Participatory blended learning model to enhance school and parent partnerships in elementary schools

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ABSTRACT

This study aims to examine the effectiveness of a participatory blended learning model in enhancing knowledge and strengthening partnerships between schools and parents. A quasi-experimental pre-test–post-test group design was employed, involving 60 respondents selected as participants in the intervention. The model was designed to integrate online and face-to-face activities that promote collaborative learning and active parental engagement. The findings reveal that the participatory blended learning model significantly improved parental knowledge and partnership quality, as evidenced by statistically significant gains across five key dimensions: school-parent collaboration, digital-era parenting, positive parenting, healthy family routines, and parental involvement in school programs ($p < 0.05$ for all dimensions). Additionally, improvements were observed in participation in parenting classes, inspiration class initiatives, family habit development, and involvement in school committees or associations. This study contributes to the field by demonstrating how participatory blended learning can serve as an effective strategy to bridge communication and cooperation gaps between schools and families, ultimately fostering a more inclusive and supportive educational environment.

1. Introduction

The importance of parental involvement in schools has been recognized by educational stakeholders, as this is attributed to the limited knowledge and parenting experience of parents. Kotzky *et al*. [1] revealed that parenting is a legacy of the past that can be applied in the same or different ways to children. However, most parents educate their children in the same manner they were educated during childhood. Preliminary studies conducted in several public elementary schools in Yogyakarta indicate that some parents do not actively participate in the education and teaching process due to time constraints and limited parenting knowledge. Efforts to provide guidance and enhance parents' fundamental needs can be carried out through the Family Friends Program initiated by the Ministry of Education and Culture, the publication of books and journals on parenting, the Family Hope Program implemented by the Ministry of Social Affairs to increase family members' knowledge, and the emergence of various communities, parenting activists, and other initiatives. Parental involvement in schools is a program supported by the government. This is outlined in Presidential Regulation No. 87 of 2017 on Strengthening Character Education, which states that responsibility is shared among families, educational institutions, and society. Research by Garcia-Reid, Peterson, and Reid [2] shows that parental support and involvement in schools can improve the quality of character education and minimize issues faced by school-age children. Aggressive behavior in children at school contributes to parents' negative perceptions of the school environment and also hinders child development. Numerous studies have confirmed that when parents are actively engaged in their children's education, it contributes to improved learning outcomes, motivation, and school adjustment [3], [4].

The positive impact of parental involvement in schools has been widely studied and documented in various scientific journals, demonstrating its benefits for children's competence, learning attitudes, and behavior in school. The positive impact of parental involvement in schools has been extensively studied and documented in numerous peer-reviewed journals, consistently demonstrating its significant benefits for children's academic competence, learning attitudes, and behavioral development within the school environment. However, limited research has specifically explored how participatory blended learning models can be systematically implemented to enhance school-parent partnerships in the context of digital transformation and post-pandemic educational recovery [5]. Parental partnership in the educational process must align with the school's program. A study by Gross *et al.* [6] states that a lack of consensus or agreement can negatively affect the quality of the school-parent partnership. Therefore, an optimal partnership between parents and schools needs to be designed. Ying [7] revealed that there is a positive relationship between parental perception and satisfaction with school services. However, these efforts must be supported by more precise and targeted strategies and methods, specifically for parents of elementary school students. This is because most parents educate their children based on personal and past experiences rather than comprehensive knowledge. Only a small percentage of parents engage in independent learning by reading parenting books or attending parenting seminars and workshops. In the context of Indonesia, research shows that limited parenting knowledge, time constraints, and a lack of access to school communication platforms often hinder meaningful school-family collaboration [8]. Therefore, a specialized, thematic, structured, and systemic program is needed to build school-parent partnerships in order to enhance knowledge and strategic collaboration between schools and parents. Mabatho [9] stated that schools need to develop school-family partnership guidelines to avoid parental misunderstanding that could impact their children's learning problems. Mediana stated that the importance of authentic family, school, and community partnerships to improve performance in a school environment is often tested by various interrelated social problems, including poverty, racial issues, cultural clashes between teachers and students, and school funding gaps [10].

