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Validity of Internship Program Instrument in Primary School Teaching College, Timor-Leste

Mariano Dos Santos[1], Ahmad[2]*

[1]Catholic Institute for Teacher Training (ICFP), Baucau, Timor-Leste
[2]Universitas Bumigora, Mataram, Indonesia
*Correspondence: E-mail: ahmad@universitasbumigora.ac.id

ABSTRACT

This study aims to test the validity of the construct of the assessment instrument of the internship program for pre-service elementary teachers at the Instituto Católico para a Formação de Professores (ICFP), Baucau, Timor-Leste, using the Confirmatory Factor Analysis *(CFA) approach. The initial instrument consists of 40 items covering seven primary constructs: Teaching Preparation, Introductory Presentation of Lessons, Lesson Explanation, Pedagogic Ability, Gender-Based Participation, Special Needs, Assessment During Lessons, and Lesson Closure. The data was obtained from the assessments conducted by supervisors and teachers on 350 Pre-service elementary teachers who participated in the internship program. The CFA analysis showed that the measurement model had a reasonable match rate, with Chi-square/df values < 2,* p-value *≥ 0.05, RMSEA < 0.08, CFI ≥ 0.90, and SRMR ≤ 0.05. Of the initial 40 items, 32 were declared valid and significant in measuring the construct. The results of this study show that the internship assessment instrument has strong construct validity and can be used to assess pre-service elementary teachers effectively in the local context. This instrument can be a reference for developing and evaluating teaching practice programs in other teacher education institutions.*

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1. INTRODUCTION

Internship programs or field practice are essential components of the curriculum of educational institutions for education personnel to improve the quality of teacher education (Lantu et al., 2022; Tindowen et al., 2019; Wolinsky-Nahmias & Auerbach, 2022). Internships not only provide space for students to apply theories acquired in college to actual teaching practices but also serve as a reflection tool to assess the competence of pre-service elementary teachers in a real context (Abdelrahman et al., 2022; Anjum, 2020). At the Instituto Católico para a Formação de Professores (ICFP), Baucau, Timor-Leste, internships are integral to forming students' pedagogic competence. Through this program, students are expected to demonstrate the ability to plan, implement, and evaluate learning professionally.

However, the effectiveness of internship programs depends on the quality of assessment instruments used to evaluate student performance (Furtasan Ali Yusuf & Basrowi, 2023; Sukmawati, 2022). A good assessment must represent the competencies that pre-service elementary teachers should have, such as competence in designing learning, delivering materials, using inclusive strategies, and conducting formative and summative assessments. (Dixson & Worrell, 2016; Harrison et al., 2017; Ismail et al., 2022)A systematic validation process based on psychometric theory is needed to ensure that the instrument measures accurately and consistently. One of the most widely used approaches in construct validation is *Confirmatory Factor Analysis* (CFA), which allows researchers to test the relationships between indicators in a theoretical construct and the extent to which empirical data support the model (Moskotina, 2022; Norwalk et al., 2014).

Several previous studies have shown the importance of construct validation in developing pre-service elementary teacher assessment instruments. For example, research by Walker, (2012) Emphasizing that a valid and reliable assessment tool is a prerequisite for obtaining meaningful data in assessing the professional competence of pre-service elementary teachers. Moreover Shulman, (1987) Pedagogical Content Knowledge (PCK) is introduced as a theoretical basis for developing a teacher's ability measurement tool that includes mastery of teaching materials and strategies. This concept has been widely used in developing teacher competency assessment instruments, including in this study. Furthermore, validation using CFA has been widely used in various studies to test the feasibility of instruments in the context of teacher education, as done by Rahayu et al., (2021) In the local context of Indonesia.

However, there are still gaps at ICFP Baucau, where the long-used internship program assessment instruments have not been thoroughly tested for their construct validity using quantitative approaches such as CFA. This causes potential weaknesses in the assessment carried out by supervisors and teachers because not all indicators can be ensured to be relevant or accurately represent aspects of pre-service elementary teachers. Therefore, this research is important to answer the needs of institutions in developing valid, objective, and scientifically accountable assessment instruments.

This research is significant because it targets the development of theory-based evaluative instruments that have been statistically validated using the *Confirmatory Factor Analysis* (CFA). The validity of the construct is the primary key in ensuring that each indicator in the

instrument truly reflects the dimensions of the competency being measured (Hidayah et al., 2025; Van Huy et al., 2020). The results of this study are beneficial for the ICFP Baucau institution in improving the quality of internship programs. They are relevant for other educational institutions that are developing similar instruments. Thus, this research contributes directly to improving the quality of education of pre-service elementary teachers and strengthening the supervision and reflection process in educational practice. Although internship assessment instruments have been widely used in ICFP, there are still limitations in the empirical evidence regarding the validity of the constructs of each existing assessment indicator. Not all items in the instrument have been tested with proper statistical methods, especially using CFA. The absence of empirical data on model fit and the relationship between indicators results in potential bias in assessment and decision-making related to student competence (Rahayu et al., 2021).

