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Mapping the Emotional Labour of Early Childhood Teachers in Indonesia: A Rasch Model Analysis

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ABSTRACT

This study addresses the limited empirical profiling of emotional labor among early childhood teachers in Indonesia by applying the Rasch Rating Scale Model. The research aims to examine teachers' tendencies in emotional regulation, identify item difficulty levels, and map teacher ability distributions. A total of 312 early childhood teachers participated by completing an emotional labour scale representing four emotional-regulation dimensions. The reported logit range of −0.85 to 0.75 refers specifically to the distribution of item difficulty, which differs from the later reported teacher logit range (−3.5 to +3.2). The analysis revealed high measurement reliability (item reliability = 0.98; person reliability = 0.70) and satisfactory model fit indices. Teachers predominantly demonstrated reflective and authentic emotional regulation, as operationalised by lower difficulty on deep-acting and natural-expression items, indicating these strategies were more readily performed. These findings highlight that emotional labour among Indonesian early childhood teachers is grounded in empathy, warmth, and affective balance, forming an essential foundation for emotionally responsive and humanistic teaching practices.

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1. INTRODUCTION

Teaching in early childhood education (ECE) carries substantial emotional demands. Teachers are expected not only to instruct but also to cultivate an affective climate that supports children's social and emotional development. Daily interactions with young learners, parents, and colleagues often require careful emotional regulation to maintain warm, supportive, and safe relationships. International research has shown that strategies such as surface acting, emotion suppression, deep acting, and natural expression are central components of teachers' emotional labour [1], [2]. For example, Ntim et al. [3] found that among ECE teachers in

developing contexts, surface acting tends to increase emotional exhaustion, whereas deep acting is associated with a stronger sense of personal accomplishment. These findings suggest that teachers' emotional regulation is not merely an individual technique, but a factor that shapes teaching quality and professional well-being.

In Indonesia, the role of emotional regulation becomes even more important given the country's collectivist cultural orientation, high parental expectations, and diverse socio-cultural environments within early childhood settings. Recent studies have shown that Indonesian ECE teachers experience substantial emotional strain in their interactions with children and parents, with emotion suppression appearing more dominant than surface acting [4]. Despite this, empirical studies that map emotional regulation profiles among Indonesia's ECE teachers using modern measurement approaches remain scarce. Traditional measurement methods, such as conventional factor analysis, are limited because they cannot simultaneously estimate individual ability and item difficulty. The Rasch Model offers a stronger alternative by providing interval-scaled measures and positioning both teachers and items along the same continuum [5], [6].

However, previous studies have not examined how specific emotional labour strategies differ in their difficulty levels, nor have they provided a psychometrically grounded map of teachers' regulatory abilities across Indonesia. This gap is crucial because emotional-regulation practices may vary systematically across contexts, yet existing research has mostly focused on correlational outcomes rather than measurement-based profiling [7], [8]

A key problem is the lack of empirical insight into the emotional labour profiles of ECE teachers across Indonesia, including the distribution of their emotional regulation abilities and the structure of their underlying dimensions. Without such a profile, the development of measurement instruments, emotional training programs, and teacher-well-being policies risks being unfocused. To address this gap, this study adopts the Rasch Rating Scale Model as a methodological approach that enables more precise identification of a person's ability and item difficulty, thereby offering a structured solution to the limitations of earlier studies. This study, therefore, applies the Rasch Model to map teachers' emotional regulation across four main dimensions: surface acting, emotion suppression, deep acting, and natural expression. The resulting emotional ability map is expected to inform professional development interventions and support the creation of psychometrically strong assessment tools.

Accordingly, this study aims to analyse the emotional labour profiles of Indonesian early childhood teachers using the Rasch Model. Specifically, it seeks to (1) examine teachers' emotional regulation tendencies across the four dimensions, (2) identify item difficulty within the emotional regulation scale, and (3) map teachers' positions based on the resulting logit scores. Through these objectives, the study is expected to produce a measurement-based portrait that not only contributes to theoretical development in emotional labour research but also supports practical efforts to enhance teacher well-being and instructional quality. The findings are anticipated to benefit policymakers, teacher education programs, and early childhood institutions by providing evidence to guide the design of emotional regulation training and supportive workplace policies.

