

The influence of parental intervention on students' online behavior on academic achievement

Jiayi Wang*

Hangzhou Foreign Language School ,310023 Hangzhou ,China

Abstract. This study is a quantitative study based on the questionnaire data provided by cfps, which mainly studies the influence of parents' intervention in students' online time and online content on their children's school performance. In the end, this study concluded that parental intervention and control can indeed have a positive impact on children's school performance to some extent.

1 Introduction

Since I am a senior high school student in school, I do not have a strong database or network resources, so I first choose to observe the things and topics that often happen around me, that is, the influence of online behavior on the academic performance of current students like me. Because for a long period of time before the online class, people around more or less are "touching fish" this phenomenon, and this also changes the efficiency and absorption of the listener to a certain extent, including after-school Internet behavior and preferences may also have an impact on students' performance in school. Of course, there are some parents who think that the Internet is bad for all children. I also wanted to use this study to show whether parental intervention in children's Internet use really has an impact on academic performance.

2 Literature review

After reading some literatures, I found that the majority of domestic researches on the influence of online time on academic performance and the analysis of various aspects of academic performance. For example: "Adolescent addictive behavior and family education mode choice - a comparison between speech and example (Zhang Dan, Liu Xinyue, Xu Zhigang)"[1], the study of the influence of speech and example on children's online behavior comparison. This article is also the origin of my topic of parental control of electronic devices, because here are two different methods, and I want to explore whether parental control intervention is meaningful. There is also "Research on Student Achievement Prediction Method based on Campus Online Behavior Perception" (Yao Li)[2]. She constructed a data set containing both campus online behavior and achievement data, processed the data, and proved the relationship between online behavior and academic achievement through a large number of data analysis.

However, there are few studies that directly study parents' intervention in online behavior and the effect of online time on school performance, which is exactly the entrance of this study. I read a paper by Ms. Su Linsen and Ms. Liu Xiaoyan[3], which is a study on the relationship between children's Internet access and their academic performance, and it is biased towards children's online entertainment, online socializing and online learning. Thus, I was inspired to ask whether parents' involvement in children's online behavior after class would have some impact on children's academic performance and performance in school. In the recent reading, I also found "Family Education in the Digital Age: The Influence of Parents' Media Intervention on children's exposure to electronic products" written by Jiang Yunxiao, Gao Hongyu, Song Gaoyang and Yang Yuxin[4], which is similar to the direction I want to study and makes this paper more feasible. What's more, Rettinger[5] pointed out in his paper that the change of pressure level will not only cause physical and psychological changes in students, but also interfere with their performance, and the analysis from Cao Y, Gao J, Lian D[6], both give me a great inspiration, and makes me understand the practice of econometric analysis method.

3 Establish the hypothesis

According to the above review, the null hypothesis H0 of this study is finally determined as follows: There is no significant relationship between parents' intervention in students' online behavior and academic performance; The alternative hypothesis H1 of this study is that parents' intervention in students' online behavior is significantly related to their academic performance.

4 Study design

Firstly, this study finds several questions needed from the data of the official questionnaire survey of CFPS, and

* Corresponding author: 2533563362@qq.com

finds corresponding data sets, which are: parents' intervention in students' use time, parents' intervention in students' use content, whether students are in key classes, students' Chinese performance and students' math performance. Among them, intervention time and intervention content are juxtaposed, both of which require contingency table methods with the following three variables. It is observed that the variables involved in this study are categorical variables, so contingency table analysis method is adopted for frequency statistics, and P-value is obtained through chi-square test. stata17 is used for operation in the whole process (dummy variables are used at the same time), and the proportion of each group of data is obtained (three significant figures are retained), which is convenient for comparison, observation and analysis.

5 Data collection and analysis

The first figure(fig.1) shows parental intervention in how much time a student spends online and whether the child is in a key class. In order to facilitate the comparison, this study converted the data into a ratio for comparison, and obtained: intervention: 0.301: 0.496: 0.203; No intervention: 0.288:0.601:0.111. From these data, it can be seen that the proportion in key classes after intervention is greater than that of those without intervention, and through hypothesis testing, the p value is 0.000, indicating that 0.000 is less than 0.01. Therefore, there are extremely significant differences between the two groups of data.

