

Development and Validation of Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI)

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This research seeks to establish and substantiate the ECCE Pre Service Teacher Instrument designed to identify their competencies level towards the quality of early childhood carers-educators' professionalism in Malaysia. Elements affecting the quality of early childhood education were distinguished through a comprehensive review of pieces of literature as well as interviews conducted with experienced teachers and experts. With a view to augment the validity of this instrument, it was reviewed by two experts. Additionally, this study involved 991 pre-school teachers. The principal component analysis had revealed four scales observing the quality of early childhood professionalism. **Methodology:** 4 scales were used: (1) disposition, (2) knowledge, (3) skills, and (4) practices. Every instrument item covered a component loading range between 0.75 and 0.63. Conversely, the alpha reliability coefficient range for each scales was between 0.94 and 0.82. **Findings:** The findings of this study conclusively verified the validity and reliability of the ECCE Pre Service Teacher Instrument. **Application and Novelty Missing:** As an addition, this research instrument will construct the quality of development framework for early childhood carers-educators professionalism in Malaysia which significantly helps to contribute and sustain the quality of ECCE.

Key words: *Early Childhood Care and Education Professionalism, Instrument, Pre-school, Teacher, Principal Component Analysis.*

Introduction

All-inclusive growth of a child's social, emotional, cognitive and physical needs is the core purpose of the Early Childhood Care and Education (ECCE) program. It aspires to create a substantial and wide fundamental for lifetime education and welfare. The program has the capacity to nurture caring, capable and responsible future citizens (UNESCO, 2019). It is required to provide and equip the carers-educators with the opportunities to increase their level of disposition, knowledge, skills, and practices as these competencies are the main important aspects of early childhood education.

In the Malaysian context, a significant amount of effort and initiatives had been implemented to improve and coordinate the carers-educators' competencies, professional development, and their career pathway, respectively (Majzub, 2013). This could be part of the motivation as The Malaysian Educational Blueprint had recently established that the nation is currently working towards 100% enrolment for all levels including early education (Ministry of Education, 2013).

Given the awareness and prominence of this ECCE program, Malaysia's Ministry of Education decided to enact a specification that every preschool educator must hold a certain minimum qualification. It is aimed that by 2020, the minimum qualification of all preschool teachers in Malaysia is a diploma in early childhood education (Foong et al., 2018). However, as to surprise, majority of the cares-educators have not been able to meet the minimum requirement of the qualification. This issue will lead to serious questions concerning the quality of the cares-educators' professionalism.

There were three stages in the implementation of the development of ECCEPTI. The first stage identified the salient scales; the second stage included recording every single item in each scale while the third stage was the execution of items from the field testing, as well as analysis of item and procedures to validate. These three steps were also used by Walker and Fraser, 2005; Che Ahmad et al., 2014. Che Ahmad et al., 2015. The description of the steps involved in each stage is as the following:

Stage 1 – Identifying and developing salient scales

There were four steps in Stage 1 to identify and develop the salient scales.

Fundamentally, pieces of literature on the subject of pre-school professionalism specifically in Malaysia, as well as on the international level, were reviewed. This step aims to identify key components which researchers, experts and practitioners considered to be imperative and played a vital role in the development of professionalism for carers-Educators in pre-school. The next step involved reviewing established instruments related to the development of ECCE

professionalism in Malaysia as well as in other countries for adjustable scales to construct ECCEPTI. Subsequently, conducting face-to-face interviews and discussions with experts and experienced pre-school teachers for an insight of their perspective was the following step. Lastly, the final step developed an introductory scales set. The selected scales were disposition section, knowledge section, skills section and practices section.

Stage 2 – Writing individual items

Two main steps composed Stage 2: (1) adapting items used in established instruments and establishing supplementary items for the new scales classified, and (2) distributing the all set of items to be validated by an expert committee. These scales and examples of items in the ECCEPTI are elucidated in Table 1.

Table 1: Childhood Care and Education Pre-Service Teachers Instrument (ECCEPTI)

Competencies	Item per competencies	Sample Item
Disposition	8	Confident that the ECCE program can produce professional carers-educators
Knowledge	16	Knowledge in carrying out activities related to children literacy.
Skills	20	Knowledge in carrying out learning outside the classroom setting.
Practices	10	Give priorities to the children's welfare.

Stage 3 – Field testing and analyses

Two steps were required in the third stage. The first step was administering the draft instrument using a huge sample of the focused populace. The size of the sample ensures sufficient data for statistical analysis. Step two included principal component analysis which aimed to determine the construct validity and internal consistency reliability of ECCEPTI. Responses were collected from various states in Malaysia, involving 991 experienced pre-school teachers, specifically from TADIKA and TASKA.