Literature Review

The concept of emotional labour was first introduced by Arlie Hochschild [9] to describe the process by which workers manage their feelings and emotional expressions to meet professional and organisational expectations. In educational settings, teachers take on not only cognitive instructional duties but also substantial emotional responsibilities in their interactions with students, parents, and colleagues [10]. Recent systematic reviews highlight that teachers consistently engage in surface acting, deep acting, and natural expression as integral aspects of their work [7].

In early childhood education, emotional regulation is particularly important because teachers interact intensively with young children who require continuous socio-emotional support, as well as with parents who often have high expectations. Indonesian evidence from Mukhlis et al. [4] indicates that ECE teachers experience considerable emotional strain, with suppression appearing more prevalent than surface acting. These findings reinforce the notion that Indonesia's cultural and professional context produces unique patterns of emotional regulation that require empirical validation.

Methodologically, traditional measurement models such as factor analysis are limited because they cannot provide simultaneous estimates of person ability and item difficulty [8]. The Rasch Model is better suited for this purpose because it converts ordinal responses into interval-level measures and positions respondents and items on a single latent continuum [5], [6]. Rasch-based studies on teacher assistants in Hong Kong also showed the model's effectiveness in validating instruments and identifying the links between teachers' emotions and their professional attitudes [8].

Taken together, the literature reveals three major gaps: (1) few studies have mapped emotional labor profiles of ECE teachers in Indonesia on a national scale; (2) the use of Rasch analysis in examining emotional regulation within Indonesian ECE contexts remains limited; and (3) there is still insufficient information on how teachers' emotional abilities are distributed across key dimensions such as surface acting, emotion suppression, deep acting, and natural expression. This study addresses these gaps by applying the Rasch Model to analyse Indonesian ECE teachers' emotional labour profiles, focusing on their regulatory tendencies and positions along the emotional-regulation continuum. The findings aim to enrich theoretical discussions of emotional labour in early childhood education and to provide practical guidance for developing measurement instruments and emotional well-being programs for teachers.

2. METHOD

This study employed a descriptive, quantitative approach using the Rasch Model to analyse and map the emotional labour profiles of early childhood teachers in Indonesia. The Rasch approach was selected because it allows simultaneous estimation of individual ability and item characteristics while converting ordinal data into interval-level logit units [5], [6], [11].

Data were collected through a nationwide online survey distributed to active teachers working in formal and nonformal early childhood settings. The inclusion criteria required at least one year of teaching experience and completion of the entire instrument. A total of 312

teachers met these criteria, representing multiple provinces across Indonesia. This sample size meets the recommended minimum for unidimensional Rasch analysis, which is at least 200 respondents [12], [13].

The instrument used in this study was the Emotional Labour Scale for early childhood teachers, developed based on emotional labour theory [9], [14] and adapted to the Indonesian early childhood education context. It consisted of 16 statements representing four dimensions: surface acting, emotion suppression, deep acting, and natural expression. All items were rated on a four-point Likert scale:

(1) not consistent with what I feel
(2) slightly consistent with what I feel
(3) fairly consistent with what I feel
(4) consistent with what I feel

Items worded in an unfavourable direction were reverse-scored so that higher scores indicated more adaptive emotional regulation. Table 1 presents the construct structure and item codes.

Table 1. Construct Structure and Item Codes

Dimension	Item Code	Item Summary
Surface Acting	SSA01	Pretending to display certain emotions
	SSA02	Showing emotions that do not match actual feelings
	SSA03	Hiding true emotions
Emotion Suppression	SES01	Teaching without showing emotions
	SES02	Remaining calm during conflict
	SES03	Not showing anger when ignored.
	SES04	Staying calm when children are passive
Deep Acting	SDA01	Genuinely feeling emotions while teaching
	SDA02	Preparing positive emotions before teaching
	SDA03	Recalling positive thoughts
	SDA04	Adjusting emotions to meet teaching demands
	SDA05	Calming oneself during anxiety
Natural Expression	SNE01	Displaying emotions that match inner feelings
	SNE02	Expressing emotions with ease
	SNE03	Showing genuine emotions
	SNE04	Demonstrating emotions naturally

Experts reviewed the scale and underwent readability testing with a small group of teachers outside the study sample to ensure clarity of wording, contextual relevance, and conceptual alignment. Revisions were made based on feedback from experts in educational psychology and measurement.

