



Early Childhood Teachers' Attitudes Toward Gender-Neutral Pedagogical Practices: Insights from Indonesia and Pakistan

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Abstract

This exploratory cross-sectional, cross-national study examined early childhood teachers' attitudes toward gender-neutral pedagogical practices in Indonesia and Pakistan. Structured interviews were conducted with 80 teachers (40 per country) working with children aged 3–6 years. Participants were recruited through purposive sampling from urban early childhood education centers. Attitudes toward gender-neutral pedagogical practices were operationalized across four dimensions: gender-inclusive language, mixed-gender participation, non-stereotyped learning materials, and balanced behavioral expectations. Data were analyzed using descriptive statistics, independent-samples t-tests, and multiple regression analyses. Indonesian teachers reported higher attitude scores across all dimensions, with moderate to very large effect sizes (Cohen's $d = 0.45–1.10$). Educational attainment ($\beta = .28$) and participation in professional development ($\beta = .31$) were positively associated with teachers' attitudes. The model explained 42% of the variance in attitudes ($R^2 = .42$, adjusted $R^2 = .39$). The findings indicate that higher formal qualifications and participation in professional development are associated with more favorable attitudes toward non-stereotyped classroom practices within the sampled early childhood settings.

Keywords: Early Childhood Education, Gender-Neutral Pedagogy, Teacher Attitudes, Cross-National Study.

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Introduction

Early childhood represents a critical developmental period during which children form foundational understandings of social roles and expectations. Teachers' pedagogical practices influence children's emerging conceptualizations of gender by shaping classroom environments in ways that make gender more or less salient (Farago et al., 2022; Liben, 2017). The extent to which educators employ gender-neutral approaches practices that minimize gender-based distinctions in instruction and classroom organization remains unevenly examined across diverse educational contexts (Warin & Adriany, 2017).

Gender-neutral pedagogical practices refer to instructional approaches that reduce differential treatment based on children's gender. These practices include gender-inclusive language and mixed-gender participation. They also involve non-stereotyped learning materials and balanced behavioral expectations (Kollmayer et al., 2018). Such approaches differ from gender-blind methods that ignore gender entirely and gender-specific approaches that emphasize gender differences. The conceptualization adopted in this study focuses on pedagogical behaviors observable in early childhood classrooms serving children aged 3–6 years.

The term “gender-neutral” is contested in gender scholarship. Critics argue that ostensibly neutral or gender-blind approaches may obscure structural power relations and inadvertently reproduce dominant norms rather than challenge them (Bem, 1993; Scott, 1986). From this perspective, neutrality can mask institutionalized inequalities embedded in social and educational systems. In the present study, however, the term is used in a

narrower operational sense. It refers specifically to pedagogical practices that avoid explicit gender stereotyping, differential expectations, or gender-based task allocation in early childhood classrooms. The focus is therefore on teachers' attitudes toward non-differentiated classroom interactions rather than on broader structural transformation.

Multiple theoretical frameworks inform understanding of gender development during early childhood. Social cognitive theory posits that children acquire gender-related behaviors through observation, imitation, and reinforcement in their social environments (Bussey & Bandura, 1999). Teachers serve as influential models in early childhood settings, and their practices may reinforce or challenge conventional gender associations. This theoretical perspective suggests that pedagogical practices constitute meaningful components of children's gender learning environments.

Gender schema theory proposes that children develop cognitive frameworks for organizing information about gender categories (Martin & Ruble, 2004). These schemas guide attention, memory, and interpretation of gender-relevant information. Early childhood represents a period of intensive schema development during which environmental inputs carry particular developmental significance. Pedagogical practices that present gender-diverse examples or minimize gender-based categorization may influence the content and flexibility of developing schemas (Halim et al., 2014).

Bioecological systems theory emphasizes the nested contexts that shape child development (Bronfenbrenner & Morris, 2006). Teachers operate within institutional, policy, and cultural contexts that inform their practices and attitudes. Understanding teacher attitudes requires attention to multiple levels of influence, from individual characteristics to broader systemic factors. A comparative approach acknowledges the relevance of macro-level systems while maintaining focus on individual-level attitudes as the unit of analysis.

Taken together, these frameworks justify examination of teacher attitudes as theoretically meaningful. They position teachers as behavioral models, environmental structurers of gender-relevant input, and actors embedded within institutional and policy contexts that shape classroom practice.

Research on teacher attitudes toward gender-related pedagogical practices has concentrated primarily on Western European and North American contexts. Studies conducted in Scandinavian countries, the United States, and Western Europe have documented teacher perspectives on gender equity in early childhood settings (Eidevald, 2009; Goble et al., 2012). However, empirical evidence from South Asian and Southeast Asian contexts remains limited. Despite policy rhetoric, gender integration in teacher education remains uneven (Miralles-Cardona, 2025). This geographical concentration limits empirical insight into how teachers in different institutional and cultural environments conceptualize gender-related instructional practices.

