the individual factor to explore children’s Internet usage (time and engagement).

According to parental mediation theory, the direct and indirect social and/or technical strategies are used by parents to control their children’s online behaviors. The literature on the parental mediation of television has identified three forms of mediation strategies: restrictive mediation, active mediation and co-use. The results of studies on parental mediation of children Internet usage have been mixed. The for-most mediation chosen by parents was the restrictive mediation, as it’s easier to limit children’s online time or forbid specific contents. Active mediation and co-use could reduce children’s online risks without reducing online opportunities, by avoiding the danger of harmful engagement online. However, existing studies on parental mediation about children Internet usage include only a limited number of parental dimensions on particular Internet use time, engagement or risky behavior separately. Moreover, efforts to map out the differential contributions of the parental mediation dimensions to children Internet usage have been hindered. Therefore, one important goal of the current study is to identify the specific effects of different parental Internet mediation strategies on children’s Internet usage (time and engagement).

Personality might serve as a proximate factor or mediator to determine children’s online behaviors. The mediating mechanisms through which parental Internet mediation impacts children’s Internet usage are still unclear. However, it’s important for researchers to better understand how parental Internet mediation is linked to children’s Internet usage. Children’s personality is particularly related to their online behavior: research found that the Neuroticism trait was positively related to children’s problematical online behavior, whereas Extraversion trait was negatively associated with risky online activities. What’s more, children’s personality is in the process of development and change, and their Internet usage would be shaped by family activities. Therefore, personality might play the mediator role between the relationship of parental activities about children’s Internet usage and their online behaviors (Internet usage). Therefore, the other goal of the current study is to explore the role of personality traits in the relationship between parental Internet mediation and children’s Internet usage.

To summarize, the present study investigated whether the parental Internet mediation was associated with children Internet usage (time and engagement), and the underlying mediating mechanisms. First, we examined different mediation dimensions’ impacts on children Internet use time and engagement separately. Second, we examined whether the direct association between parental Internet mediation and children Internet usage would be mediated by personality. The hypothesized model is as Fig.1 showed:

![Hypothetical model](image)

**Figure 1. Hypothetical model.**

**Methods**

**Participants**

We recruited participants from two primary schools in Wu Han city of China, and used convenience sampling method in this study. Four classes were selected in each grade. Students were asked to complete the questionnaire online in their computer classroom. 105 students were excluded as provided invalid data, and a total of 975 (544 males and 431 girls) students completed the whole questionnaire correctly. Their age was 10.25 ± 0.93 years old (ranged from 8 to 13 years).
**Measures**

**Children’s Internet Usage.** Children’s Internet usage questionnaire contained two parts: use time and engagement. Part 1 used two questions to ask children to answer how many hours they spend online daily and at weekend separately. Part 2 contains 10 items. Children could indicate to what extent they agree or disagree with a specific statement of Internet engagement. The Cronbach’s α value for Children’s Internet usage questionnaire was 0.81 in the current study.

**Parental Mediation.** Parental mediation scale was adapted from the “Mediating Rules and Practices” [1] and “Parental Mediation of Children’s Internet Use” [9]. This scale includes 20 items and involves three dimensions. Participants responded on a five-point scale. The Cronbach's α values for the three dimensions were 0.82, 0.81, and 0.73, respectively.

**Children’s Personality.** The Chinese version of Five Personality Inventory for Children was used to measure the personality of Chinese children [10]. The Extraversion and Neuroticism subscales were used in this study. Children rated each item on a 5-point scale. The Cronbach's α values for the two subscales were 0.88 and 0.77, respectively.

**Control Variables.** As concerned the children’s Internet usage was correlated with age, socioeconomic status, and gender, thus these three factors were included as control variables.

**Procedure and Data Analysis**

Graduate students were trained to explain the standard instructions and requirements of the questionnaires to participants. Other information (the authenticity, integrity and independence) was also told to the participants before test. We used SPSS 20.0 and Amos17.0 to analyze the data.

**Results**

**Descriptive Analysis**

The descriptive statistics of children’s Internet usage (time and engagement) are listed in Table 1. As shown in Table 1, children spent more time on Internet at weekend (1.24 hour) than daily (0.96 hour). The frequency of children’s Internet engagement from high to low was: information usage > entertainment usage > social interaction usage. The frequency of parental mediation from high to low was: active mediation > restrictive mediation > co-use.

| Internet Use Time(h) | Internet engagement | Parental Mediation |
|----------------------|---------------------|--------------------|
| DT                   | IU                  | RM                 |
| 0.96                 | 3.35                | 2.92               |
| SD                   | 0.89                | 0.99               |
| WT                   | EU                  | AM                 |
| 1.24                 | 2.82                | 3.63               |
|                   | SU                  | CU                 |
| 0.91                 | 1.02                | 2.69               |
|                   | RM                  |                   |
| 0.99                | 0.94                |                   |
|                   | AM                  |                   |
| 1.02                | 1.27                |                   |
|                   | CU                  |                   |
| 1.02                | 0.98                |                   |

Note: n = 975; $M = \text{mean. } SD = \text{standard deviations; DT = daily time, WT = weekend time, IU= information usage, EU = entertainment usage; SU = social interaction usage; RM = restrictive mediation; AM = active mediation, CU = co-use; as follow.}$

