Reliability and Norm Formation of Teacher's Engagement Scale for Early Childhood Teachers in Indonesia

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Abstract

This study aims to validate the newly developed Teacher's Engagement Scale, an instrument designed to measure teacher's engagement in the classroom based on student engagement theory. The scale was constructed to address a gap in the existing tools, which mainly focus on teacher's work engagement or job-related aspect. Therefore, this scale emphasizes behavioural, emotional, and cognitive dimensions of teacher's engagement with their students. This study sample involved 499 early childhood educators in Indonesia. Reliability analysis of 23-item Teacher's Engagement Scale initially indicates satisfactory overall and each dimension internal consistency with Cronbach Alpha's (α = .90), and .85 for behavioural engagement, .70 for emotional engagement, and .80 for cognitive engagement. After removing one item each from emotional and cognitive engagement based on item rest correlation to analyse each items discriminative power, the reliability of overall, behavioural, emotional, and cognitive engagement became .91, .85, .75, and .85, respectively. Normative data were established by calculating z-scores, which revealed that the score distribution of Teacher's Engagement Scale was normal with skewness value of –0.427 and kurtosis value of 2.88. These findings were used to create interpretative criteria for different engagement levels. This study highlights the need for improvements to the removed items and further validation of the scale through correlation with related constructs such as emotional intelligence and knowledge of good teaching practices.

Keyword : Norm Formation, Reliability Analysis, Teacher's Engagement Scale

Abstrak

Studi ini bertujuan untuk mevalidasi Teacher's Engagement Scale yang baru dikembangkan, yaitu suatu instrumen yang didesain untuk mengukur keterlibatan guru di dalam kelas berdasarkan teori keterlibatan murid. Skala ini dibuat untuk mengatasi kesenjangan dari alat ukur yang ada, dimana fokus utamanya lebih kepada keterlibatan kerja guru atau aspek yang berkaitan dengan pekerjaan. Maka, skala ini menekankan keterlibatan guru dengan murid mereka pada dimensi perilaku, emosional, dan kognitif. Sebanyak 499 guru anak usia dini di Indonesia terlibat sebagai sampel dalam studi ini. Analisis reliabilitas dari 23 aitem Teacher's Engagement Scale awalnya menunjukkan konsistensi internal yang memuaskan secara keseluruhan dan pada setiap dimensi dengan Alpha Cronbach (α = .90), dan .85 pada keterlibatan perilaku, .70 pada keterlibatan emosional, dan .80 pada keterlibatan kognitif. Setelah menghapus satu aitem dari masing-masing keterlibatan emosional dan kognitif berdasarkan item rest correlation untuk menganalisis daya diskriminasi setiap aitem, reliabilitas keseluruhan, perilaku, emosional, dan kognitif secara berurutan menjadi .91, .85, .75, dan .85. Norma diperoleh dengan menghitung z-scores, yang menunjukkan bahwa distribusi skor dari Teacher's Engagement Scale ialah normal dengan nilai skewness –0.427 dan nilai kurtosis 2.88. Hasil ini digunakan untuk membuat kriteria interpretatif untuk tingkat keterlibatan yang berbeda-beda. Studi ini menyarankan perlu adanya perbaikan pada aitem-aitem yang dihapus dan validasi skala ini lebih lanjut dengan konstruk yang berkaitan seperti kecerdasan emosional dan pengetahuan mengenai praktik mengajar yang baik.

Kata Kunci : Analisis Reliabilitas, Pembuatan Norma, Teacher's Engagement Scale

BACKGROUND

In the field of early childhood education, a stimulating learning environment is consequential for the development of young children (Lah, 2020). Despite that, Anam (2021) states that many early childhood classrooms in Indonesia continue to employ monotonous and teacher-centred approach. This approach, also known as traditional learning or traditional education, positions the teacher as the predominant authority and source of knowledge. Teachers focus on one specific learning target at a time, delivering their lesson in a lecture style, using drilling methods, and relying heavily on students' worksheets (Ghafar, 2023; Ngaisah et al., 2023). In this way, students viewed as passive recipients of information, expected to absorb knowledge presented by teacher without actively engaging in the learning process. As a result, young students often lose interest and become unmotivated to engage in learning activities due to the lack of teachers' engagement. This issue is supported by several Indonesian studies, which have observed that disengaged students are often the result of how teachers manage learning activities without involving themselves in the engagement process, in early childhood classrooms (Akmal, 2020; Anshoriyah & Watini, 2022; Firmansyah & Jiwandono, 2022; Nurhidayah & Citrasukmawati, 2022; Rohana & Yunitasari, 2024; Sanjiwani, 2018; Takahopekang et al., 2020).

Engagement theory is based on the idea that students need to meaningfully engage in learning activities through interaction and beneficial tasks (Kearsley & Shneiderman, 1998). Christenson et al. (2008)said that it can be observed from students' behaviour (such as participation in learning activities or how they behave towards task), students' internal affect (such as interest and positive feelings about tasks), and their cognitive state (such as metacognition and independent learning). This aligns with Fredricks et al. (2004), who revealed that engagement is a broadly defined construct which encompasses a wide range of goal-directed behaviours, thoughts, and affective states. Related to student engagement theory mentioned, Pedler et al. (2020) state that teachers' role is the most consequential in ensuring that students experience meaningful engagement. This theory frames a model for teachers to implement effective engagement in their classrooms.

