Effectiveness of Integrated Parenting Applications in Increasing Parents' Satisfaction with Daycare Services in the Covid-19 Pandemic

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Abstract. This study aims to test the effectiveness of integrated parenting applications based on mobile apps and measure the level of parental satisfaction with access to daycare (TPA) services. This study used a quantitative approach with one group of pre-test-post-test. The respondents were 150 parents at TPA Melati Dharma Wanita UM who were chosen using a quota sampling technique. The data was collected as scores and then analyzed using descriptive and inferential statistical analysis. The study showed that mobile app parenting applications effectively increased parents' satisfaction with lab school UM parent services during the Covid-19 pandemic. The finding is confirmed by parents' scores showing the pre-test score of 61.95 compared to the post-test results, which are 78.19, with significance (sig.) as high as 0.000 < 0.05. The T-test calculation describes the difference where tcount 0.483> ttable 0.169. Thus, parenting applications based on mobile apps can increase parental satisfaction with children's education services.

Keywords: Development of Mobile Application, Parenting, Child education service

1   Introduction

Children aged 0-6 years are called early childhood or golden age. Children in this age range have a very good skill level in absorbing the information and knowledge they receive. Therefore, the best learning that can be taught to children is when the child is at an early age. At this age, children will experience a very rapid development process, both in terms of language and cognitive, as well as social-emotional. By applying a pleasant learning atmosphere and being oriented to students, learning will be well absorbed. Before a kid starts primary school, they might get informal education known as Early Childhood Education (PAUD). The purpose of holding PAUD is to prepare early childhood for secondary school and to deliver basic education using a pleasant learning style. Basic skills including reading, writing, counting, drawing, and

coloring are taught in the PAUD curriculum. Children in the golden age need to be taught the fundamentals. [1]–[4].

Children in the early years are in optimal growth and development. A group of kids in the early years are those who are going through a certain stage of growth and development. Their growth and development follow a specific pattern that is proportionate to their level of development[5]. Therefore, children need various services and assistance from adults to meet their physical and non-physical needs, one of which is Early Childhood Education (PAUD).

In the modern era like today, all human activities have been juxtaposed with technological advances, including in the field of education. The community is now aware of the importance of quality education services for children from an early age. The Government reinforces this through the Directorate General of Early Childhood Education, Basic Education and Secondary Education (Dirjen PAUD & Dikdasmen) and various parties who call for quality early childhood education services. Quality services are considered to affect PAUD service providers' sustainability and children's growth and development.

The increasing number of daycare institutions does not guarantee that these institutions provide services that meet the needs of children. Several negative cases proven about daycare institutions have been highlighted by the print and television media. In this regard, it is necessary to research how services are provided in daycare institutions. TPA Melati Dharma Wanita UM is one of the landfills in the city of Malang. TPA Melati Dharma Wanita UM is located at Jalan Surakarta No. 7 Unlucky. TPA Melati Dharma Wanita UM is very concerned with child development services, both physically and non-physically. The services provided are always reported by caregivers at the TPA to parents [6]–[8].

Children who participate in PAUD institutions will obtain superior cognitive abilities than children who do not attend. The superior ability of children is directly proportional to the quality of services from PAUD institutions [9], [10]. Therefore, PAUD service providers play an important role in paying attention to service quality to produce good students.

Satisfaction is a feeling of pleasure or disappointment that arises from customers after comparing perceptions with the performance/results of a product. One of the factors that can increase customer loyalty and trust is satisfaction. In early childhood education, customers are parents. Customer satisfaction is created from a need, followed by wants, expectations, and goals through selected and used products [11]–[13]. Therefore, PAUD institutions as educational service providers need to pay attention to customer satisfaction, namely parents. This is intended so that parents get satisfaction and create trust and loyalty.

Based on a preliminary study conducted by researchers, TPA Melati Dharma Wanita UM's efforts to optimize its quality care by providing parenting programs for parents. In order to provide consultation and services for the development of child psychology, the school needs to provide a child psychologist. The school can cooperate with relevant agencies such as the UM polyclinic concerning health and nutrition services. The school can also support cultivating religious values, independence, and education discipline as a foundation for children.