Data were analysed using the Rating Scale Model in Winsteps. The analysis included: [15]. The analysis included:

(1) estimating person and item parameters in logit units,
(2) examining reliability and separation indices to evaluate measurement consistency,
(3) assessing infit and outfit mean-square values to determine item fit to the model, and
(4) generating an item–person map to visualise teacher positions relative to item difficulty.

All analyses were used to interpret national patterns of emotional labour without modifying any item, as the goal of the study was mapping rather than instrument development. Interpretation followed Rasch guidelines, using the acceptable infit/outfit MNSQ range of 0.50–1.50 [5], [16], [17].

3. RESULTS AND DISCUSSION

3.1. Results

The analysis using the Rasch Rating Scale Model provides a comprehensive picture of the psychometric quality of the emotional labour scale for early childhood teachers in Indonesia, as well as the distribution of teachers' emotional regulation abilities in the workplace. The results are presented in four main sections: (1) general statistics and model fit, (2) item fit analysis, (3) item difficulty levels, and (4) the relationship between teacher ability and item difficulty through the item–person map.

3.1.1. General Instrument Statistics

Overall, the Rasch Model indicates that the emotional labour scale exhibits strong and stable measurement properties. The summary statistics are presented in Table 2.

Table 2. Rasch Model Summary Statistics

Statistics	Person (N=312)	Item (N=16)
Measure (logit)		
Mean	0.62	0.00
SE	0.31	0.07
SD	0.62	0.49
Outfit mean square		
Mean	1.01	1.01
SD	0.62	0.28
Separation	1.29	6.87
Reliability	0.70	0.98

The person reliability value of 0.70 indicates adequate internal consistency, meaning that teachers in the sample show relatively consistent response patterns across the scale. Meanwhile, the item reliability value of 0.98 demonstrates excellent stability and discriminatory ability, suggesting that differences in item difficulty would remain consistent if the study were replicated with a similar respondent group.

The item separation index of 6.87 shows that the instrument distinguishes items into approximately six difficulty levels, whereas the person separation index of 1.29 indicates variability in teachers' emotional regulation ability, though not extremely pronounced. The mean infit and outfit values are close to 1.00, all within the acceptable Rasch range of 0.5–1.5 (Linacre, 2010), indicating overall model fit.

3.1.2. Item Fit Distribution

The functioning of each item was examined to ensure alignment with the intended construct. The infit and outfit MNSQ values for all items range from 0.64 to 1.59, which remains within acceptable limits. The results are summarised in Table 3.

Table 3. Item Fit Statistics

Item Code	Measure (Logit)	SE Measurement	IN.MSQ	OUT.MSQ
SSA01	0.43	0.06	1.44	1.49
SSA02	0.55	0.06	1.21	1.25
SSA03	0.75	0.06	1.29	1.36
SES01	0.71	0.06	1.42	1.59
SES02	-0.06	0.07	1.17	1.19
SES03	0.28	0.06	0.82	0.89
SES04	0.44	0.06	0.97	1.03
SDA01	-0.01	0.06	0.78	0.79
SDA02	-0.31	0.07	0.91	0.88
SDA03	-0.41	0.07	0.71	0.68
SDA04	-0.37	0.07	0.65	0.64
SDA05	-0.71	0.08	0.85	0.78
SNE01	0.14	0.06	0.89	0.90
SNE02	0.02	0.06	0.86	0.97
SNE03	-0.85	0.09	0.96	0.84
SNE04	-0.61	0.08	0.94	0.83

The analysis shows that all items function appropriately in measuring emotional labour. Items closest to the ideal MNSQ value of 1.00 include SES04 (0.97/1.03), SNE01 (0.89/0.90), and SNE04 (0.94/0.83), indicating strong stability and alignment with the model. Items with slightly higher values, such as SES01 (1.42/1.59) and SSA01 (1.44/1.49), are still acceptable as they remain within the upper limit of 1.50. Thus, none of the items show problematic deviation from Rasch expectations. All items meet both statistical and substantive criteria, reinforcing the construct validity of the scale.

