

[Taiwan] Regional Characteristics in Child's Quality of Life, Resilience and Child's Use of Digital Devices during COVID-19 Pandemic in Taiwan

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1. Introduction

Looking back over the past few thousand years, whether it was ancient Romans, medieval Europeans, or nowadays, children have always been faced three major issues: plague, hunger, and war. They have been staged many times inhuman history and never stop. No matter how people pray to the gods or how science, technology and social systems progress, people cannot stop them, and people in many countries are still suffering from them.

Child Research Network Asia (CRNA) organized 8 countries in Asia to jointly explore child's Quality of Life (QOL) and Resilience under the raging covid-19 pandemic. A questionnaire survey regarding children's resilience and happiness was conducted in all 8 regions. As a part of this collaboration, the results of the survey in Taiwan are reported as following contents.

1-1 COVID-19 Pandemic in the World

The COVID-19 continues to spread around the world, affecting more than 100 countries. On March 11, 2020, the World Health Organization (WHO) declared the novel coronavirus pneumonia a global pandemic (pandemic). On January 28, 2022 at 2:00 pm Taiwan time, according to Worldometer database statistics, there are currently 366,918,707 confirmed cases and 5,656,960 deaths in the world. Among them, the cumulative confirmed cases are led by the United States (74,695,333 cases) and the United States (902,140 cases) leads the cumulative deaths. COVID-19 pandemic has caused great loss of people's health and lives and affected economics tremendously.

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1-2 COVID-19 Pandemic in Taiwan

Taiwan is also not immune to the outbreak. As of now (January 28, 2022), according to the Ministry of Health and Welfare's Center for Disease Control and Prevention, a total of 18,634 cases have been diagnosed, and a total of 851 deaths have been confirmed. The Central Epidemic Command Center (CECC) announced on January 24 that the country would continue to maintain the second-level alert until February 7, 2022. The number of cases and deaths showed the COVID-19 got controlled well in Taiwan. In view of this, the Ministry of Health and Welfare not only continued to track the source of infection, but also opened up the vaccination of people to ensure the health and safety of Taiwanese.

1-3 Epidemic prevention regulations and general principles in Taiwan

Although there were very few cases, compared with the world, Taiwan has entered alert level three from May to July 2021. At that time, on May 18, elementary and middle school students were completely banned from entering the campus, and online classes began and lasted till the end of the semester. Most of the people experienced the lockdown. The increase in time spent at home and the decrease in time to go out for gatherings made students feel anxious. Along with students, parents had to respond quickly so that life could return to normal as soon as possible. Fortunately, the level-three alert period lasted for only 2 months, and on 7/27/2021, it was lowered to the second-level alert. At the same time, a large number of the population were vaccinated. By the beginning of the new semester (9/1/2021), the vaccination rate of Taiwanese teachers was over 80%, and the population's vaccination rate of all adults had reached 42.63%.

As the pandemic has continued to subside and the situation being under control in Taiwan now, the CECC announced that it will maintain the Level 2 epidemic alert. Epidemic prevention regulations and general principles are listed below:

- A. The current mask-wearing rule, which requires masks to be worn at all times outside
- B. Commercial business venues and public venues should implement contact information registration, temperature checks, enhanced disinfection of premises, health management among staff, and timely responses to the occurrence of confirmed cases.

2. Study site

Once we joined the project, we had to decide what city/county is the best fit to the research design, the middle class suburban area. The Taiwan team chose an area which included Shulin, Xinzhuang, and Taishan, three Districts in New Taipei City

to conduct the survey.

New Taipei City

New Taipei City completely encloses the city of Taipei, the capital of Taiwan, which is a special municipality located in northern Taiwan. The city is home to an estimated population of 4,008,113 as of 2021 and is a conurbation which was merged from numbers of regiopolis, suburban business districts or commuter towns to form one polycentric urban area (WIKIPEDIA, 2022). New Taipei City is large and has different levels of economic development in different districts, and our study sites Shulin, Xinzhuang, and Taishan are rural districts in New Taipei, Taiwan, which are industrial counties outside the core of a metropolitan area and most of the residents are laborers. The population of these three counties is large and crowded so that the residents are more sensitive to the pandemic. Figure 1 illustrates the location of our study site. Most subjects are from the area of the red circle as figure 1 shows.

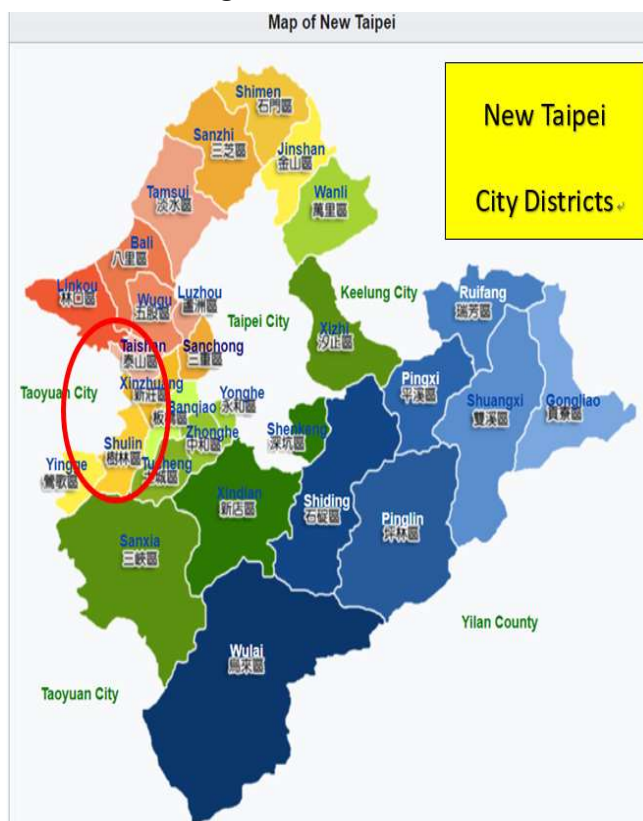


Figure 1

Map of study site

3. Subjects

The survey chose 2 groups of children to investigate children's happiness and resilience which are 5-year-old children and 7-year-old second grade students. To solve the problem of kids' limitation in reading, we asked children's mother to

participate the survey. The number of participants of each group was 280. After eliminating invalid responses, the valid sample size was 260 for 5-year-old group and 251 for 7-year-old group.

4. **Methods**

The survey was conducted in the first 2 weeks in September, 2021. A questionnaire was developed by CRNA and translated into Chinese to investigate mothers' perceptions of happiness and resilience of their child/children in Taiwan. Mothers also provided their perceptions of their own parenting style, perceptions and anxiety of the pandemic, the support from their families and background information such as their economic status and academic background. The data collection was done by 10th of September, 2021, and the data was analyzed by using SPSS for correlation and ANOVA test.

5. **Results**

The data collected provided rich understanding of the subject status during COVID-19. The initial idea of this collaboration project was to discover the influence of pandemic, especially on children's resilience and Happiness (the Quality of Life), however, due to the excellent prevention work of Taiwan, people almost felt there were no outbreaks in Taiwan. Even though schools in Taiwan were shut down for one month and therefore students experienced the inconvenience of online learning, the influence on children's physical and emotional stress was still limited then. The results of the analysis are reported as follows.

5-1 Demographic

5-1-1 Basic information of children

There are about 50% girls and 50% boys in the sample in both age groups. Most families have less than two kids (66.9% in 5-year-old group and 75.7% in 7-year-old group), it showed kids might have relatively less company to play with when they are not allowed to go out. The data also showed that the subjects are getting enough sleep (8-10 hours), 78.8% of 5-year-old group and 90.4% of 7-year-old group, during the pandemic. Good sleep showed the kids' physical and emotional status, the result revealed that children are healthy.

5-1-2 Situation of COVID-19

When the survey was conducted, New Taipei did not announce lockdown. However, the responses showed that almost 20% of mothers perceived that the area they lived in was under lockdown control as Figure 2 showed. It explained

the pandemic influenced adults' everyday life and made them worry. On the other hand, when kids were not allowed to go to school, it could have caused parents to feel more anxious.