However, the challenges of education during the Covid-19 pandemic still exist and are still felt by several parties, ranging from educators, students, and even parents as guardians of students. The policy of learning from home makes several parents feel unable to guide their children in learning, parents lack knowledge in understanding children's development, and parents find it difficult to apply discipline to children.

Based on the results of this study, it is necessary to have an alternative to assist parents through parenting programs. Parenting education is a program that integrates family and school so that both can accommodate children's needs. Family education programs are intended for parents to find and implement the right education for children, especially when children and their parents are at home or in the family environment [14]. On that basis, parenting education is an activity that is considered very important to be held on an ongoing basis and is not limited by education level and age.

1.1   Ease of Use

Child Education Service.

Early Childhood Education (PAUD) is basic education that supports the creation or formation of quality human resources. Several developed countries hope for the implementation of early childhood education. This is related to PAUD as one educational institution focusing on the growth and development of emotional intelligence, gross and fine motor skills, multiple intelligences, and spiritual intelligence [15], [16].

Daycare (TPA) is an educational service for children aged 0-6. The existence of TPA services is a form of non-formal PAUD and is designed to provide care for children and help parents to continue providing care during their busy work. Therefore, parenting services are needed, and protecting their children, must also provide proper education [17], [18].

The existence of a TPA is very important and necessary to meet the needs of today's society. Daycare provides a solution for working parents so that they can continue to provide varied educational opportunities for the development of their children. TPA provides a positive learning environment to support children's long-term development. The daily and monthly activity programs planned at the TPA are tailored to the needs and interests of the children. On the other hand, caregivers can also apply learning while playing in parenting [19], [20].

Service quality can be viewed by comparing customer perceptions of the service received with the expected service. If the service received is as expected, then the service is perceived as quality, and vice versa. Services are actions offered to other parties that do not result in ownership and are intangible [21], [22]. In general, superior service will result in high satisfaction and repeat purchases.

Service quality is a barometer of the service level and customer expectations. Service quality is expressed as the magnitude of the difference between customer desires and perceptions. Service quality is the excess level of customer importance as the core of service quality [23], [24].

As a result, the degree or measure of how well PAUD institutions meet the needs and expectations of parents of students while also fulfilling established requirements and criteria can be used to determine the quality of PAUD services.

Parenting education.

The parenting education program is held to increase parents' knowledge so that the education obtained by children is in line between at home and school. Despite being in the Covid-19 pandemic, parenting activities must continue to be more intensified considering that currently, the main actors or driving force in every aspect of children's development, namely parents. Parents are the main environment for realizing several educational functions to shape children's self. Parental involvement is very important. This is because it has a very positive contribution to the success and success of children. The participation of parents helps develop children's abilities in terms of intelligence, motivation, literacy, and achievement [25], [26].

Now the existence of mobile application-based devices continues to grow. This is indicated by the number of users of mobile devices than computers. This phenomenon is based on the characteristics of the mobile application, which is easy to operate. On the other hand, mobile applications can also be an alternative and innovative solution to create a new learning atmosphere [27], [28]. This view of developing mobile apps is based on several considerations, including
1. Its use is flexible or can be accessed in any situation (anytime and anywhere);
2. Wide coverage and uses commercial cellular networks;
3. It is integrated with several systems, such as e-learning, education delivery systems, and other systems, such as instant messaging.
4. Thus, the mobile application can utilise technology that helps communication between families and schools, especially during the Covid-19 pandemic.

Mobile application development can be a viable option to support learning from techniques and learning approaches. Based on the research results, parents generally support using gadgets to achieve educational goals [29], [30]. Parents assess learning through mobile applications to increase collaboration between parents and schools in meeting the needs of children. This is as parents' expectations of the services of educational institutions for children.