3.1.3. Item Difficulty Levels

The Rasch analysis indicates that item difficulty ranges from −0.85 to 0.75 logits, with six strata based on an item separation index of 6.87. Strata were formed using percentile-based cutoffs (0.833, 0.667, 0.5, 0.333, and 0.167). The groupings are shown in Table 4.

Table 4. Item Difficulty Strata

Difficulty Category	Logit Criteria	Item (LV)
Strata I	LV > 0.49	Hiding true emotions (0.75); Teaching without emotions (0.71); Emotions inconsistent with feelings (0.55)
Strata II	0.49 ≥ LV > 0.28	Staying calm with passive children (0.44); Pretending to show emotions (0.43)
Strata III	0.28 ≥ LV > 0.01	Not showing anger (0.28); Emotions match feelings (0.14); Expressing emotions easily (0.02)
Strata IV	0.01 ≥ LV > −0.31	Feeling emotions while teaching (−0.01); Staying calm during conflict (−0.06); Preparing positive emotions (−0.32)
Strata V	−0.31 ≥ LV > −0.51	Adjusting emotions to tasks (−0.37); Recalling positive thoughts (−0.41)
Strata VI	LV ≤ −0.51	Emotions appear naturally (−0.61); Calming oneself during anxiety (−0.71); Showing genuine emotions (−0.85)

Strata I contains the most difficult items (SSA03, SES01, SSA02), reflecting demanding forms of emotional suppression and surface acting. These behaviours require considerable emotional control and are therefore less frequently practised by teachers, indicating a general preference for authentic expression. Strata II includes SES04 and SSA01, which also represent relatively difficult behaviours, such as maintaining emotional stability when children are passive. Though not as challenging as Strata I, these items depict forms of self-regulation that are not always easy to sustain in fluctuating early childhood environments.

Strata III reflects moderate difficulty levels. Items such as SES03, SNE01, and SNE02 represent a shift from suppressive strategies toward more authentic expression, illustrating teachers' ability to withhold negative reactions while beginning to express emotions more naturally—consistent with theoretical transitions from surface acting to deep acting. Strata IV includes SDA01, SES02, and SDA02, which involve the conscious internalisation of positive emotions. These items illustrate deep acting, in which teachers attempt to align internal feelings with external emotional expectations.

Strata V contains items that are relatively easy to endorse, such as SDA04 and SDA03. These items emphasise emotional adjustment through positive reflection and task awareness, suggesting emotional maturity among teachers. Strata VI encompasses the easiest items (SNE04, SDA05, SNE03), describing natural emotional expression. These items reflect spontaneous, genuine emotional displays that align naturally with teaching contexts. Their low logit values indicate that most teachers can comfortably express authentic emotions in early childhood classrooms.

3.1.4. Item–Person Map (Wright Map)

The relationship between teacher ability and item difficulty is illustrated in the Wright Map (Figure 1), which shows the vertical distributions of teachers (left) and items (right).