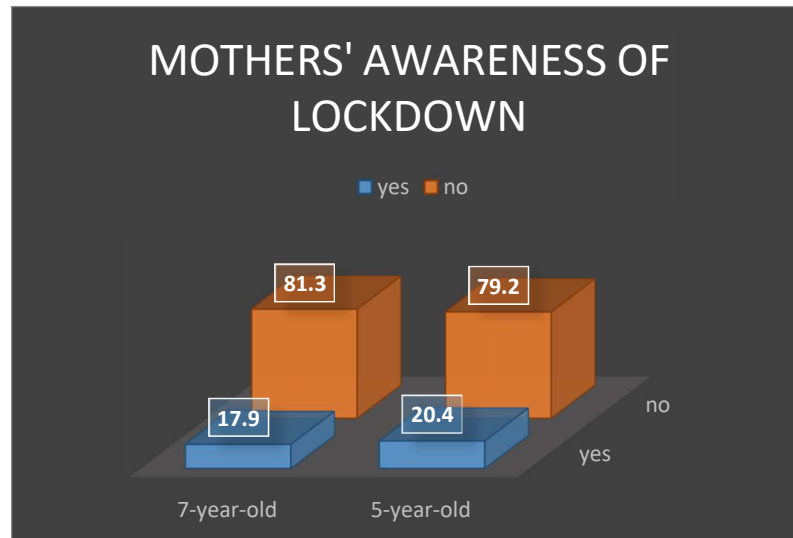


Figure 2

Mothers' awareness of lockdown

The mothers also demonstrated their satisfaction toward COVID-19 measures. 50.8% of the 5-year-old group mothers were satisfied and 41.9% of the 7-year-old group mothers were satisfied; for the concerns toward the spread of infection, 79.2% of parents of 5-year-olds and 83.6% parents of 7-year-olds showed they were not optimistic about the future. Figures 3 and 4 illustrated the results of parents' perceptions of the disease.

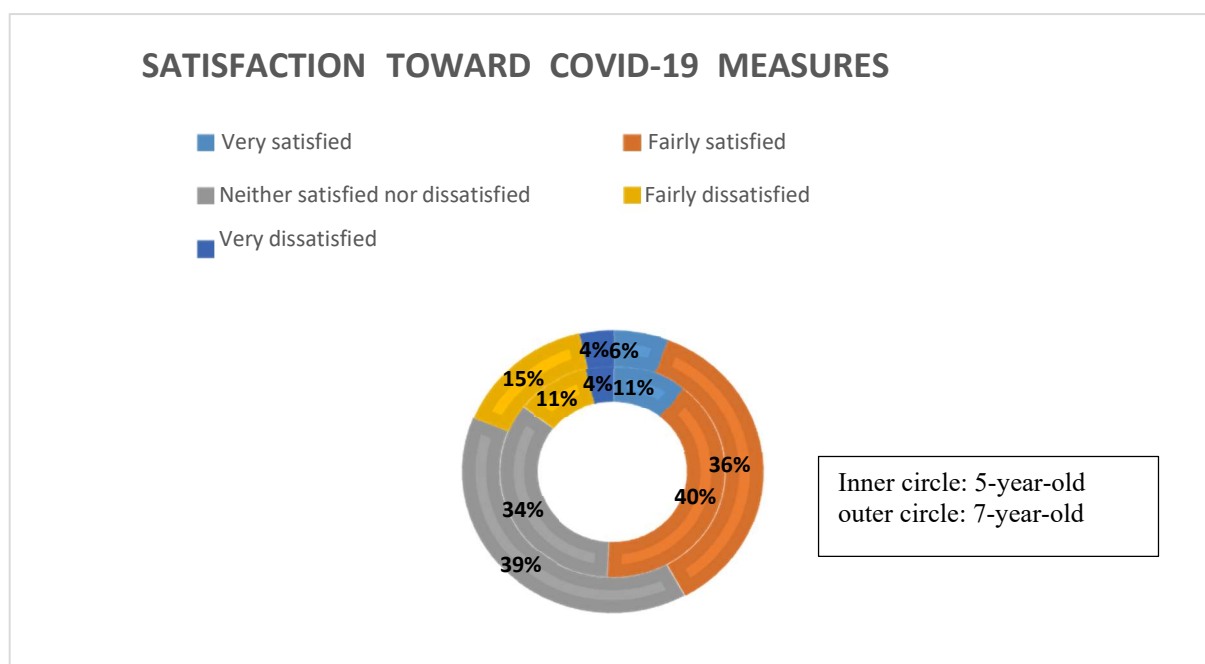


Figure 3

Satisfaction toward COVID-19 measures

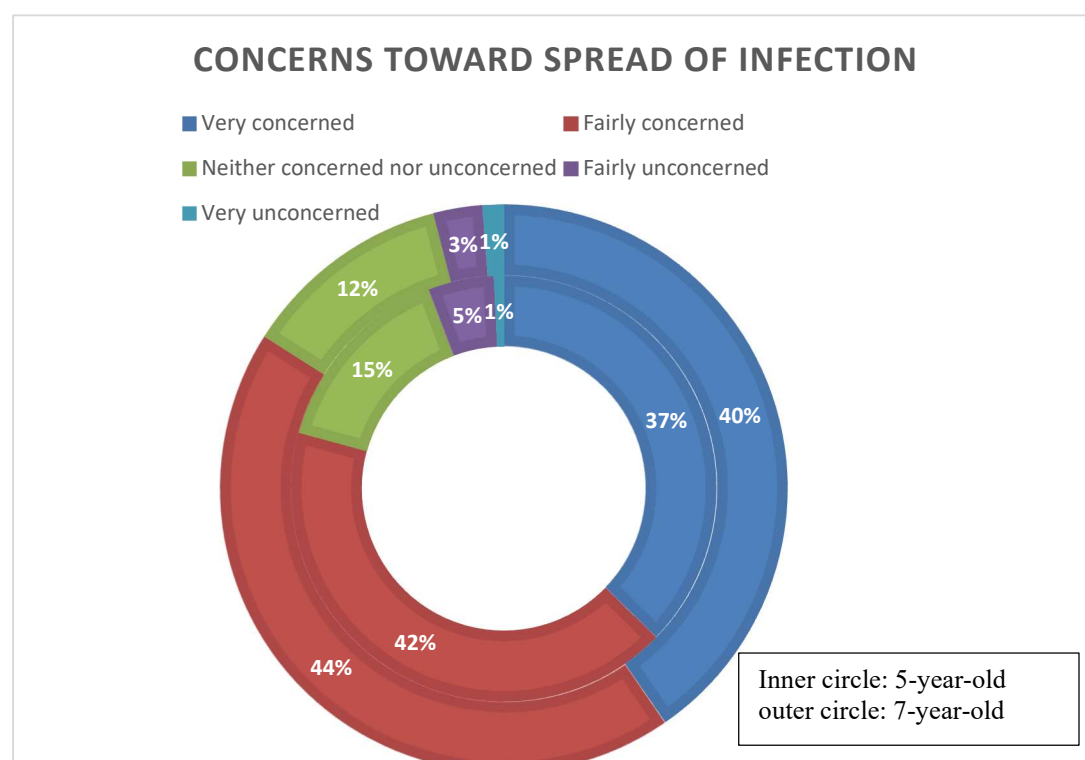


Figure 4

Concerns toward spread of infection

5-1-3 Parents' education, employment and income change

The Data provided basic information of subject households. Due to our design that the target is the rural area of the metropolitan, the households of the sample were laborers in majority.

(1) Education:

63.5% of mothers have higher education and 53.5% of fathers have higher education in the 5-year-old group; 66.5% of mothers have higher education and 53.8% of fathers have higher education in the 7-year-old group.

(2) Employment:

Most parents still kept their jobs, but their income decreased. 31.5% of 5-year-old group mothers and 20.3% of 7-year-old group mothers were unemployed. This might be caused by the need of childrearing when their children are at a very young age. As for the fathers/partners, 5.4% of 5-year-old group fathers and 1.6% of 7-year-old group fathers were unemployed. It showed the employment of most family members were not affected by the pandemic.

(3) Household income:

In spite of stable employment, the household income had decreased compared to pre-pandemic. 45.8% of 5-year-old group and 40.6% of 7-year-old group answered their household income decreased. For 5-year-old group, 43.1% were in the middle class and 29.2% were in the lower class; For 7-year-old group, 51.0% were in the middle class and 23.5% were in the lower class.

(4) Family form:

The majority of the families were nuclear families. 17.3% lived with their own mother and 24.6% lived with their mothers in law. The result showed about 75% of the families were in lack of helpers for taking care of children. It might have caused troubles when schools went into closure.

5-2 Main parameters (factors)

Many factors which might influence children's happiness and resilience were investigated in this survey. Mothers' parenting style, mothers' perceptions of childrearing, spouses' support, children's digital media usage and parental involvement in kid's ICT usage were investigated in this study.

5-2-1 Mothers' parenting style

Researches have showed mothers' parenting influences children's happiness (Jansen, Daniels & Nicholson, 2012; Peters, Sinn, Campbell & Lynch, 2012;

Schiffrin, Godfrey, & Liss, *et al*, 2015). The result of this survey indicated that most mothers agreed that their parenting attitude are more supportive-oriented than restrictive-oriented (punitive), see Figure 5.