Studies examining gender-related practices in early childhood education have documented patterns of differential teacher treatment. Teachers may unconsciously reinforce gender-stereotyped activity choices through their responses to children's play selections and participation patterns (Lynch, 2015). These differential patterns occur even among teachers who express commitment to gender-equitable practices.

Research on learning materials has revealed persistent gender stereotypes in early childhood educational resources. Books, toys, and visual displays often present gender-imbalanced representations of occupations, activities, and personal characteristics (McCabe et al., 2011). Teachers' selection and use of these materials influences the gender-related messages children encounter in classroom environments. Some intervention studies have examined approaches to increasing teacher awareness of gender bias in materials, with varied results regarding sustained behavioral change (Chick et al., 2002).

Language use in early childhood classrooms represents another dimension of investigation. Teachers' linguistic choices, such as including pronoun use, forms of address, and gender-marked references to children or activities contribute to the salience of gender categories in classroom discourse (Eckert & McConnell-Ginet, 2013). Some educators deliberately employ gender-neutral or gender-inclusive language as a strategy for reducing gender-based distinctions, though implementation varies widely across settings and individuals (Shutts et al., 2017).

Indonesia and Pakistan provide an analytically meaningful comparison. Both countries have expanded early childhood education through national policy initiatives in recent decades (UNESCO, 2020). Indonesia

introduced national early childhood education standards in 2009 and expanded provision through public PAUD programs and private kindergartens (Brinkman et al., 2017). Pakistan established the National Curriculum for Early Childhood Education in 2007 through federal and provincial initiatives (Halai & Durrani, 2018).

Pakistan's educational system has been the subject of research on gender equity, particularly regarding access and quality. Studies have examined enrollment gaps, teacher qualifications, and provincial variation in early childhood provision. Research on pedagogical practices has addressed various aspects of classroom quality, with growing attention to gender-related dimensions (Khurshid, 2016).

Comparative education research has examined aspects of educational systems in both countries, including governance structures, policy frameworks, and quality indicators (Tikly & Barrett, 2013). However, comparative evidence on teacher attitudes toward gender-neutral pedagogy in early childhood settings remains particularly limited. This gap provides justification for exploratory empirical investigation, while acknowledging the limitations inherent in small-sample cross-national research focused on urban early childhood settings.

Despite these parallel expansion efforts, the two systems differ in governance structures and implementation arrangements. Indonesia's archipelagic system produces regional variation in policy enactment. Pakistan operates through a federal–provincial structure with distinct policy environments across provinces. At the same time, their institutional configurations differ in decentralization and professional development pathways. This combination of shared expansion and institutional divergence makes the comparison analytically relevant. It allows examination of whether teacher attitudes toward gender-neutral pedagogical practices vary across governance contexts rather than reflecting cultural assumptions.

Teacher attitudes are a relevant analytic focus because research links beliefs to instructional choices while also documenting frequent attitude–practice disjunctions. Attitudes can influence material selection, activity organization, interaction patterns, and behavioral responses (Fives & Buehl, 2012), but expressed support for pedagogical principles does not always translate into enacted practice (Wilcox-Herzog, 2002). Examining attitudes therefore provides insight into factors that may facilitate or constrain implementation of gender-neutral classroom approaches.

Research on factors associated with teacher attitudes has identified several relevant variables. Educational attainment relates to attitudes in some studies, with higher levels of formal education associated with greater receptivity to research-informed practices (McMullen et al., 2005). Teaching experience shows complex relationships with attitudes. Greater experience may support reflective practice or reinforce established approaches, depending on learning opportunities and institutional context.

Professional development participation has emerged as a relevant predictor of teacher attitudes across educational domains. Such findings reflect broader evidence that strengthening teacher competencies through targeted programs supports inclusive and equity-oriented pedagogy (Adawiah & Sukinah, 2025). Teachers who engage in ongoing professional learning demonstrate greater familiarity with current research and more nuanced understanding of pedagogical issues (Guo et al., 2010). This aligns with findings that early childhood educators require sustained professional learning to support inclusive education, including gender-related competencies (Griffin et al., 2025). However, the content, quality, and duration of professional development experiences vary substantially, limiting generalization about effects. Additionally, selection effects may operate, whereby teachers with particular attitudes are more likely to seek professional development opportunities.