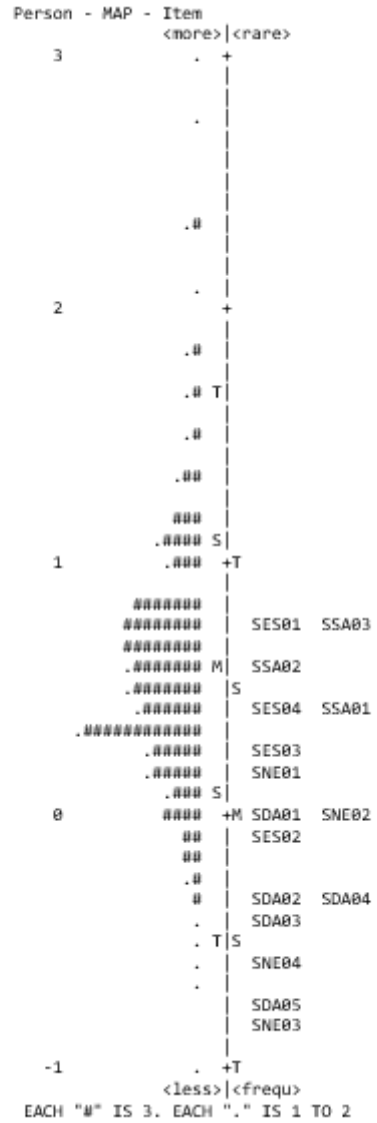

Figure 1. Item–Person Map (Wright Map)
(Source: results of the Rasch Model analysis)

The teacher logit distribution ranges from −3.5 to +3.2 logits, with most teachers clustering around 0. This suggests that the majority possess moderate to high emotional regulation ability, while only a small number fall at the extremes. Items with high logit values, such as SSA03 (0.75) and SES01 (0.71), appear toward the top of the map, indicating that they are endorsed only by teachers with strong emotional control. Conversely, items with lower logit values, such as SNE03 (−0.85) and SDA05 (−0.71), are located near the bottom, reflecting behaviours commonly performed even by teachers with lower emotional regulation. The relatively balanced spread of persons and items around the midpoint indicates strong person–item targeting, meaning the scale effectively captures the full range of teacher abilities without bias toward any subgroup.

3.2. Discussion

The findings of this study address the main objective of mapping the emotional labour profile of early childhood teachers in Indonesia through the Rasch Rating Scale Model. The instrument demonstrated adequate reliability and validity (person reliability = 0.70; item reliability = 0.98) and successfully identified six strata of item difficulty ranging from –0.85 to 0.75 logits. Thus, the study not only evaluated the instrument but also provided an empirical portrait of how early childhood teachers regulate their emotions in actual practice.

First, the finding that items with higher logit values were predominantly associated with strategies of surface acting and emotion suppression (for example, SSA03: hiding emotions, SES01: teaching without emotions, SSA02: displaying emotions that do not match inner feelings) indicates that efforts to "conceal" or "freeze" emotions are the most difficult forms of regulation for teachers in Indonesian early childhood settings. This aligns with the existing literature, which states that suppressive strategies and surface acting require substantial cognitive and affective effort and may contribute to emotional exhaustion [1], [2]. In contrast, items with lower, negative logits (such as SNE03: showing genuine emotions; SDA05: calming oneself during anxiety) reflect that teachers are generally more capable of expressing emotions authentically and engaging in deep acting or natural expression. This pattern is consistent with research suggesting that early childhood teachers tend to favour sincere rather than surface-level expressions [3], [18].

Second, the item–person map (Wright Map) reveals that the distribution of teachers and items is well balanced around the mean of 0 logits, indicating that the instrument effectively captures the full range of teachers' emotional regulation abilities. Most teachers fall within the −1 to +1 logit range, suggesting that their emotional regulation is moderate to high. However, a subset of teachers with lower logit values (< −1) may face challenges in emotional regulation. This supports theoretical perspectives asserting that although many teachers possess adaptive regulation skills, institutional and professional support remains necessary for those with less optimal regulation [19], [20]. Within Indonesia's collectivist culture, the ability to express emotions authentically is highly relevant, and the study shows that teachers score relatively high on this dimension, likely due to the nature of their work, which involves both instruction and socio-emotional caregiving [21].

Third, the results contribute to the development of emotional labour theory in early childhood education. Hochschild's foundational model [9], later expanded by Grandey et al. [14], categorises emotional regulation strategies into surface acting and deep acting. The present study shows that early childhood teachers in Indonesia lean strongly toward deep acting and natural expression rather than surface acting, suggesting a theoretical refinement: the "early childhood teaching" context encourages more authentic and reflective emotional regulation than that observed in general service professions. This is in line with recent meta-analyses showing that naturally felt emotion or authentic expression is more positively associated with teacher well-being and children's learning outcomes [22]. Thus, emotional labour theory in early childhood education should explicitly recognise natural expression as a distinctive regulatory strategy.