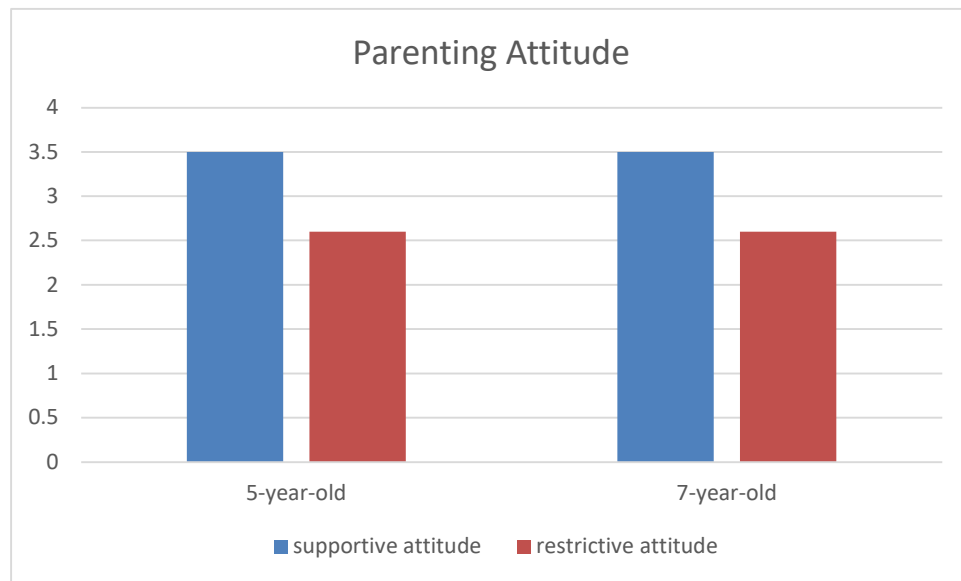


Figure 5

Parenting Attitude

However, the result showed that the parenting style of Taiwan's mothers are supportive with guidance, when children showed unacceptable behavior or performance, mothers showed a relatively higher percentage of "agree" to be critical to children's mistakes (66.5% of 5-year-old group and 78.1% of 7-year-old group) and gave them punishment after that (35.7% of 5-year-old group and 32.7% of 7-year-old group) shown as Figure 6 and Figure 7.

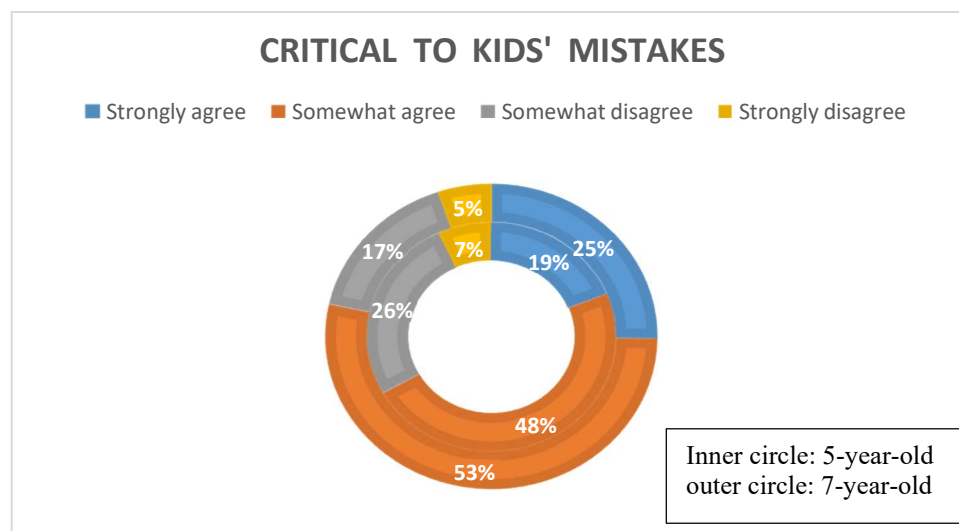
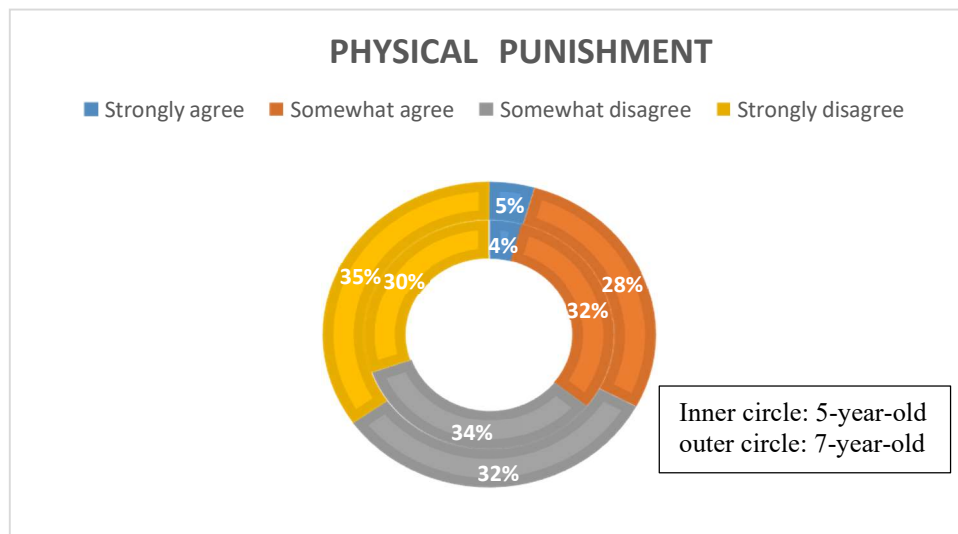
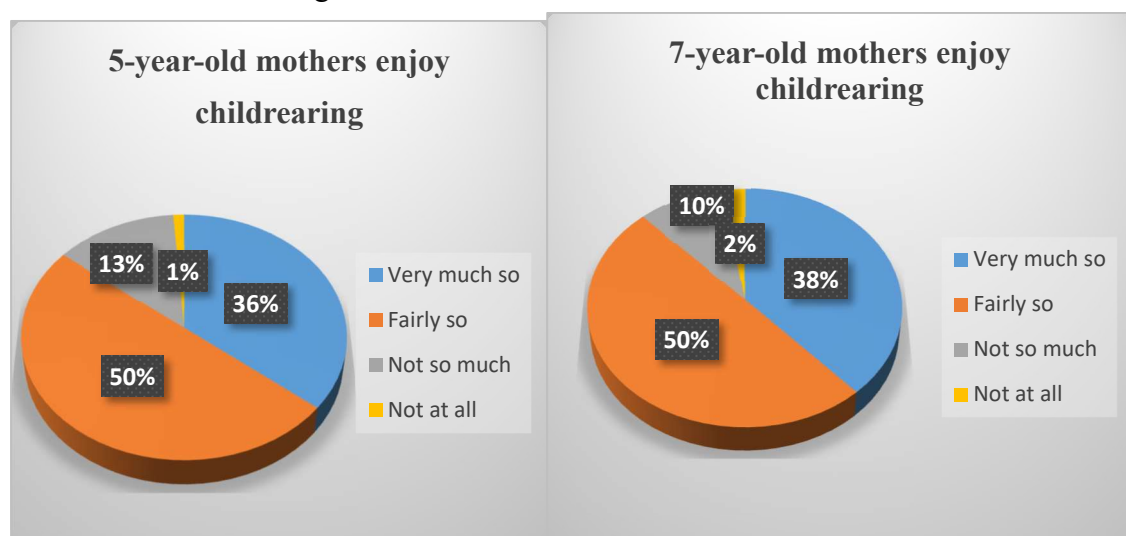