Research on gender in Indonesian education has addressed enrollment patterns, achievement outcomes, and policy implementation. Studies have documented increasing female participation in education at multiple levels, with attention to regional variation. Early childhood education research in Indonesia has examined access expansion, quality indicators, and pedagogical approaches, with emerging attention to gender-responsive practices (Nuraeni et al., 2020). The country's teacher development initiatives have increasingly incorporated child-centered and inclusive pedagogies, though implementation varies across public and private sectors.

This exploratory study addresses these gaps through a cross-sectional cross-national investigation of teacher attitudes in Indonesia and Pakistan. The research employs structured interviews with closed-ended items to permit quantitative analysis. The investigation focuses on attitudes rather than observed practices,

acknowledging that attitudes represent one among multiple factors influencing pedagogical behavior. The study makes no claims regarding national representativeness or generalizability beyond the sample examined.

The present investigation addresses three research questions. First, what are the levels of early childhood teachers' attitudes toward gender-neutral pedagogical practices in Indonesia and Pakistan? Second, are there statistically significant differences in teacher attitudes between teachers in the two national contexts? Third, which teacher-level characteristics are associated with variation in attitudes toward gender-neutral pedagogical practices within the sample?

Methodology

Research Design

This study employed a cross-sectional quantitative design, collecting data at a single time point from early childhood teachers in Indonesia and Pakistan. The design was exploratory and aimed to examine patterns and associations in teacher attitudes rather than to test causal hypotheses.

Participants

Participants were 80 early childhood teachers working in urban settings, with 40 teachers from each country. Teachers were employed in licensed early childhood education centers serving children aged 3–6 years. Both public and private institutions were represented in the sample. Inclusion criteria specified that participants must have at least one complete academic year of teaching experience in early childhood settings. Teachers working exclusively in administrative roles were excluded.

Teachers were recruited through a center-based approach within licensed urban early childhood education centers, with the individual teacher serving as the unit of analysis. Because participants were nested within centers, independence of observations cannot be fully assumed. Center-level identifiers were not retained in the analytic dataset, which prevented multilevel modeling. This represents a methodological limitation. Findings are therefore interpreted cautiously as exploratory and indicative of patterns among sampled teachers rather than as definitive institutional effects.

Purposive sampling procedures were employed in both countries. Educational authorities in two urban areas (Jakarta and Surabaya in Indonesia; Lahore and Karachi in Pakistan) provided lists of licensed early childhood centers. Centers were purposively selected in consultation with local education authorities. Selection aimed to include public and private institutions and variation in neighborhood socioeconomic conditions. This sampling strategy was intended to support exploratory analysis rather than statistical representativeness.

Demographic characteristics of participants were recorded. These included age, gender, years of teaching experience, educational attainment, and participation in professional development activities related to early childhood education within the previous two years. The Indonesian sample included teachers from both public preschools (PAUD) and private kindergartens. The Pakistani sample included teachers from both government and private early childhood centers.

Data Collection Instrument

A structured interview schedule was developed to assess teacher attitudes toward gender-neutral pedagogical practices. The instrument operationalized four dimensions: gender-inclusive language, mixed-gender participation, non-stereotyped learning materials, and balanced behavioral expectations. Each dimension included six items addressing specific practices and perspectives relevant to early childhood classrooms.

Items were developed through review of existing literature and consultation with early childhood education researchers in both countries. The instrument employed a structured response format using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This response format permitted numerical coding of responses for quantitative analysis. The interview format was selected over self-administered surveys to ensure comprehension and reduce missing data.

The instrument was translated using forward-translation and independent back-translation performed by bilingual education professionals with graduate training in early childhood education. Two independent translators (one with MA in ECE and one with MA in Applied Linguistics) conducted forward translation; two

different bilingual experts performed back-translation. A reconciliation meeting resolved discrepancies; translators documented conceptual issues. Cognitive interviews were conducted with five teachers per country, followed by a pilot study involving 10 teachers (five per country). Pilot data informed minor wording changes; no structural changes to items were required.

The final instrument comprised 24 closed-ended items distributed across the four dimensions. Six items addressed gender-inclusive language (e.g., "I make deliberate efforts to use gender-neutral terms when addressing the class"). Six items addressed mixed-gender participation (e.g., "I organize learning activities without separating children by gender"). Six items addressed non-stereotyped learning materials (e.g., "I prioritize selecting books that show diverse gender representations"). Six items addressed balanced behavioral expectations (e.g., "I maintain the same behavioral standards for all children regardless of gender"). Items within each dimension were averaged to create subscale scores. An overall attitude score was computed by averaging across all items.

Internal consistency reliability was assessed using Cronbach's alpha. For the overall scale, $\alpha = .88$. For subscales: gender-inclusive language $\alpha = .82$, mixed-gender participation $\alpha = .85$, non-stereotyped learning materials $\alpha = .80$, balanced behavioral expectations $\alpha = .78$. All reliability coefficients exceeded the conventional threshold of .70, indicating acceptable internal consistency.