. tabchi time major

		observed frequency expected frequency		
time		0	1	2
0		71 68.400	117 138.780	48 28.820
1		482 484.600	1005 983.220	185 204.180

Pearson chi2(2) = **18.5801** Pr = **0.000**
 likelihood-ratio chi2(2) = **16.6769** Pr = **0.000**

- time: parents interfere with students'online time
- 0 = no
- 1 = yes
- major: whether in major class
- 0 = no
- 1 = school does not differentiate between major classes and normal classes
- 2 = yes

Figure1. Whether parents interfere students' online time has an impact on whether students are in major class.

The second figure(fig.2) shows how parents interfere with students' time on the Internet and their children's performance in Chinese. For the convenience of comparison, this study converted the data into a ratio for comparison, and obtained: intervention: 0.0636: 0.347: 0.263: 0.326 No intervention: 0.154: 0.295: 0.278: 0.273. From these data, it can be seen that the proportion of excellent Chinese scores after intervention is greater than that of those without intervention, and the proportion of poor Chinese scores is also smaller than that of those without intervention. It can be seen that there is a correlation between the use time of intervention and Chinese scores, and parental intervention positively affects Chinese scores to a certain extent. Moreover, through hypothesis testing, the p value is 0.000, indicating that 0.000 is less than 0.01. Therefore, there is a very significant difference between the two groups of data.

. tabchi time chinese

		observed frequency expected frequency			
time		0	1	2	3
0		15 33.767	82 71.122	62 65.184	77 65.927
1		258 239.233	493 503.878	465 461.816	456 467.073

Pearson chi2(3) = **16.1016** Pr = **0.001**
 likelihood-ratio chi2(3) = **18.6566** Pr = **0.000**

- time: parents interfere with students'online time
- 0 = no
- 1 = yes
- Chinese: how about chinese grade
- 0 = poor
- 1 = medium
- 2 = good
- 3 = excellent

Figure2. Whether parents interfere students' online time has an impact on students' Chinese grade.

Figure3 shows parental intervention in how much time students spend online and how well their children do in math. In order to facilitate comparison, the data in this study were compared in proportion: intervention: 0.106: 0.284: 0.288: 0.322; No intervention: 0.185:0.233:0.249:0.333. From these data, it can be seen that the proportion of students with excellent and good math scores after intervention is greater than that of those without intervention (the proportion of excellent is slightly smaller than that without intervention), and the proportion of poor math scores is also smaller than that of those without intervention. Generally speaking, the math scores of students with intervention are generally better than those without intervention. To some extent, parents' intervention positively affects math achievement. And

through hypothesis testing, the P-value is 0.008, which indicates that 0.008 is less than 0.01, so there is a very significant difference between the two groups of data.

. tabchi time math

observed frequency
 expected frequency

time	math			
	0	1	2	3
0	25 41.436	67 56.403	68 59.990	76 78.172
1	310 293.564	389 399.597	417 425.010	556 553.828

Pearson chi2(3) = **11.0015** Pr = **0.012**
 likelihood-ratio chi2(3) = **11.9188** Pr = **0.008**

- time: parents interfere with students'online time
- 0 = no
- 1 = yes
- Math: how about math grade
- 0 = poor
- 1 = medium
- 2 = good
- 3 = excellent

Figure3. Whether parents interfere students' online time has an impact on students' math grade.

Figure4 shows parental intervention in the content of students' Internet access and whether they are in key classes. In order to facilitate comparison, the data in this study were compared in proportion: intervention: 0.266: 0.549: 0.185; Non-intervention: 0.296:0.599:0.051. From this data, it can be seen that the proportion of key classes after intervention is greater than that of those without intervention, and through hypothesis testing, the p value is 0.000, indicating that 0.000 is less than 0.01. Therefore, there are extremely significant differences between the two groups of data.