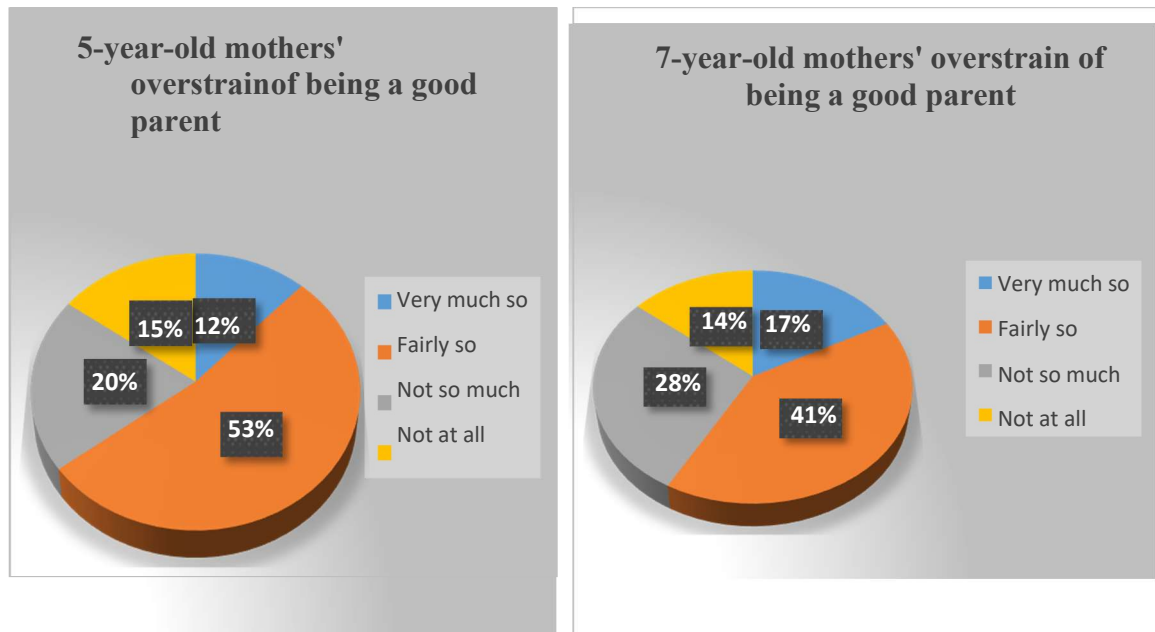
Figure 6

Critical to kids' mistakes

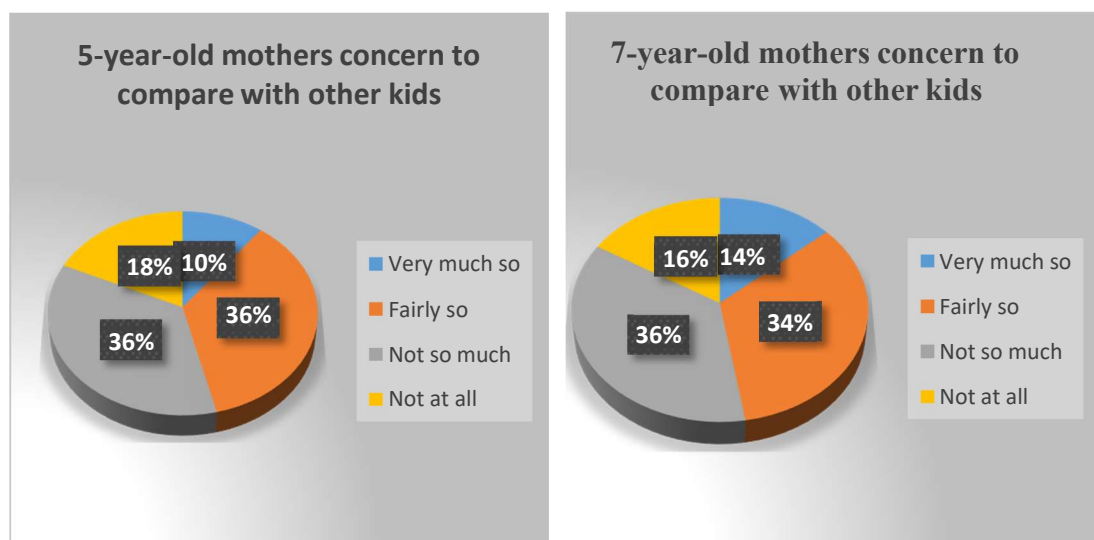
**Figure 7***Physical punishment***5-2-2 Mothers' perceptions of childrearing**

The result showed that most mothers enjoyed childrearing. They agreed that childrearing is enjoyable and a happy role (85.8% of 5-year-old group and 88% of 7-year-old group), but meanwhile, they felt they overstrain themselves trying to be a good parent (64.6 % of 5-year-old group and 58.1% of 7-year-old group). This result revealed that mothers enjoy childrearing and try to be a good mother, hence they experience overstrain with the concerns whether their children are inferior to other children as Figures 8, 9 and 10 showed.

**Figure 8***Mothers enjoy childrearing*

**Figure 9**

Mothers' overstrain of being a good parent

**Figure 10**

Mothers concern to compare with other kids

5-2-3 Family support

Most mothers in Taiwan kept working during COVID-19. Despite the variety of work, the mothers devoted themselves to both work and chores at home, which have been a rather heavy burden. Figure 11 and Figure 12 demonstrated mothers' childrearing and house chores proportion of share. The results revealed the mothers are in charge of most childrearing (91.6 % of 5-year-old group and 92% of 7-year-old group mothers in charge of above 50% of the responsibilities) and house chores (88% of 5-year-old group and 88% of 7-year-old group mothers in charge of above 50% of the responsibilities), therefore we could say that mothers'

happiness deeply rely on father's support.

Figure 13 shows the spouse's support to mothers. The fathers help by playing with the subject child most, while they helped the subject child's studying least. The results implied that the mothers emphasize on the subject child's learning so that they never thought their spouse did enough in sharing this role in childrearing. From the other aspect, mothers' education is a little bit higher than the fathers', which might be the reason why mothers in our target area have to take care of children's studying.