2   Method

This study was formulated to see the effectiveness of mobile app-based parenting applications in increasing parental satisfaction with children's education services. The study was conducted from June to August 2022. A quasi-experimental research method was used in this study. The pre-test was conducted before the parents were introduced to the parenting application. After the parents were familiar with the media, a post-test was carried out. Therefore, this study was conducted 2 (two) times by comparing the scores of the two tests. The research population was 150 parents at TPA Melati Dharma Wanita UM, determined by quota sampling. The data collected is the value of the pre-test and post-test. Various questions in the pre-test and post-test

must also be tested for validity and reliability. Test the validity using the product-moment correlation formula. In contrast, reliability refers to the instrument as a data collection tool. They tested the reliability of this study using Cronbach's Alpha.

The questions from both tests are valid and reliable because the validity test obtained from Pearson's product-moment shows that rcount is greater than rtable with tcount 0.483 > ttable 0.160. The reliability test of Cronbach's Alpha has a value of 0.632 or greater than 0.60. These questions can be used further to explore the required data. The data normality test with Shapiro-Wilk obtained a value of 0.000 or less than a significance level of 0.05, so the data is said to be normally distributed. The homogeneity test obtained a value of 0.314 > 0.05, so the research sample was homogeneous. Inferential data were analyzed using paired sample T-test and data processing using SPSS 26.00.

3   Results and Discussion

3.1   Results

This study employed a single set of pre-test and post-test research methods to ascertain the effectiveness of parenting applications based on mobile apps that can increase parental satisfaction with children's education services. Pre- and post-tests were administered to groups in this study using a one-group pre-test and post-test research design to determine whether parenting applications based on mobile apps are helpful in increasing parental satisfaction with their children's educational services.

As many as 150 parents at TPA Melati Dharma Wanita UM participated in the institution's parenting program through two methods. In this study, researchers aimed to find out about the effectiveness of integrated parenting applications based on mobile apps and measure the level of parental satisfaction with access to daycare (TPA) services. Therefore, for this purpose, the researcher conducted 2 (two) tests to compare the results.

Fig. 1. Integrated Parenting Applications

Based on the data collected, it is known that the score of 150 parents at TPA Melati Dharma Wanita UM before the parenting application was used is as follows.

Table 1. Pre-test and Post-test Scores

Test	N	Mean	Median	Mode	Lowest Score	Highest Score
Pre-test	150	61.95	63.5	69	41	80
Post-test	150	78.19	79	80	60	91

Table 1. above shows a difference between the pre-test and post-test scores of the average score, the lowest score, and the highest score. The average value in the pre-test was only 61.95 but increased in the post-test by 78.19. The test results showed a significant improvement in the pre-test scores compared to the post-test.

The normality test results using the Shapiro-Wilk test with N = 150 and significance level = 0.05 resulted in a value of 0.00, so it can be concluded that the pre-test data were normally distributed. The test was carried out during a pre-test with parents at TPA Melati Dharma Wanita UM before using the parenting application. The results of the post-test normality test based on the Shapiro-Wilk test with N = 150 and a significance level = 0.05 showed a value of 0.092; Thus, it can be concluded that the post-test data were also generated from a normally distributed population.

Based on mean = 0.882 > 0.05, the homogeneity test produced a significance/probability value. It can be concluded that the variance of parental satisfaction with daycare services in both the pre-test and post-test groups is homogenous or similar based on the test criteria, H0, which specifies the variance of homogeneous values is acceptable.