Pedler et al. (2020) based this model on student engagement theory from Fredricks et al. (2004) and the additional conceptual framework from Lawson & Lawson (2013). This framework is considered more flexible and responsive to contextual changes, thus the integration of the dimensions aims to enhance learning outcomes and student achievement in a more holistic manner. Pedler et al. (2020) model for teachers' effective engagement in their classroom consist of three aspects, namely behavioural engagement, affective engagement, and cognitive engagement. Behavioural engagement, states that teacher can engage by performing fundamental class routines and applying appropriate behavioural strategies. Emotional engagement, states that teacher can understand students as individuals and convey the feeling that their existence as students is valued at school. Cognitive engagement, states that teacher can engage by employing interesting teaching methods, facilitating students' learning autonomy, and using hands-on and practical teaching strategies.

In terms of teacher engagement, Kristiana & Simanjuntak (2021) state that thus far, the only scale measuring teacher engagement is the Engaged Teacher Scale (ETS) developed by Klassen et al. (2013). This instrument reflects certain characteristics from teacher's work in class and at school, consisting of emotional engagement, social engagement with colleagues, cognitive engagement, and social engagement with students. ETS is a 16-item self-report instrument that correlates positively with other work engagement instrument, i.e. Utrecht Work Engagement Scale (UWES) (Klassen et al., 2013). Therefore, we consider that ETS primarily focus on how teachers engage with their job or measured the teachers' work engagement.

From the above explanation, it can be concluded that a specific measurement to understand teacher's engagement to support young student engagement in learning activities is important to develop. This is because of: 1) the prevalent issue of monotonous and teacher-centred approach in Indonesian early childhood classroom, which lead to passive student participation and disengagement; 2) the gap which there is unavailability of an instrument that focus on how teachers engage with their student in the classroom based on student engagement theory. Therefore, this study aims to develop an instrument to measure early childhood educators' engagement who can make students' engagement more meaningful in the classroom. This instrument is called Teacher's Engagement Scale. Prior to utilizing the instrument, it is essential to conduct psychometric testing to ensure that the instrument meets the standards of effective instrument. Hence, the research question in this study is to determine the reliability of this newly developed Teacher's Engagement Scale and establish its norms within the population of Indonesian early childhood educators.

RESEARCH METHODS

Research Design

This study employs a quantitative correlational design to validate the development of Teacher's Engagement Scale for early childhood educators. The quantitative approach allows precise measurement of teacher's engagement levels using Teacher's Engagement Scale. This precision is important for evaluating the internal consistency and reliability of this scale. Moreover, quantitative data collection enables the establishment of normative data, which is essential for interpreting individual engagement scores and in comparison, to the population.

Participants

The study sample consists of 499 early childhood educators from various educational settings all over Indonesia, who teaches kindergarten age children (4-6years old) and has at least 1 year teaching experience. Participants obtained using convenient sampling technique, which also known as haphazard sampling or accidental sampling. This

kind of sampling techniques is a type of non-probability or a non-random sampling where target population included because of practicality, such as easy accessibility, geographical proximity, availability, willingness to participate, and possible to be reached by the researcher (Etikan, 2016). There were 484 female and 15 male in this study. The sample age ranges from 19 to 66 years old with mean 39.1 (*SD* = 10.3). The mean of teaching duration was 10.6 (*SD* = 7.88).

Instrument

The instrument used in this study is the newly developed Teacher's Engagement Scale which includes 23 self-report items (7 behavioural engagement items, 8 emotional engagement items, and 8 cognitive engagement items), with 19 favourable items and four unfavourable items, that uses 4-point Likert scale of agreement (strongly disagree, disagree, agree, strongly agree). This scale was developed by reviewing literatures related to teacher engagement theories, defining teacher engagement, deciding teacher engagement dimensions, defining the dimensions, formulate indicators, compiling items based on indicators, doing peer review, and removing and improving inaccurate or less accurate items. The items decreased to 23 from the initial 49 items in the very beginning before the items being reviewed, removed, and improved. The instrument then given to 11 people with the same criteria as the participants for readability test. Afterward, some minor revisions and adjustments were made to a couple of items before we got the final 23 items for being tested for reliability and norm formation.

Procedure

Data were collected cross-sectionally between end of May 2023 until mid-July 2023, via Google Form to facilitate widespread participation across the country. Researcher distributed the form to groups of kindergarten and early childhood teachers via personal and friend's social media (e.g., WhatsApp, Instagram). Apart from that, researcher also searched and contacted as many early childhood education settings as possible in Indonesia to ask for their willingness to participate and spread it to more early childhood educators or education settings. The instrument and dataset on this research are the same as those utilised in the study by Sari & Radikun (2024).

Data Analysis

The data were analysed using statistical methods to assess reliability of Teacher Engagement's Scale, which is Cronbach's Alpha for internal consistency. Additionally, descriptive statistics were used to develop normative data, which provides benchmarks for interpreting individual scores. The analyses conducted by using licensed STATA version 13 and MPLUS version 7.