Given these circumstances, this study will explore and discuss on pre-service carers-educators' competencies, particularly on disposition, knowledge, skills, and practices. In line with this agenda, hence, this study aims to develop and validate a standard instrument to assess how dependable the ECCE professional framework is in Malaysia.

Literature Review

In the scope of Europe, the augmentation of professional establishment for early childhood educators is a fundamental presumption for quality advancement of ECCE. The New Media Age observes that even the likes of Denmark and Finland which have been known to have advanced educational systems make an effort to upgrade the professional advancement of their educationalists. There were two main findings achieved from European studies as well as studies incorporating European countries, e.g. Early et al. (2006) and Sylva et al. (2007) which positively benefit their offered ECEC eminence. First, it is the training quality of early childhood teachers as well as caregivers. Second, it is how established their development is professionally.

Substantively, for some countries in Europe, the level of higher pre-service training and more advanced levels of quality of process were directly proportional, for example, Denmark, Portugal, and Germany and this even applied to the United States (Cryer et al., 1999; Pianta et al., 2005; Guo et al., 2010; Slot et al., 2018). In the United States, Denmark, and Portugal, for instance, this indicated the condition of holding a Bachelor's degree. Nonetheless, there was inconsistency in the base of proof. In a large-scale multisite and multi-state study, Early et al. (2006) had discovered that holding a degree above the bachelor level would be connected to higher process quality. However, the difference is insignificant for below a bachelor degree. Other studies had also noted null findings (Philips, Gormley and Lowenstein, 2009) or conflicting results contingent on a cross-country comparison studies (Cryer et al., 1999; Slot, Lerkkanen and Leseman, 2015) and a wide-ranging comparative review in the United States (Early et al., 2007). On the other hand, pre-service training indicated firmer correlation with process quality if early childhood and education content (e.g. child development) was included in the training, as proven by Zaslow and Berry (2006) in another wide-ranging review.

Towards this end, the Ministry of Finance (MOF) via early childhood care and education project financed by the Ministry of Education (MOE) Malaysia was designed to contribute to the professional development of early childhood educators in Malaysia through the development of their four criteria; disposition, knowledge, skills and practices. Most early childhood carers-educators in Malaysia are highly-experienced but without professional qualifications such as a diploma or bachelor's degree. This issue concerning basic professional qualification in early childhood carers-educators has become among the heated subject of debates in Malaysia which is considered to cause an impact on the country's service quality. Therefore, this paper focuses on the professional development and career path for pre-service educators in Malaysia i.e. its future early childhood carers-educators. This research particularises the methods and procedure of research framework, instrument, purposive sampling and analysis of data. The focus on instrumental construction to develop a professional establishment and career path for pre-service educators has been implemented. The employed

instrument is a set of questionnaire which the respondents were selected among the students and trainees of early childhood carers-educators programmes in Malaysia.

Methodology

This study seeks to establish and substantiate the Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI). It further used the quantitative method and cross sectional survey design. The quantitative method was chosen because the researchers seek to institute the overall response tendencies from individuals and observe how this tendency varies among people. All data were collected using a set of questionnaires at one point in time. The total participants in this research were 991 pre-school teachers from numerous states in Malaysia. The teachers involved were required to answer all the items in ECCEPTI. The ECCEPTI consisted of 54 total items and was allocated in four scales; (1) Disposition; (2) Knowledge; (3) Skills; (4) Practices. Each item had a four-point Likert scale with responses from 1 (viewed as “very low”) to 4 (viewed as “very high”).

Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI)

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Stage 2 – Writing individual items

Two main steps composed Stage 2: (1) adapting items used in established instruments and establishing supplementary items for the new scales classified, and (2) distributing the all set of items to be validated by an expert committee. These scales and examples of items in the ECCEPTI are elucidated in Table 1.

Table 1: Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI)

Scale	Item per scale	Sample Item
Disposition	8	Believe that the responsibility to nurture and educate children is a noble task.
Knowledge	16	Knowledge in teaching strategies for children.
Skills	20	Skill in building a fun teaching and learning environment.
Practices	10	Evaluation of children development effectively.

Stage 3 – Field testing and analyses

Two steps were required in the third stage. The first step was administering the draft instrument using a huge sample of the focused populace. The size of the sample ensures sufficient data for statistical analysis. Step two included principal component analysis which aimed to determine the construct validity and internal consistency reliability of ECCEPTI. Responses were collected from various states in Malaysia, involving 991 experienced pre-school teachers, specifically from TADIKa and TASKA.

The principal component analysis was performed for two reasons. First, it specified the ECCEPTI scales, and second, it supplied the proof contingent on reliable and valid the refined scales were. Then, the analysis of data was done by means of Cronbach's Alpha (α) coefficient to determine the internal consistency reliability regarding the inter-correlations between the items. Particularly, it calculated how extensive the items within a scale quantify the same structure the others within the same scale. Items which were only slightly related to their particular scales were omitted. Next, the data analysis was repeated until each items having the least item and scale relations had been eliminated while the alpha coefficient became the maximum. The analysis of the enhanced set of data provided support to confirm the reliability and factorial validity of the enhanced scales as a whole.