For purposes of empirical investigation, attitudes toward gender-neutral pedagogical practices can be operationalized across four dimensions. Gender-inclusive language refers to linguistic choices that avoid unnecessary gender marking or that deliberately employ gender-neutral terms when referring to children, activities, or roles (Pauwels, 2003). This dimension includes pronoun use, forms of address, and descriptive language about classroom activities or materials.

Mixed-gender participation refers to the organization of classroom activities and groupings in ways that do not systematically separate or distinguish children by gender (Martin & Ruble, 2004). This dimension includes seating arrangements, activity assignments, group compositions, and patterns of teacher-initiated interaction. The focus is on avoiding systematic gender-based distinctions rather than mandating specific forms of integration.

Non-stereotyped learning materials refer to resources that present diverse representations of gender. They avoid conventional gender associations with activities, roles, or characteristics (Trepanier-Street & Romatowski, 1999). This dimension includes books, toys, visual displays, and digital resources. It encompasses both active selection of counter-stereotypical materials and avoidance of strongly stereotyped resources.

Balanced behavioral expectations refer to maintaining equivalent standards for behavior, participation, and conduct regardless of children's gender (Erdena & Wolfgang, 2004). This dimension addresses differential responses to similar behaviors based on whether they are exhibited by boys or girls. It includes expectations regarding physical activity, emotional expression, task engagement, and social interaction.

Variables

The dependent variable was teacher attitudes toward gender-neutral pedagogical practices, measured through the structured interview schedule. This variable was examined both as an overall score and through four-dimensional subscales. The independent variable for comparative analysis was country context (Indonesia versus Pakistan).

Additional variables examined included years of teaching experience, educational attainment, and professional development participation. Preliminary correlation analyses indicated that teaching experience was not significantly associated with overall attitude scores; therefore, it was not retained in the final regression model to preserve model parsimony.

Procedure

Data collection occurred over a three-month period (January–March 2024). Trained research assistants conducted structured interviews with participating teachers at their respective early childhood centers. Interviews took place in private spaces to ensure confidentiality. Research assistants followed standardized protocols for presenting items and recording responses. Interview duration ranged from 15 to 20 minutes.

Informed consent was obtained from all participants prior to data collection. Participants received written and verbal information about study purposes, procedures, voluntary participation, and data protection measures. They were informed of their right to withdraw at any point without consequences. No monetary incentives were provided for participation. Interviews were conducted in participants' preferred language (Bahasa Indonesia or Urdu).

Research assistants recorded responses on structured forms using numerical codes corresponding to the 5-point Likert scale. Completed forms were reviewed for completeness and clarity before data entry. Data were entered into electronic databases with quality checks to ensure accuracy. No identifying information was included in electronic files. Inter-rater reliability checks were conducted on 15% of interviews, with high agreement observed across coded responses.

According to institutional guidelines at the authors' affiliated universities, survey-based research involving adult professionals and no collection of sensitive personal data does not require formal ethics committee review. The study involved voluntary participation, anonymous data collection, and no intervention or vulnerable populations. Nevertheless, the research adhered to internationally accepted ethical standards for human subjects research, including informed consent, confidentiality, and the right to withdraw without consequence. No identifying information was collected, and data were reported in aggregate form only.

Data Analysis

Data analysis employed SPSS Version 28.0. Descriptive statistics were calculated for all variables, including means, standard deviations, frequencies, and ranges. Data were examined for missing values, outliers, and distributional characteristics. No missing data were present as the interview format ensured complete responses. Assumptions for parametric statistical tests were evaluated through examination of distribution normality (Shapiro-Wilk test) and homogeneity of variance (Levene's test).

Independent-samples t-tests were conducted to compare Indonesian and Pakistani teacher attitudes across the overall scale and four-dimensional subscales. Statistical significance was evaluated at $\alpha = .05$. Effect sizes were calculated using Cohen's *d* to assess the magnitude of differences, with conventional interpretations (small = 0.2, medium = 0.5, large = 0.8).

Given the center-based recruitment of teachers and the exploratory nature of the study, inferential statistics are interpreted descriptively rather than confirmatorily. Effect sizes are emphasized alongside significance tests, and results are discussed as indicative patterns within the sampled population of teachers.

Multiple regression analysis was performed to examine predictors of overall attitudes toward gender-neutral pedagogical practices. Given the sample size and the exploratory nature of this study, regression analysis followed conservative power guidelines (minimum $N = 50 + 8m$, where m = number of predictors); (Tabachnick & Fidell, 2013). With three predictors and $N = 80$, the sample satisfied commonly cited minimum guidelines for exploratory regression analysis. Predictor variables included country context (coded Indonesia = 1, Pakistan = 0), educational attainment (ordinal coding), and professional development participation (dichotomous coding). These predictors were selected based on theoretical relevance and preliminary correlation analysis.