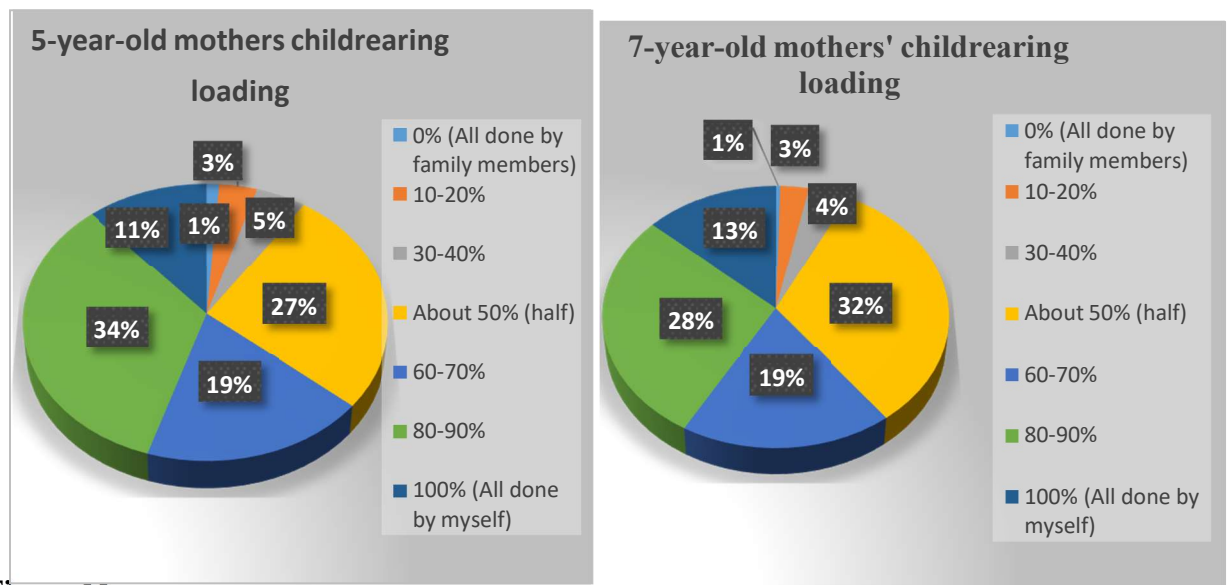


Figure 11

Mothers childrearing loading

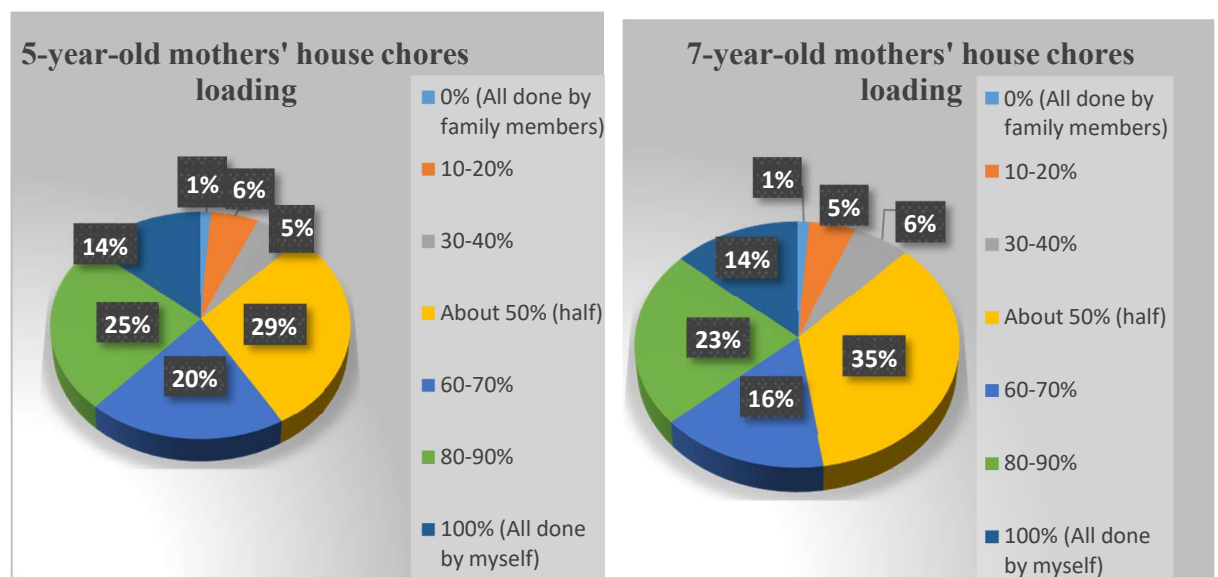
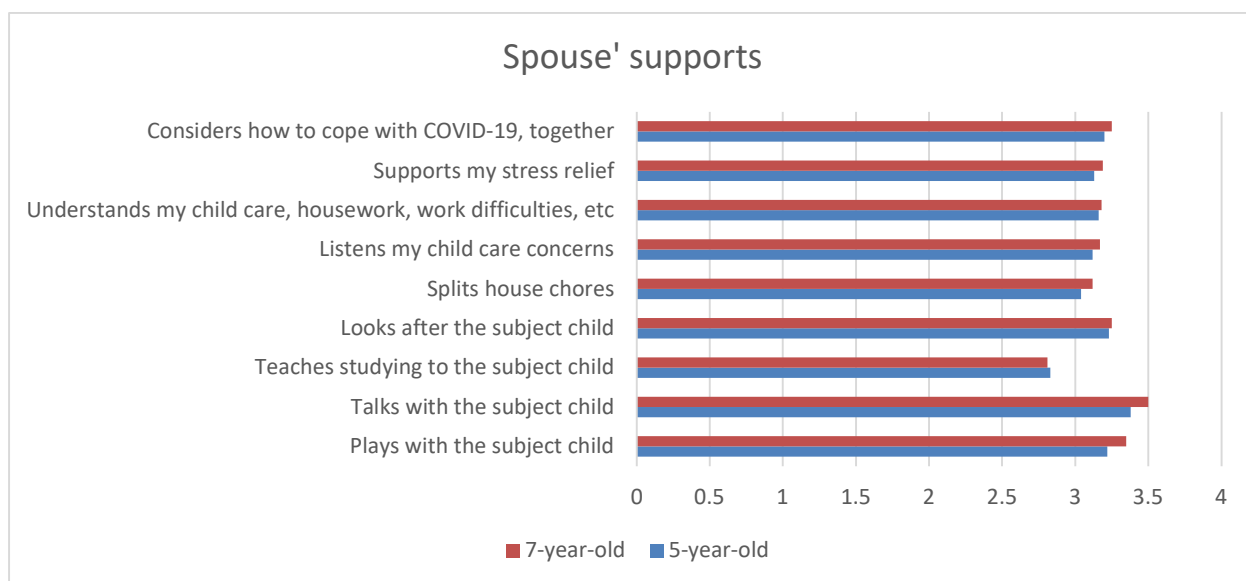


Figure 12

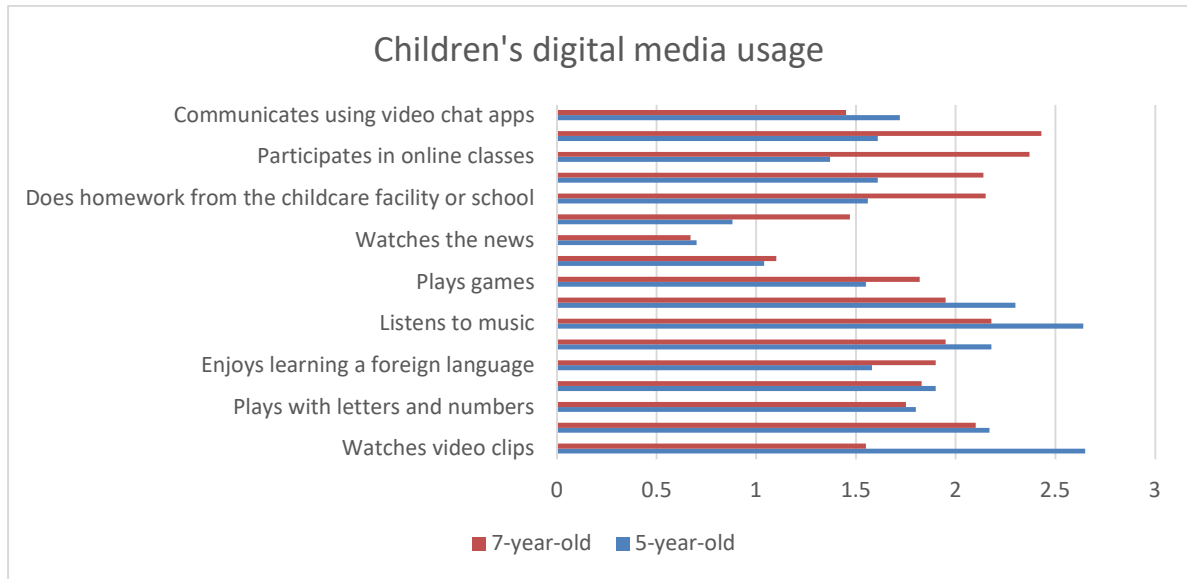
Mothers' house chores loading

**Figure 13***Spouse's supports*

5-2-4 Children's use of ICT

The increase of children's usage frequency of ICT is not avoidable in the modern world. Educational institutes are encouraged to increase the percentage of applying ICT in instruction and the parents' childrearing attitude. We have tried hard to transform educational settings to a more informatized environment over decades. Now that we have to separate students from physical contact and avoid face-to-face classes due to the pandemic, we got the chance to test the results of our ICT efforts and visualized the children's use of ICT in Taiwan nowadays.

From the survey, we investigated the children's digital media usage as Figure 14 shows. 5-year-old kids used digital media to watch video clips most with an average point of 2.65 on a 5-point scale from Very often (1) to Never (5). The second frequent usage was to listen to music with an average of 2.63, and to enjoy programs for physical exercise was the third with an average of 2.3; they seldom used digital media to search for information (0.88) and watch news (0.69); 7-year-old kids used digital media to watch programs distributed from school most with an average of 2.43, "to participate in online classes" was the second with an average of 2.37, and "to do school homework" was the third with an average of 2.14; they seldom used digital media to talk on the phone and search for information (1.09) and "watch the news" (0.67). The results showed Taiwanese children use digital media for learning purposes more than for leisure or browsing on the internet. The low average on the 5-point Likert item indicated that the children's usage of digital media is limited and controlled or supervised by parents.

**Figure 14***Children's digital media usage*

5-2-5 Parents' involvement and ICT awareness

The results showed that 5-year-old group parents agreed that they always keep an eye on their child when he/she is using/watching digital media (3.58) and support their child so that he/she can do difficult activities (3.55), and parents' showed lower consent with letting their children use digital media alone freely (2.30) and encourage to decide the time length of use (2.68); 7-year-old group parents agreed that they always keep an eye on their child when he/she is using/watching digital media (3.51) and support their child so that he/she can do difficult activities (3.41), and parents' showed lower consent with letting their children use digital media alone freely (2.67) and encourage to decide time length of use (2.84). The results indicated parents' involvement in children's digital media usage was aggressive and supervised.

