

Factor analysis of parents' and teachers' involvement on the primary school quality: Public school versus private school

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Abstract

Collaboration between parents and teachers in the education phase is crucial because primary school-age children still spend a lot of time at home with their parents. This study aims to examine the dimensions of the role of parents and teachers in the quality of education in both public and private primary schools. Subsequently, this research will explore the factors that significantly impact the quality of education and draw comparisons between public and private schools. Ten school principals, 60 teachers, and 1,168 parents from 10 Indonesian schools (5 public schools and five private schools) were among the total participants. The study results show that the difference between public and private schools lies in the role of the teacher. The role of parents is where the two schools share similarities. This study emphasizes the crucial role of collaboration between teachers and parents in enhancing educational quality in primary schools.

La collaborazione tra genitori e insegnanti nella fase educativa è cruciale poiché i bambini in età scolare trascorrono ancora molto tempo a casa con i loro genitori. Questo studio mira ad esaminare le dimensioni del ruolo dei genitori e degli insegnanti nella qualità dell'istruzione sia nelle scuole elementari pubbliche che private. Successivamente, la ricerca esplora i fattori che influenzano significativamente la qualità dell'istruzione e trae confronti tra le scuole pubbliche e private. Lo studio ha coinvolto dieci presidi scolastici, sessanta insegnanti e millecentosessantotto genitori di dieci scuole indonesiane (cinque pubbliche e cinque private). I risultati dello studio

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mostrano che la differenza tra scuole pubbliche e private risiede nel ruolo dell'insegnante, mentre il ruolo dei genitori è simile tra le due tipologie di scuole. Questo studio sottolinea il ruolo cruciale della collaborazione tra insegnanti e genitori nel migliorare la qualità educativa nelle scuole elementari.

Keywords: confirmatory factor analysis; feedback; parent involvement; teacher role; Structural Equation Model

Parole chiave: analisi fattoriale confermativa; feedback; coinvolgimento dei genitori; ruolo dell'insegnante; modello di equazioni strutturali

1. Introduction

Primary schools are often the first educational institutions children experience (Frutos, 2017). In the USA, they serve children aged 3-5 years, prioritizing physical and emotional development through hands-on activities and social interactions (Barnett, 2010). In Japan, preschool education for this age group, referred to as ‘touching’, emphasizes basic ethics and body functions, including practical tasks like washing dishes and planting (Hayashi & Tobin, 2017; Imoto, 2007). Unlike these countries, many areas in Indonesia lack preschools, leading children to start their education directly in Primary School without prior preschool experience (Guswandi, 2021). Consequently, Primary School marks the transition from family-based education to formal education by teachers, prompting significant cognitive and behavioral changes in children (Gil Madrona & Samalot-Rivera, 2014; Howard & Ferrari, 2022).

Slavin (2018) delineates two phases of childhood cognitive development: concrete operations, occurring from ages 7 to 11 (grades 1-5), and formal operations, from ages 11 to 12 (grades 5-6). Each child’s cognitive growth is shaped uniquely by factors like nutrition, genetics, education, and environment (Hyun et al., 2020). Eggen & Kauchak (2016) describe Primary School children aged 5 to 12 navigating the industry versus inferiority stage, where success fosters feelings of competence (Braaten, 2018). Children engage more with peers and academic pursuits during this stage, where achievements enhance their self-esteem, while setbacks may lead to feelings of inadequacy (Marcia, 2009; Sun & Sun, 2021).

Teachers and parents are pivotal in fostering successful child development in Primary Schools, with teachers assuming full responsibility for students (Smith, 2020). Their guidance is crucial in shaping children’s developmental trajectories. Bullying and pornography are prevalent deviant behaviors among children today (Nadeem et al., 2021; Öçal et al., 2021). Guo & Kilderry (2018) attribute bullying in Primary Schools to children’s immature understanding of social boundaries (Rouse & O’Brien, 2017). Wolf’s (2020) research highlights that children begin accessing pornography online as early as age 7 due to widespread internet access at home and school (Crosnoe & Ansari, 2015). Data from the Indonesian Child Protection Commission underscores this trend, revealing that 72% of Indonesian schoolchildren already own personal gadgets, necessitating vigilant supervision and guidance from both teachers and parents. When the child is at home, the parents carry out the teacher’s responsibility (Magumise & Sefotho, 2020). Parents play a role in supervising and accompanying children at home. This is because children at home must continue the education process in schools (Orozco-Oliveros, 2022). At this point, the role of parents becomes crucial, as teachers are unable to oversee their children’s learning activities at home.

Much empirical evidence shows that parental involvement in children’s education is significant. However, implementing parental involvement in children’s school education requires effort. According to Fullan (2015), there are many phenomena of mutual distrust between teachers and parents. Teachers and parents often blame each other when negative behavior occurs among students. When one party, whether the teacher or the parents, cares about the child’s education, the process will not run optimally. Parents and teachers must work together to create an optimal education for children.

