Mediating Effects of Parental Expectations on Parental Participation in Early Literacy: A Dyadic Analysis

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Abstract. Parental participation is crucial in developing early literacy skills in children, but publication on the combined contributions of both fathers and mothers remains limited. Therefore, this study aims to investigate how parental motivational beliefs, subjective norms, and perceived life context influence participation in early literacy activities, with parental expectations serving as a mediating factor. Anchored in Theory of Planned Behavior (TPB), the analysis adopted dyadic method through Actor-Partner Interdependence Mediation Model (APIMeM), which examined both individual and partner effects. A time-lagged design was conducted with 507 father-mother dyads (N = 1014) across 10 kindergartens in Surabaya, Indonesia. The instruments used were carefully adapted to ensure cultural relevance and validity. The results showed that motivational beliefs, social norms, and perceived life context significantly predicted parental participation, with expectations mediating these relationships. This study underscored the importance of considering both parental psychosocial factors to strengthen early literacy support at home and guide the design of family-focused interventions.

Keywords: Dyadic Analysis, Parental Participation in Early Literacy, Quality Education, Theory of Planned Behavior.

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Introduction

Early literacy is a fundamental foundation for children's reading and writing development, starting from early childhood through interactions with the environment, specifically with parents (Albritton & Johnson, 2023; Atlar-Yildirim & Uzuner, 2024; Bergman Deitcher et al., 2024; Işik Uslu et al., 2022). In Indonesia, many kindergarten-aged children struggle with expressive and receptive communication and show low interest in reading. This issue negatively affects reading comprehension at the elementary school level, as reflected in national and international assessments such as Early Grade Reading Assessment (EGRA) and Progress in International Reading Literacy Study (PIRLS), which consistently rank Indonesian literacy performance among the lowest globally (Puslitjakdikbud, 2019; Solichah & Fardana, 2023). A publication by Solichah and Fardana (2023) in Surabaya found that 48% of parents showed a low level of participation in early literacy activities, while another 37% were at a moderate level. East Java, specifically Surabaya, is still classified as having low literacy based on assessments indicating low reading interest, limited parental and school participation in providing a literacy-friendly environment, and a lack of reading facilities (Puslitjakdikbud, 2019; Solihin et al. 2019).

A major obstacle is parental lack of understanding about children's language development stages, making it difficult to provide effective early literacy stimulation (Widodo & Ruhaena, 2018; Fauziah, 2015; Zikri, 2016). In Indonesia, study on parental participation in early literacy remains limited. A search on Garuda Ristekdikti database identified only 10 journal articles and three theses published between 2010 and 2024. Several studies outlined the significant role of parents in children's early literacy development. For instance, Nuraeni (2016) found that parental participation contributed 63.3% to children's literacy outcomes. Other articles explored themes such as parental support in reading ability, literacy interest, and the influence on children's language development. Among the 10 journal articles reviewed, 3 used quantitative survey methods, 5 adopted qualitative methods, and 2 were literature reviews.

The 3 theses also investigated parental participation using qualitative and survey designs. The dominance of qualitative methods in these studies underscores the need for further empirical analysis, particularly using quantitative and mixed methods to deepen understanding of parental roles in early literacy development in Indonesian context.

Most publications on parental participation in early literacy focus on mothers and rarely include both parents as a unit (Lindberg, 2021; Liu et al., 2018; Yang et al., 2023). A lack of reading habits at home hinders children's literacy growth (Rina et al., 2020). Certain publications also apply Theory of Planned Behavior (TPB) or dyadic analysis to explore parental participation. However, parental participation plays a key role in supporting children's cognitive and language development (Duursma et al., 2020; Feng & Tan, 2023; Qin et al., 2025).

Although the government has introduced programs to support early childhood literacy, implementation remains suboptimal due to low awareness and participation among parents (Neina et al., 2022; Widodo et al., 2020). Most existing studies use Bronfenbrenner's ecological theory by emphasizing home-school interactions (Berkowitz et al., 2021; Bieschke, 2013; Breda, 2014; Erlendsdóttir et al., 2022; Fatonah, 2020; Jackson, 2022; Paul, 2020; Yang & Oh, 2024; Yngvesson & Garvis, 2021). However, this framework does not fully explain the psychological aspects of parental participation or equally accommodate contributions from both mothers and fathers. As outlined by Xu (2022), fathers' roles in literacy activities remain significantly underexplored.

In recent years, TPB has increasingly been adopted as a conceptual framework to understand parental participation in early literacy (Alghazo, 2016). Therefore, this study adopts TPB to explore psychological factors influencing parental participation using dyadic analysis with Actor Partner Interdependence Mediation Model (APIMeM), which considers both mothers and fathers equally. This method aims to fill existing analysis gaps and provide a more comprehensive understanding of parental contributions to children's early literacy development (Lindberg, 2021; Yang et al., 2023).

The Role of Parental Perceived Life Context on Parental Participation

The concept of Perceived Behavioural Control (PBC) was developed by Ajzen (1991) and referred to individuals' beliefs about the capabilities and perceived power to perform a particular behavior (Cristea & Gheorghiu, 2016; Kiriakidis, 2017; Totura et al., 2019). In the context of parental participation, perceptions of life context influenced the extent to which parents felt capable of exercising control and engaging in the development of children. When parents perceive themselves as having sufficient knowledge and skills, as well as the availability of time and energy, the possibility of becoming engaged increases (Hoover-Dempsey et al., 2001). Han and Hock (2023) found that perceived life context had a positive influence on parental participation. This construct comprised two main aspects, namely (1) parental perceptions of knowledge and skills, as well as (2) the perceptions of the time and energy invested in the participation activities (Tekin, 2016).

The Role of Subjective Norms in Parental Participation

Subjective norms in TPB referred to normative beliefs shaped by external social environments. Individuals with strong subjective norms were motivated to follow these norms. This implied that when parents perceived participation in early childhood literacy as being correlated with prevailing norms, motivation to participate increased. Conversely, when believed that the participation did not correlate with the norms, the willingness to engage would decrease. Publications showed that subjective norms were significant predictors of parental participation, both at home and in educational contexts (Alghazo, 2016; Perry & Langley, 2013). Social norms provided behavioral guidelines for how parents were expected to support children's education.