Preliminary research conducted in several schools has developed a well-designed and systematic learning model for parents of elementary school students, known as the parenting school program. However, there are challenges in its implementation, such as low participation in the parenting school program due to school activities coinciding with parents' other responsibilities. This results in low attendance at parenting school activities organized by the school. Initial research indicates that 25% of parents have never attended a parenting program at school, and 54% rarely attend parent meetings. The reasons cited for not attending parenting school activities include: 76.9% due to busy schedules and work commitments, 65.4% due to inconvenient timing of activities, 7.7% due to inappropriate parenting materials, and 7.7% due to a lack of competent resources. Based on the issues and challenges, as well as efforts to create a cohesive and systemic learning environment, a learning model has been developed. Digital transformation in education has introduced new avenues for parental engagement. Blended learning, which combines face-to-face and online instruction, offers flexible solutions for working parents [11]. However, many existing models fail to incorporate participatory elements where parents are not only recipients but also contributors in the learning process [12]. A participatory approach ensures that parents can co-create the educational experience, aligning with adult learning principles that value autonomy and practical relevance [13]. A learning model is a conceptual framework used as a guideline in the learning process [14]. The learning model developed in this study is the participatory blended learning model to enhance knowledge and partnerships between schools and parents of elementary school students. A well-designed school-parent partnership model must consider cultural, social, and technological contexts. In Indonesia, the challenges of parental disengagement are amplified by socio-economic gaps, inadequate parenting education, and minimal exposure to child development frameworks [15]. This aligns with findings by Hidayati and Fitria [16], who emphasized that parenting seminars and online parenting platforms are still underutilized, particularly among parents of public elementary school students.

Research in Malaysian schools showed that structured blended models improved parental communication and reduced the gap between school expectations and home practices [17]. Likewise, a study in South Korea revealed that when schools involved parents in the instructional planning process, student engagement and attendance improved significantly [18]. Ni [19] defines blended learning as an innovation that integrates online learning with traditional learning, supported by multimedia technology, video streaming, virtual classrooms, voicemail, email, and online text animations. Dakhi, *et al* state that blended learning combines various learning 'media' (technology,

activities, and different methods) to create an optimal learning program for students [20]. The characteristics of the learning model developed in this study are more flexible; it is not bound by space and time, allowing everyone to participate in the learning process. Parents can communicate and actively participate in learning without being physically present or face-to-face (F2F). The delivery of learning materials is conducted synchronously, either virtually (online) or in-person (offline), as well as asynchronously through independent learning or assignments via a learning management system (LMS) application. Therefore, one of the conceptual model alternatives offered is the participatory blended learning model. Additionally, this model emphasizes parental involvement in setting learning objectives, selecting learning materials, methods, and schedules. This effort is expected to improve the quality of education and learning for elementary school parents, serving as a reference in formulating strategic policies for schools and the government to enhance educational services for the community.

2. Method

This study employed a quasi-experimental pre-test–post-test group design to examine the effectiveness of a participatory blended learning model in enhancing school-parent partnership knowledge. A total of 60 respondents were involved, consisting of parents of elementary school students from three different schools. Participants were selected using purposive sampling, targeting parents who had previously demonstrated limited involvement in school activities but expressed willingness to participate in the intervention. The sample was divided into two groups: an experimental group that received the participatory blended learning intervention (n=30) and a control group that continued with conventional school-parent communication practices (n=30). Both groups completed identical pre and post-tests to assess changes in knowledge and partnership engagement. The intervention was implemented over a period of six weeks, combining synchronous and asynchronous activities through a Learning Management System (LMS), specifically Google Classroom. Each week, parents participated in one live online session (synchronous), accompanied by weekly self-paced materials, discussion prompts, and reflection assignments (asynchronous). The learning content focused on five dimensions: school-parent partnership, parenting in the digital age, positive parenting, healthy family habits, and parental involvement in school. The sessions were facilitated by a team of educational professionals consisting of school counselors, teachers, and parental engagement specialists. Data were analyzed using SPSS version 22. Normality was tested using the one-sample Kolmogorov–Smirnov test, and homogeneity of variance was assessed through Levene's Test of Equality of Variances. To determine the effectiveness of the intervention, a paired sample t-test was conducted on the pre- and post-test scores within each group.

3. Results and Discussion

Knowledge and partnerships between schools and parents of elementary school students in the educational process can be enhanced through various programs and activities. A learning model is needed that accommodates the concept of participatory learning, involving parents in the planning, implementation, and evaluation of partnership programs with schools. The participatory blended learning model serves as an alternative to improve knowledge and partnerships between schools and parents of elementary school students. The result of the effectiveness test of the participatory blended learning model in the partnership between schools and parents of elementary school students across various dimensions-knowledge of school-parent partnership (P1), educating children in the digital era (P2), positive parenting (P3), good family habits (P4), and parental involvement in school (P5)-have proven to be effective. This effectiveness is evident from the increase in scores before and after the intervention across all dimensions. Further analysis was conducted to examine the differences in the average scores obtained through the implementation of the participatory blended learning model (Table 1).