The correlations of parental Internet mediation, children’s Internet usage (time and engagement), and personality are listed in Table 2. As shown in Table 2, only restrictive mediation and neuroticism were positively correlated with use time. Three mediation dimensions, extraversion and neuroticism were positively correlated with online engagement. Extraversion was positively correlated with three mediation dimensions.
Table 2. The inter-correlations between variables.

|       | UT   | IE   | RM   | AM   | CU   | Neuroticism | Extraversion |
|-------|------|------|------|------|------|-------------|--------------|
| UT    | -    | -    | -    | -    | -    | -           | -            |
| UC    | 0.36*** | -    | -    | -    | -    | -           | -            |
| RM    | -0.10** | 0.14*** | -    | -    | -    | -           | -            |
| AM    | -0.01 | 0.16*** | 0.47*** | -    | -    | -           | -            |
| CU    | 0.05 | 0.32*** | 0.46*** | 0.56*** | -    | -           | -            |
| Neuroticism | 0.12*** | 0.21*** | -0.04 | -0.08* | 0.00 | -           | -            |
| Extraversion | 0.05 | 0.38*** | 0.21*** | 0.31*** | 0.29*** | 0.10** | -            |

Note: N = 975; UT = use time, UE = engagement; p < 0.05, **p < 0.01, ***p < 0.001.

Testing for Mediation

The mediation model was tested by the path analysis. According to the inter-correlations between variables of table 2, we tested the model as shown in Fig. 2. The results of the structural model suggested a good fit to the data according to our criteria (χ²/df = 4.12, RMR = 0.03, RMSEA = 0.05, CFI = 0.98, NFI = 0.97, GFI = 0.99). The standardized path coefficient from restrictive mediation to use time (β = -0.11, p < 0.001) was significant. The indirect impact of restrictive mediation on Internet engagement was significant too (β = 0.04, p < 0.001). The indirect influence of active mediation on Internet use time through Neuroticism was 0.01 (p < 0.001), and the indirect influence of active mediation on Internet engagement through Extraversion was 0.06 (p < 0.001). The direct influence of co-use on Internet engagement was 0.23 (p < 0.001), the indirect influence of co-use on Internet engagement through Extraversion was 0.05 (p < 0.001), and the percentage of indirect influence was 17.86%. The results supported the hypothesis that parental Internet mediation could influence Internet usage (time and engagement) both directly and indirectly through Neuroticism and Extraversion personality.

Discussion

In this study, we focused on the topic of Chinese children Internet usage (time and engagement), and its relations with parental Internet mediation and personality. The results demonstrated the mediating effect of personality between parental mediation and children Internet usage.

As hypothesized, the different dimensions of parental Internet mediation have different impacts on children’s Internet usage. The restrictive mediation reduced children’s use time significantly, but no less internet engagement. The active mediation and co-use made children deepen Internet engagement, but no more time using. Parental companionship did not lead to children overuse of the Internet. They just gave children warmer and more free environment to suffer online. As studies showed, use time is not a good indicator to represent risky Internet behavior, and specific online engagement is more important. It’s a possible reason why restrictive mediation cannot reduce the levels of unsafe Internet behaviors [1,3]. Consistent with our hypothesis of mediating model, the effective impact of parental mediation on children’s Internet engagement depended on children personality (Neuroticism and Extraversion). The active mediation and co-use about Internet influenced children’s personality to enhance the good and harmful sides of technology development.
The active mediation influenced both use time and engagement through neuroticism and extraversion personality. Parental active mediation toward Internet, just like actively talking with children about the good and bad sides of Internet, contributes to forming a warmer and safer family Internet environment. Studies showed that unhealthy online experience made children deeply anxious and depressed, which would be harmful to keep children emotional stability (low-neuroticism) and actively connected with other people (high extraversion). When children have problems related to Internet (e.g., suffer cyber-bullying, view disgusting photos), children with low-neuroticism and high extraversion can easily get help from parents to overcome these risky experience. That means that active mediation is a kind of good way to help children overcome the risky online behaviors through their extraversion and neuroticism personality. At the same time, the co-use predicted higher extraversion, which in turn predicted higher Internet engagement. Extraversion is associated with the traits of sociability, liveliness, and sensation-seeking. Children with higher extroversion have more energy to make friends online and play Internet games. Especially when they have parents’ company, the frequency of their online engagement would increase. Although co-use is the most difficult strategy for parents, it’s very important to help children overcome the harmful impacts of Internet as active mediation does.

Limitations and Implications

The findings in this study have several limitations. One limitation is that we use cross-sectional design to reveal the impact of parental Internet mediation on Internet usage and the mediating role of personality. Therefore, the tracking designs are necessary to be used to examine the developmental changes and dynamic links between parental Internet mediation, personality and Internet usage of children. The other limitation is that parents’ age, gender, attitude toward Internet may influence their mediation, however, we just considered the parental mediation in this study. Therefore, future studies should consider more family factors to answer more complete results. In conclusion, these findings are very important for parents to understand how their mediation influences children online behaviors. The results have potential applied value for developing new treatments for Internet parenting course.

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