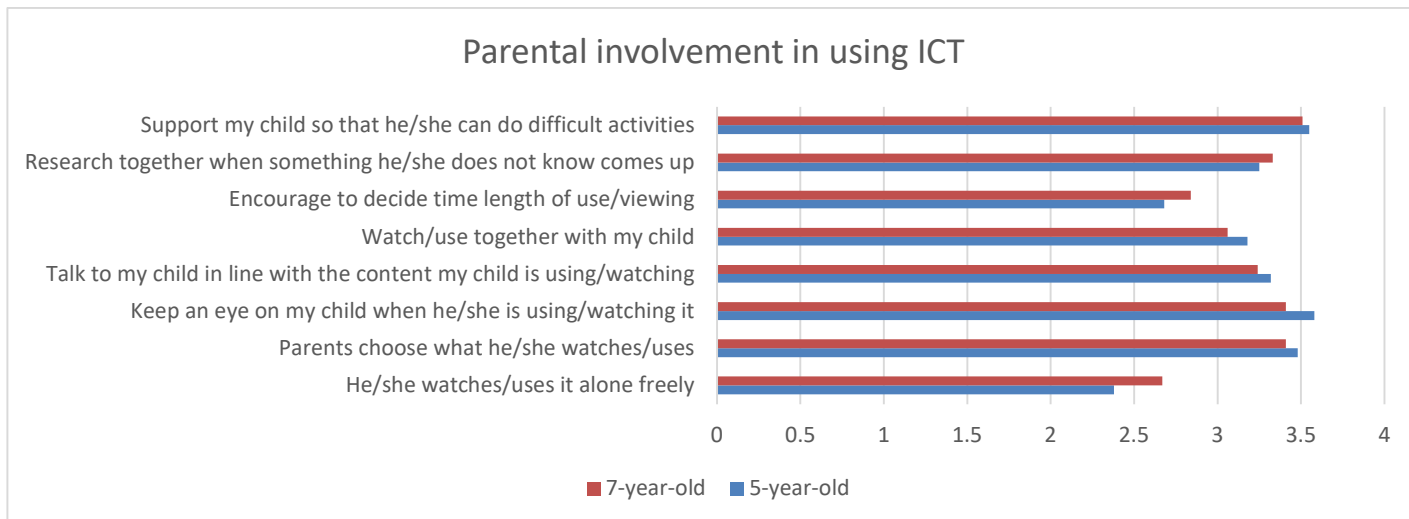


Figure 15

Parental involvement in children's digital media usage

The survey also investigated the parents' change in attitudes toward their children's ICT usage. For 5-year-old group parents, most of them have not felt awkward from before, and still do not feel so if kids were using ICT on entertainment and play (41.9%) and on study (51.5%) purposes; for 7-year-old group parents, most of them have not felt awkward from before, and still do not feel so if kids were using ICT on study purposes (47.4%) and felt awkward from before, and still feel so now on entertainment and play (32.3%) purposes. The results showed that parents attitudes didn't change a lot through the pandemic.

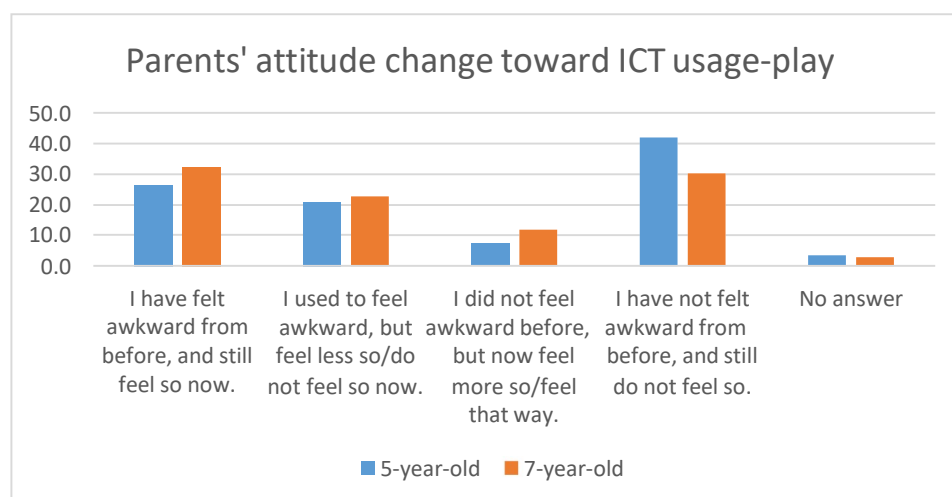
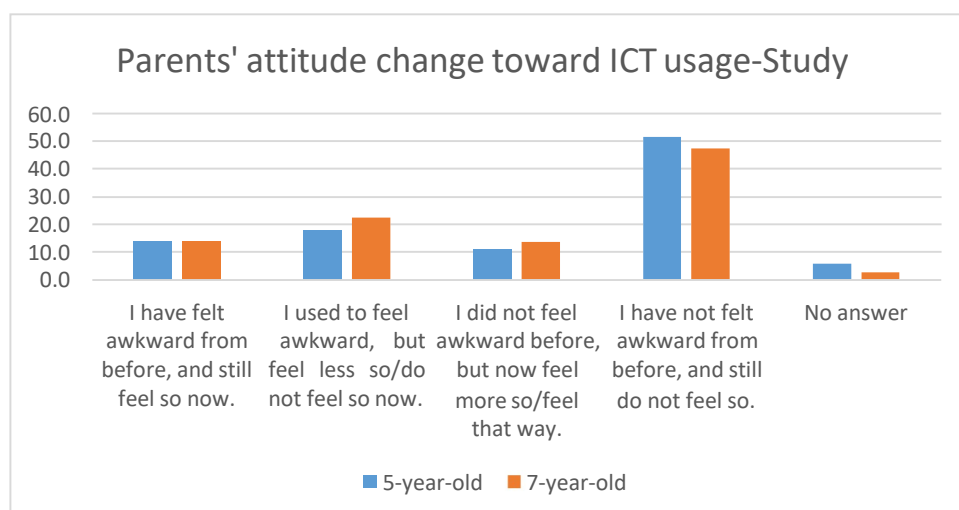


Figure 16

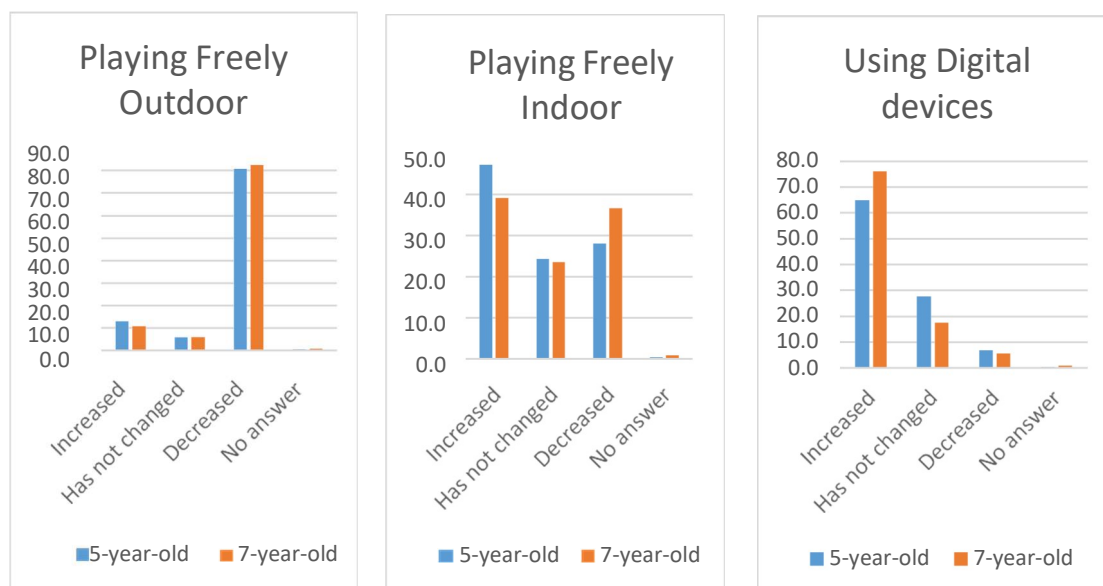
Parents' attitude change toward ICT usage -play

**Figure 17**

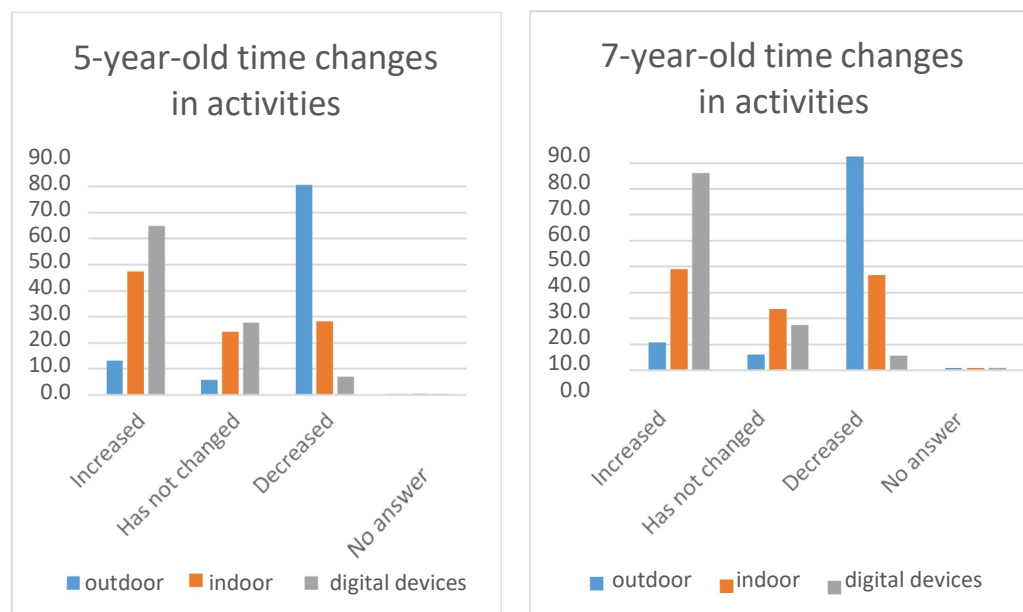
Parents' attitude change toward ICT usage -study

5-2-6 Children's daily life and play

We also found out that there was a significant change in time length in activities from pre-to during COVID-19. In both two age groups, a great decrease in the amount of time spent in outdoor activities and an increase in the time on digital devices usage could be seen as shown in figures 18 & 19. The results revealed that the pandemic encouraged the use of digital devices significantly.