This study aims to test the validity of the construct of the internship program assessment instrument at ICFP Baucau using *the Confirmatory Factor Analysis* (CFA) technique. In particular, this study will evaluate the extent to which each of the seven primary constructs, namely Teaching Preparation, Introductory Presentation of Lessons, Lesson Explanation, Pedagogic Ability, Inclusive Participation, Assessment During Lessons, and Lesson Closure, is compatible with the designed theoretical model, as well as identify statistically invalid items. This study is focused on testing the validity of the construct of the internship program assessment instrument in the ICFP Baucau, Timor-Leste. The scope of the research is limited only to construct validity using the CFA approach and does not include reliability, content validity, or implementation tests in the form of experiments. In addition, this study only focuses on data obtained from lecturers and field supervisors as assessors, and does not discuss student perceptions as assessed subjects.

2. METHODS

This study uses a quantitative approach with construct validity analysis techniques through *Confirmatory Factor Analysis* (CFA). The main objective of this study is to test the extent of the constructs in the assessment instrument of the internship program at ICFP Baucau using the designed theoretical model. The assessment instrument consists of several indicators that measure pre-service elementary teachers in various aspects of learning, and is prepared based on the theoretical foundation *of Pedagogical Content Knowledge* (PCK).

This assessment instrument consists of seven indicators and 40 assessment items related to the teaching components of the local context of Timor Leste. This indicator blueprint can be seen in the following table.

Table 1. Indicators of the assessment instrument of internship programs at ICFP Baucau

Yes	Indicators	Number of Points
1	Preparation to Teach	5
2	Introduction to Lessons for Students	5
3	Lesson Explanation Presentation For Students	5
4	Pedagogic Abilities	10
5	Gender-Based Participation and Students with Special Needs	5
6	Assessment during lessons	5
7	Conclusion presentation to students	5
	Sum	**40**

This instrument is given to assessors, including ICFP lecturers, field supervisors, and teachers at schools where students carry out internship programs. The pre-service elementary teachers' assessment amounted to 350 people and was spread across partner schools.

The data analyzed in this study came from the assessment form the supervisors and teachers had filled out after observing the implementation of learning by Pre-service elementary teachers. All data were collected and processed using CFA tests with the help of R Studio software. The CFA test aims to evaluate whether the indicators in each construct have a significant relationship, which the previously defined factor model explains. The assessment of model fit is carried out by paying attention to several model fit indices, such as Chi-square values, *p-values*, *Root Mean Square Error of Approximation* (RMSEA), *Comparative Fit Index* (CFI), and *Standardized Root Mean Square Residual* (SRMR). The results of this analysis were used to assess the construct structure's validity and the indicators' suitability in measuring pre-service elementary teachers during the internship program.

3. RESULTS AND DISCUSSION

3.1. Results

The following are the results of the CFA test on seven indicators on all 40 items in the internship program assessment instrument at ICFP Baucau. Confirmatory Factor Analysis (CFA) is a statistical technique to test whether data match a predetermined factor structure. (Norwalk et al., 2014). Here are the results of the analysis of each indicator:

1) Results of the analysis of Indicators of Preparation for Teaching

Confirmatory Factor Analysis (CFA) was conducted to test the suitability of the measurement model of indicators on the *Preparation for Teaching* variable. The model fit test is carried out by paying attention to several indices such as Chi-square, RMSEA, CFI, and SRMR. Details of the CFA analysis results for *the Preparation for Teaching* indicator are presented in **Table 2** below.

Table 2. CFA Analysis of Indicators of Preparation for Teaching

Model Fit Indices		Information	
Chi-square	7.977	X2/DF < 2	Model Fit
Df	5.000	X2/DF < 2	Model Fit
p-value	0.157	p 0.05≥	Model Fit
RMSEA	0.041	< 0.08	Model Fit
CFI	0.988	0.9≥	Model Fit
SRMR	0.029	≤ 0.05	Model Fit

The Confirmatory Factor Analysis (CFA) for the PUM construct in **Table 2** shows that the fit indices model is in a good range, with a Chi-square value of 7.977 (df = 5, p-value = 0.157), a Chi-square/df ratio = 1.595 < 2, RMSEA of 0.041, CFI of 0.988, and SRMR of 0.029.

Figure 1 below shows the diagram of the results of the Confirmatory Factor Analysis (CFA) for the latent variable "PUM" connected to five observation indicators (PUM1 to PUM5).