The T-test method was employed to test the study hypothesis. Pre-test and post-test scores were compared in order to analyze the outcomes. Calculation of the t-test analysis obtained tcount 0.483 > ttable 0.160 with a significance (sig.) 0.000 <0.05. Based on these findings, there are differences in pre-test scores. The average score of parents at TPA Melati Dharma Wanita UM after using the mobile application-based parenting application was 78.19, higher than that of parents who had not used the application, which was only 61.95. Thus it can be concluded that there is a significant increase in parental satisfaction with daycare services after using a mobile application. The following graph presents the calculations in this study related to parental satisfaction with daycare services.
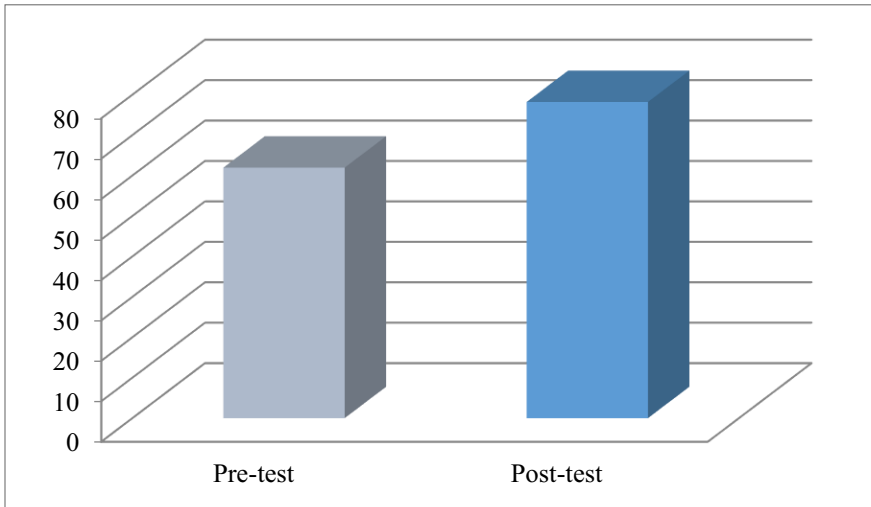
Fig. 2. Results of Parents' Satisfaction with Daycare Services

Based on the information in fig 2. above, the pre-test score is 61.95, while the post-test score is 78.19. It can be concluded that the parenting application based on the mobile application we developed is very effective in parents' satisfaction with daycare services in TPA Melati Dharma Wanita UM.

3.2   Discussion

The results of this study are supported by See et al. that mobile applications can increase parental involvement. Parents' view of the app helps them communicate with teachers [31]. Through cellular technology, parents can find out their child's progress at school and ask the child to do an activity after receiving a message from the school. Most parents make statements about improving communication with teachers, and then increasing understanding of what is happening at school is invaluable to them.

Lekli & Koloti's research supports the notion that parent-teacher collaboration is a critical first step toward student achievement. Education sector stakeholders need to figure out how to best encourage parental involvement in school activities[32]. The results of data analysis showed that, in general, parents' satisfaction with the service model developed by TPA Melati Dharma Wanita UM. Parental views on mobile applications have been widely used among parents and classroom teachers to enhance the educational environment, proving positive and beneficial.

In this broad scope, the level of customer satisfaction can be used to measure how good a particular product or service is, including parents' satisfaction with children's educational institutions. The higher the level of satisfaction, the more it illustrates that certain products or services are improving. Therefore, the level of satisfaction is often used as one of the keys to attracting new customers. As many as 70% of customers think convenience, speed, and service consistency are important to assess customer satisfaction. Therefore, technology is needed to improve customer service [33].

The mobile application-based parenting service model was developed to optimize several services that existed before the Covid-19 pandemic, as follows:

1. Parenting Service.

The care provided at the TPA Melati Dharma Wanita UM is a service that is provided from the time the child arrives until the pick-up, which includes the provision of facilities according to the needs of safe and comfortable children starting from playing activities and fulfilling adequate nutrition. Learning activities, protection, toileting, and scheduled breaks according to children's needs. This is to the statement of Tulchinsky and Varavikova in their research that parenting is an effort to fulfil children's needs ranging from physical and biological needs in the form of nutritious food, good health and a care such as early detection, immunization, and other necessary treatment, safe housing and comfortable and clean [34].

During the Covid-19 pandemic, parents and teachers can still take advantage of this weekly development menu through digital parenting services developed based on mobile applications. Parents have positive expectations about using mobile devices for children's educational purposes. Parents find mobile learning activities useful to support education and increase parent-school collaboration.