Principal Component Analysis

Principal Component Analysis (PCA) has been designated to decrease the dimension of a huge data matrix to a lower dimension by maintaining almost all of the data's initial variability

(Shaharudin et al., 2018). By changing an observation series of potentially connected variables to a series of linearly connected variables (e.g. principal components), it was feasible. The initial principal component considerably totalled up the variation in the fundamental data. Meanwhile, every subsequent component summed up the outstanding variation subject to being unrelated to the preceding ones.

The data matrix covariance or its correlation matrix was essential for PCA to compute the eigenvalues and eigenvectors so that the related components could be acquired. This would make up the utmost data variations [Shaharudin et al., 2013]. The correlation matrix was used for the objective of this research. The reduced matrix was the component matrix of eigenvector “loadings” that defined the supplementary variables comprising linear transformation of the initial variables which augmented the variance in the new axes.

There were five phases in the PCA algorithm. First, the input matrix was obtained. The correlation matrix was calculated. Next, the eigenvectors and eigenvalues of the correlation matrix were calculated. The utmost significant principal components were selected, contingent on the accumulative percentage from the overall variation. Finally, an updated series of data were derived.

Method to Extract the Number of Principal Components

The idea of extracting components in the PCA method was substituting the variables to lower the dimensionality with the earliest few components that have significant variance and ignored the components that did not contain any significant information. Typically, the first three types of rule for extracting the number of components are Kaiser’s rule, scree plot and an extent of explained variance referred as a guide (Alvin, 2002; Norman, 1987).

Scree plot is a graphical approach that involves plotting the variance which was made of every single principal component in a descending amount order. Scree plot was introduced by Cattell (1966) where it was already commonly employed for determining the most appropriate sum of components. This step was set to find a “break” among the components which had huge eigenvalues as well as those with small eigenvalues. The x-axis in the scree plot is the components numbers while the y-axis represents the eigenvalues.

Besides that, Kaiser's rule is one of the methods of finding the best amount of component to retain. This method selected the eigenvalues based on the total variance for components. Using this condition, eigenvalues bigger than the average eigenvalue (i.e. $\lambda \geq 1$) were maintained since these axes summarised more evidence than an original variable (Donald, 1993). Therefore, the abovementioned components with $\lambda \geq 1$ were used to determine the number of principal components. However, it could be argued that a cut off $\lambda \geq 1$ retained too few

variables while with λ being close to 1, such as $\lambda = 0.98$, might contain essential practical information in attaining the objectives in the study. This argument was supported by Grossman et al. (1991) and Rextad et al. (1988).

The most obvious criterion to select the most suitable amount of components to acquire was a cumulative percentage of the overall variation. The cumulative percentage of variation in PCA was calculated by

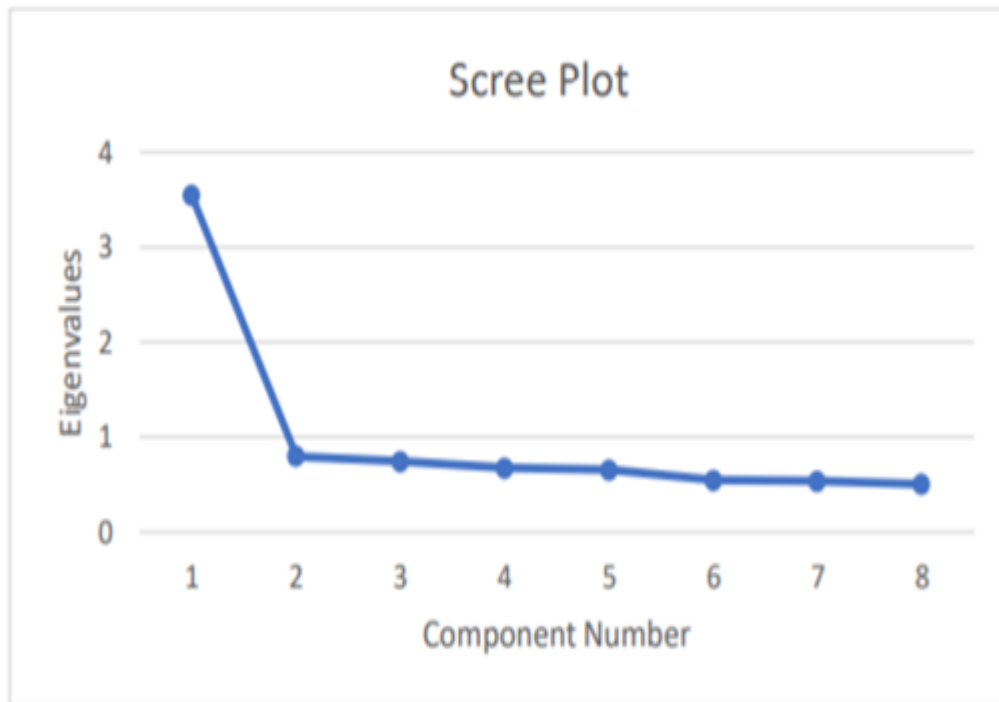
$$t_m = \frac{100}{j} \sum_{k=1}^m l_k \quad (1)$$