The status of the school also influences the relationship between teachers and parents in children’s education. The research results by Glick & Sahn (2006) show that private schools have programs to facilitate communication between teachers and parents. Even Ekowati & Suwandayani (2021) search found that several private Primary Schools in Indonesia have a unique Learning Management System (LMS) for parents to guide their children’s learning process at home. This contrasts with the conditions that occur in public schools. The results of research by Yavich & Davidovitch (2020) state that there are many cases of parents distrusting teachers and vice

versa. This resulted in instances where parents physically assaulted teachers, refusing to accept their children's punishment. This shows an unequal relationship between parents and teachers in public and private Primary Schools.

Researchers have conducted studies on the quality of education in Primary Schools, and the findings of Woodhouse (2021) and Yamaguchi & Tsukahara (2016) indicate that school leadership plays a crucial role in enhancing the quality of education in Primary Schools. The primary data source for these quantitative, non-experimental studies was student questionnaires. Other research findings from Matejevic et al. (2014); & Zolkoski et al. (2018) demonstrate the ongoing need to enhance the role of parents in Primary School education. This minimal parental role causes frequent misunderstandings between parents and teachers regarding child development. The search results indicate that poor communication between parents and teachers is the root cause of these misunderstandings. We conducted this case study research by observing and interviewing parents and teachers, who were the primary subjects. In this study, researchers attempted to determine the role of parents and teachers in the quality of education in Primary Schools.

So far, research has yet to examine how decisive the role of parents and teachers is in the quality of education. Researchers will employ the factor analysis method to determine the dominant role of parents and teachers, as well as the correlation between these variables and the quality of education in Primary Schools. Additionally, the researchers will compare the factor analysis results from both public and private schools. Researchers conducted this analysis to identify potential differences in the dynamics between teachers and parents in public and private schools. To focus the research, the researchers formulate three research questions as follows:

1. How is the validity and reliability of the factor structure formed to measure the roles of parents, teachers, and school quality?
2. Which factor, among the roles of parents and teachers, has a greater influence on the quality of education in Primary Schools?

How does the interaction between the roles of teachers and parents affect the quality of education in Primary Schools in mediation and moderation analysis?

2. Literature review

2.1 Trends in parent and teacher involvement in schools

Ivan Illich, a philosopher of education, advocates for parents' active involvement in their children's education through informal processes that integrate the student's environment, friends, and family (Cunha et al., 2015). He argues that education is optimal when the teacher's knowledge does not dominate the child's learning experience. The development of the digital world enhances this involvement by providing parents easy access to information about effective learning methods and school quality (Fullan, 2015). This increased curiosity and engagement from parents are crucial, especially beyond Primary School, as parents, who spend significantly more time with their children than teachers, play a vital role in bridging school knowledge with real-life experiences, thus contributing to the success of the educational process.

Several research results have proven that the "closer" the relationship between parents and schools is, the greater the positive impact on children's learning achievement, as it fosters better communication, collaboration, and support for the child's academic and personal development (Allen & Anderson, 2020; Matejevic et al., 2014; Sapungan & Sapungan, 2014). Research by Leocardia et al. (2017) suggests that parental involvement impacts self-regulation and academic achievement. According to Zolkoski et al. (2018), parental involvement refers to parents' perception of their active participation in play and free time, as well as their significant contributions

to care and supervision (Li & Fischer, 2017). Grolnick and Slowiaczek in Đurišić & Bunijevac (2017) describe parental involvement in four dimensions, namely involvement in school, involvement at home, involvement in the child's personal life, and involvement in cognitive activities (Hornby & Lafaele, 2011). Meanwhile, Epstein (Fullan, 2015) divides parental involvement in detail into six types: parenting, communication, volunteering, home learning, making decisions, and working with the community. According to Leocardia et al. (2017), children whose parents participate in school activities have exemplary school achievements.

The relationship between schools and parents is developing positively, with both recognizing their shared goal of enhancing children's knowledge. This has led to stronger collaboration through school committees and parental involvement in curriculum and program decisions. According to Coleman, this involvement has three implications: (1) for teachers, parental supervision in preparing prior knowledge allows them to teach more complex subjects; (2) for students, a positive teacher-parent relationship boosts their confidence in communicating about school; and (3) for parents, information on learning quality, teacher professionalism, and school facilities helps them adjust parenting practices at home (Fullan, 2015).

Epstein and Dauber, as cited in Fullan (2015), identify six models of parent and school involvement that enhance educational outcomes. The first model, *Parent Skills*, involves activities that improve parental understanding of child development, providing information on health, safety, and nutrition, while also informing schools about family parenting methods. The second model, *Communications*, emphasizes two-way communication between school and home, including parent-teacher meetings, phone calls, emails, websites, and report card pickups. This ensures alignment between teachers and parents, demonstrating to children that their education is a collaborative effort. The third model, *Volunteering*, involves direct parental support in school activities, such as assisting in classrooms, libraries, and on field trips, tailored to the parents' skills.

In the fourth model, *Learning at Home*, parents engage in their children's education by helping with homework and reading educational books, ensuring continuity between home and school learning. *School Decision Making* is the fifth model, where parents participate in school committees or parent-teacher associations, reflecting their investment in the educational institution. The sixth model, *Collaboration with Community Agencies*, involves joint efforts among parents, teachers, students, and community members to improve school quality through health services, cultural events, and recreational programs. These models highlight the importance of varied parental involvement in enhancing educational outcomes, creating a robust support system that fosters student success.