Table 1. Participatory blended learning model pre-posttest effectiveness test score

Dimension	Experiment		Gain Score
	Pretest	*Posttest*	
P1	2.84	3.22	0.38
P2	3.41	3.55	0.14
P3	2.79	3.17	0.38
P4	2.59	3.11	0.52
P5	2.65	2.86	0.21

Based on the pre-test and post-test score tables, an increase was obtained for each dimension as shown by the gain score, namely school-parent partnership material (P1): 0.38, educating children in the digital era (P2): 0.14, positive parenting (P3): 0.38, good family habits (P4): 0.52, and parental involvement in school (P5): 0.21, Fig. 1.

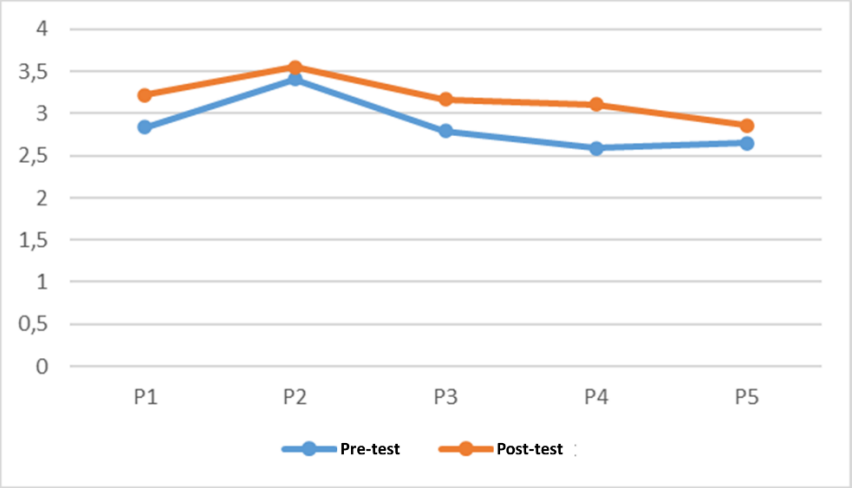

Fig. 1. Visualization of pretest-posttest for parents of elementary school students

The dimension of educating children in the digital era showed a relatively small improvement, as indicated by the low gain score. However, when examining the pre-test and post-test scores, it can be explained that parents already have a good understanding of the material on educating children in the digital era. Meanwhile, the material on good family habits experienced the highest increase, with a gain score of 0.52.

3.1. Data analysis of the effectiveness test results of the blended learning model for parents of Elementary School students

The pre-test and post-test data from the experimental group of elementary school parents were then examined to determine the effectiveness of the participatory blended learning model in enhancing school-parent partnerships across various indicators. Before further analysis, several requirements must be met.

1) Normality test

The normality test ensures that the data is normally distributed and follows a normal curve using the One Sample Kolmogorov-Smirnov test with the assistance of SPSS 22 on pre-test and post-test data for each dimension of school-parent partnership. The assessment assumption states that if the p-value is >0.05, the data is considered to be normally distributed. The summary of the normality test results for elementary school parents is as follows Table 2.

Table 2. Summary of the normality test results for elementary school

Data Type	P value	Status	Category
Pre-test for parents of Public Elementary School Students (P1)	0.200	0.200>0.05	Normal
Pre-test for parents of Public Elementary School Students (P2)	0.092	0.092>0.05	Normal
Pre-test for parents of Public Elementary School Students (P3)	0.095	0.095>0.05	Normal
Pre-test for parents of Public Elementary School Students (P4)	0.200	0.200>0.05	Normal
Pre-test for parents of Public Elementary School Students (P5)	0.093	0.093>0.05	Normal
Post-test for parents of Public Elementary School Students (P1)	0.200	0.200>0.05	Normal
Post-test for parents of Public Elementary School Students (P2)	0.200	0.200>0.05	Normal
Post-test for parents of Public Elementary School Students (P3)	0.200	0.200>0.05	Normal
Post-test for parents of Public Elementary School Students (P4)	0.092	0.092>0.05	Normal
Post-test for parents of Public Elementary School Students (P5)	0.200	0.200>0.05	Normal

Homogeneity test

Testing was conducted using Levene's Test of Equality of Variances in the SPSS 22 program. The assessment assumption states that if the p-value is >0.05, the data is considered homogeneous. The summary of the homogeneity test results is presented in the following Table 3.