Fourth, in practical terms, the findings have important implications for professional development. Because the most difficult items involve suppressing or concealing emotions, professional training should prioritise strategies for deep acting and authentic expression rather than merely teaching teachers to "appear" positive. Emotional regulation programs that emphasise self-reflection and empathy development, and classroom environments that support genuine emotional expression, may lead to more adaptive outcomes [23], [24]. Institutional policies should acknowledge that teachers' emotional experiences are not limited to presenting a positive demeanour; they also involve feeling and expressing emotions authentically. Social and emotional support should therefore be provided, especially for teachers positioned in lower logit ranges.

A more practical implication of these findings is how early childhood teachers can be supported in implementing the strategies found to be most difficult, particularly surface acting and emotion suppression. To address these challenges, training programs could include sessions on recognising emotional cues, using simple cognitive reappraisal techniques, and practising short mindfulness routines to help teachers regulate emotions in real time. A training period of about 4 to 6 weeks would give teachers enough time to gradually practice these skills, supported by guided reflection and peer discussions. At the institutional level, schools can introduce lighter administrative routines, regular well-being check-ins, and mentoring systems to reduce the emotional load associated with these demanding strategies. These steps allow teachers to receive not only conceptual knowledge but also practical and ongoing support that helps them manage emotional demands in daily classroom life.

Finally, this study has several limitations that warrant consideration and inform future research. Although the sample is national in scope, the study used a cross-sectional design and a self-report instrument, which may be subject to social desirability bias. Furthermore, while the Rasch Model mapped teachers' emotional regulation profiles, contextual factors such as teaching experience, institution type, and local cultural influences were not examined in depth. Future studies may adopt a multi-facet Rasch approach to explore teacher, classroom, and child factors simultaneously [16], [25], [26]. Longitudinal studies are also recommended to observe changes in emotional regulation over time [27].

4. CONCLUSION

The findings of this study provide a comprehensive overview of the emotional labour profile of early childhood teachers in Indonesia, using the Rasch Rating Scale Model. The analysis shows that the instrument developed demonstrates strong validity and reliability, and it is capable of identifying proportional variations in teachers' emotional regulation abilities. The scale effectively maps six strata of item difficulty, reflecting a spectrum of emotional regulation strategies ranging from suppression and surface display to deeper and more natural emotional expression.

Overall, early childhood teachers in Indonesia exhibit a strong tendency toward reflective, authentic emotional regulation. They find it easier to express genuine positive emotions than to suppress or manipulate their feelings to meet role expectations. This pattern highlights that the early childhood teaching profession is grounded in empathy, warmth, and

affective balance—elements that form the foundation for healthy emotional interactions between teachers and children and for creating a supportive learning environment.

The ability mapping presented in the Wright Map shows that most teachers fall within the moderate to high range of emotional regulation, indicating an adaptive capacity to respond to work demands. Meanwhile, items with higher difficulty levels represent relevant areas for professional development, particularly those involving situations that require emotional stability and composure during instruction.

From a conceptual standpoint, these findings reinforce the idea that emotional labour in early childhood education reflects emotional maturity and authentic professionalism rather than mere compliance with role expectations. Practically, the results point to the need for strengthened institutional support, especially through training programs and workplace policies that help teachers manage emotionally demanding situations more effectively. This study is not without limitations. The use of self-reported data and a cross-sectional design may restrict the depth of interpretation regarding teachers' emotional processes. The study also does not account for contextual factors, such as school characteristics and cultural differences, that may influence emotional regulation.

Future research may explore emotional labour using longitudinal designs, integrate observational data, or apply many-facet Rasch modelling to include classroom, institutional, and cultural variables. Such approaches would provide a richer understanding of how emotional labour develops over time and across broader educational contexts. More broadly, the findings contribute to the general public and stakeholders by offering evidence that can inform teacher education programs, guide policymakers in designing supportive work environments, and help communities appreciate the emotional demands faced by early childhood teachers. Strengthening emotional labour competencies ultimately supports healthier learning environments and promotes the well-being of both teachers and young children.

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