In a study by Perry and Langley (2013), attitude and subjective norms were identified as two key predictors of fathers' intentions to participate, based on TPB framework. Additionally, Landmark et al. (2013) found that subjective norms originating from school educators, particularly in local education agencies (LEAs), influenced parental engagement. Bracke and Corts (2012) also found that parents who observed neighbors or friends participating in children's educational experiences were more inclined to become engaged.

The Role of Parental Motivational Beliefs in Parental Participation

According to Conner (2020), attitudes toward a behavior consisted of beliefs and evaluations (Cristea & Gheorghiu, 2016; Kiriakidis, 2017; Totura et al., 2019). In the context of parental participation, this attitude was manifested in the form of parental motivational beliefs, namely the belief that engagement in the early literacy of children was an important and valuable responsibility. Several studies such as those by Bubić and Tošić (2016), Çetin & Demircan (2023), and van Gelder-Horgan (2016) have shown that these beliefs significantly and positively influenced parental participation. Parents who were

capable of supporting children's learning process tended to be more actively engaged in the educational activities. This was further reinforced by Brown (2013) results, which showed a significant relationship between motivational beliefs, parental demographic characteristics, and participation in children's education. Overall, motivational beliefs served as a crucial foundation driving parents to take an active role in supporting children's early literacy development.

The Role of Parental Expectations as a Mediator of Parental Participation

In TPB study, intention acted as a mediator between attitudes, subjective norms, and perceived behavioral control in influencing behavior (Tan et al., 2016). In the present analysis, parental expectations served as the mediator between these factors and parental participation. Intention could be understood as behavioral expectations, which reflected an individual's consideration of a particular behavior (Gray, 2019).

The mediating factor of the three previous predictive factors was the expectations held by parents. These expectations referred to the aspirations and ideals parents had for children's attitudes and academic outcomes (Leung & Shek, 2011). Parents who believe the engagement would positively influence children's development were more inclined to engage in early literacy activities. Therefore, parental expectations played a motivational role in motivating greater engagement in education. This correlated with the model of parental participation, positing that parental expectations served as a mediating variable. Furthermore, Li et al. (2024) outlined that parental expectations influenced participation. The publication further asserted that parental beliefs about the value of education and expectations for children's academic success (parental expectations) were not included in the model. Other studies, such as those by Leung and Shek (2019), Guo et al. (2018), and Weir et al. (2023) consistently showed that parental expectations possessed a positive effect on parental participation.

This present study adopted Actor-Partner Interdependence Mediation Model (APIMeM) to examine the association among parental motivational beliefs, subjective norms, and perceived life context with parental participation, as mediated by the expectations. The analysis aimed to develop a more comprehensive model by focusing on parents as the central figures in parental participation. Therefore, the hypotheses in this study comprised the following:

(1) The role of mothers' motivational beliefs in relation to participation in early literacy, mediated by parental expectations.
(2) The role of mothers' subjective norms in relation to participation in early literacy, mediated by parental expectations.
(3) The role of mothers' perceived life context in relation to participation in early literacy, mediated by parental expectations.
(4) The role of fathers' motivational beliefs in relation to participation in early literacy, mediated by parental expectations.
(5) The role of fathers' subjective norms in relation to participation in early literacy, mediated by parental expectations.
(6) The role of fathers' perceived life context in relation to participation in early literacy, mediated by parental expectations.
(7) The role of mothers' motivational beliefs in relation to fathers' participation in early literacy, mediated by mothers' expectations.
(8) The role of mothers' subjective norms in relation to fathers' participation in early literacy, mediated by mothers' expectations.
(9) The role of mothers' perceived life context in relation to fathers' participation in early literacy, mediated by mothers' expectations.
(10) The role of fathers' motivational beliefs in relation to mothers' participation in early literacy, mediated by fathers' expectations.
(11) The role of fathers' subjective norms in relation to mothers' participation in early literacy, mediated by fathers' expectations.
(12) The role of fathers' perceived life context in relation to mothers' participation in early literacy, mediated by fathers' expectations.The study model was further presented in Figure 1.

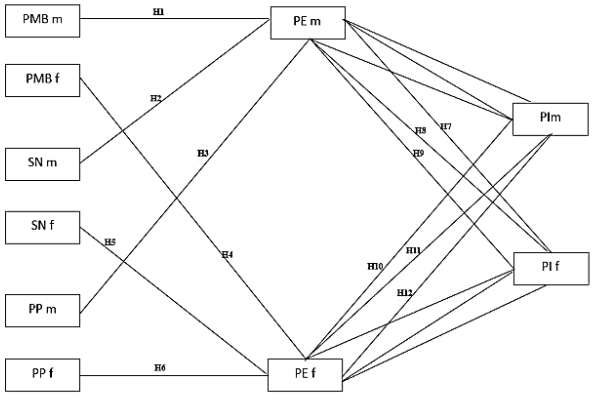

Figure 1. Study Model

Description: PMB f: Parental Motivational Beliefs father; PMB m: Parental Motivational Beliefs mother; SN f: Subjective Norms father; SN m: Subjective Norms mother; PP f: Parental Perceived Life Context father; PP m: Parental Perceived Life Context mother; PE f: Parental Expectations father; PE m: Parental Expectations mother; PI f: Parental participation father; PI m: Parental participation mother.

Methods

This study used dyadic analysis method where the examined variables included (1) Endogenous variables such as parental participation in early literacy and parental expectation, as well as (2) Exogenous variables comprising parental motivational beliefs, subjective norms, and perceived life context. The sampling method used in the analysis was convenience sampling, a non-probability analysis in which participants were selected based on accessibility and availability (Stratton, 2021). According to David Hussey, this method was particularly useful when scholars aimed to explore a specific phenomenon in a broad population and required a quick and accessible avenue to data collection. The selection of participants was further based on the availability and willingness to respond (Ahmed, 2024).

The total number of kindergartens in Surabaya was 1,303 with a total of 40,502 students leading to a total parent population of 81,004 based on dapo.kemdikbud.go.id. The determination of participant numbers was based on Hair et al. (2019), who recommended a minimum sample size of 200 participants for Structural Equation Modeling (SEM). A power analysis indicated that the minimum sample size required was 263 participants, based on an effect size of .05 (Lacap et al., 2018), a significance level of .05, and a statistical power of 0.80, with five predictors (Kang, 2021). Furthermore, sample size estimation using Daniel Soper's power analysis calculator (https://www.danielsoper.com/statcalc/calculator.aspx?id=89) with effect size = .3, desired statistical power = .8, latent variables = 10, observed variables = 64, and alpha level = .05, indicated a minimum requirement of 195 parent dyads (i.e., 195 fathers and 195 mothers).