Ethical Consideration

All participants were provided with informed consent in Google Form prior to filling out Teacher's Engagement Scale. This study ensures confidentiality and anonymity towards participants' data. The research complies to the ethical standards in the discipline of psychology, Universitas Indonesia's Research Ethical Code of Conduct, and the Indonesian Psychology Association's Ethical Code of Conduct. It was approved by Committee on Research Ethics at the Faculty of Psychology, Universitas Indonesia with approval number of 222/FPsi.Komite Etik/PDP.04.00/2023 on 24 Mei 2023.

RESEARCH RESULTS

Reliability Analysis

To assess the reliability of Teacher's Engagement Scale, we conducted a series of statistical analysis. Even though this instrument is a unidimensional scale, we examined the reliability for each dimension (behavioural, emotional, cognitive) to ensure the consistency across all dimensions of teacher engagement. Afterward, we examined the overall reliability of Teacher's Engagement Scale. The analysis of Cronbach's Alpha coefficients for each dimension which shown also shown in Table 1–3, revealed the following: the behavioural engagement consisted of 7 items (α = .85), the emotional engagement consisted of 8 items (α = .70), and the cognitive engagement consisted of 8 items (α = .80). Then the reliability analysis for the complete 23 items of Teacher's Engagement Scale was α = .90 which shown in Table 4.

Table 1. Reliability analysis of behaviour engagement

Item	Obs	Sign	item-test corr.	item-rest corr.	interitem cov.	alpha	Label
b1	499	+	0.6937	0.5550	.1193868	0.8411	1. Saya melaksanakan kegiatan mengajar harian sesuai rencana
b2	499	+	0.7379	0.6100	.1143712	0.8328	2. Saya menerapkan peraturan kelas yang adil untuk semua murid
b3	499	+	0.6700	0.5355	.1233087	0.8429	3. Saya mengenali masalah yang dihadapi murid
b4	499	+	0.7211	0.6025	.1188645	0.8331	4. Saya mendampingi murid mengatasi masalah yang dihadapinya
b5	499	+	0.7954	0.7160	.1168103	0.8188	5. Saya menggunakan kata tolong saat meminta bantuan pada setiap murid
b6	499	+	0.7828	0.7004	.1181726	0.8211	6. Saya mengucapkan terima kasih saat menerima bantuan dari murid
b7	499	+	0.7292	0.6157	.1186673	0.8312	7. Saya memberikan apresiasi saat murid membantu teman
Test scale					.1185116	**0.8521**	mean(unstandardized items)

Table 2. Reliability analysis of emotional engagement

Item	Obs	Sign	item-test corr.	item-rest corr.	interitem cov.	alpha	Label
e1	499	+	0.6158	0.4599	.0659403	0.6571	8. Saya memahami saat murid sedang sedih/senang/marah/takut
e2	499	+	0.6655	0.5219	.0627834	0.6434	9. Saya memberikan kesempatan pada murid untuk mengungkapkan pendapatnya
e3	499	+	0.3907	0.1144	.0821682	0.7509	*10. Murid harus memiliki pendapat sama dengan yang saya ajarkan
e4	499	+	0.6652	0.5209	.0627417	0.6435	11. Saya merasa bahagia saat mengajar
e5	499	+	0.6002	0.4349	.0665676	0.6620	12. Saya senang bercanda dengan murid
e6	499	+	0.6225	0.4705	.0656862	0.6551	*13. Murid yang tidak mengikuti kegiatan sesuai prosedur, membuat saya menyerah
e7	499	+	0.4900	0.2973	.0735031	0.6918	*14. Saya panik ketika menemukan masalah saat mengajar
e8	499	+	0.5989	0.4466	.0674715	0.6608	15. Murid saya senang menceritakan pengalamannya pada saya
Test scale					.0683577	**0.7005**	mean(unstandardized items)

Table 3. Reliability analysis of cognitive engagement

Item	Obs	Sign	item-test corr.	item-rest corr.	interitem cov.	alpha	Label
c1	499	+	0.6933	0.5871	.0993613	0.7760	16. Alat dan bahan ajar yang saya gunakan disenangi oleh murid
c2	499	+	0.7072	0.6041	.0983857	0.7736	17. Murid-murid tertarik dengan aktivitas yang sudah saya persiapkan
c3	499	+	0.6756	0.5472	.0978195	0.7802	18. Saya memberikan pertanyaan 'apa', 'mengapa', dan 'bagaimana' pada murid ket
c4	499	-	0.4288	0.1883	.1163099	0.8507	*19. Saya segera membantu bila murid kesulitan dalam mengerjakan tugas
c5	499	+	0.6897	0.5713	.0977267	0.7769	20. Saya menyediakan beragam aktivitas yang dapat dipilih murid
c6	499	+	0.7260	0.6212	.0958319	0.7701	21. Saya mendorong setiap murid untuk berperan aktif dalam kelompoknya
c7	499	+	0.7170	0.6055	.0956756	0.7718	22. Saya memastikan kegiatan belajar berhubungan dengan kehidupan murid sehari-h
c8	499	+	0.7187	0.6147	.0968893	0.7715	23. Saya memberikan umpan balik spesifik untuk tugas yang dikerjakan murid
Test scale					.09975	0.8063	mean(unstandardized items)