2.2 The role of parents and teachers on the quality of education

Parents play a crucial role in ensuring their children's educational success through various actions. They can integrate educational values into daily life, fostering ethical and religious behaviors that children emulate (Sapungan & Sapungan, 2014). Spending dedicated time on their children's studies, encouraging seriousness in learning, and monitoring educational progress are vital. Additionally, selecting high-quality schools and providing necessary educational resources within economic means further supports children's educational development (Hornby & Lafaele, 2011; Tubbs & Garner, 2008). Strong parental involvement significantly enhances children's learning outcomes, motivating them to pursue higher education (Cohen et al., 2020), underscoring the pivotal role of parents in their children's education. Parents play a role in the moral and material aspects of preparing students before studying at school. Maintaining communication with teachers at school will help parents control their children's behavior outside the home. In addition, with good communication, early detection of deviant behavior that students might exhibit will also be possible. Furthermore, parents can

gain knowledge about the talents and interests of students in schools, enabling them to enhance their children’s potential. Good collaboration between parents and teachers will improve the quality of children’s educational experiences.

3. Method

This study employs a quantitative explanatory approach using factor analysis as the primary method to investigate the involvement of parents and teachers in the quality of primary schools, comparing public and private institutions (David & Todd, 2016). Factor analysis is particularly suited to this research because it allows for the identification of underlying relationships between multiple observed variables, which in this case are related to parental and teacher involvement. Additionally, factor analysis helps in understanding the complex interrelations and in clustering variables that have similar patterns of responses, which strengthens the analysis of the differences and similarities between public and private school settings. Given the multifaceted nature of school quality, factor analysis is an appropriate choice as it allows the research to uncover latent structures that may not be immediately observable with other analytical methods.

3.1 Participants

Participants in this study were selected from five public and five private Primary Schools in Indonesia through purposive sampling based on accreditation, number of students and teachers, and willingness to participate. The study involved 1,168 parents (507 from public and 661 from private schools), 60 teachers (30 from public and 30 from private schools), and 10 school principals (5 from public and 5 from private schools). Teachers were categorized by scientific fields, employment status, certification status, and years of service. The inclusion of these diverse groups ensures a comprehensive analysis of the roles and influences within the educational environment. Details of participant distribution are provided in Tables 1 and 2 below:

Table 1. Distribution of participants from public schools

<i>Aspect</i>		<i>Sum</i>	<i>(%)</i>
<i>Parent</i>			
Last Education	Primary School	107	21.1
	Middle school	32	6.3
	High school	213	42.0
	Diploma	18	3.6
	Bachelor	128	25.2
	Postgraduate	9	1.8
Total		507	100.0
Parents Income	< 1 million	92	18.1
	1-3 million	193	38.1
	3-5 million	120	23.7
	5-7 million	61	12.0
	7-9 million	23	4.5
	9-10 million	14	2.8

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	≥ 10 million	4	0.8
Total		507	100.0
Teacher			
	Departement of Primary		
Education Field	School	19	63.3
	Other	11	36.7
Total		30	100.0
Employment Status	Civil servant	18	60.0
	Non-Civil servant	12	40.0
Total		30	100.0
Certification Status	Certification	21	70.0
	Not Certified yet	9	30.0
Total		30	100.0
Working Period	≤ 5 years	10	33.3
	6-10 Years	5	16.7
	11-15 Years	7	23.3
	≥ 16 Years	8	26.7
Total		30	100.0
Head School			
Working Period	≤ 5 years	2	40
	6-10 Years	0	0
	11-15 Years	1	20
	≥ 16 Years	2	40
Total		5	100
Length of ser- vice	≤ 1 year	2	40
	2-5 Years	1	20
	6-9 Years	2	40
	≥ 10 Years	0	0
Total		5	100

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Table 2. Distribution of participants from private schools

<i>Aspect</i>		<i>Sum</i>	<i>(%)</i>
<i>Parent</i>			
Last Educa- tion	Primary School	93	14.1
	Middle school	42	6.4
	High school	327	49.5
	Diploma	16	2.4
	Bachelor	169	25.6
	Postgraduate	14	2.1
Total		661	100.0
Parents In- come	< 1 million	69	10.4
	1-3 million	268	40.5
	3-5 million	153	23.1
	5-7 million	102	15.4
	7-9 million	38	5.7
	9-10 million	24	3.6
	≥ 10 million	7	1.1
Total		661	100.0
<i>Teacher</i>			
Field Scien- tific	Departement of Primary School	8	26.7
	Other	22	73.3
	Total	30	100.0
Employment Status	Civil servant	8	26.7
	Non-Civil servant	22	73.3
Total		30	100.0
Certification Status	Certification	13	43.3
	Not Certified yet	17	56.7
Total		30	100.0
Working Pe- riod	≤ 5 years	12	40.0
	6-10 Years	7	23.3
	11-15 Years	7	23.3
	≥ 16 Years	4	13.3