Participants

Participants included both fathers and mothers of children aged 4-6 years residing in Surabaya who were willing to participate in the study. Ethical approval for the study was granted by the Research Ethics Committee, certificate number 359/KE/IV/2024. A non-probability convenience sampling method was used to collect data via an offline Likert scale questionnaire.

Measurement Tools

All instruments in this study underwent an adaptation process and were further used with a Likert scale.

Parental Participation in Early Literacy

Confirmatory Factor Analysis (CFA) results indicated construct reliability of .780, with CFI (Comparative Fit Index) results of .946, RMSEA (Root Mean Square Error of Approximation) of 0.058, and SRMR (Standardized Root Mean Square Residual) of 0.036. This correlated with previous PIRLS studies, which reported Cronbach's Alpha ranging from .70 (Czech Republic, Hungary, Italy, and Oman) to 0.88 (Romania). Hemmerechts et al. (2016) showed reliability results of .69 in Norway and 0.79 in Belgium, consistent with Hemmerechts (2021). DeWyngaert (2022) also found CFI results of .80, RMSEA of .06, SRMR of .07, and Cronbach's Alpha of .57.

Parental Expectations

CFA results showed a reliability score of .920 with CFI of .862, RMSEA of .107, and SRMR of .063. These results correlated with Leung and Shek (2011), who reported a Cronbach's Alpha of .829. Similarly, Leung and Shek (2019) obtained PECF score of .883.

Parental Motivational Beliefs

CFA results showed a construct reliability of .872 for parental role construction, .856 for parental self-efficacy, and CFI of .953 with RMSEA of .066. These results were consistent with Tekin (2011), who reported reliability of .79 for parental role construction and .75 for parental efficacy to help children succeed in school while Curry et al. (2016) found overall reliability of .84.

Subjective Norms

CFA showed a reliability score of .864, with CFI of .931, RMSEA of .141, and SRMR of .041. These results correlated with Tran (2019), who reported a Cronbach's Alpha of .71 for subjective norms.

Parental Perceived Life Context

CFA results indicated a reliability of .873 for knowledge and skills as well as .903 for time and energy, with CFI of .906, RMSEA of .009, and SRMR of .05. Hoover-Dempsey and Sandler (2005) reported similar reliability for perceptions of knowledge and skills (α = .83) as well as time and energy (α = .84). Tekin (2016) also found reliability scores of .84 (pilot) and .82 (main study) for knowledge and skills, as well as .88 (pilot) and .85 (main study) for time and energy.

Study Procedure

This study adopted several measures to reduce bias, including ensuring the questionnaire was contextually appropriate, conducting Content Validity Index (CVI) assessments, ensuring item clarity, performing a readability test, adapting the measurement instrument, and conducting an attention check with guidance from (Abbey & Meloy, 2017).

Table 1
Demographic Characteristics of Participants

Category	Parent	Frequency
Role		Father = 507 (50%); Mother = 507 (50%)
Parental Education	Father	High School = 437 (86.19%); Diploma = 5 (.99%); Bachelor's Degree = 61 (12.03%); Postgraduate = 4 (.79%)
	Mother	High School = 425 (83.83%); Diploma = 12 (2.37%); Bachelor's Degree = 61 (12.03%); Postgraduate = 9 (1.78%)
	Father and Mother	High School = 862 (85.01%); Diploma = 17 (1.68%); Bachelor's Degree = 122 (12.03%); Postgraduate = 13 (1.28%)
Parental Age Range	Father	20–30 years = 85 (16.77%); 31–40 years = 281 (55.42%); 41–50 years = 125 (24.65%); 51–70 years = 16 (3.16%)
	Mother	20–30 years = 145 (28.60%); 31–40 years = 278 (54.83%); 41–50 years = 78 (15.38%); 51–70 years = 6 (1.18%)
	Father and Mother	20–30 years = 230 (22.68%); 31–40 years = 559 (55.13%); 41–50 years = 203 (2.02%); 51–70 years = 22 (2.17%)
Children's Gender	—	Male = 242 (47.73%); Female = 265 (52.27%)
Number of Children	—	1 child = 100 (20%); 2 children = 262 (52%); 3 or more children = 145 (29%)
Type of Residence	—	Living separately from extended family = 364 (71.79%); Living with extended family = 143 (28.21%)
Household Income	Father	IDR 0–1 million = 17 (3.35%); IDR 1.1–3 million = 102 (2.12%); IDR 3.1–10 million = 386 (76.13%); > IDR 10 million = 2 (.39%)
	Mother	IDR 0–1 million = 230 (45.36%); IDR 1.1–3 million = 106 (2.91%); IDR 3.1–10 million = 519 (31.36%); > IDR 10 million = 12 (2.37%)
	Father and Mother	IDR 0–1 million = 247 (24.36%); IDR 1.1–3 million = 208 (2.51%); IDR 3.1–10 million = 545 (53.75%); > IDR 10 million = 14 (1.38%)

The questionnaire was directly distributed during parenting seminars to allow for direct observation of participants completing it. The scholar asked the participants to read and fill out the informed consent form, and the individuals were informed before filling out the questionnaire about the purpose of the study and given assurance for data confidentiality.Participation was anonymous and voluntary, all participants gave consent in writing by providing a signature on the questionnaire stating 'I agree to participate in this survey'.

The scholar would remind the individuals when the data collection should be done twice. Additionally, a two-week time lag was incorporated between the collection of the predictor and criterion variables (Iudici et al., 2019; Jordan & Troth, 2020; Olsson & Sundell, 2023). This was conducted in 10 kindergartens that were willing and available in Surabaya. Matching participants was facilitated by teachers to ensure that each father and mother pair was the parent of a single child. These steps aimed to minimize bias, ensuring that predictor variables remained related to the criterion variables (Olsson & Sundell, 2023). Finally, the scholars ensured that only parents of a single child aged 4–6 years completed the questionnaire.