Table 4. Reliability analysis of Teacher's Engagement Scale

Item	Obs	Sign	item-test corr.	item-rest corr.	interitem cov.	alpha	Label
b1	499	+	0.5677	0.5081	.077324	0.8911	1. Saya melaksanakan kegiatan mengajar harian sesuai rencana
b2	499	+	0.6233	0.5677	.0762315	0.8895	2. Saya menerapkan peraturan kelas yang adil untuk semua murid
b3	499	+	0.6322	0.5827	.0767749	0.8893	3. Saya mengenali masalah yang dihadapi murid
b4	499	+	0.6491	0.6016	.0765637	0.8888	4. Saya mendampingi murid mengatasi masalah yang dihadapinya
b5	499	+	0.6658	0.6260	.0772744	0.8888	5. Saya menggunakan kata tolong saat meminta bantuan pada setiap murid
b6	499	+	0.6477	0.6066	.0775876	0.8892	6. Saya mengucapkan terima kasih saat menerima bantuan dari murid
b7	499	+	0.6431	0.5959	.0767847	0.8890	7. Saya memberikan apresiasi saat murid membantu teman
e1	499	+	0.6588	0.6120	.076384	0.8886	8. Saya memahami saat murid sedang sedih/senang/marah/takut
e2	499	+	0.6518	0.6041	.0764479	0.8887	9. Saya memberikan kesempatan pada murid untuk mengungkapkan pendapatnya
e3	499	+	0.1511	0.0467	.0842892	0.9061	*10. Murid harus memiliki pendapat sama dengan yang saya ajarkan
e4	499	+	0.6145	0.5629	.0769925	0.8897	11. Saya merasa bahagia saat mengajar
e5	499	+	0.5638	0.5063	.0776444	0.8911	12. Saya senang bercanda dengan murid
e6	499	+	0.4942	0.4339	.0789552	0.8928	*13. Murid yang tidak mengikuti kegiatan sesuai prosedur, membuat saya menyerah
e7	499	+	0.3491	0.2755	.0809486	0.8968	*14. Saya panik ketika menemukan masalah saat mengajar
e8	499	+	0.5892	0.5381	.0777186	0.8904	15. Murid saya senang menceritakan pengalamannya pada saya
c1	499	+	0.6161	0.5692	.0775648	0.8898	16. Alat dan bahan ajar yang saya gunakan disenangi oleh murid
c2	499	+	0.6002	0.5517	.0777683	0.8902	17. Murid-murid tertarik dengan aktivitas yang sudah saya persiapkan
c3	499	+	0.5865	0.5299	.077162	0.8905	18. Saya memberikan pertanyaan 'apa', 'mengapa', dan 'bagaimana' pada murid ket
c4	499	-	0.2667	0.1645	.0818624	0.9027	*19. Saya segera membantu bila murid kesulitan dalam mengerjakan tugas
c5	499	+	0.5880	0.5341	.0774212	0.8904	20. Saya menyediakan beragam aktivitas yang dapat dipilih murid
c6	499	+	0.6564	0.6104	.0765722	0.8887	21. Saya mendorong setiap murid untuk berperan aktif dalam kelompoknya
c7	499	+	0.6389	0.5896	.0765977	0.8891	22. Saya memastikan kegiatan belajar berhubungan dengan kehidupan murid sehari-h
c8	499	+	0.6071	0.5576	.0774634	0.8900	23. Saya memberikan umpan balik spesifik untuk tugas yang dikerjakan murid
Test scale					.0778406	0.8957	mean(unstandardized items)

The value suggest that Teacher's Engagement Scale demonstrates a reliable instrument overall. According to

Taber (2018)an instrument's reliability should reach a value of 0.70 to be considered satisfactory. To optimize the internal reliability of the scale, we analysed each item's statistics using the item rest-correlation (ir-cor) or corrected item-total correlation. Azwar (2012) states that corrected item-total correlation indicates the compatibility of an item with the instrument's overall function in distinguishing individual differences to optimise the instrument's effectiveness. The minimum threshold for an item is based on a corrected item-total correlation coefficient of ≥ .30.

This value implies that the item's discriminative power meets the psychometric requirements for inclusion in the instrument (Azwar, 2012). The items that did not meet the threshold are item e3 (Table 2, $\rho X_i R_{(i)}$ = .114; Table 4, $\rho X_i R_{(i)}$ = .046) and item c4 (Table 3, $\rho X_i R_{(i)}$ = .188; Table 4, $\rho X_i R_{(i)}$ = .164), in which all of them are unfavourable items. Therefore, we decided to remove these two items and re-examine the reliability. The new reliability analysis without the two items revealed the following: the emotional engagement consisting of 7 items (α = .75), and the cognitive engagement consisting of 7 items (α = .85). Then the reliability analysis for the 21 items of Teacher's Engagement Scale was α = .91.

Data distribution and norm for Raw Score Interpretation

We examined the skewness and kurtosis from total of teacher engagement score, which has absolute value of −0.427 for skewness and 2.88 for kurtosis. Kim (2013) states that for more than 300 sample sizes, the reference values for determining non-normality are an absolute value larger than 2 for skewness and an absolute value larger than 7 for kurtosis. According to these criteria, total of teacher engagement data is considered normal. To further analyse the distribution of the data, we calculated the z-scores for each participant's total teacher engagement score. All of participants' z-scores ranges between z = −2.66 to z = +2.21 with one extremely outlier at z = −6.68. Figure 1 shows the graph and plots of total teacher engagement z-scores and Figure 2 shows histogram and density of the z-scores without the outlier, while Table 5 shows z-scores three highest and lowest data points.