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Total		30	100.0
Head School			
Working Pe- riod	≤ 5 years	0	0
	6-10 Years	2	40
	11-15 Years	3	60
	≥ 16 Years	0	0
Total		5	100
Length of ser- vice	≤ 1 year	3	60
	2-5 Years	1	20
	6-9 Years	1	20
	≥ 10 Years	0	0
Total		5	100

Tables 1 and 2 compare teachers’ scientific fields in public and private schools. Most teachers in public Primary Schools have a background in primary school education (63.3%). On the other hand, 73.3% of private Primary School teachers have other educational backgrounds. Table 2 and Table 2 also contain information related to the last education and income of students’ parents. Regarding the last education, whether in public or private schools, most of the parents’ last education was high school or equivalent (42% for public schools and 49.5% for private schools). As for income, parents who send their children to public and private schools mostly have an income of 1-3 million (38.1% for public Primary Schools and 40.5% for private Primary Schools).

3.2 Data and measurement

We collected the data using a questionnaire that we converted into a Google Form. Teachers in each target school fill out the online form and then distribute it via WhatsApp. The teacher who provided the questionnaire link will distribute it to students and parents in their classroom. The researcher will directly provide a link to the principal. The drawback of using this platform is that researchers must check duplicate data (if it occurs) individually. However, this method is considered the most effective for collecting data with a broader range. The researcher adapted the questionnaire instrument from an established one, providing detailed explanations as follows:

The role of parents in primary school education

Researchers used the Engagement and Barriers Items instrument developed by Moreira et al. (2019) to see the variable role of parents. This questionnaire instrument contains 18 question items divided into three main dimensions. The target participants for this instrument is parents. The reliability of this instrument is 0.82. Detailed information related to the PIES instrument can be seen in Table 3 below:

Table 3. Dimensions of instrument engagement and barriers items

No	Dimension	Sum	Number
1	Engagement Scale	4	1-4
2	School Invitation Barriers Sub-Scale	8	5-12
3	Non-School Barriers Composite	6	13-18

The role of teachers in primary school education

To see the teacher’s role variable, researchers used the instrument The (AfLMi) developed by Davies (2005). This questionnaire instrument contains 15 question items divided into 3 main dimensions. The target participants for this instrument are teachers in each school. The reliability of this instrument is 0.79. Detailed information related to the AfLMi instrument can be seen in table 4 below:

Table 4. AfLMi instrument dimensions

No	Dimension	Sum	Number
1	Sharing learning intentions and success criteria	5	1-5
2	Questioning and classroom discussion	5	6-10
3	Peer- and Self-Assessment	5	11-15
4	Feedback	5	16-20

Primary school education quality

For the variable quality of education, researchers will use two instruments that look at quality from the point of view of the principal and from the point of view of the teacher. Researchers used the on-line Service Quality instrument developed by Wright (2013). This instrument contains 18 question items which are divided into 4 main dimensions namely Reliability, Contact, Tangibles, and Response. The main targets of this instrument are principals and teachers in the five target schools. The reliability of this instrument is 0.87. Instrument details can be seen in table 5 below:

Table 5. Dimensions of on-line service quality instruments

No	Dimension	Sum	Number
1	<i>Reliability</i>	4	1,6,8,9
2	<i>Contact</i>	6	2,4,7,10,12,14
3	<i>Tangibles</i>	4	3,5,16,18
4	<i>Response</i>	4	11,13,15,17

3.3 Data analysis

To analyze the research results, researchers used JASP software. The first research question (RQ) was about the validity and reliability of the factor structure made from the three variables used. The confirmatory factor analysis (CFA) method was used to answer it. Each variable has a different sample size; to determine acceptance of

the loading factor criteria, the researcher refers to Hair et al. (2019). In the CFA estimation model, researchers use the robust maximum likelihood estimation (RMLE) model. We base this estimation method on the Pearson correlation matrix if the observed variables represent data on an interval measurement scale. Upon meeting the assumptions, the ML method maximizes the likelihood function of the observed data to estimate the unknown model parameters. To ensure the validity and reliability of the items, researchers used the Hair et al. (2019) formula related to construct reliability (CR) and average variance extracted (AVE).

Furthermore, the researcher used structural equation modelling (SEM) analysis to answer the second RQ. Researchers will look at the distribution of factor loading on each item to determine which factor has the most decisive influence on the quality of education variable. Researchers utilized the JASP software, incorporating the syntax model from Rosseel (Polák et al., 2014). To address the final research question, the researcher used mediation and moderation analysis of the three variables.

5. Results

Confirmatory Factor Analysis has tested all data to see the validity and reliability of each factor. The CFA test results show that all factors are valid and reliable for SEM, Mediation, and Moderation Analysis.