. tabchi content major

observed frequency
 expected frequency

content	major		
	0	1	2
0	109 118.831	225 241.101	76 50.068
1	444 434.169	897 880.899	157 182.932

Pearson chi2(2) = **19.5124** Pr = **0.000**
 likelihood-ratio chi2(2) = **17.8866** Pr = **0.000**

- time: parents interfere with students'online
- 0 = no
- 1 = yes
- major: whether in major class
- 0 = no
- 1 = school does not differentiate between major classes and normal classes
- 2 = yes

Figure4. Whether parents interfere students' online content has an impact on whether students are in major class.

As shown in figure5, which illustrating how parents interfere with students' Internet content and students' Chinese achievement. In order to facilitate the study, the data were compared in proportion: intervention: 0.0878:0.322:0.285:0.305; No intervention: 0.158: 0.296: 0.274: 0.272. From these data, it can be seen that the proportion of excellent and good Chinese scores after intervention is greater than that of those without intervention, and the proportion of poor is also smaller than that of those without intervention. Generally speaking, the Chinese scores of the students under intervention are generally better than those without intervention. From this, it can be seen that there is a correlation between the use time of intervention and Chinese scores, and parental intervention positively affects Chinese scores to a certain extent. And through hypothesis testing, the P-value is 0.002, which indicates that 0.002 is less than 0.01, so there is a very significant difference between the two groups of data.

. tabchi content chinese

observed frequency
 expected frequency

content	chinese			
	0	1	2	3
0	36 58.664	132 123.559	117 113.244	125 114.534
1	237 214.336	443 451.441	410 413.756	408 418.466

Pearson chi2(3) = **13.2634** Pr = **0.004**
 likelihood-ratio chi2(3) = **14.5584** Pr = **0.002**

- time: parents interfere with students'online content
- 0 = no
- 1 = yes
- Chinese: how about Chinese grade
- 0 = poor
- 1 = medium
- 2 = good
- 3 = excellent

Figure5. Whether parents interfere students' online content has an impact on students' Chinese grade.

The sixth figure(fig.6) shows how parents interfere with students' online content and students' math performance. In order to facilitate the study, the data were compared in proportion: intervention: 0.132: 0.285: 0.244: 0.339; No intervention: 0.188: 0.226: 0.257: 0.329. From these data, it can be seen that the proportion of students with excellent math scores after intervention is greater than that of those without intervention, and the proportion of students with poor math scores is also smaller than that of those without intervention. Generally speaking, the math scores of students with intervention are almost the same as those without intervention. From this, it can be seen that there is a correlation between the use time of intervention and math scores, and parental intervention positively affects math scores to some extent. Moreover, through hypothesis testing, the P-value is 0.012, which indicates that 0.012 is greater than 0.01 and less than 0.05, so there are significant differences between the two groups of data.

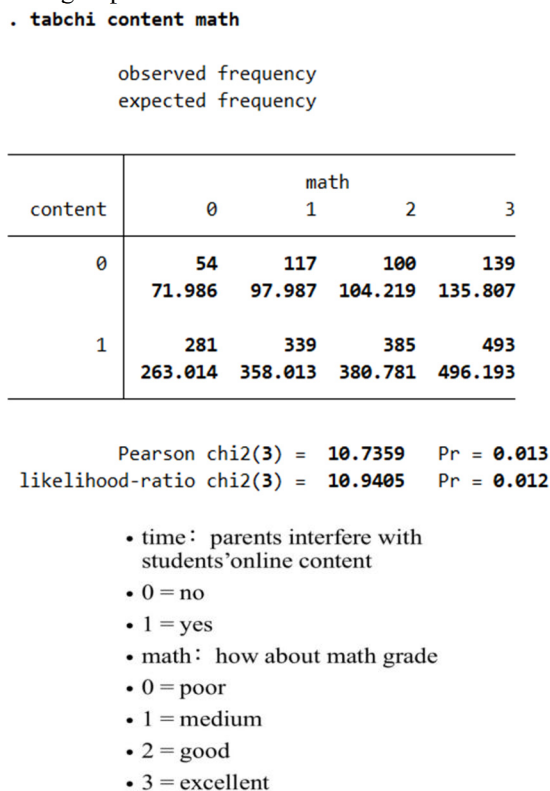


Figure6. Whether parents interfere students' online content has an impact on students' math grade.