Table 3. Results of homogeneity test for parents of Elementary School students

Data Type	P value	Status	Category
Pretest-Posttest for parents of Public Elementary School Students (P1)	0.051	0.051>0.05	homogeneous
Pretest-Posttest for parents of Public Elementary School Students (P2)	0.052	0.052>0.05	homogeneous
Pretest-Posttest for parents of Public Elementary School Students (P3)	0.229	0.229>0.05	homogeneous
Pretest-Posttest for parents of Public Elementary School Students (P4)	0.053	0.053>0.05	homogeneous
Pretest-Posttest for parents of Public Elementary School Students (P5)	0.108	0.108>0.05	homogeneous

2) T test results

To ensure that the experimental group has an increase in partnership scores before and after the intervention, a paired samples t-test was conducted on pre-test and post-test scores using SPSS 22. The assessment assumption states that if the calculated t-value is greater than the table t-value or if the p-value is less than 0.05, there is a significant difference in the average partnership scores before and after the learning process. The results of the t-test are presented in the Table 4.

Table 4. T test results of parents of Elementary School students

Dimension	Df (N-1)	Mean		Elementary School		0.05 level	t-value	t-table
		Pre-test	*Posttest*	*Pre-test*	*Posttest*			
P1	66	2.843	3.217	0.618	0.474	0.000	-18.635	1.668
P2	66	3.405	3.554	0.357	0.292	0.000	-16.340	1.668
P3	66	2.786	3.166	0.566	0.510	0.000	-24.037	1.668
P4	66	2.587	3.112	0.735	0.559	0.000	-20.300	1.668
P5	66	2.649	2.859	0.629	0.485	0.000	-10.837	1.668

Based on the table of t_{value} scores, the dimensions P1, P2, P3, P4, and P5 fall outside the acceptance range between -1668 and +1668, with a p-value for each dimension <0.05; df 66. This indicates a significant increase in the knowledge scores of school-parent partnerships for elementary school students across all dimensions before and after the intervention

3.2. School and parents' partnership program

The specific indicators of success for the school-parent partnership program include the establishment of a structured partnership program, such as parent classes, inspiration classes, good family habit programs, and involvement in committees or parent associations. At the beginning of the participatory blended learning process, an assessment was conducted on four aspects of school-parent partnership for elementary school students. The partnership program evaluation scores were as follows (Table 5): parent class aspect scored 61.3, inspiration class aspect scored 39.6, good family habit aspect scored 79.9, and involvement in committees/parent associations aspect scored 54.1.

Table 5. Gain score of partnership programs before and after learning

Partnership Aspects	Before	After	gain score
Parent class	61.3	70.06	9.3
Inspiration class	39.6	52.7	13.1
Good family habit	79.9	84.4	4.5
Parent associations	54.1	71.0	16.9

Visualization of the summary of score improvements in the school-parent partnership program evaluation for elementary school students after undergoing a series of participatory blended learning sessions, Fig. 2.

Fig. 2. Gain score of school-parent partnership program

3.3. Discussion of the effectiveness test results

The results of this study show that the participatory blended learning model significantly improves the knowledge and engagement of parents in school partnership programs. This is supported by statistical data showing a consistent increase in scores across all five dimensions: school-parent partnership (P1), educating children in the digital era (P2), positive parenting (P3), good family habits (P4), and parental involvement in schools (P5), with all p-values < 0.05. These findings align with Halverson and Graham's [14] conceptual framework of blended learning, which emphasizes the integration of technological tools with face-to-face interaction to enhance learner engagement and accessibility. The model's flexibility enabled parents-who often face time and location constraints-to participate more actively in school-related learning processes. The significant improvement in the "positive parenting" dimension resonates with Baumrind's theory of parenting styles, which suggests that informed and authoritative parenting leads to better developmental outcomes for children [21]. As parents became more aware of positive discipline strategies and communication skills, their perceived roles in their children's education became more constructive, echoing findings by Ihsan, L [22], who noted a prevalence of permissive parenting among Indonesian parents due to lack of structured guidance. In terms of "educating children in the digital era," the relatively lower gain score can be interpreted in light of parents' already high baseline understanding. However, the reinforcement of digital parenting strategies remains essential. Studies such as those by Bond [23] and Ivy *et al*. [24] emphasize the need for structured parental guidance in navigating children's use of digital tools, to balance learning opportunities and online safety. The greatest gain was found in the "good family habits" dimension, indicating that the program was particularly effective in influencing daily routines and value-based behaviors at home. This supports Humairah's [25] assertion that structured parental engagement contributes significantly to children's character development. Furthermore, Dimas [26] warns that misaligned home guidance can negatively affect children's moral growth, which reinforces the importance of integrating family habit modules in parent learning programs.