5.1 Public primary school

To see which factor is stronger between the roles of parents and teachers on education quality, an SEM analysis was carried out using JASP software. Researchers will display a plot diagram and see the value of the loading factor on each path. Figure 1 shows the plot diagrams generated in the SEM analysis for data on public schools:

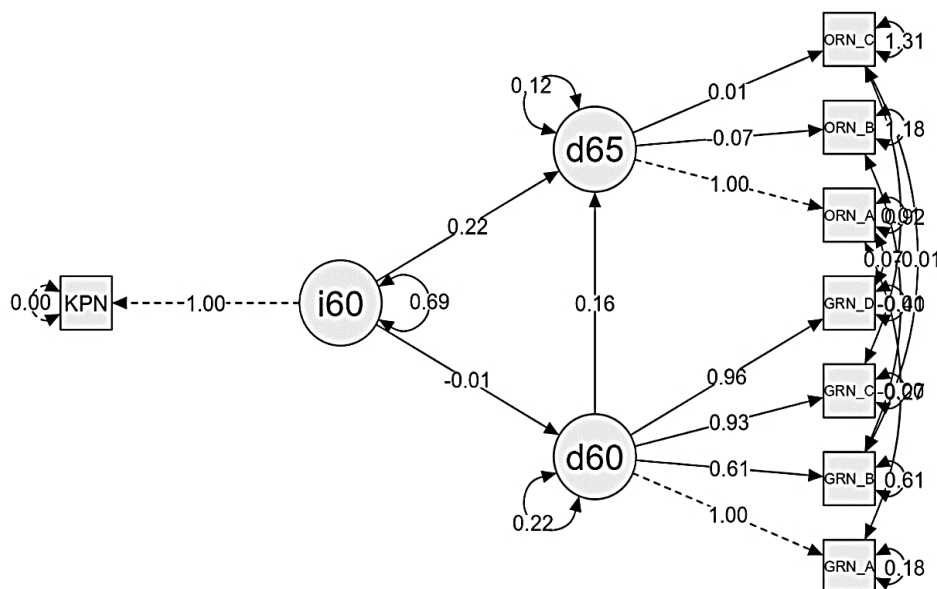


Figure 1. Plot diagram for data in public schools

In Figure 1, the ORN-symbolized role of parents positively influences the quality of education in public schools, with a factor loading value of 0.22. Conversely, the GRN-symbolized teacher’s role variable, with a factor

loading value of -0.01, negatively impacts the quality of education in Primary Schools. This suggests that parents have a greater influence on the quality of education in Primary Schools than teachers do. Even deeper, the indicator that most influences the positive role of parents on the quality of education is the Engagement Scale, with a loading factor value of 1.00. While the indicator that most influences the teacher’s negative role on the quality of education in state schools is sharing learning intentions and success criteria with a loading factor value is 1.00.

5.2 Private primary school

To see which factor is stronger between the roles of parents and teachers on education quality, an SEM analysis was carried out using JASP software. Researchers will display a plot diagram and see the value of the loading factor on each path. Figure 2 shows the plot diagrams generated in the SEM analysis for data on private schools:

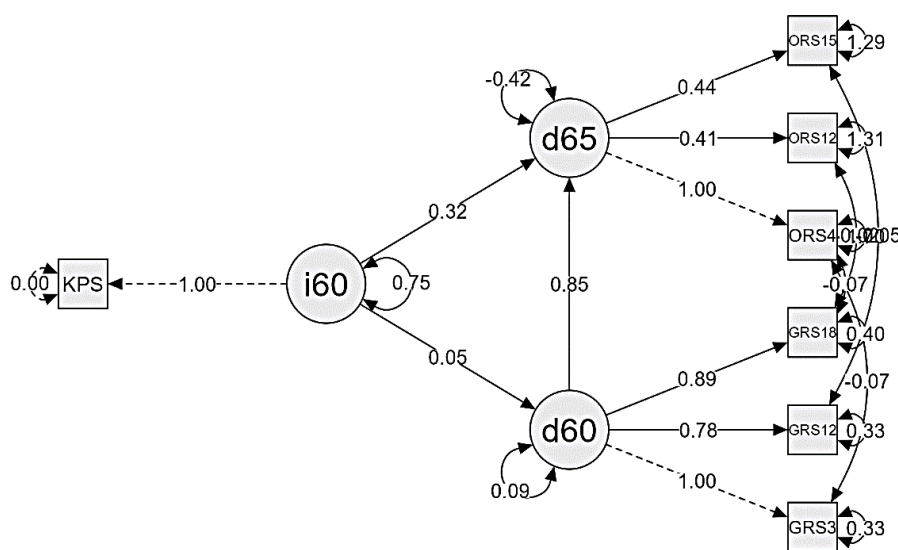


Figure 2. Plot diagram for data in private schools

Figure 2 shows that the loading value of the parental role factor, symbolized by ORS, influences the quality of education in public schools positively, with a value of 0.32. Meanwhile, the factor loading value for the teacher’s role variable, which GRS symbolizes, positively influences the quality of education in primary schools with a value of 0.05. This indicates that the role of parents significantly impacts the role of the teacher in influencing the quality of education in Primary Schools. Compared with the loading factor value data in public schools, the teacher’s role also positively affects the quality of education in Primary Schools. Thus, the relationship between teachers and parents in private schools is better than in public schools because both positively value the variable quality of education in Primary Schools.