where m denote the number of components to be obtained and j is the number of variables in the set of data. t_m is defined as variance accumulative percentage of m . To find the maximum variance, principal components were successfully selected with the variance of the k th principal component is l_k . Typically, a sensible cutoff of the range of the cumulative percentage of variation was between 40% up to 60% for social science area (Kutluca et al., 2010).

Analysis

PCA was used in this study to validate all items measuring the quality of the question and whether it is significant to the study. The PCA for Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI) began with 54 items. From the 54 items, the items were divided based on four sections which are disposition, knowledge, skills and practices. Then, PCA was employed to the data set for each section to confirm if a certain item in a certain scale only evaluates non-other than its own scale.

Figure 1. Principal component selection using a Scree Plot for disposition section



The plot is a plot of the Eigenvalues along an x-y axis. The location where the curve decreased and straightened out (i.e. the “elbow” of the graph) was the location where researchers must incorporate every component preceding and at the elbow. The principal component analysis for Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI) for disposition section began with 8 items. From the analysis, 8 items had been gathered into one factor with Eigenvalues greater than 1. Scree Plot (Figure 1) also indicated only one point before start to straighten. Therefore, the scale can be accepted to have only one component.

Table 1: Eigenvalues and percentage of variance accounted by every factor in the ECCEPTI for disposition section

	F1	F2	F3	F4	F5	F6	F7	F8
Eigenvalue	3.54	0.80	0.74	0.68	0.65	0.55	0.54	0.50
Variability (%)	44.27	9.97	9.31	8.44	8.15	6.84	6.72	6.29
Cumulative %	44.27	54.24	63.55	72.00	80.15	86.99	93.71	100.00

This one component had explained 44.27 % of the total variance, while 55.73% of the variance remained unaccounted. The rates of variance between 40% and 60% could be acceptable and are sufficient for social sciences (Che Ahmad et al. 2018). Table 1 shows Eigenvalues and a variance percentage accounted by each factor in the ECCEPTI for disposition section. One scale was initially established for the ECCEPTI for disposition field test and, after principal component analysis, the same scale retained all items in Table 1, where these eight items

clustered into one component with Eigenvalues greater than 1. The first component explained 44.27% of the total variance which represented the significance component for this data set.

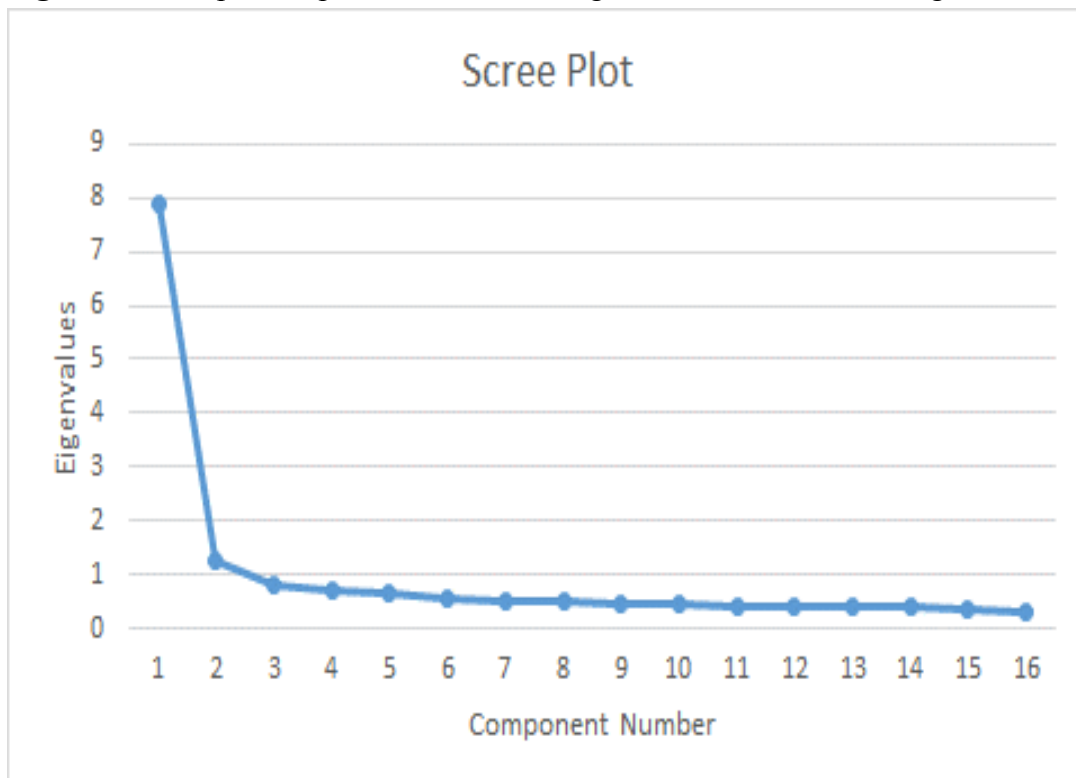
Table 2: Items of each component and their component loadings for disposition section