Table 5. Descriptives of raw scores and z-scores

	Total BE	Total EE	Total CE	Total TES	z-scores
N	499	499	499	499	499
Mean	24.6	19.2	23.0	66.8	-9.95e-16
SD	2.61	1.76	2.59	5.96	1.00
Minimum	7.00	9.00	11.0	27.0	-6.68
Maximum	28.0	24.0	28.0	80.0	2.21
Skewness	-1.41	-0.432	0.426	-0.427	-0.427
SE Skew	0.109	0.109	0.109	0.109	0.109
Kurtosis	6.81	1.33	0.0184	2.88	2.88
SE Kurt	0.218	0.218	0.218	0.218	0.218

Note: BE= Behavioural Engagement; EE= Emotional Engagement; CE= Cognitive Engagement; TES= Teacher's Engagement Scale

Following the removal of item e3 and c4, which were deemed unsuitable for measuring the intended dimensions, the revised Teacher's Engagement Scale comprises of 21 items, with each dimension consisting of 7 items. The raw score from this instrument ranges from 4 to 84. To facilitate easier interpretation of teacher's engagement level, these raw scores will be converted to scaled score.

Figure 1. Histogram, density, box plot, and Q-Q plot of z-scores

Figure 2. Histogram and density of z-scores distribution without outlier

The conversion from raw scores to scaled scores is performed using a linear transformation based on their corresponding z-scores. As Emerson (1991) explains, linear transformation is a mathematical operation that adjusts the original data to make it more interpretable or to align it with a specific measurement scale, in this case ranging from 0 to 10. For this scale, raw scores with $M = 44$ ($SD = 13$) are transformed to scaled scores with $M = 5$ ($SD = 1.6$). Table 6 presents the conversion of raw scores to scaled scores, which categorized into four levels of engagement: disengaged, fairly engaged, engaged, and very engaged.
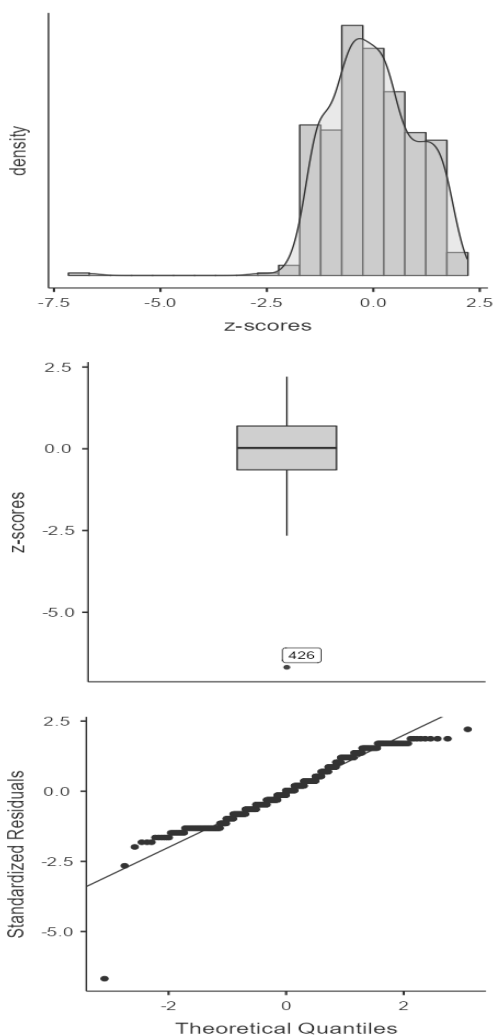
Table 6. Conversion norms from raw score to scaled score (0 - 10) and its interpretation

Raw Score Range	Scaled Score (0-10)	Category
4 – 7	0	Disengaged
8 – 15	1	
16 – 23	2	
24 – 31	3	
32 – 39	4	
40 – 48	5	
49 – 56	6	Fairly engaged
57 – 62	7	
63 – 72	8	Engaged
73 – 80	9	Very engaged
81 - 84	10	

A raw score between 4 – 48 (with z-scores range from 0 to -3) which corresponds to scaled score of 0 to 5, indicating that the teacher is disengaged. A raw score between 49 – 62 (with z-scores range from 0 to +1.2) which corresponds to scaled score of 6 to 7 indicating that the teacher is fairly engaged. A raw score between 63 – 72 (with z-scores range from +1.2 to +2.1) which corresponds to scaled score of 8 indicating that the teacher is engaged. And finally, a raw score between 73 – 84 (with z-scores range from +2.1 to +3) which corresponds to scaled score of 9 to 10 indicating that the teacher is very engaged.