2. Education Service.

Education services at TPA Melati Dharma Wanita UM are based on children's play and outdoor learning activities using the Educational Game Tool-APE, which has been provided according to the child's age. APE supports six children's development (cognitive, moral, physical-motor, socio-emotional, artistic, and language). In this service, children are also accustomed to being independent, disciplined, polite and courteous to instil positive character.

The results showed that the educational services provided at TPA Melati Dharma Wanita UM were by the child's characteristics. Behaviourism concerns aspects of the formation of human behaviour that can be observed and measured. Behaviourists emphasize behavioural changes that result from stimulus-response associations [35]. These findings also reflect how children's development and learning are formed from the interaction between relationship factors, the environment, and learning opportunities inside and outside the school on children's development. During the Covid-19 pandemic, education services can still be fulfilled through the application service menu that has been developed. Parents can report their children's daily activities at home, also known by the teacher at the TPA as a form of child development report [36].

3. Health and Nutrition Services.

Nutrition services at TPA Melati Dharma Wanita UM are in the form of providing balanced nutrition in consultation with nutritionists. Services related to diet and health are especially crucial for kids. In order to ensure that children's growth and development go as best they can, they require enough nourishment, health services, and psy-

chological stimulation. Health behaviour in children includes the provision of health care behaviour, utilization of health service facilities, and good treatment [37].

During the Covid-19 pandemic, through applications that have been developed, health and nutrition fulfilment services are still fulfilled and controlled, accompanied by online assistance from paediatricians. Parents can consult a doctor or paediatrician who works with TPA Melati Dharma Wanita UM. This was developed to meet the needs during the Covid-19 pandemic when parents wanted their children always to be healthy [38]. This mobile application is very helpful for parents to communicate easily with TPA caregivers and health workers in the field of children in supporting children's growth and development.

4. Infrastructure Services.

Facilities and infrastructure services at TPA Melati Dharma Wanita UM include indoor and outdoor environmental services, a multipurpose room that can be used for playing and studying, as well as resting, and a kitchen. The facilities support clean and healthy living behaviour and APE facilities.

In order to pique people's interest in sending their children to schools with excellent facilities and infrastructure, facilities and infrastructure are crucial. Facilities facilitate the smooth operation of the educational system to meet learning objectives. A mobile application-based parenting service model can provide parents and TPA with an alternate kind of virtual learning during the COVID-19 epidemic, assisting them in successfully parenting and mentoring their children. In order to ensure that remote learning is implemented successfully by educational institutions, the service model can also be one of the TPA infrastructure facilities. During the COVID-19 epidemic, technology aids in overcoming challenges, especially education. Online learning requires an infrastructure of information technology (IT). The infrastructure must be robust to provide unhindered services during and after a crisis [40].

4   Conclusion

It can be concluded that parenting applications based on mobile apps are very effective in increasing parents' satisfaction with lab school um parent services during the Covid-19 pandemic. The finding is confirmed by parents' scores showing the pretest score of 61.95 compared to the post-test results, which are 78.19, with significance (sig.) as high as $0.000 < 0.05$. The T-test calculation describes the difference where tcount 0.483> ttable 0.169. Thus, parenting applications based on mobile apps can increase parental satisfaction with children's education services.

In this broad scope, the level of customer satisfaction can be used to measure how good a particular product or service is, including parents' satisfaction with children's educational institutions. The higher the level of satisfaction, it illustrates that certain products or services are improving. Therefore, the level of satisfaction is often used as one of the keys to attracting customers. In this case, to improve the quality of education, technology-based services are also needed to improve services to users.

The service model provided at TPA Melati Dharma Wanita Persatuan UM through parenting applications includes care, educational, health, and infrastructure services. Application services provided by TPA Melati Dharma Wanita Persatuan UM can be accessed so that children can continue to receive care services during distance learning.

5   Acknowledgment

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