Time 1 survey measured parental participation in early literacy and demographics. Time 2 assessed perceived parental motivational beliefs, parental expectations, perceived parental life context, subjective norms, and demographic data. To reduce the risk of bias, matching was facilitated by the teacher to ensure that the participants were father and mother of a single child and were a couple. The pause between measurements was brief enough to maintain the relationship between the predictor and criterion variables (Jordan & Troth, 2020). The study also ensured that the participants were parents of one child aged 4–6 years.

Data Analysis Method

Descriptive analyses were conducted to determine the mean and standard deviation of parental perceived life context, motivational beliefs, subjective norms, and expectations regarding parental participation in early literacy. A correlation matrix was also calculated to show the correlation coefficients between variables (Schrodt, 2015).

The main analysis focused on modelling parental participation in early literacy. The model estimated the effects of parental motivational beliefs, subjective norms, perceived life context, and expectations on parental participation (actor and partner effects). Four direct effects were estimated, namely father, mother, and two partner effects (Meng & Cheng, 2017) with the calculations conducted using dyadic analysis (Schrodt, 2015).

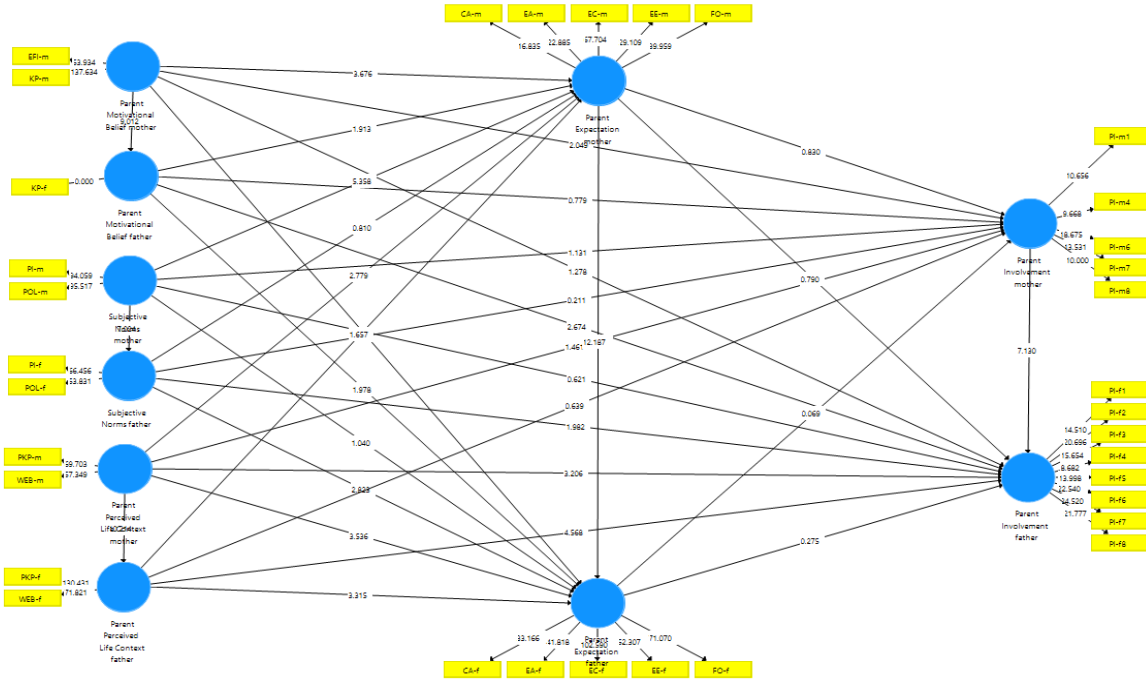

Figure 2. Final Model Iteration

Dyadic analysis served as a method used to analyze data collected from pairs of individuals. This method focused on the relationship and interaction between two individuals in a dyad, considering the interdependence. In contrast to individual-based analyses, dyadic analysis explored not only each individual's characteristics but also the influence on each other. The method allowed scholars to gain deeper insights into how individuals in a dyad mutually affected one another, rather than being treated as separate entities (Chen et al., 2022; Meng & Cheng, 2017; Schrodt, 2015). Furthermore, the study applied APIMeM (Actor-Partner Interdependence Model with Mediation), which was a statistical model used in dyadic analysis to examine how individuals in a dyad influence each other while accounting for mediation effects among the variables of interest (Ivziku et al., 2019; Oğul & Arnas, 2022). APIMeM allowed scholars to explore two types of effects simultaneously, namely (1) Actor Effects which measured how an individual's characteristics affected the outcomes or behaviors, and (2) Partner Effects which measured how the characteristics affected the partner's outcomes or behaviors (Kenny, 2018).

Results and Discussion

Demographic Characteristics of Participants

A total of 1,200 parents initially participated in the study. After data cleansing, 186 participants were excluded due to incomplete responses across both data collection points (162), refusal to participate (10), and failure of the attention check (14). Therefore, the final sample consisted of 1,014 parents (507 fathers and 507 mothers). The average income of fathers was IDR 3.29 million (SD = IDR 2.12 million), while that of mothers was IDR 1.85 million (SD = IDR 3.85 million). The mean age of fathers was 37.3 years (SD = 6.59), and mothers averaged 34.7 years (SD = 6.09). The average age of children was 5.24 years (SD = .733). All demographic characteristics of participants are presented in Table 1.

Preliminary Analysis

The correlation matrix provided information about the strength and direction of relationships between variables (Schrodt, 2015). Overall, demographic variables including education, income, parental age, children's age, number of children, and domicile did not show significant relationships with parental expectations (PE) or parental participation (PI) for either fathers or mothers. Consequently, demographic variables were not included as control variables in the hypothesis testing, as indicated in Table 2.

Discriminant Validity

Cross-loading analysis was used to assess discriminant validity and the results showed that each construct had higher correlations with the indicators than the others. Therefore, each latent construct was found to predict its corresponding items better than others, indicating satisfactory discriminant validity as observed in Table 3.