Table 7. Frequency distribution of teacher engagement levels

Engagement Level	Frequency	Percentage
Disengaged	1	0.2%
Fairly engaged	25	5%
Engaged	268	54%
Very engaged	205	41%

DISCUSSION

Recent studies have discussed the disengagement of young students in early childhood education settings, attributing it to teachers continued use of traditional methods and teacher-centred approaches in providing learning activities. Consequently, researchers have implemented engaging and enjoyable methods to reform teaching approaches to improve students' engagement in learning and to increase children's skills (Akmal, 2020; Anshoriyah & Watini, 2022; Firmansyah & Jiwandono, 2022;
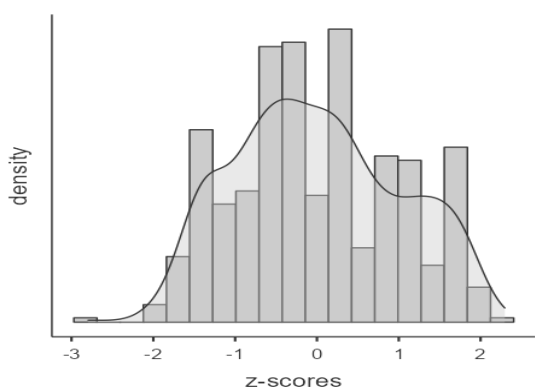
Nurhidayah & Citrasukmawati, 2022; Rohana & Yunitasari, 2024; Sanjiwani, 2018; Takahopekang et al., 2020; Viranda et al., 2019). However, according to student engagement theory, students are fully engaged in learning activities when they exhibit behavioural, emotional, and cognitive engagement (Fredricks et al., 2004). Therefore, to foster high engagement among young students, teachers themselves should also be engaged behaviourally, emotionally, and cognitively, not just change their teaching approaches.

The absence of an appropriate instrument to measure teacher engagement aligned with student engagement theory has been highlighted as a significant gap in the existing literature (Klassen et al., 2013; Kristiana & Simanjuntak, 2021). Acknowledging this shortcoming, the current research aimed to fill this void by developing Teacher's Engagement Scale. The findings in this study which validating this instrument by an examination of the reliability, shows a satisfactory reliability for the 23-item Teacher Engagement Scale. However, upon further inspection, there are certain items from emotional and cognitive dimension (item e3 and c4) that does not meet the psychometric requirement for discriminative power, which lowers the reliability coefficient especially for emotional dimension. These items are part of the unfavourable items as shown in

Table 8. Statements from item e3 and c4 in Bahasa Indonesia

Item	Statement
E3	*Murid harus memiliki pendapat sama dengan yang saya ajarkan.*
C4	*Saya segera membantu bila murid kesulitan dalam mengerjakan tugas.*

There is a need to further clarify whether the low of discriminative power of these statements are related to Indonesian teacher emotional intelligence and/or knowledge regarding good teaching practice for early childhood students. Emotional intelligence enables teachers to better understand and address their students' needs, encompassing key skills such as empathy, flexibility in teaching, self-monitoring, and emotional regulation, which are essential for managing both sensitive and practical situations in the classroom (Abiodullah et al., 2020). Teachers with high emotional intelligence are better equipped to create meaningful connections with their students, respond to their needs, and maintain a high level of engagement throughout the learning process. Previous study shown that emotional intelligence is a predictor for teacher engagement in the classroom, influencing how teachers interact with students, manage classroom dynamics, and adapt to the emotional, behavioural, and cognitive needs of young learners (Abiodullah et al., 2020).

Apart from that, studies from Harper-Hill et al. (2022) and Huang et al. (2023) indicate that personal growth, whether differing from or including professional learning can impact teacher engagement and their practice in the classroom. Therefore, further studies need to examine the reliability of Teacher's Engagement Scale against other

instruments that measure constructs related to teacher engagement theory that used in this study, such as emotional intelligence, comprehension of good teaching practices for young students, direct observation in the classroom, and especially student engagement. Given that the Teacher's Engagement Scale is based its construct theory from the student engagement theory. Subsequently, it is particularly important to examine the reliability of this instrument alongside a student engagement instrument.

In the context of construct, the exploratory factor analysis (EFA) conducted by Sari & Radikun (2024) on the same dataset reveals that the Teacher's Engagement Scale may be capturing only two distinct dimensions—cognitive and behavioural engagement—rather than the three proposed by Fredricks et al. (2004), which also include emotional engagement. Their findings suggest that the items designed to measure emotional engagement may not adequately represent this dimension, which indicates a need for the reconstruction of these items. While their research focuses on the dimensional structure of the scale, present study emphasizes the reliability and normative data. As part of this analysis, it is crucial to revisit the emotional engagement dimension to ensure that it not only aligns with the theoretical framework of student engagement but also enhances the overall reliability of the Teacher's Engagement Scale.

In addition to emotional intelligence and personal growth, another construct that closely related to teacher engagement is self-efficacy. Study by Andreas et al. (2021) demonstrates that a training approach focused on self-efficacy training approach could effectively enhance teacher engagement. In their study, Andreas et al. (2021) found that enhancing teachers' self-efficacy through targeted training led to noticeable improvements in their engagement levels. Similarly, Anwar & Mustika (2024) find that emotional intelligence positively correlates with work motivation, with self-efficacy serving as a crucial mediator. This highlights the importance of incorporating both emotional intelligence and self-efficacy into the Teacher's Engagement Scale to comprehensively measure teacher engagement and its related constructs.