**Figure 18**

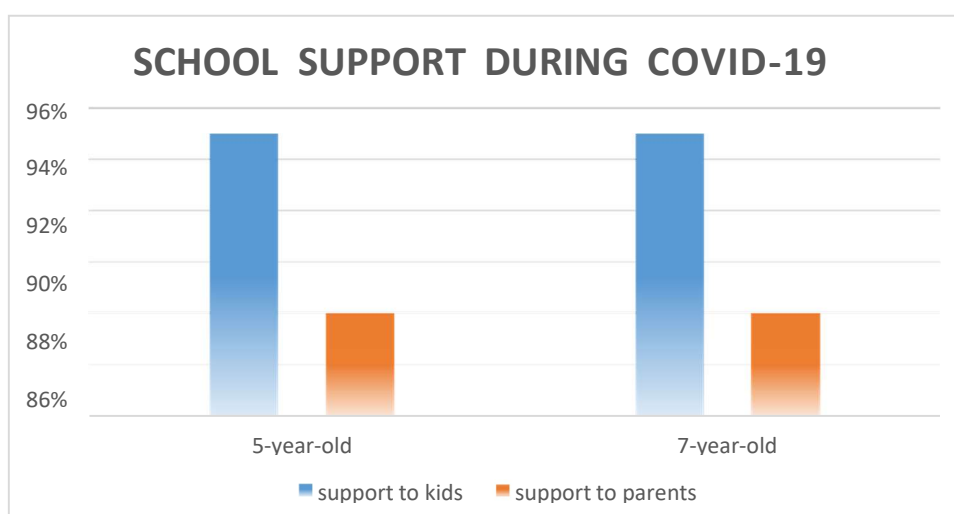
Changes in time length from pre- to during-COVID-19 by activities

**Figure 19**

Changes in time length from pre- to during-COVID-19 by age groups

5-2-7 School support

During the pandemic, schools were the most affected in Taiwan. However, from our investigation, 95% parents thought their kids were supported by teachers and 88% parents thought they got support and advice from teachers, as shown in figure 20. The results indicated that the school system successfully supported both students and the mothers during the COVID-19 pandemic.

**Figure 20**

School Support during COVID-19

5-3 Children's resilience and happiness(QOL)

The main concern of this study was to investigate children's resilience and happiness. Overall speaking, the children's resilience and happiness(QOL) gained high scores in every domain as tables 1 and 2 demonstrate.

Table 1

Children's resilience

	5-year-old	7-year-old
Personal resilience	4.1	4.1
Caregiver resilience	4.5	4.5
Average	4.3	4.2

Table 1 indicates the two domains (personal resilience and caregiver resilience) in both age groups were in good shape.

Table 2

Children's Happiness(QOL)

	5-year-old	7-year-old
Physical well-being	4.5	4.5
Emotional well-being	4.275	4.262
Self-esteem	4.04	3.966
Family	4.15	4.072
Friends	3.664	3.673
School	4.066	3.783
Average	4.1	4.0

Table 2 shows high scores in physical well-being, emotional well-being, and family domains, and lower scores of friends and schools. And one significant item is self-esteem which showed a lower score for 7-year-old students. It might be caused by on-line courses.

5-3-1 Children's resilience

The data showed that children's resilience were high in both age groups as figure 21 shows. Caregivers' domain was even higher than personal domain. If we looked into the support from caregivers more detailed, we could say that 5-year-old kids demonstrated their resilience mostly from family support (4.6), then personal (4.1), and then friend support (3.8). 7-year-old kids demonstrated their resilience mostly from family support (4.5), then personal (4.1), and then friend support (3.8). Please refer to figure 22.

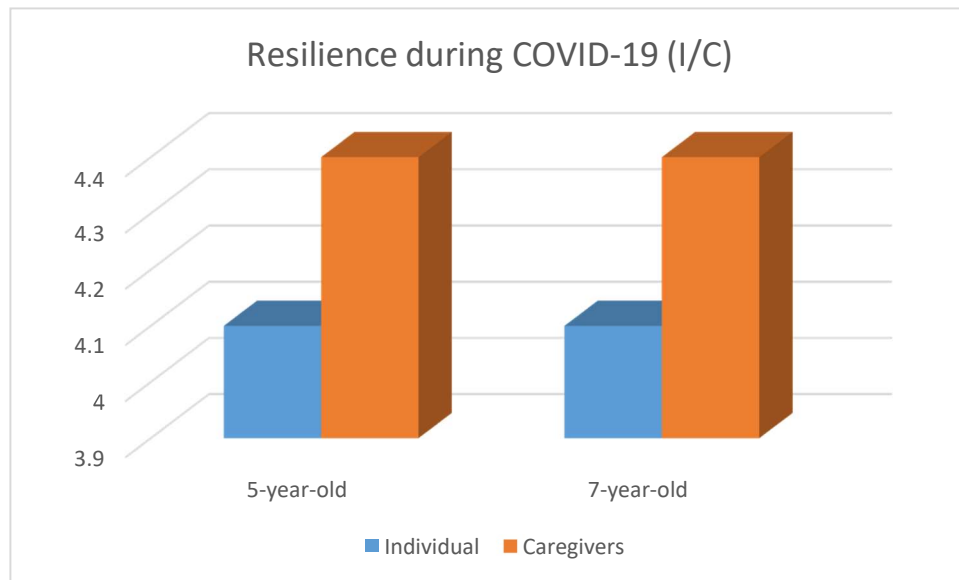


Figure 21
Children's resilience (I/C)

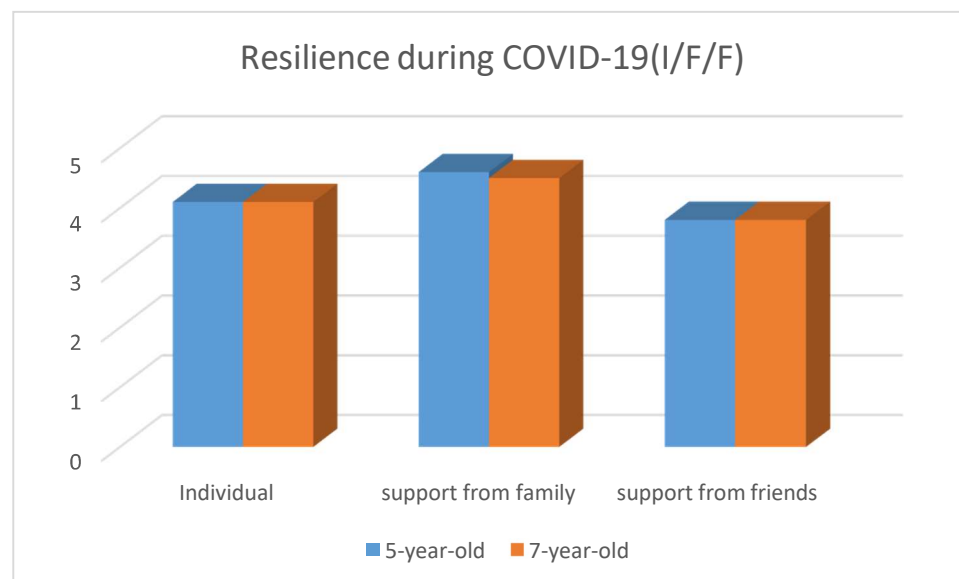


Figure 22
Children's resilience (I/F/F)

5-3-2 Children's happiness(QOL)

The results indicated that Taiwanese children's happiness(QOL) are also quite high during COVID-19. Children were healthy both in physical and emotional domains. On the other hand, despite of individual well-beings(physical and emotional well-being), the friends (3.66 for 5-year-old and 3.67 for 7-year old)

and school (4.06 for 5-year-old and 3.78 for 7-year old) domains are relatively lower. The results confirmed that the COVID-19 didn't cause real medical concerns or medical system breakdown in Taiwan, but the school systems were shut down for one month and children were asked to stay home, and that situation affected children's quality of life in school and in the friend domain.