Table 2

Correlation Matrix

	M	SD	PA	PhA	UA	PI	PhI	UI	D	UAn	JKA	JA	PMBf	PMBm	PPf	PPm	SNf	SNm	PEf	PEm	PIf	PIm
PA	-	-	-																			
PhA	3290000	2120000	.25***	-																		
UA	37.3	6.59	-.02	-.02	-																	
PI	-	-	.35***	.11***	-.03	-																
PhI	1850000	3850000	.21***	.13***	-.04	.20***	-															
UI	34.7	6.09	-.09	-.05	.48***	.08	-.01	-														
D	-	-	.05	.08	-.04	.09	.09	-.10*	-													
UAn	5.24	.73	-.01	-.08	.14***	-.05	-.03	.13***	-.01	-												
JKA	-	-	.02	-.03	.02	.04	.08	.05	-.04	-.09	-											
JA	-	-	-.05	.06	.21***	-.06	-.06	.29***	-.09	.14***	.01	-										
PMBf	4.7	.53	.13***	-.09*	-.17***	.09**	.08*	-.09*	-.05	-.07	-.02	.05	-									
PMBm	4.77	.53	.12***	.09*	-.62***	.14***	.10**	-.08	-.05	-.09	.01	.07	.48***	-								
PPf	4.87	.52	.08	.06	-.10*	-.01	.03	-.02	.01	.07	-.02	.02	.38***	.26***	-							
PPm	5.03	.47	.08*	.03	-.10*	.10**	.05	-.01	.02	.07	.02	.06	.27***	.38***	.36***	-						
SNf	5.05	.52	-.12	.01	-.12*	-.09*	-.05	.03	.04	.10*	-.03	.09	.22***	.13***	.36***	.22***	-					
SNm	5.13	5.12	.03	.03	-.10*	.05	-.02	.04	.01	.08	-.02	.08**	.23***	.31***	.26***	.43***	.33***	-				
PEf	5.25	.47	.07	.07	-.07	.05	-.02	-.01	.06	.05	-.04	.07	.23***	.25***	.28***	.25***	.29***	.34***	-			
PEm	5.31	.48	.09	.07	-.07	.10	.08	-.01	.07	.02	-.05	.06	.22***	.29***	.19***	.36***	.20***	.41***	.48***	-		
PIf	1.33	.39	.09	.08	-.03	.07	-.02	-.06	.04	.06	.05	.07	.10***	.08	.17***	.05	.08	.08	.09**	.07	-	
PIm	1.48	.34	.08	.05	-.05	.08	-.02	-.03	-.09	.02	.09	-.03	.02	.07*	.05	.11***	.02	.09**	.06	.08	.25***	-

*Note. * p < .05, ** p < .01, *** p < .001, PA=Fathers' Education, PhA=Fathers' income, UA=Fathers' age, PI=Mothers' education, PhI=Mothers' Income, UI= Mothers' age, D=Domicile, UAn=Children's age, JKA=Children's gender, JA=Number of children, PMBf=Parental Motivational Father, PMBm= Parental Motivational Mother, PPf=Parental Prceived Life Context Father, PPm= Parental Perceived Life Context Mother, SNf=Subjective Norms Father, SNm= Subjective Norms Mother, PEf=Parental Expectations Father, PEm=Parental Expectations Mother, PIf=Parental participation father, PIm=Parental participation mother*

Tabel 3
Cross Loadings

	PEF	*PEM*	*PIF*	*PIM*	*PMBF*	*PMBM*	*PPF*	*PPM*	*SNF*	*SNM*
CA-f	.770	.513	.155	.104	.443	.424	.355	.299	.276	.347
EA-f	.818	.563	.083	.032	.279	.380	.305	.312	.295	.406
EC-f	.910	.647	.127	.070	.372	.396	.380	.324	.447	.470
EE-f	.845	.620	.054	.058	.264	.361	.272	.310	.349	.438
FO-f	.868	.619	.086	.065	.346	.367	.367	.294	.394	.423
CA-m	.511	.730	.053	.091	.298	.413	.204	.434	.145	.440
EA-m	.552	.788	.051	.034	.217	.347	.217	.348	.237	.430
EC-m	.658	.911	.059	.103	.339	.462	.276	.500	.318	.558
EE-m	.546	.815	.063	.053	.265	.401	.216	.351	.248	.430
FO-m	.615	.856	.083	.071	.306	.426	.224	.443	.291	.532
PI-f1	.027	.003	.596	.153	.225	.098	.208	.064	.044	.068
PI-f2	.114	.060	.698	.272	.081	.016	.167	.015	.023	.011
PI-f3	.071	.039	.636	.257	.131	.074	.175	.041	.078	.049
PI-f4	.063	.050	.598	.235	.165	.137	.188	.070	.051	.083
PI-f5	.072	.079	.630	.309	-.005	-.061	.050	-.038	.009	.034
PI-f6	.053	.049	.679	.287	.082	.048	.133	-.007	.054	.032
PI-f7	.082	.051	.683	.295	.079	-.017	.069	-.035	.010	.001
PI-f8	.110	.020	.640	.196	.140	.067	.182	.015	.062	.059
PI-f9	.075	.074	.428	.194	.135	.085	.121	.126	.108	.126
PI-m1	.087	.088	.195	.536	.069	.202	.111	.127	.076	.140
PI-m2	.016	.025	.248	.561	.049	.045	.025	.036	-.061	.046
PI-m3	.050	.018	.292	.569	.109	.051	.071	.073	-.002	.040
PI-m4	-.027	-.028	.150	.476	.022	.072	.027	.105	-.046	.043
PI-m5	.108	.106	.234	.528	-.001	.006	.019	.081	.039	.076
PI-m6	.037	.046	.288	.645	.022	.107	.024	.117	.112	.141
PI-m7	.044	.066	.206	.639	.000	.127	.011	.136	-.021	.074
PI-m8	.045	.088	.143	.523	.004	.056	.000	.053	.025	.067
PI-m9	-.029	.002	.062	.371	-.026	.048	-.016	.055	.016	.046
EFI-f	.082	.135	.006	-.047	.589	.414	.309	.244	.092	.139
KP-f	.446	.354	.205	.098	.914	.502	.592	.364	.429	.409
EFI-m	.354	.412	.051	.099	.600	.913	.380	.545	.188	.449
KP-m	.478	.504	.078	.176	.482	.923	.368	.552	.320	.539
PKP-f	.412	.284	.240	.062	.617	.405	.934	.504	.500	.374
WEB-f	.311	.221	.165	.056	.507	.337	.900	.456	.445	.290
PKP-m	.347	.488	.029	.139	.424	.598	.484	.919	.267	.593
WEB-m	.318	.440	.032	.162	.308	.491	.475	.908	.282	.542
PI-f	.403	.284	.075	.035	.347	.236	.444	.262	.918	.457
POL-f	.364	.271	.055	.029	.368	.273	.500	.285	.900	.416
PI-m	.479	.554	.069	.132	.360	.483	.321	.576	.448	.936
POL-m	.446	.539	.068	.135	.378	.526	.363	.585	.450	.932