	F1	F2	F3	F4	F5	F6	F7	F8
1	0.65							
2	0.71							
3	0.61							
4	0.67							
5	0.71							
6	0.70							
7	0.60							
8	0.66							

* Note: significant ≥ 0.60 ; F refer to a component in PCA

Table 2 illustrated that the items with load component greater than 0.50 that were retained in the PCA; hence no items had not been removed. Finally, the instrument ended up with eight items.

Figure 2: Principal component selection using a Scree Plot for knowledge section



The principal component analysis for Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI) for knowledge section began with 16 items. From the analysis, 16 items had been gathered into one factor with Eigenvalue bigger than 1. Even though component two had eigenvalue greater than 1, the first component will be important enough to be retained for interpretation. Scree Plot (Figure 2) also indicated only one point before it started to straighten. Therefore, the scale was accepted to have only one component.

Table 3: Eigenvalues and percentage of variance accounted by each factor in the ECCEPTI for knowledge section

	F1	F2	F3	F4	F5	F6	F7	F8
Eigenvalue	7.87	1.25	0.80	0.68	0.64	0.58	0.52	0.48
Variability (%)	49.16	7.80	4.98	4.27	4.00	3.62	3.27	3.01
Cumulative %	49.16	56.96	61.95	66.21	70.21	73.83	77.10	80.11

	F9	F10	F11	F12	F13	F14	F15	F16
Eigenvalue	0.45	0.45	0.43	0.41	0.39	0.38	0.35	0.33
Variability (%)	2.84	2.79	2.69	2.54	2.45	2.39	2.16	2.03
Cumulative %	82.96	85.74	88.43	90.97	93.42	95.81	97.97	100.00

This component explained 49.16 % of the total variance, while 50.84% of the variance remained unaccounted. Table 3 shows Eigenvalues and a percentage of variance accounted by each factor in the ECCEPTI for knowledge section. One scale was originally developed for the ECCEPTI for knowledge field test and, after principal component analysis, the constant scale kept all the items in Table 3, where 16 items clustered into one component with Eigenvalues greater than 1. The first component explained 49.16% of the total variance which represented the significant component for this data set.

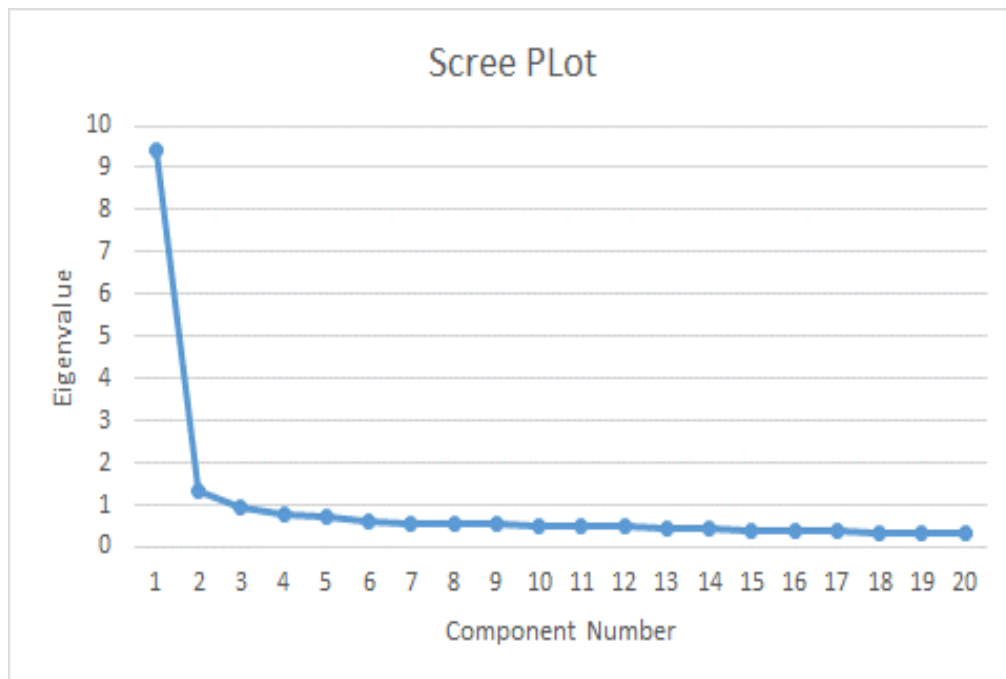
Table 4: Items of each component and their component loadings for knowledge section