The lack of normative data on teacher engagement specifically for early childhood educators poses a challenge in discussing the normative results of this study. The present study has introduced some initial normative data on teacher engagement among early childhood educators, addressing a significant gap in literature. Given the scarcity of normative data specific to this group, it can be beneficial to draw comparison with existing norms from other educational contexts. Study by Abiodullah et al. (2020) on secondary school teachers measures teachers engagement in classroom using UWES resulting in three level of engagement (low, medium, high). Other than the differences regarding categorization of engagement levels, it also has different z-scores (+1 to +5) for N = 320. Low engagement has z-scores range from +1 to +2.5 (93% teachers), medium engagement has z-scores range from +2.5 to +3.75 (6% teachers), and high engagement has z-scores range from +3.75 to +5 (.3%

teachers). While findings in this study revealed a range of z-scores spanning from −2.66 to +2.21, with one significant outlier at z = −6.68. This distribution highlights the variability in teacher engagement levels within Indonesia population samples. Most teachers fell within the range of "engaged" (54%) and "very engaged" (41%) categories, with a smaller portion identified as "fairly engaged" (5%) and as "disengaged" (.3%). This distribution suggests a generally high level of teacher engagement, though it highlights a subset that could benefit from targeted support.

Comparing these results to study by Abiodullah et al. (2020) using a different engagement instrument, where 93% of teachers were classified as highly engaged, suggests differences in the sensitivity of the instruments. Teacher's Engagement Scale in present study, offers a detailed view of teacher engagement, particularly capturing those who are moderately engaged. This detail is essential for identifying teacherswho may benefit from further professional development to enhance their engagement. In contrast, the broader categories used in Abiodullah et al. (2020) study may obscure the presence of teachers who are engaged but could still improve their engagement levels with appropriate training or interventions. Overall, these findings underscore the importance of using precise engagement measurment to better inform interventions aimed at enhancing teacher performance and student outcomes.

CONCLUSION

This study successfully developed and validated Teacher's Engagement Scale, addressing the lack of instruments measuring teacher engagement based on student engagement theory. Through rigorous examination and analysis, this instrument demonstrated satisfactory internal consistency using Cronbach's Alpha for evaluating behavioural, emotional, and cognitive engagement among early childhood educators in Indonesia. It is also describing the distribution and level of engagement in the sampled population. These findings provide an early result and a promising step in the development of this instrument. Future research should focus on analysing and refining the items that has low discriminative power to enhance the overall effectiveness of the scale. Moreover, it would be beneficial to explore the instrument's applicability and correlation with related constructs, such as emotional intelligence and teaching practices, to further validate and strengthen its utility.

REFERENCES

Abiodullah, M., Dur-e-Sameen, & Aslam, M. (2020). Emotional Intelligence as a Predictor of Teacher Engagement in Classroom. *Bulletin of Education and Research*, 42(1), 127–140.

Akmal, A. (2020). UPAYA MENINGKATKAN MINAT BELAJAR ANAK MELALUI PEMBELAJARAN SAINS. *GENERASI EMAS Jurnal Pendidikan Islam Anak Usia Dini*, 3(1), 8–17.

Anam, N. (2021, January 6). *Berbagai problematika pendidikan dan pembelajaran di dalam lembaga pendidikan PAUD dan TK/RA di Indonesia.* https://iaiq.ac.id/berbagai-problematika-pendidikan-dan-pembelajaran-di-dalam-lembaga-pendidikan-paud-dan-tk-ra-di-indonesia/

Andreas, Y., Wulandari, P. A. W., & Pandjaitan, L. N. (2021). 'When Teachers Become Students': Enhancing the Engagement of Public Senior High School XY Kediri Teachers During Online Learning. *Psikostudia : Jurnal Psikologi*, 10(3), 273–282.

Anshoriyah, S., & Watini, S. (2022). IMPLEMENTASI MEDIA TV SEKOLAH DALAM MENINGKATKAN MINAT BELAJAR ANAK USIA DINI KELOMPOK B DI RA AMAL SHALEH JEMBER. *Jurnal Pendidikan Dan Pembelajaran*, 3(2), 135–144. http://jiip.stkipyapisdompu.ac.id/jiip/index.

Anwar, & Mustika, M. D. (2024). Emotional Intelligence as Predictor of Work Motivation: The Mediating Role of SelfEsteem - Case of Prospective Indonesian Domestic Migrant Workers. *Psikostudia : Jurnal Psikologi*, 13(1), 136–143.

Azwar, S. (2012). *Reliabilitas dan Validitas* (4th ed.). Pustaka Belajar.

Christenson, S. L., Reschly, A. L., Appleton, J. J., Berman-Young, S., Spanjers, D. M., & Varro, P. (2008). Best practices in fostering student engagement. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology* (5th ed., pp. 1099–1120). National Association of School Psychologists.