Description: PMB f: Parental Motivational Beliefs father; PMB m: Parental Motivational Beliefs mother; SN f: *Subjective Norms* father; SN m: *Subjective Norms* mother; PP f: Parental Perceived Life Context father; PP m: Parental Perceived Life Context mother; PE f: Parental Expectations father; PE m: Parental Expectations mother; PI f: *Parental participation* father; PI m: *Parental participation* mother.

HTMT Analysis

In addition to cross-loadings, the Heterotrait-Monotrait Ratio (HTMT) of correlations was used. All HTMT values were below the .85 threshold, with the highest being .812, confirming discriminant validity across all constructs as presented in Table 4 (Schuberth et al., 2023).

Construct Reliability and Validity

The constructs in this study showed acceptable values for Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). As shown in Table 5, all CR values were above .80 and AVE values above .5, confirming reliability and convergent validity (Goretzko & Bühner, 2020; Rebellon, 2021; Trendafilov & Hirose, 2022).

Assumption Testing

Normality Test

A normality test using descriptive statistics was performed on 507 participants. Kurtosis values exceeded ±2.58 for some indicators, indicating non-normal distribution. However, SEM-PLS (Structural Equation Modeling Partial Least Squares) did not require multivariate normality (Hair et al., 2019). As a variance-based method, SEM-PLS was robust to non-normal data and suitable for predictive modeling (Akter et al., 2017; Yuan & Deng, 2021).

Coefficient of Determination (R^2)

The structural model was evaluated using R^2 values for endogenous constructs as indicated in Table 6.

Multicollinearity Test

Multicollinearity was assessed via the Variance Inflation Factor (VIF). All inner VIF values were < 5, indicating no multicollinearity issues (Ringle et al., 2020). For instance, the correlation between Parental Motivational Beliefs (mother) and Parental Expectations (father) was .461, far below the .90 threshold.

Model Fit Evaluation

Model fit indices were used to assess the overall quality of the structural model. The model fit indices were evaluated using several criteria. SRMR was .066, which was in the acceptable limit of < .08, indicating a good model fit (Yamin, 2021). The most common model accuracy index was the Chi-Square value (Zheng & Bentler, 2024). The Chi-Square test results were significant, with a value of 2735.538 ($p > .05$), further supporting model fit. Normed Fit Index (NFI) was a comparison of the proposed model with the null model. The expected NFI value was ≥ .9, signifying a good fit (Cai et al., 2023; Stone, 2021). In this present study, NFI was .906, further suggesting a good fit.

Hypothesis Testing

Hypotheses (Structural Model)

The structural model explored how parents' motivational beliefs, perceived life context, and subjective norms influenced parental participation through parental expectations using dyadic analysis with APIMeM. Table 7 further presents the indirect effects with standardized coefficients (β), standard error, p-values, and t-statistics. All 12 hypothesized indirect paths were statistically significant ($p < .05$), reflecting both actor and partner effects. Among the 12 hypothesized indirect effects, all were found statistically significant ($p < .05$). This confirmed that both actor- and partner-mediated paths were relevant in explaining parental participation through expectations correlating with APIMeM assumptions. Based on the hypothesis, Actor effects referred to the paths from each parental predictors to the participation via expectations while Partner effects were the Cross-partner paths (e.g., father to mother, mother to father). These results confirmed the significance of both actor and partner influences in dyadic relationships, with parental expectations acting as a key mediator.

Discussion

The main objective of this study is to develop a model of parental participation in the early literacy of children aged 4-6 years, shaped by parental perceived life context, subjective norms, parental motivational beliefs, and expectations as dyadic mediator. The specific aim is to analyze the dynamics between couples and the processes driving parental participation in children's early literacy, using TPB theoretical framework. The results showed complex dynamics between mothers' motivational beliefs, subjective norms, and perceptions of life context mediated by expectations of participation in children's early literacy.

Actor Effect: Mothers

The results showed that mothers' motivational beliefs, subjective norms, and perceived life context influenced mothers' participation in early literacy, predominantly through mothers' expectations.

First, the beliefs indirectly reduced engagement due to the negative mediating effect of expectations, despite motivational beliefs generally supporting parental participation (Rima et al., 2016; Wu & Hindman, 2024). High expectations may create psychological pressure, contributing to mothers' stress

Tabel 4
HTMT Analysis

	PEF	PEM	PIF	PIM	PMBF	PMBM	PPF	PPM	SNF	SNM
PEF										
PEM	.790									
PIF	.145	.100								
PIM	.128	.134	.501							
PMBF	.612	.568	.427	.276						
PMBM	.533	.589	.135	.216	.812					
PPF	.461	.324	.281	.101	.730	.498				
PPM	.430	.602	.092	.213	.737	.738	.648			
SNF	.495	.362	.103	.117	.641	.346	.645	.378		
SNM	.565	.673	.100	.176	.647	.647	.435	.751	.584	

Description: PMB f: Parental Motivational Beliefs father; PMB m: Parental Motivational Beliefs mother; SN f: *Subjective Norm*s father; SN m: *Subjective Norm*s mother; PP f: Parental Perceived Life Context father; PP m: Parental Perceived Life Context mother; PE f: Parental Expectations father; PE m: Parental Expectations mother; PI f: *Parental participation* father; PI m: *Parental participation* mother.

Table 5
Construct Reliability and Validity

	Cronbach's Alpha	*rho_A*	*Composite Reliability*	*Average Variance Extracted (AVE)*
PEF	.898	.904	.925	.711
PEM	.879	.889	.912	.676
PIF	.804	.807	.853	.621
PIM	.849	.860	.876	.611
PMBF	.905	.913	.930	.870
PMBM	.813	.851	.913	.841
PPF	.813	.835	.914	.841
PPM	.802	.804	.910	.834
SNF	.891	.795	.905	.827
SNM	.853	.854	.932	.872

and disengagement (Rizk, 2020; Xin & Yu, 2024). Unrealistic educational and emotional expectations for children often lead to mothers' anxiety and reduced participation in literacy activities (Sanders et al., 2023).