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
9	0.65															
10	0.71															
11	0.71															
12	0.76															
13	0.70															
14	0.72															
15	0.72															
16	0.71															
17	0.67															
18	0.67															
19	0.71															
20	0.71															
21	0.70															
22	0.66															
23	0.74															
24	0.68															

* Note: significant ≥ 0.60 ; F refer to a component in PCA

Table 4 illustrated that the items with load component greater than 0.50 are retained in the PCA; hence no items had not been removed. Finally, the instrument ended up with 16 items.

Figure 3. Principal component selection using a Scree Plot for skills section



The principal component analysis for Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI) for the skills section began with 20 items. From the analysis, 20 items had been gathered into one factor with Eigenvalue larger than 1. Although component two had eigenvalue greater than 1, the first component was important enough to be retained for interpretation. Scree Plot (Figure 3) also indicated only one point before straightening. Therefore, the scale can be accepted to have only one component.

Table 4: Eigenvalues and percentage of variance accounted by each factor in the ECCEPTI for skills section

	F1	F2	F3	F4	F5	F6	F7	F8
Eigenvalue	9.40	1.34	0.96	0.80	0.72	0.62	0.56	0.55
Variability (%)	46.98	6.72	4.78	4.01	3.60	3.11	2.80	2.73
Cumulative %	46.98	53.70	58.48	62.49	66.09	69.20	72.00	74.72

	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20
Eigenvalue	0.53	0.50	0.49	0.47	0.45	0.43	0.41	0.40	0.38	0.35	0.33	0.33
Variability (%)	2.63	2.50	2.43	2.34	2.24	2.14	2.04	1.99	1.91	1.76	1.67	1.63
Cumulative %	77.36	79.86	82.28	84.63	86.87	89.00	91.04	93.03	94.94	96.70	98.37	100.00

Table 4 shows Eigenvalues and variance percentage that were made of every factor in the ECCEPTI for skills section. One scale was initially established for ECCEPTI for knowledge field test and, after principal component analysis, the constant one scale retained all of the items in Table 4, where these 20 items gathered into one component with Eigenvalues larger than 1. The earliest component elaborated 49.68% of the total variance representing the significant component for this data set.

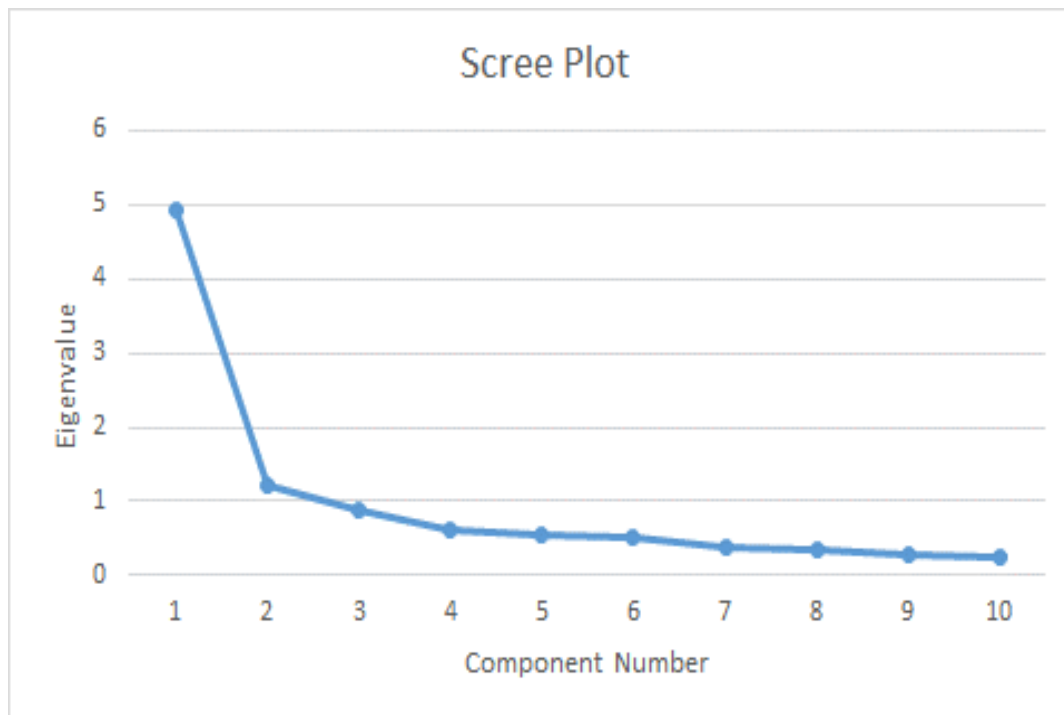
Table 5: Items of each component and their component loadings for skills section