Emerson, J. D. (1991). Introduction to Transformation. In D. C. Hoaglin, F. Mosteller, & J. W. Tukey (Eds.), *Fundamentals of Exploratory Analysis of Variance* (pp. 365–400). John Wiley & Sons, Inc. https://doi.org/10.1002/9780470316832.ch13

Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1. https://doi.org/10.11648/j.ajtas.20160501.11

Firmansyah, A., & Jiwandono, N. R. (2022). Kecenderungan Guru dalam Menerapkan Pendekatan Student Centre Learning dan Teacher Centre Learning dalam Pembelajaran. *Jurnal Guru Indonesia*, 2(1), 33–39. https://doi.org/10.51817/jgi.v2i1.229

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, 74(1), 59–109. https://doi.org/10.3102/00346543074001059

Ghafar, Z. N. (2023). The Teacher-Centered and the Student-Centered: A Comparison of Two Approaches. *International Journal of Arts and Humanities*, 1(1), 18–23. https://doi.org/10.61424/ijah.v1i1.7

Harper-Hill, K., Beamish, W., Hay, S., Whelan, M., Kerr, J., Zelenko, O., & Villalba, C. (2022). Teacher engagement in professional learning: what makes the difference to teacher practice? *Studies in Continuing Education*, 44(1), 105–118. https://doi.org/10.1080/0158037X.2020.1781611

Huang, X., Lam, S. M., Wang, C., & Xu, P. (2023). Striving for personal growth matters: The relationship between personal growth initiative, teacher engagement and instructional quality. *British Journal of Educational Psychology*, 93(3), 658–675. https://doi.org/10.1111/bjep.12583

Kearsley, G., & Shneiderman, B. (1998). Engagement Theory: A Framework for Technology-Based Teaching and Learning. *Educational Technology*, 38(5), 20–23. https://www.jstor.org/stable/44428478

Kim, H.-Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 38(1), 52–54. https://doi.org/10.5395/rde.2013.38.1.52

Klassen, R. M., Yerdelen, S., & Durksen, T. L. (2013). Measuring Teacher Engagement: Development of the Engaged Teachers Scale (ETS). *Frontline Learning Research*, 1(2), 33–52.

Kristiana, I. F., & Simanjuntak, E. (2021). Engaged Teachers Scale for Special Educational Needs Teachers in Indonesia: A Rasch Model Approach. In I. F. Kristiana, C. G. Widayanti, A. R. Prasetyo, Z. Al Faruqi, T. L. Pertiwi, K. U. Sholihah, A. Puspitasari, & S. Rizkizen (Eds.), *International Conference on Psychological Studies (ICPSYCHE 2020): Strengthening Family Roles to Improve Human Functioning and Mental Health in Educational, Work, and Community Settings* (pp. 145–152). AtlantisPress. https://doi.org/10.2991/assehr.k.210423.021

Lah, M. (2020). Expanding Horizons Business, Management and Technology for Better Society Safe and Stimulating Learning Environment. In V. Dermol, M. Smrkolj, & A. Ježovnik (Eds.), *Expanding Horizons: Business, Management and Technology for Better Society* (pp. 139–144). ToKnowPress. https://toknowpress.net/ISBN/978-961-6914-26-0.pdf

Lawson, M. A., & Lawson, H. A. (2013). New Conceptual Frameworks for Student Engagement Research, Policy, and Practice. *Review of Educational Research*, 83(3), 432–479. https://doi.org/10.3102/0034654313480891

Ngaisah, N. C., Munawarah, & Aulia, R. (2023). PERKEMBANGAN PEMBELAJARAN BERDIFERENSIASI DALAM KURIKULUM MERDEKA PADA PENDIDIKAN ANAK USIA DINI. *Bunayya : Jurnal Pendidikan Anak*, *9*(1), 1. https://doi.org/10.22373/bunayya.v9i1.16890

Nurhidayah, S., & Citrasukmawati, A. (2022). METODE PEMBELAJARAN KREATIF DAN INOVATIF UNTUK GURU PAUD TKM NU MUSLIMAT 114 MUTTABIUL HUDA. *Abdimas Galuh*, *4*(2), 1051. https://doi.org/10.25157/ag.v4i2.8104

Pedler, M., Yeigh, T., & Hudson, S. (2020). The Teachers' Role in Student Engagement: A Review. *Australian Journal of Teacher Education*, *45*(3), 48–62. https://doi.org/10.14221/ajte.2020v45n3.4

Rohana, & Yunitasari, S. E. (2024). Model Pembelajaran Klasikal terhadap Minat Belajar Anak. *JIIP (Jurnal Ilmiah Ilmu Pendidikan)*, *7*(5), 4426–4431. http://Jiip.stkipyapisdompu.ac.id

Sanjiwani, I. A. M. (2018). *Perubahan Pembelajaran Teacher Centered Learning Menjadi Student Centered Learning: Penelitian Tindakan Pada Guru Paud* [Unpublished, Universitas Airlangga]. http://repository.unair.ac.id/id/eprint/78046

Sari, C. I. D., & Radikun, T. B. S. (2024). Exploratory Factor Analysis of Teacher's Engagement Scale for Early Child Teacher. *Psikostudia : Jurnal Psikologi*, *13*(2), 314–321. https://doi.org/10.30872/psikostudia.v13i2.15253

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, *48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Takahopekang, C. R., Danjie, F. E. K., & Nafiqoh, H. (2020). KREATIVITAS ANAK USIA DINI MELALUI METODE BERMAIN PASIR AJAIB. *JURNAL CERIA (CERDAS ENERGIK RESPONSIF INOVATIF ADAPTIF)*, *3*(2), 2714–4107.

Viranda, C., Alhamdu, A. A., & Istiningtyas, L. (2019). BERMAIN PERAN (ROLE PLAY) DAN PENINGKATAN KETERAMPILAN SOSIAL ANAK USIA DINI. *Psikostudia: Jurnal Psikologi*, *8*(1).