Second, subjective norms which were traditionally connected with increased engagement showed a negative indirect effect via expectations. Social comparisons and perceived parental duties can become burdensome, specifically for working mothers with limited time (Attanasio et al., 2019; Li et al., 2020). Lastly, perceived life context does not directly influence mothers' participation but negatively affects it through expectations. Even when mothers perceived supportive environments, external stressors such as work overload and limited social support reduced actual participation (Gu et al., 2025; Hernawati et al., 2020). These results suggested that for mothers, expectations could act as a double-edged sword by motivating in theory but demotivating in practice under pressure.

Table 6
R Square

Variable	R Square
PEF	.583
PEM	.410
PIF	.197
PIM	.050
PMBM	.258
PPF	.276
SNF	.231

Actor Effect: Fathers

Fathers' participation in early literacy is significantly influenced by motivational beliefs, subjective norms, and perceived life context with expectations acting as a key mediator. First, motivational beliefs positively influence paternal participation through expectations. Fathers who internalize a strong sense of responsibility and recognize the role in children's education are more engaged in literacy activities

(Hernawati et al., 2020; Rima et al., 2016). These beliefs are often shaped by education level, evolving fatherhood roles, and psychological commitment to parenting (Fagan, 2021; Sari et al., 2023; Ziyoda, 2024). Highly motivated fathers also tend to hold greater expectations for children's academic success, which in turn enhances the participation (Mancini et al., 2024; Putri & Alfiasari, 2023).

Second, subjective norms are found to exert a negative effect on paternal participation through expectations. Cultural norms that define fathers primarily as breadwinners can create internal conflict or disengagement from caregiving roles (Munajat, 2022; Wulandari & Shafarani, 2023). Although certain fathers may feel a moral obligation to support children's education, these expectations can be constrained by time pressures and societal stereotypes (Bussa et al., 2018; Weir et al., 2023).

Finally, perceived life context positively affects paternal participation through expectations. Fathers who perceive sufficient support such as time, financial resources, and emotional connection with children are more inclined to participate in literacy activities (Hemmerechts et al., 2016; Pancarrani et al., 2017). Higher education and stronger co-parenting relationships also enhance both expectations and engagement (Varghese & Wachen, 2015; Ziyoda, 2024).

Partner Effect: Mothers to Fathers on Children's Early Literacy

Mothers' beliefs, subjective norms, and perceived life context influence paternal participation in early literacy indirectly through mothers' expectations. First, mothers' motivational beliefs indirectly affect paternal participation through expectations. Mothers with strong literacy beliefs tend to communicate higher expectations to fathers, which can motivate greater paternal engagement (Brillante et al., 2024; Storm et al., 2022). Although fathers are typically more influenced by internal motivations (Falanga & Gonida, 2022; Sari et al., 2023), mothers' expectations may act as a catalyst, particularly when conveyed with clarity and shared responsibility (Yu et al., 2015; Zhan et al., 2022).

Second, mothers' subjective norms reflecting perceived social expectations positively influence fathers through expectations. When mothers internalize cultural or familial norms about fathers' roles in education, these beliefs often get communicated to fathers, prompting increased engagement (McGill, 2014; Novianti et al., 2023; Simonova et al., 2023). Although statistically significant, the effect size remains modest suggesting other factors may moderate this influence.

Third, mothers' perceived life context such as socioeconomic status, educational background, and available support is positively associated with paternal participation through expectations. Mothers with a favorable view of life context tend to develop higher expectations for children's literacy, which in turn motivates paternal participation (Nurjanah & Hernawati, 2024; Rezaeizadeh et al., 2024). Engaged mothers help foster a supportive co-parenting environment that motivates fathers to take part in early literacy efforts (Chen et al., 2023; Ratka-Pauler et al., 2024). Overall, although fathers' internal beliefs remain the primary drivers of the participation, mothers' expectations shaped by her beliefs, norms, and life context play a complementary and facilitating role in enhancing paternal participation in children's literacy.

Father to Mother on Children's Early Literacy

Paternal beliefs, subjective norms, and perceived life context influence mothers' participation in early literacy indirectly through paternal expectations. First, although paternal motivational beliefs do not directly increase mothers' participation, they influence it indirectly through expectations. Fathers who value education tend to develop higher expectations for their children, which may shape mothers' attitudes and participation (Han et al., 2024; Zahira & Alfiasari, 2023). However, mothers' participation remains more strongly tied to internal and situational factors, such as time, energy, and confidence (Kigobe, 2019), limiting the direct impact of paternal motivation. Cultural norms in Indonesia often position mothers as the primary caregivers, reinforcing their autonomy in literacy-related decisions regardless of fathers' beliefs (Fatonah, 2020; Liu & Chung, 2022).

Second, paternal subjective norms reflecting societal and cultural expectations affect mothers' participation indirectly by shaping the expectations. Fathers who perceive strong social pressure to be engaged may communicate higher standards or parenting objectives, which can motivate mothers to correlate the literacy participation accordingly (Huang et al., 2022; Law et al., 2024). However, these norms may also be constrained by traditional gender roles that discourage shared responsibility in early learning (Alsanea, 2024; Enemuo & Obidike, 2013), making the influence on mothers' behavior subtle and context-dependent.