Model assumptions including linearity, approximate independence, homoscedasticity, and absence of multicollinearity were evaluated. Linearity was assessed through scatterplots. Independence was examined through Durbin-Watson statistic. Homoscedasticity was evaluated through residual plots. Multicollinearity was assessed through variance inflation factors (VIF) and tolerance statistics. Model fit was assessed through R^2 and adjusted R^2 . Statistical significance of the overall model and individual predictors was evaluated at $\alpha = .05$. Standardized beta coefficients (β) and 95% confidence intervals were reported for all predictors.

Results and Discussion

Sample Characteristics

The sample comprised a total of 80 early childhood teachers, with an equal distribution of participants from Indonesia ($n = 40$) and Pakistan ($n = 40$). This balanced composition was designed to enable meaningful cross-country comparisons of teachers' demographic backgrounds and professional profiles. Table 1 presents

the detailed demographic characteristics of participants by country, including gender distribution, age, years of teaching experience, educational attainment, and recent participation in professional development activities. These characteristics provide important contextual information for interpreting subsequent analyses, as variations in educational background, professional experience, and training exposure may influence teachers' perspectives and classroom practices.

Table 1. Demographic Characteristics of Participants

Characteristic	Indonesia (n = 40)	Pakistan (n = 40)
Gender (female)	38 (95%)	37 (92.5%)
Mean age (SD)	32.4 (7.2)	31.8 (6.9)
Mean teaching experience in years (SD)	6.3 (4.1)	5.9 (3.8)
Educational attainment		
Secondary + training	8 (20%)	18 (45%)
Bachelor's degree	26 (65%)	19 (47.5%)
Postgraduate degree	6 (15%)	3 (7.5%)
Professional development (past 2 years)	31 (77.5%)	22 (55%)

The majority of participants were female. Teaching experience ranged from 1 to 18 years. Educational attainment differed between countries, with a higher proportion of Indonesian teachers holding bachelor's degrees. Professional development participation within two years was reported by 77.5% of Indonesian teachers and 55% of Pakistani teachers.

Descriptive Statistics for Attitude Measures

Table 2 presents the mean scores and standard deviations for overall attitudes and each dimensional subscale by country. The statistics provide an overview of teachers' general tendencies and variability in gender-related practices in early childhood education. Cross-country comparisons highlight patterns of similarities and differences across the measured dimensions.

Table 2. Descriptive Statistics for Attitude Measures

Measure	Indonesia (n = 40) M (SD)	Pakistan (n = 40) M (SD)	Total (N = 80) M (SD)
Overall attitudes	3.94 (0.52)	3.52 (0.58)	3.73 (0.59)
Gender-inclusive language	3.88 (0.61)	3.41 (0.67)	3.65 (0.69)
Mixed-gender participation	4.12 (0.55)	3.48 (0.62)	3.80 (0.68)
Non-stereotyped materials	3.86 (0.58)	3.51 (0.64)	3.69 (0.63)
Balanced behavioral expectations	3.91 (0.54)	3.68 (0.59)	3.80 (0.58)

Note. Scores range from 1 (strongly disagree) to 5 (strongly agree).

Overall attitude scores ranged from 2.33 to 4.92, indicating substantial variability in teachers' responses across the sample. As shown in Table 2, Indonesian teachers consistently reported higher mean scores than their Pakistani counterparts across all measured dimensions. The largest difference appeared in mixed-gender participation, which yielded the highest mean among Indonesian teachers ($M = 4.12$, $SD = 0.55$), suggesting stronger endorsement of equitable classroom interaction practices. In contrast, although Pakistani teachers' scores remained above the scale midpoint, their means were comparatively lower across dimensions. The standard deviations, which were relatively similar across countries, indicate moderate individual variation in attitudes, reflecting diversity in teachers' perspectives within each national context.

Between-Country Comparisons

Independent-samples *t*-tests were conducted to compare Indonesian and Pakistani teachers' attitudes across all measured dimensions. Prior to analysis, Levene's test for equality of variances was examined and found to be non-significant for all comparisons ($p > .05$), indicating that the assumption of homogeneity of variances was met. These analyses allowed for the identification of statistically significant differences in mean scores

between the two national groups. Table 3 presents the detailed comparative results, including *t* values, significance levels, and effect sizes.