	F1	F2	F3	F4	F5	F6	F7	F8
25	0.66							
26	0.66							
27	0.73							
28	0.70							
29	0.67							
30	0.68							
31	0.72							
32	0.70							
33	0.68							
34	0.66							
35	0.65							
36	0.74							
37	0.66							
38	0.69							
39	0.68							
40	0.69							
41	0.70							
42	0.68							
43	0.63							
44	0.70							

* Note: significant ≥ 0.60 ; F refer to a component in PCA

Table 5 illustrated that the items with load component greater than 0.50 are retained in the PCA; hence no items had not been removed. Finally, the instrument ended up with 20 items.

Figure 4. Principal component selection using a Scree Plot for practices section



The principal component analysis for Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI) for the skills section began with 10 items. From the analysis, 10 items had been gathered into two factors with Eigenvalue bigger than 1. Scree Plot was clearly illustrated in Figure 4 and indicated only two points before it straightened. Therefore, the scale can be accepted to have only two components.

Table 6: Eigenvalues and percentage of variance accounted by each factor in the ECCEPTI for practices section

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Eigenvalue	4.93	1.23	0.88	0.61	0.55	0.53	0.38	0.35	0.28	0.25
Variability (%)	49.2	12.2	8.79	6.11	5.53	5.27	3.84	3.53	2.84	2.54
Cumulative %	49.2	61.5	70.3	76.4	81.9	87.2	91.0	94.6	97.4	100.0
	9	5	4	5	8	5	9	2	6	0

This component explained 61.55 % of the total variance, while 38.45% of the variance remained unaccounted. Table 6 showed Eigenvalues and a variance percentage were made up by every factor in the ECCEPTI for practice section. One scale was initially established for the ECCEPTI for practice field test and, after principal component analysis, the constant one scale remained all of the items in Table 6, where the 10 items clustered into two components with

Eigenvalues greater than 1. The first component explained 49.29% of the total variance, while the second component explained 12.26% of the total variance. All in all, these two components explained 61.55% of the total variance.

Table 7: Items of each component and their component loadings for practices section

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
45	0.71									
46	0.71									
47	0.72									
48		0.72								
49	0.68									
50	0.75									
51	0.77									
52	0.75									
53	0.75									
54	0.70									

* Note: significant ≥ 0.60 ; F refer to a component in PCA

Table 7 illustrated that the items with load component greater than 0.50 are retained in the PCA; hence no items had not been removed. The first factor had nine items with their load values varying between 0.683 and 0.749. Meanwhile, the second factor had one item with a load value of 0.724. Finally, the instrument ended with 10 items.

Cronbach's Alpha is a calculation of internal consistency which measures how directly related the items in the set are as a group. This is also taken as a scale reliability measurement. A "high" alpha value does not confirm whether the measure is unidimensional. For developing ECCEPTI, every scale was measured for internal consistency by applying Cronbach's Alpha coefficient. Table 8 presented the reliability for each refined ECCEPTI scale for 991 pre-school teachers. For the four ECCEPTI scales, the internal consistency reliability (coefficient alpha) was between the range of 0.82 and 0.96. Specifically, the Cronbach's Alpha is 0.82 for disposition section, 0.93 for knowledge section, 0.94 for the skills section, and 0.86 for the practices section.

Table 8: Scale reliability using Cronbach's Alpha coefficient for ECCEPTI

Section	Number of Items	Cronbach's Alpha
Disposition	8	0.82
Knowledge	16	0.93
Skills	20	0.94
Practices	10	0.86

N= 991

By employing the standard ‘rule-of-thumb’, this range is counted as acceptably well (George & Mallery, 2001), where the closeness of the alpha to 1 is directly proportional to the internal consistency is for the items. Table 9 presented the final instruments, which consist of four sections and 54 items.