Even deeper, the indicator that most influences parents’ positive role in the quality of education is the School Invitation Barriers Sub-Scale, with a loading factor value of 1.00. The indicator that most influences the teacher’s role in the quality of education in private schools is feedback, with a loading factor is 1.00.

5.3 Mediation and moderation analysis

To address the third research question, the researcher employed mediation and moderation analysis using the SPSS PROCESS software. The mediation and moderation variables tested were the roles of parents in the education of their children in Primary Schools. The results of the mediation analysis can be seen in Table 6 below.

Table 6. First path mediation output (teacher’s role → parent’s role)

Model	Coeff	Se	t	p
Contant	38.73	1.92	16.89	0.00
Teacher roles	0.03	0.06	-0.38	0.04

Source: SPSS PROCESS Data

The first path illustrates the influence of the teacher roles variable on the teacher readiness variable. From the output in Table 6, the coefficient of the first path is 0.03, indicating that the two variables have a positively correlated or mutually supportive relationship. The significance value *p* for the first path is 0.04, which is less than 0.05, indicating that the influence of the teacher role variable on the parent role variable is significant. For the second and third paths, the results of the mediation analysis can be seen in Table 7 below.

Table 7. Second path mediation output (role of parents → quality of education) and third (role of parents → quality of education)

Model	Coeff	Se	t	p
Contant	45.88	5.76	12.56	0.54
Teacher roles	2.21	0.04	24.61	0.04
Parent roles	0.02	0.09	-0.39	0.00

Source: SPSS PROCESS Data

Table 7 shows the output of the mediation analysis for the second and third paths. The second path illustrates the influence of the teacher role variable on the quality of education in Primary Schools. From the output above, the coefficient of the second path is 2.21, indicating that the two variables have a positive relationship. The significance *p*-value for the second path is 0.04, which is less than 0.05, indicating that the teacher role variable significantly influences the quality of education in Primary Schools. The third path illustrates the influence of the parent role variable on the quality of education variable. The coefficient value is 0.02, indicating that these two variables also have a positive relationship. The significance *p*-value for the third path is 0.00, which is less than 0.05, indicating that the parent role variable very significantly influences the quality of education in Primary Schools. From the output of the three paths above, it can be concluded that the parent role can mediate the relationship between the teacher role variable and the quality of education in Primary Schools. An illustration of the mediation analysis paths can be seen in Figure 3 below:

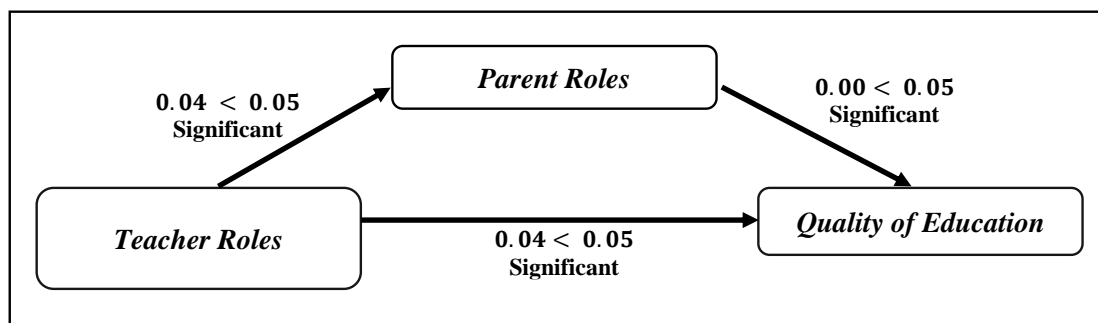


Figure 3. Mediation analysis path

Figure 3 shows that all three variables have significant relationships. However, the direct significance value of the teacher role on the quality of education in Primary Schools is 0.04. When the parent role acts as a mediator, the obtained significance value is 0.00 or close to 0. This indicates that the parent role can enhance the influence of the teacher role on the quality of education in Primary Schools, making it more significant. To delve deeper into this result, the researcher then conducted a moderation analysis to see if the parent role variable could also moderate the relationship between the teacher role and the quality of education. The output of the moderation analysis can be seen in Table 8 below:

Table 8. Moderation output

Model	Coeff	Se	t	p
Contant	32.43	26.75	1.27	0.37
Teacher roles	1.65	0.38	4.63	0.01
Parent roles	0.52	0.54	0.36	0.84
Int_1	0.01	0.29	0.79	0.03

Source: SPSS PROCESS Data

Table 8 shows the output of the moderation analysis between the parent role variable on the relationship between the teacher role variable and the quality of education in Primary Schools. In Table 8, the coefficient for Int_1 is 0.01, indicating a positive influence among the moderation variable, the teacher role variable, and the quality of education. Furthermore, the p-value in the Int_1 row is 0.03, which is less than 0.05, indicating that the parent role variable significantly moderates the relationship between the teacher role variable and the quality of education in Primary Schools. Thus, the parent role can be a moderator. To determine whether the parents' last education level and income demographics also influence the relationship between the teacher role and the quality of education in Primary Schools, the researcher conducted a second moderation test on these two covariate variables. The results can be seen in Table 9 below:

Table 9. Moderation output for covariate variables

Model	Coeff	Se	t	p
Contant	42.51	20.90	1.33	0.37
Last Education	2.45	0.47	4.83	0.01
Parents Income	0.92	0.28	0.24	0.84
Int_1	0.32	0.19	0.86	0.14

Source: SPSS PROCESS Data

Table 9 shows the output of the moderation analysis for the covariate variables of parents’ last education level and income on the relationship between the teacher role and the quality of education in Primary Schools. The analysis results indicate that the significant p-value is 0.14, which is greater than 0.05. Therefore, neither of the covariate variables can moderate the relationship between the teacher role and the quality of education in Primary Schools. An illustration of the moderation analysis output can be seen in Figure 4 below:

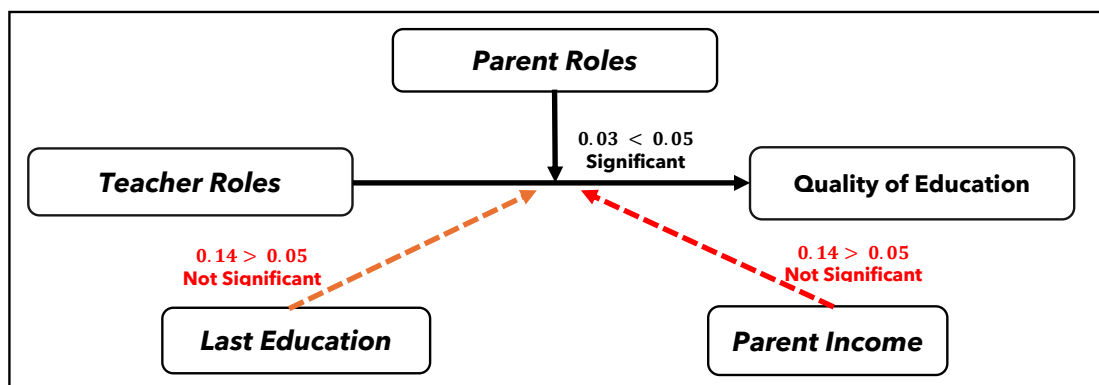


Figure 4. Moderation analysis path

6. Discussion

6.1 Difference between public and private schools

The results of the SEM test analysis show that the roles of parents and teachers most influence the quality of education in Primary Schools. The test results using data from public and private schools show significant differences and similarities. The difference lies in the teacher’s role in the quality of education in Primary Schools. According to public school data, the teacher’s role has a negative impact on the quality of education in Primary Schools. Numerous studies, including Cardon et al. (2009) and Santos et al. (2020), clearly contradict this finding by emphasizing the crucial role of the teacher in enhancing the quality of education in Primary Schools.

The primary factor contributing to the negative impact of the teacher’s role is the sharing of learning intentions and success criteria, a dimension that includes several indicator items such as conveying learning objectives, benefits, and achievement criteria. Koh (2017) argues that delivering learning objectives and benefits brings students closer to the learning process. This causes the meaningfulness of learning to become stronger, and the knowledge students gain will stick longer (enter long-term memory) (Dunning et al., 2013). However, psychologically, conveying learning achievement criteria can also be a burden for some students. Research from case studies by Hayashi & Tobin (2017) and Valencia-Peris et al. (2020) reveals that Primary School students view learning outcomes as a significant burden during the learning process. This can have an impact on student participation and learning outcomes in class.

In contrast, teachers’ role in private schools positively influences the quality of education in primary schools. This finding aligns with the theory of Cardon et al. (2009), which explains that the teacher is one of the main components of classroom learning. Parents believe that teachers are essential to their children’s education, according to the results of surveys conducted by Azad & Mandell (2016) and Kumpulainen et al. (1999). Feedback is the most influential factor in determining the quality of education in private schools. This feedback

dimension encompasses not only classroom learning but also the feedback teachers provide to parents, who use it to share information about their children. Adams & Christenson (2000) support this by asserting that teacher-to-student feedback is a significant factor in boosting student motivation in the classroom. Furthermore, the attitude of teachers towards complaints and information from parents can affect the quality of education in Primary Schools.

Thus, the role of teachers in private schools has a more decisive influence on the quality of education in Primary Schools. The results of Goddard et al. (2001) also support this, demonstrating that private school teachers outperform their public-school counterparts in academic performance. In addition, the didactic abilities in private schools also tend to be better than in public schools (Tiedemann, 2000). This confirms research findings that teachers in private schools play a better role than teachers in public schools.

6.2 Equality of public and private schools

The difference between public and private schools lies in the role of parents, who always have a greater influence on the quality of education in primary schools. The results of the SEM test demonstrate that parents' role in public and private schools has a higher factor loading value than that of the teacher. This finding is undoubtedly fascinating to debate because it is based on the results of a study by Cardon et al. (2002) and Santos et al. (2020), which shows that the teacher's influence is greater than the influence of parents in improving student learning outcomes in the classroom. However, according to the theory of Kumpulainen et al. (1999), parental involvement in the quality of children's education in schools is crucial and significant to realize. Collaboration between parents and teachers dramatically supports the education process and quality learning outcomes.