Table 3. Independent-Samples *t*-Test Results Comparing Indonesian and Pakistani Teachers

Measure	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
Overall attitudes	3.46	78	.001	0.77
Gender-inclusive language	3.32	78	.001	0.74
Mixed-gender participation	4.91	78	< .001	1.10
Non-stereotyped materials	2.54	78	.013	0.57
Balanced behavioral expectations	1.82	78	.072	0.41

Indonesian teachers reported higher mean attitudes than Pakistani teachers overall (*d* = 0.77). Significant differences were observed for gender-inclusive language (*d* = 0.74), mixed-gender participation (*d* = 1.10), and non-stereotyped materials (*d* = 0.57). The largest practical gap concerned mixed-gender participation; balanced behavioral expectations did not differ significantly (*p* = .072).

Regression Analysis

Multiple regression examined predictors of overall attitudes. Table 4 presents the correlation matrix for regression variables.

Table 4. Correlation Matrix for Regression Variables

Variable	1	2	3	4
1. Overall attitudes	—			
2. Country (Indonesia = 1)	.36**	—		
3. Educational attainment	.41**	.29*	—	
4. Professional development	.45**	.26*	.33**	—

Note. **p* < .05. ***p* < .01.

All predictors showed significant bivariate correlations with overall attitudes. Correlations among predictors ranged from .26 to .33, below multicollinearity thresholds. Teaching experience was examined in preliminary analyses but was not significantly correlated with overall attitudes (*r* = .09, *p* > .05) and was therefore excluded from the regression model to maintain parsimony. Table 5 presents regression results.

Table 5. Multiple Regression Analysis Predicting Overall Attitudes

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	95% <i>CI</i>	<i>VIF</i>
(Constant)	2.58	0.24	—	10.75	< .001	[2.10, 3.06]	—
Country	0.26	0.10	.22	2.60	.011	[0.06, 0.46]	1.12
Educational attainment	0.21	0.07	.28	3.00	.004	[0.07, 0.35]	1.16
Professional development	0.36	0.11	.31	3.27	.002	[0.14, 0.58]	1.11

Note. *R*² = .42, adjusted *R*² = .39, *F*(3, 76) = 18.37, *p* < .001. *CI* = confidence interval. *VIF* = variance inflation factor

The overall model was statistically significant (*F*(3, 76) = 18.37, *p* < .001). The model explained 42% of variance in overall attitudes (*R*² = .42, adjusted *R*² = .39). Country context was a significant predictor (β = .22, *t* = 2.60, *p* = .011, 95% *CI* [0.06, 0.46]). Indonesian teachers reported higher attitudes after controlling for other predictors. Educational attainment was a significant predictor (β = .28, *t* = 3.00, *p* = .004, 95% *CI* [0.07, 0.35]). Higher educational attainment was associated with more positive attitudes. Professional development participation was a significant predictor (β = .31, *t* = 3.27, *p* = .002, 95% *CI* [0.14, 0.58]). Teachers who participated in professional development reported higher attitudes.

Model diagnostics confirmed assumptions. The Durbin–Watson statistic was 1.92, suggesting no substantial autocorrelation in residuals at the individual teacher level. Residual plots showed no systematic

patterns. VIF values ranged from 1.11 to 1.16, well below the threshold of 10, confirming absence of multicollinearity. Standardized residuals ranged from -2.18 to 2.31, with no extreme outliers.

Correlations Among Dimensional Subscales

Table 6 presents the correlations among the four dimensional subscales of gender-related attitudes. The results show moderate to strong positive associations across all dimensions, indicating that teachers who endorse one gender-inclusive practice tend to support other related practices as well. These findings suggest conceptual coherence among the subscales while maintaining their distinction as separate dimensions.

Table 6. Correlations Among Dimensional Subscales

Subscale	1	2	3	4
1. Gender-inclusive language	—			
2. Mixed-gender participation	.52**	—		
3. Non-stereotyped materials	.61**	.48**	—	
4. Balanced behavioral expectations	.44**	.56**	.47**	—

Note. ** $p < .01$.

All dimensional subscales were positively and significantly correlated ($r = .44$ to $.61$, $p < .01$). The strongest association was observed between gender-inclusive language and non-stereotyped materials ($r = .61$), suggesting that teachers who use inclusive language also tend to select less stereotyped classroom materials. Overall, the moderate-to-strong correlations indicate that the four dimensions represent related but conceptually distinct aspects of gender-neutral pedagogical practice.

Discussion

Interpretation of Key Findings

The finding that attitudes varied substantially across teachers suggests that perspectives on gender-neutral pedagogical practices are not uniform within either country context. This variation indicates that individual teacher characteristics, professional experiences, and institutional contexts may shape attitudes in ways that transcend national boundaries. The presence of meaningful within-country variation cautions against essentialist interpretations that would attribute attitudes primarily to national or cultural membership. Teachers in both countries demonstrated diverse perspectives, with some expressing strong support for gender-neutral practices and others reporting more reserved views.