Discussion

The purpose of this study is to develop a reliable and valid instrument to measure the ECCE pre service teacher instrument. The draft scale comprised of 54 items and administered 991 pre-school teachers in various states in Malaysia. As a result of the analysis, all items in this instrument with a load component greater than 0.50 were retained in the PCA; hence no items had not been removed. These items were categorised into four: disposition section, knowledge section, skills section and practices section. From the analysis, it was discovered that the instrument ECCEPTI were highly reliable and had good construct validity that would be useful for researches concerning the development of professionalism for carers-Educators pre-school. It also had its own uniqueness as it contained the aspects of professionalism to be able to contribute towards the development of carers-educators in pre-schools. These aspects were chosen based on established instruments, a result of previous studies and interviews with expert and experienced pre-school teachers. Some advantages of the ECCEPTI were it could be easily administered and answered by the respondents. It consisted of four scales with a total of 54 items – an appropriate number and convenient enough for the respondents to act. Additionally, it is user-friendly; the grammar and words used in ECCEPTI were simple and easy to understand. It was also very economically and timely efficient. According to Lewthwaite et al. (2007), because of the teachers’ time limitation, the process and time to complete the instrument need to be short. ECCEPTI is an addition to existing instruments especially for measuring the development of professionalism for pre-school. The ECCEPTI could be implemented and utilised for different types of respondents and setting based on the researchers’ necessity and creativity. Nonetheless, the care aspects need to be considered as it was mainly designed for pre-school teachers.

Conclusion

This research described the developing and validating of an instrument designed to assess the competencies level of ECCE pre service teacher. As to evaluate carers-educators’ professionalism, the development of ECCEPTI serves as an addition to the existing instruments. Conclusively, based on the findings of this study, the result had verified how valid and reliable the Early Childhood Care and Education Pre-Service Teacher Instrument is. However, more extensive research would be required to further refine this instrument by taking into account the different characteristics of respondents. This would allow an establishment of

more valid and reliable measures of the Early Childhood Care and Education Pre-Service Teacher instrument.

Table 9: Early Childhood Care and Education Pre-Service Teacher Instrument (ECCEPTI)

Item no.	Items
1.	Confident that the ECCE program can produce professional carers-educators.
2.	Aware of the responsibility in educating children.
3.	Believe that the responsibility to nurture and educate children is a noble task.
4.	Sense of ethical values that need to be complied while with children.
5.	Ability to become ethical ECCE carers-educators.
6.	Willingness to develop talent to become skilled ECCE carers-educators.
7.	Interest in the development of children.
8.	Aware that the personal qualities of ECCE carers-educators can influence the development of children.
9.	Knowledge in handling children
10.	Knowledge in carrying out activities related to children literacy.
11.	Knowledge in teaching strategies for children.
12.	Knowledge in using various ongoing assessment strategies.
13.	Knowledge in integrating theory and practice in teaching and learning
14.	Knowledge in using thematic approach in teaching.
15.	Knowledge in using integration approach in teaching.
16.	Knowledge in using child-centred approach in teaching.
17.	Knowledge in designing experiential learning in TADIKA/TASKA.
18.	Knowledge of reflective skills to improve practice.
19.	Knowledge in identifying teaching and learning problems to improve practice.
20.	Knowledge in carrying out learning outside the classroom setting.
21.	Knowledge in using appropriate language in teaching and learning.
22.	Knowledge in conducting different types of games.
23.	Knowledge in using appropriate strategies for teaching children.
24.	Knowledge in adapting technology into teaching and learning.
25.	Skill of using appropriate language with the children.
26.	Skill of being a good listener toward the parents.
27.	Skill in building a fun teaching and learning environment.
28.	Skill in communicating honestly with colleagues.
29.	Skill in respecting relationships with children.
30.	Skill in building good relationships with parents.
31.	Skill to be flexible towards children's environment.
32.	Skill to be responsive towards children's interests.
33.	Skill to be friendly and respectful towards colleagues.

34.	Skill in solving children socio-emotional problems.
35.	Skill in solving problem related to parents.
36.	Skill in solving teaching and learning problems.
37.	Skill in solving problems related to colleagues
38.	Skill in innovating appropriate activities according to the development of children.
39.	Skill in planning creative activities that are relevant to culture, race and religion.
40.	Skill in preparing teaching and learning materials using technology.
41.	Skill in developing teaching and learning plan from observation.
42.	Skill in developing teaching and learning plan from portfolio.
43.	Skill in discussing equal distribution of workload with colleagues.
44.	Skill in arranging time according to the needs of children.
45.	Implementation of teaching strategies that have been learned in the institutions.
46.	Deliver ECCE curriculum content effectively.
47.	Evaluation of children development effectively.
48.	Ability to adapt in the actual working situation.
49.	Handling children in teaching and learning.
50.	Creative thinking in teaching preparation.
51.	Handling TADIK/TASKA by adapting assignment culture that has been learned.
52.	Give priorities to the children's welfare.
53.	Contribution of knowledge obtained via ECCE program to the community.
54.	Overcome the procedures involving community

Limitation

The development and testing of the EECEPT instrument experienced a limitation since there were only 30-40% from the overall registered TASKA and TADIK centres administered by *Jabatan Kemajuan Masyarakat* (i.e. Community Development Department) involved. For further impending research, the gathered information will be utilised to build a model of quality for proficient early childhood carers-educators in Malaysia by establishing advanced training for professional carers-educators who competently uphold and persevere the quality of ECCE.

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