Although they are both more influential, the dimensions of the role of parents in public and private schools differ. The engagement scale is the dimension of a parent's role that has the most influence in public schools. Several expert opinions, including Matejevic et al. (2014) and Zolkoski et al. (2018), support this, arguing that parental involvement in their children's education significantly influences the quality of education they receive. This is because parents can provide learning assistance by repeating what they have learned at school and adding new information to reinforce what their children have learned (Li & Fischer, 2017). In addition, parents are also responsible for providing a conducive learning environment at home. Especially for primary school children who still spend a lot of time at home (Đurišić & Bunijevac, 2017).

Meanwhile, the School Invitation Barriers Sub-Scale is the dimension of parents' role that most influences the quality of education in private schools. The dimension contains several indicators, including school acceptance, school services, and information disclosure from schools to parents. This is due to the research results by Hornby and Lafaele (2011), which explain that schools and parents must have a good relationship. One form of this good relationship is disclosing information from schools to parents. According to Orozco-Oliveros (2022), problems and miscommunication between schools and parents often occur because schools must openly provide parents with information. Schools tend to cover up problems that can affect the school's image in society. Of course, this is crucial for schools with a private status, as they rely on student income for their operations. Therefore, most private schools maintain their image in the eyes of society (Cunningham, 2012). The study's results suggest that private schools should adopt a more open-minded approach towards parents to enhance the quality of education.

6.3 Mediation and moderation interaction

This study explores the dynamics between teacher and parent roles in shaping educational quality in Primary Schools through mediation and moderation analyses. The findings highlight the significant influence of teacher engagement on parental involvement, as indicated by a coefficient of 0.03 and a significant p-value of 0.04 in the first path, aligning with Bronfenbrenner's ecological systems theory (Harvey, 2016). Teachers can stimulate parental involvement, creating a supportive learning environment. Furthermore, the teacher role significantly impacts the quality of education, with a coefficient of 2.21 and a *p* value of 0.04, underscoring previous research on the importance of teacher effectiveness in enhancing student learning outcomes (Strassfeld, 2019). The parent role also significantly contributes to educational quality, with a coefficient of 0.02 and a highly significant p-value of 0.00, supporting literature on the critical importance of parental involvement (Leocardia et al., 2017). Mediation analysis shows that the parent role mediates the relationship between the teacher role and educational quality, highlighting the synergistic effect of teacher-parent collaboration. Initiatives promoting parental involvement, such as teacher-parent conferences and workshops, can enhance this partnership and positively impact educational outcomes. The role of teachers in influencing educational quality may not reach its full potential without parental support. Research consistently shows that parental involvement is crucial for enhancing student academic achievement and overall school success (Benner et al., 2016). Vygotsky's sociocultural theory (Liu & Matthews, 2005) and Bronfenbrenner's ecological systems theory (Harvey, 2016) emphasize the importance of social interactions and interconnected environments in student development, further supporting the benefits of teacher-parent collaboration.

Moderation analysis reveals that the parent role also moderates the relationship between the teacher role and educational quality, with an Int_1 coefficient of 0.01 and a p-value of 0.03. However, demographic factors like parents' educational attainment and income did not significantly moderate this relationship, with a p-value of 0.14. This suggests that while parental involvement is crucial, demographic factors may not directly influence the effectiveness of the teacher role in educational settings. Effective educational outcomes seem more dependent on the quality and active engagement of parents in supporting their children's learning, rather than their demographic backgrounds. This aligns with Bandura's concept of reciprocal determinism (Leonard, 2016), where teacher-parent partnerships create a supportive environment for students to thrive academically and socially.

7. Conclusion

The CFA and SEM analyses confirm the measurement model's adequacy for assessing parental, teacher, and education quality variables, meeting reliability and validity standards with CR and AVE values. Findings from SEM highlight distinctions and commonalities in these roles across public and private schools. Public schools show a negative impact of teachers on educational quality, attributed to burdensome achievement criteria, contrasting with private schools where teachers positively affect quality through responsive feedback and communication with parents. Both sectors emphasize the pivotal role of parents in influencing educational quality, with public schools highlighting parental involvement and private schools emphasizing school transparency. These insights underscore the critical roles of teachers and parents in shaping educational outcomes in elementary education contexts.

In addition, this study underscores the critical role of collaborative efforts between teachers and parents in enhancing educational quality in Primary Schools. Effective partnerships between these stakeholders create a cohesive and supportive learning environment essential for student success. This research contributes to the

existing literature by demonstrating how the parent role can both mediate and moderate the impact of the teacher role on educational outcomes, providing valuable insights for promoting parental engagement in elementary education contexts. However, it is important to acknowledge certain limitations in this study, particularly regarding the generalizability of the findings. The results are based on a specific sample of public and private schools, which may not fully represent the broader diversity of primary education systems. Therefore, caution should be exercised when applying these findings to different educational contexts or regions, and future research is encouraged to include more diverse samples to enhance the robustness and applicability of the conclusions.

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