Between-country comparisons revealed statistically significant differences favoring Indonesian teachers across most dimensions. These differences may reflect multiple contextual factors. National curriculum frameworks have increasingly incorporated principles of equity and non-discrimination. Professional development initiatives, supported by both government and NGO partnerships, have expanded teachers' exposure to research-based practices. Comparative policy research indicates that coherence between curriculum frameworks, teacher preparation, and sustained professional learning is associated with stronger alignment between equity-oriented policy goals and classroom practice (Darling-Hammond, 2017; OECD, 2019; UNESCO, 2020).

Pakistan's early childhood education system has pursued quality improvement through various initiatives, including curriculum development and teacher training programs (Halai & Durrani, 2018). However, implementation varies across provinces, with different resource environments and regulatory frameworks. Some regions have strong professional development infrastructure, while others face constraints in teacher preparation and ongoing support. These contextual differences may contribute to observed patterns in teacher attitudes, though the present study cannot definitively establish causal mechanisms.

The largest effect size emerged for mixed-gender participation, suggesting that this dimension may be particularly influenced by contextual factors within early childhood settings. Classroom organization practices are shaped by institutional norms and physical space. They are also influenced by prevailing beliefs about gender differences in children's interests and behaviors. Teachers' comfort with mixed-gender participation may reflect their exposure to pedagogical models that demonstrate effective implementation of such practices.

The non-significant difference for balanced behavioral expectations suggests that teachers in both countries express similar levels of support for this principle. This pattern may indicate that the concept of equivalent behavioral standards resonates across contexts, perhaps because it aligns with broader educational values of fairness and consistency. However, the modest effect size suggests caution in interpretation. Teachers may conceptualize balanced expectations differently, or they may face different practical challenges in implementation depending on classroom contexts and institutional support. This finding underscores the importance of examining not only expressed attitudes but also how such principles are enacted in practice across different classroom contexts.

Predictors of Attitudes Toward Gender-Neutral Practices

The regression analysis identified educational attainment as a significant predictor, consistent with research documenting associations between formal education and receptivity to research-informed practices (McMullen et al., 2005). Teachers with bachelor's or postgraduate degrees may have encountered theoretical frameworks related to gender development, social justice in education, or inclusive pedagogy during their preparation programs. Higher education may also promote critical reflection on traditional practices and openness to alternative approaches. However, the cross-sectional design precludes causal interpretation. It is equally plausible that individuals with particular attitudes are more likely to pursue advanced education, or that both education and attitudes are influenced by unmeasured third variables. Teaching experience was examined but was not retained in the final regression model due to non-significant association with attitude scores.

Professional development participation emerged as the strongest predictor in the model. This finding suggests that ongoing professional learning may serve as an important mechanism for introducing teachers to gender-neutral pedagogical approaches and supporting reflection on current practices. Professional development provides opportunities for exposure to research evidence, discussion with peers, and experimentation with new strategies. In both countries, professional development programs increasingly address topics related to equity, inclusion, and developmentally appropriate practice. Teachers who participate in such programs may develop more nuanced understandings of how gender-related practices influence children's learning environments.

The selection effect noted earlier applies equally to professional development. Teachers with more positive attitudes toward gender-neutral practices may be more likely to seek and participate in relevant professional learning opportunities. Longitudinal research would be needed to disentangle whether professional development shapes attitudes or whether pre-existing attitudes influence participation decisions. Nonetheless, the strong association observed suggests that professional development may represent a relevant avenue for supporting teacher learning in this domain.

The persistence of country context as a significant predictor even after controlling for individual teacher characteristics suggests that systemic factors contribute to attitude patterns. These factors might include policy frameworks and curriculum guidance. They may also involve institutional norms and community expectations regarding gender socialization. Disentangling these systemic influences would require multilevel research designs that examine variation at institutional, regional, and national levels simultaneously.

Dimensional Variations and Practical Implications

The moderate to strong correlations among subscales indicate that gender-neutral pedagogy is coherent but multidimensional. Teachers who supported one dimension generally supported others, yet the correlations were not high enough to indicate redundancy. This suggests that professional learning should address multiple domains, including language use, participation structures, materials, and behavioral expectations, rather than treating gender-neutral pedagogy as a single construct. Given the exploratory design and modest sample size, these implications should be interpreted cautiously and not generalized beyond similar urban contexts.