6 Summary and reflection

Just as Ballarotto[7] mentioned, teenagers are the main users of new technology, but new technology may also become a barrier to growth. From the above data, it can be found that most of the data in this study are correlated, and it can be seen that parents' intervention and control can indeed improve children's academic performance and performance to a certain extent, and have a positive impact. Of course, there are several cases of inconformity, for which several reasons are also analyzed after this study:

(1) Children may be rebellious and ignore parents' control, or have a counter-effect.

(2) It may also be because the way parents use is not proper, leading to some reverse effects.

Looking at the essence through the appearance, this study believes that the essence of this phenomenon is that intervening in children's electronic use and online behavior actually has a certain positive impact on learning. Parental control can indeed improve children's performance, but it also needs to be used in a reasonable way. Parents need to communicate with their children more, instead of using too strong methods and attitudes. At this point, I think parents need to communicate with their children more, understand their children's topics and things they are interested in, and put down some children's wariness and psychological discomfort through continuous communication and understanding of both sides. It can also develop relatively reasonable management methods, such as providing opportunities to use electronic equipment with incentives, etc., to provide children with certain emotional value, so that children can agree happily, in order to more effectively protect learning performance and mental health.

References

1. Zhang Dan, Liu Xinyue, XU Zhigang, 2022. "adolescent addiction behavior and family education way choice - words compared to a set". <https://kns.cnki.net/kcms2/article/abstract?v=k4jT09spKVhExP0TV6eHcvheK3wfKfdK8dO-gJmalOtuUyoWalI58v7E4sn9zDDqQrGEpx6saLU RcDA4wROYZqFKHuAC-mLPmIqHMEPSguvzAxIIABgU9HI2qDy640QXMLoDOhfk6KrP-BtIMw=&uniplatform=NZKPT>.
2. Yao Li, 2022. "the student performance prediction method based on the campus Internet behavior perception research). <https://kns.cnki.net/kcms2/article/abstract?v=3uoqlhG8C475K0mzrgu4lQARvcp2SAkaWjBDt8rTOnKA7P>
3. Su Linsen, Liu Xiaoyan, 2020. "children's access to the Internet and study on the relationship between the grades of". <https://kns.cnki.net/kcms2/article/abstract?v=3uoqlhG8C44YLTIOAiTRKibYIV5Vjs7iyRpms2pqwbFRRUtoUImHYHR0kmZd4sSZgyEaLBHlxub84UKoPQp5CiokRD4T2ii&uniplatform=NZKPT>.
4. Jiang Yunxiao, Gao Hongyu, Song Gaoyang, Yang Yuxin, 2023. "Family Education in the Digital Age: The influence of parental media intervention on children's electronic product exposure ". <https://kns.cnki.net/kcms2/article/abstract?v=k4jT09spKVgoQiwTgKGVVGdqVnO5qpyW74lpZtQyd2PtBytmNRDFS-qFKDRZmqzXxLDww0Xa3RQZfUuFLvSOcHdkvdDdGvddhAWZyBNUrl4orLHvVTRjazXcNMemh6d30JRUuMCvc=&uniplatform=NZKPT>

5. Rettinger V W. The relationship between physical activity, stress, and academic performance[J], 2011.
6. Cao Y, Gao J, Lian D, et al. Orderliness predicts academic performance: behavioral analysis on campus lifestyle[J]. Journal of The Royal Society Interface, 2018, 15(146): 20180210.
7. Ballarotto, Giulia et al. 2018, “Adolescent Internet Abuse: A Study on the Role of Attachment to Parents and Peers in a Large Community Sample. ”Biomed Research International.