The improvement in "school involvement" (P5) mirrors Swick's [27] framework of authentic and meaningful communication as the foundation of trust between teachers and parents. By participating in parent classes, inspiration sessions, and parent associations, parents moved beyond passive roles to become active partners in educational decision-making. This shift reflects the six roles of parents identified by Greenwood and Hickman [28], especially the evolution from spectators to decision-makers. Moreover, the intervention design ensured teacher facilitation in all learning sessions, which is consistent with the findings of Smith *et al.* [29], who report that structured, teacher-led family-school interventions yield improvements in students' academic and socio-emotional outcomes. The participatory nature of the model also reflects Riegel and Kindermann's [30] view that participatory learning enhances motivation and engagement by allowing learners-in this case, parents-to co-construct meaning and take ownership of the learning process. The increase in partnership knowledge is demonstrated by the gain score before and after the intervention. The importance of school-parent partnerships has been understood as an effort to improve children's learning quality both at school and at home. Building partnerships requires a shared understanding between teachers and parents regarding education and parenting, communication patterns, and partnership models. Teachers and parents need to establish equal interactions with a common conception of education. Finn highlights the importance of ecological psychology theory, which provides a better understanding of learning abilities developed through family and community involvement in pedagogical exchanges with the school environment [31].

The findings of this study indicate that the participatory blended learning model significantly improves parental knowledge and engagement across five key dimensions. This aligns with Powell *et al*. [32] who found that participatory interventions in family education can effectively enhance parental literacy and involvement. Similarly, González-DeHass and Willems [33] emphasize that meaningful parental involvement fosters a positive school climate and builds mutual trust between schools and families. However, Livingstone and Blum-Ross [34] caution that despite digital familiarity, many parents lack the skills to guide their children effectively in navigating digital risks, underscoring the need for structured digital parenting support. Finally, the use of a blended learning approach addressed logistical challenges while supporting collaborative engagement. As Dzakiria *et al*. [35] and Masalela [36] argue, blended learning offers a "middle ground" solution that maximizes the advantages of both online and face-to-face learning. This was especially relevant in the context of parental learning, where flexibility and asynchronous options can increase accessibility for working

parents. Blended learning played a pivotal role in supporting parent engagement. According to Drysdale *et al*. [37], blended models are particularly effective for adult learners because of their flexibility in time and location. Harris *et al*. [38] further argue that community-based e-learning fosters a sense of social cohesion and enables experience-sharing among parents, contributing to stronger learning communities. Asarta stated that online and blended learning have a positive influence on students who have better learning experiences, and parents who already have a lot of learning experience [39]. This model aligns with findings by Borup *et al*. [40] and Paredes *et al.* [41] who advocate for participatory learning environments that view parents not merely as stakeholders but as co-learners. These approaches enhance learning ownership and ensure that parental involvement becomes a sustainable part of the school ecosystem.

4. Conclusion

The findings of this study confirm that the participatory blended learning model is effective in enhancing parental knowledge and strengthening school-parent partnerships across multiple dimensions. More than just improving scores, the intervention reflects the importance of collaborative learning approaches in engaging parents as co-educators in the schooling process. This study reinforces participatory learning theory by demonstrating that when learning is situated within a shared social and cultural context-between schools and families-it fosters deeper engagement and sustained behavioral change. The participatory approach also affirms adult learning principles, where parents are involved in planning, implementing, and reflecting on the learning process. The results suggest that schools should integrate blended learning models as a strategic tool for parental engagement. The flexibility of combining asynchronous and synchronous methods makes it accessible to working parents and those with limited time. Moreover, educators and school leadership should adopt a participatory facilitation model that empowers parents to contribute meaningfully to educational planning and decision-making processes. Recommendations for future research Include conducting studies to examine the long-term effects of participatory blended learning on student outcomes, expanding the model across different educational levels and cultural contexts, and exploring technological adaptations to increase inclusivity for parents with limited digital literacy. In addition, future studies may compare the effectiveness of various digital platforms or instructional designs to determine the most impactful components of blended learning for parent participation.

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Declarations

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