Theoretical Implications

The study offers modest theoretical implications for research on teacher attitudes and gender-related pedagogy in early childhood education. First, the findings support existing social cognitive and bioecological perspectives by demonstrating that teachers' attitudes toward gender-neutral pedagogical practices vary

substantially within national contexts. This pattern reinforces theoretical arguments that individual beliefs are shaped by multiple intersecting influences rather than by cultural or national membership alone.

Second, the results suggest that gender-neutral pedagogy is best understood as a multi-dimensional construct rather than a single, unified orientation. The four dimensions examined—language use, participation, materials, and behavioral expectations—were related but empirically distinguishable. This has implications for how teacher attitudes are conceptualized and measured in future research.

Finally, the persistence of country context as an associated factor, even after accounting for individual characteristics, highlights the relevance of institutional and policy environments emphasized in bioecological theory. These findings do not extend existing theory but provide empirical support for its applicability in underrepresented early childhood education contexts.

Methodological Contributions

This study demonstrates the feasibility of structured quantitative measurement of teacher attitudes toward gender-neutral pedagogical practices in diverse contexts. The four-dimensional framework employed here offers one approach to operationalizing this construct, with acceptable reliability coefficients across subscales.

The comparative approach adopted here illustrates both benefits and challenges of cross-national research in early childhood education. Comparative designs permit examination of how contextual factors relate to educational phenomena, potentially revealing patterns that single-context studies might miss. However, comparative research also risks oversimplifying complex within-country variation. The present study attempted to balance these considerations by acknowledging contextual differences while avoiding essentialist cultural interpretations.

The use of structured interviews rather than self-administered surveys represents a methodological choice with tradeoffs. Interviews permitted clarification of items, ensured comprehension across diverse educational backgrounds, and eliminated missing data. However, interviews may increase social desirability bias for topics like gender-related practices where teachers may perceive certain responses as more professionally acceptable. Future research might employ multiple measurement approaches to triangulate findings and assess the magnitude of method effects.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, the sample size was modest for cross-national research. Although sufficient for descriptive analyses and exploratory regression, the sample restricts statistical power and precludes examination of interaction effects or subgroup analyses. Second, the purposive sampling strategy focused on urban early childhood centers in four large cities. Teachers in these contexts may differ from those in rural or less-resourced settings in terms of training, institutional support, and exposure to gender-related pedagogical discourse. As a result, findings should not be generalized beyond similar urban contexts. Third, the cross-sectional design limits causal interpretation. Associations between teacher characteristics and attitudes cannot establish directionality or developmental change over time. Fourth, measurement equivalence across the Indonesian and Pakistani language versions was not formally tested. Although items were translated and reviewed, the absence of invariance analysis limits confidence in cross-national comparability. Future research should examine configural, metric, and scalar equivalence before drawing stronger comparative conclusions.

The study also relied on self-reported attitudes rather than observed classroom practices. Prior research indicates that expressed attitudes do not always align with enacted pedagogy, particularly for equity-related issues where social desirability may influence responses. In addition, while the measurement instrument demonstrated acceptable internal consistency, it has not undergone extensive psychometric validation across contexts. Future research should employ larger and more diverse samples, including rural settings, and apply longitudinal designs to examine how teacher attitudes develop over time and relate to professional learning experiences. Observational or mixed-methods approaches would help clarify the relationship between attitudes and classroom practices. Further validation of the measurement instrument, including factor structure and

measurement equivalence across contexts, is also needed. Such work would strengthen empirical understanding of gender-neutral pedagogical practices in early childhood education.

Conclusion

This study examined early childhood teachers' attitudes toward gender-neutral pedagogical practices in Indonesia and Pakistan. The findings indicate cross-national differences and substantial within-country variation, with teacher education and professional development associated with more supportive attitudes. Together, the results highlight the relevance of both systemic and individual factors in shaping pedagogical perspectives.

The study contributes empirical evidence to a limited body of research on gender-related pedagogy in early childhood settings in South and Southeast Asia. Although the exploratory design and modest sample size limit generalizability, the study demonstrates the feasibility of structured quantitative measurement in this domain and offers an initial basis for comparative analysis.

The substantial within-country variation observed suggests that national context alone does not determine teachers' attitudes. Individual characteristics and local institutional conditions appear equally relevant. This challenges cultural essentialist interpretations and underscores the importance of multi-level analysis in research on gender-related pedagogy. Although educational attainment and professional development were associated with attitudes, causal relationships cannot be inferred from this cross-sectional design.

Future research should examine whether expressed attitudes toward gender-neutral pedagogy predict observable classroom practices and child-level outcomes. Longitudinal designs could clarify whether professional development influences attitudes over time or whether pre-existing beliefs shape participation decisions. By emphasizing variation within contexts as well as differences between them, this study supports more nuanced and empirically grounded approaches to understanding gender-related pedagogy in early childhood education.

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