Third, fathers' perceived life context plays a significant role in reducing mothers' participation through lowered expectations. When fathers experience stress, financial hardship, or perceive a lack of support, this can negatively impact the parenting outlook, increase mothers' stress, and lower

Table 7
Hypothesis Testing

Hypothesis	β	*Standard Error*	p-*value*	*T-statistic*	Conclusion
Actor Effects (Mother)					
[1] PMBM→ PEM→ PIM	-.112	.015	.042	1.979	*Significant*
[2] SNM→PEM→PIM	-.023	.027	.044	1.961	*Significant*
[3] PPM→PEM→PIM	-.051	.016	.043	1.964	*Significant*
Actor Effects (Father)					
[4] PMBF→PEF→PIF	.092	.007	.047	1.967	*Significant*
[5] SNF→PEF→PIF	.132	.009	.018	2.249	*Significant*
[6] PPF→PEF→PIF	.083	.012	.046	1.961	*Significant*
Partner Effects (Mother to Father)					
[7] PMBM→ PEM→ PIF	.095	.014	.046	1.971	*Significant*
[8] SNM→ PEM→ PIF	.081	.025	.047	1.961	*Significant*
[9] PPM→ PEM→ PIF	.061	.014	.045	1.964	*Significant*
Partner Effects (Father to Mother)					
[10] PMBF→ PEF→ PIM	.116	.006	.016	2.259	*Significant*
[11] SNF→ PEF→ PIM	.341	.009	.041	2.074	*Significant*
[12] PPF→ PEF→ PIM	.082	.012	.045	1.963	*Significant*

Description: PMB f: Parental Motivational Beliefs father; PMB m: Parental Motivational Beliefs mother; SN f: *Subjective Norm*s father; SN m: *Subjective Norm*s mother; PP f: Parental Perceived Life Context father; PP m: Parental Perceived Life Context mother; PE f: Parental Expectations father; PE m: Parental Expectations mother; PI f: *Parental participation* father; PI m: *Parental participation* mother.

the overall quality of co-parenting (d'Orsi et al., 2023; O'Gara, 2024). These pressures may lead fathers to set lower expectations for children's literacy development, indirectly dampening mothers' participation. Conversely, supportive family dynamics and equitable gender beliefs in the partnership can buffer these effects and foster greater mothers' participation (Solana et al., 2018; Fang et al., 2021; Nurjanah & Hernawati, 2024).

Overall, while mothers' literacy participation is primarily driven by personal and contextual factors, fathers' expectations which are shaped by personal beliefs, social norms, and life conditions can play a facilitative or constraining role. The influence underscores the importance of examining parental dynamics as an interconnected system rather than isolated contributions.

This study has limitations that can be considered for future publications. The model does not consider other demographic factors, such as family culture, working and non-working mothers, dual career families, long-distance marriage between spouses, the quality of parent-child interactions, or the level of external support from schools or communities. Although the study includes a substantial number of father-mother dyads, the data collection is geographically limited to kindergartens in Surabaya, Indonesia. This limits the generalizability of the results to broader populations. Future publications are motivated to replicate this study across diverse regions and cultural contexts in Indonesia. Moreover, considering the deeply contextual and meaning-laden nature of parental beliefs and expectations, incorporating qualitative data such as in-depth interviews or focus groups can enrich the interpretation and offer more practical insights.

The analysis offers important theoretical and practical implications for developing parental participation in early literacy for children aged 4-6. Theoretically, it contributes to the literature by introducing a conceptual model that includes parental life context, subjective norms, motivational beliefs, and parental expectations (as a mediator). The use of dyadic APIMeM provides a significant method to understanding the dynamics of parental participation, specifically in how fathers and mothers interact offering an alternative framework for developing parental participation. In terms of psychological theory, the analysis enhances the understanding of parental participation by using TPB, integrating motivational beliefs, subjective norms, and life context to explain parental participation. Introducing dyadic method in family publication is also a key contribution, allowing future studies to explore the simultaneous interactions between fathers and mothers in parenting and education.

This study contributes to the development of the theory of parental participation in early literacy based on TPB using dyadic analysis. The method outlines the importance of viewing parental participation holistically not merely as individual efforts but a mutually influential partnership between parents. Based on the results, future publications is motivated to explore additional variables that may affect parental

participation, such as cultural factors, parenting styles, spousal interactions, specifically in dual-career families or long-distance marriages, and levels of external support from schools or communities not considered in this study. The development of a more complex model can provide deeper insights into the roles of various factors in promoting joint parental participation and allow for testing the generalizability of this model in broader or different contexts.

For parents, this study outlines the importance of active engagement in early literacy, such as reading with children and providing reading materials at home. The results also motivated collaboration between early childhood education teachers and parents as well as the development of parental participation modules to support children's literacy. For the government, the analysis serves as a reference in developing policies that motivate parental participation by providing training or literacy support programs. This study is also relevant in raising public awareness about the importance of parental role in children's literacy and can be used to develop a curriculum that focuses more on parental participation to enhance early literacy development. The model also provides a framework for designing training programs that help parents develop realistic expectations for children's education and improve motivational beliefs for literacy engagement. Social support from the surrounding environment is also considered important, and intervention programs should further include the community to help create positive norms regarding parental participation. Parenting programs including fathers and mothers are also considered more effective in supporting children's literacy.

Conclusion

In conclusion, this study showed that parental participation in the early literacy of children aged 4-6 years was significantly influenced by parental motivational beliefs, subjective norms, perceptions of parental life context, with parental expectations serving as a mediating factor correlating with TPB framework. APIMeM dyadic model further showed the interaction between fathers and mothers in influencing each other's participation. Factors that increased mothers' participation included beliefs that the engagement was a positive thing for mothers, expectations, and subjective norms. For couples, influencing factors included fathers' expectations and perceptions of the life context, while mothers' beliefs significantly influenced the participation in children's literacy. Furthermore, mothers who believed that participation was positive had the responsibility to be more actively engaged in children's literacy activities. Mothers' expectations were found to negatively affect the participation level, suggesting that overly high expectations could inhibit increased engagement. Fathers' expectations also influenced mothers' expectations, which could increase the engagement in children's literacy. Fathers' expectations of mothers' role in children's literacy provided an additional boost to mothers' participation.

Factors that increased father participation included the beliefs, perception of life context in terms of time, energy and knowledge, subjective norms, expectations, perception of mothers' life context, and the expectations. Fathers' motivational beliefs also had a significant effect on fathers' participation in children's literacy. The stronger the beliefs about the importance of participation in children's education, the more active fathers were in literacy activities. Fathers' perceptions of life including available time further increased the participation in children's literacy. Mothers' social norms significantly motivated fathers' participation in children's literacy. Furthermore, social expectations from mothers that fathers should be engaged could provide encouragement for fathers to get engaged. Mothers' expectations about children's education had a significant influence on fathers' participation. When mothers possessed expectations for children's literacy development, fathers tended to conform to these expectations and engage more actively in literacy activities.

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