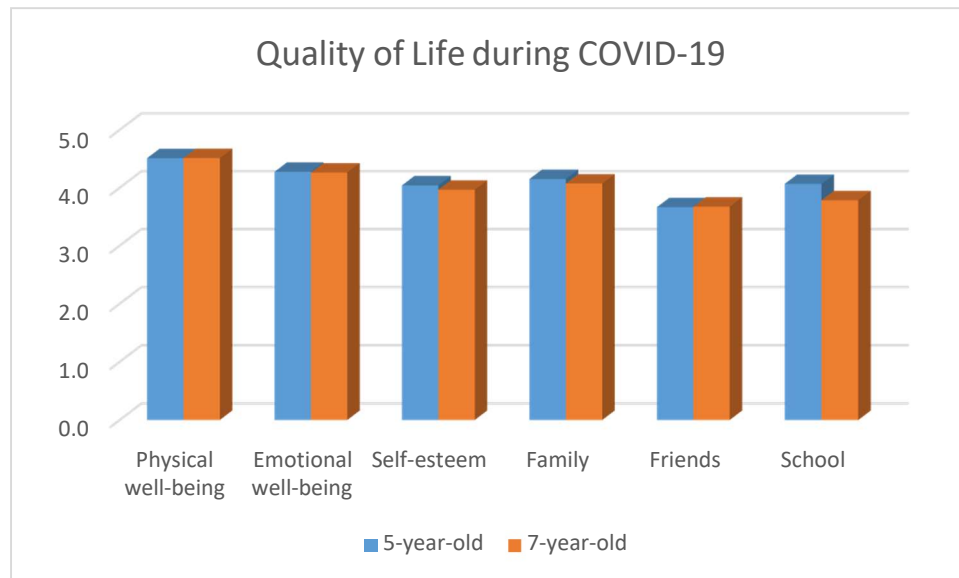


Figure 23

Children's Quality of life

5-3 The role and influence of ICT

Since Taiwan didn't experience a high death toll in this pandemic, the significant impact on children was the 1-month school shutdown during May to June, 2021. The shutdown decision was made quickly, and many families were influenced. It was the first time that students and teachers implemented online courses to deal with the unexpected lockdown. It certainly caused teachers and school administrators much anxiety. Therefore, it is very important for researchers to know whether ICT influences children's resilience and happiness or not during the COVID-19 pandemic. Thus, the Taiwan team decided to explore the role and influences of ICT for the big change of academic learning style amid the pandemic. We checked the correlations of the items of ICT questions which are child's use of digital media (Q9), parental involvement in child's usage of digital media (Q10), time spent on digital media (Q12), and changes in time length from pre- to during-COVID-19 on digital media usage (Q14) with children's resilience (Q6) and children's happiness (Quality of Life) (Q7) as Figure 24 shows.

The team also intended to figure out the influences of background variables such as household income, parents' education, parents' employment status, etc. by using ANOVA analysis. However, the results didn't show any significance of

those relations among variables.

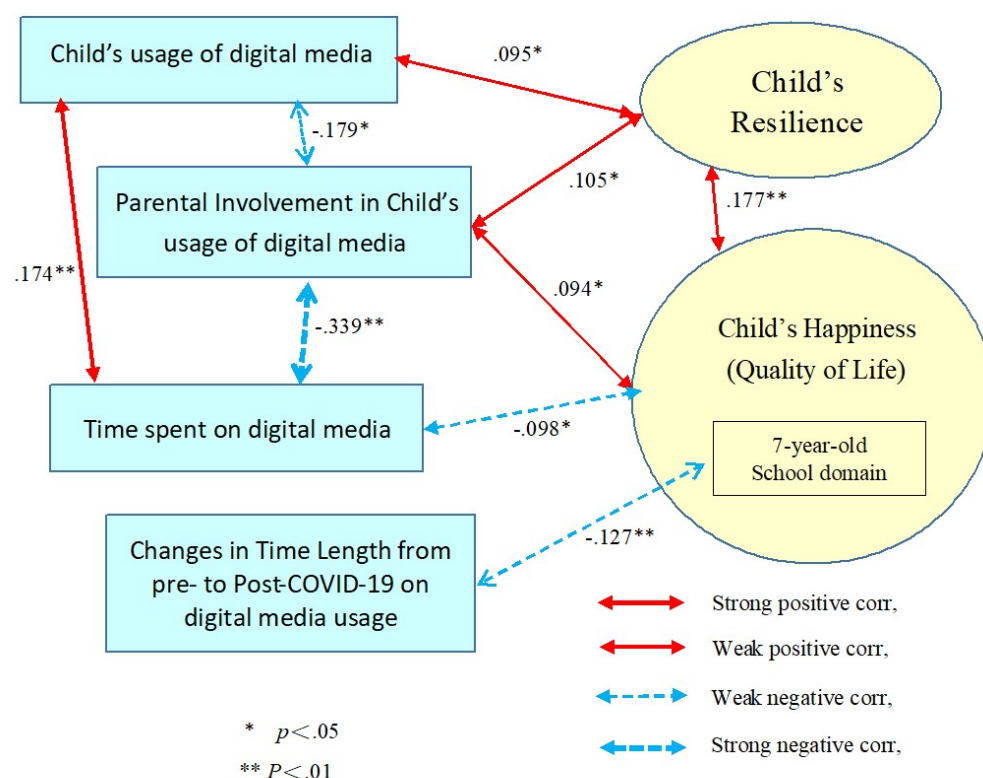


Figure 24

Correlation of variables

Although there were some weak positive correlations indicated, the correlation coefficients were all low. The results indicated that ICT usage and Children's resilience and happiness were weakly correlated during pandemic. The only relative strong correlation was the Changes in Time Length from pre- to post- COVID-19 on digital media usage and Children's happiness in 7-year-old school domain and it was negative. It explained that school asked students studying online, the more time spent on digital media, the more students worried about their academic performance. It revealed that both teachers and students were lacking in experiences in using digital media exhaustively, the rapid change tested the competency of ICT for both parties.

6. Discussions

After analyzing the data, from all perspectives, even though the world is still under the serious threat of the pandemic, due to a restrict border control measures and people's high vigilance, Taiwan is very safe from the pandemic. Therefore,

parents' parenting attitudes, children's resilience and quality of life have always been maintained at a high level, and children's resilience and happiness have not declined due to the COVID-19 pandemic. It has slightly affected the work and parenting time of parents, and some parents expressed anxiety about it, but it did not actually affect the happiness of children.

Yet, a month of school closure did tell us something about educational issues. First of all, research data pointed out that Taiwanese parents have a more restrictive control over their children's use of digital media than parents in other countries. Generally speaking, Taiwanese parents do not believe that children are able to decide how and how long to use these digital devices. It shows that Taiwanese parents' understanding of the use of digital media was still more inclined to entertainment. If digital media was applied to learning, it would conflict with their attitude of keeping children to stay away from digital devices.

Furthermore, the children could not spend a lot of time outdoors during school shutdown. The data showed that the time spent in using digital devices has increased greatly due to the change of daily activities. However, based on the data of parents' attitudes and the time of use on digital media, it can be found that Taiwanese parents valued higher using digital devices on "learning", and valued lower using the devices for "play". That is to say, Taiwanese parents, like their children, spend time on studying when outdoor activities were not allowed. The attitude towards children's playing is more conservative and "play" is relatively discouraged.

Most importantly, the data showed that the more time seven-year-old students spend studying at home on online courses, the lower their sense of well-being and the higher their anxiety about the future. It can be seen that even if school teachers worked hard in executing online classes, the students' happiness(QOL) is still low. This might echo the opinion of the sociologist Z. Bauman (2001) that the excessive freedom of individuals makes the existing system lose its normative power, and there will be a lack of direction or purpose of people. When students stay at home for a long time, the norm of class has lost its normative power, which also makes students lose their ideals and goals in their learning. According to Bauman, it is better to establish "love and responsibility" to solve the problem. Physical classes, or classes in-person in schools are more likely to develop love and responsibility for each other, because of the real contact between people with a better degree of persistence, so as to solve the students' sense of no direction in learning which is caused by the virtual class environment.

7. Findings and Limitations of this research/suggestions

The research investigated children's happiness(QOL) and resilience during the COVID- 19 pandemic in Taiwan and found that they were doing well in Taiwan. Meanwhile, the survey revealed there was no significant difference in applying ICT in learning, especially in the performance of children's resilience and quality of life. However, one thing reminded us that the more time students spent on digital media, the less they felt comfortable about academic learning. The results suggested that schools and teachers should design learning activities very carefully, do not rely too much on ICT implementations, and increase real contact in class to increase children's resilience and happiness.

The impact of COVID-19 is still unsure. We could only investigate during a short period of time, however, the final effect of the pandemic onto children's resilience and happiness still need to be watched, so it is valuable to continue this research and explore more understanding about children's resilience and happiness.

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