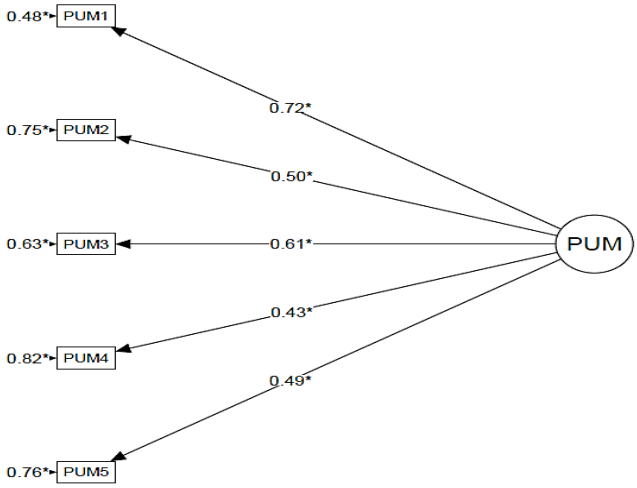

Figure 1. CFA Analysis of Indicators of Preparation for Teaching

Figure 1 shows that the factors of each indicator against the PUM construct show a significant relationship, with PUM1 (0.72), PUM2 (0.50), PUM3 (0.61), PUM4 (0.49), and PUM5 (0.43). The PUM1 and PUM3 indicators have a reasonably strong relationship with the PUM construct, while PUM2, PUM4, and PUM5 have a moderate relationship. Overall, the results of this CFA show that predetermined indicators measure the PUM construct well and are valid.

2) Results of analysis of Introduction to Lesson Presentation Indicators for Students

Furthermore, a CFA analysis was carried out to test the construct's validity on the variable indicators of the Introduction to Lesson Presentation for Students. The fit model is evaluated using several statistical indices to ensure the fit between the model and the empirical data. **Table 3** presents the complete results of the CFA analysis for the Introduction to Student Presentation indicator.

Table 3. CFA Analysis Introduction to Lesson Presentation Indicators for Students

Model Fit Indices		Information	
Chi-square	9.476	X2/DF < 2	Model Fit
Df	5.000	X2/DF < 2	Model Fit
p-value	0.092	p 0.05≥	Model Fit
RMSEA	0.051	< 0.08	Model Fit
CFI	0.987	≥ 0.9	Model Fit
SRMR	0.030	≤ 0.05	Model Fit

Based on the results of the Confirmatory Factor Analysis (CFA) for the PPPS construct in **Table 3**, it shows that the fit indices model is in a good range, with a Chi-square value of 9.476 (df = 5, p-value = 0.092), a Chi-square/df ratio = 1.895 < 2, an RMSEA of 0.051, a CFI of 0.987, and an SRMR of 0.030. The diagram of the results of the Confirmatory Factor Analysis (CFA) can be seen in **Figure 2** below.

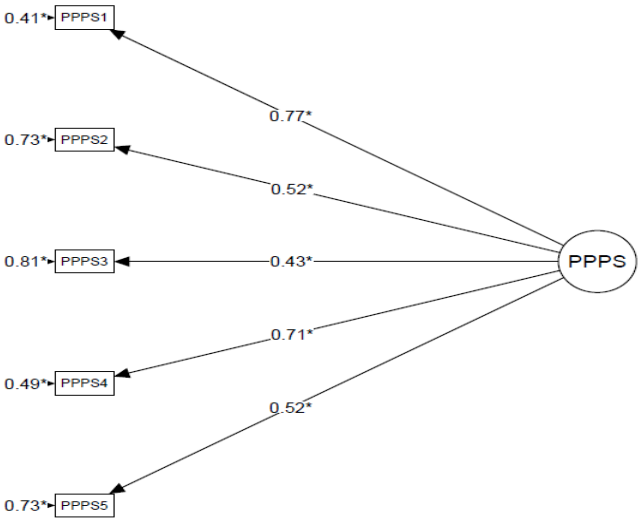

Figure 2. CFA Analysis Introduction to Lesson Presentation Indicators for Students

The factors of each indicator against the PPPS construct in **Figure 2** show a significant relationship, with PPPS1 (0.77), PPPS2 (0.52), PPPS3 (0.43), PPPS4 (0.71), and PPPS5 (0.52). The PPPS1 and PPPS4 indicators have a powerful relationship with the PPPS construct, while PPPS2, PPPS3, and PPPS5 have a moderate relationship. Overall, the results of this CFA show that the PPPS construct is well measured by the indicators that have been determined.

3) Results of analysis of Introduction to Lesson Presentation Indicators for Students

CFA analysis is also applied to the indicators in the *Introduction to Lesson Presentation variable for advanced students*. The goal is to ensure the measurement model remains consistent and valid on the expected factor structure. Evaluation used several model fit indices such as Chi-square, RMSEA, CFI, and SRMR. The results obtained showed that the model had an excellent match with the data. Details of the results of the CFA analysis can be seen in **Table 4** below.

Table 4. CFA Analysis Introduction to Lesson Presentation Indicators for Students

Model Fit Indices		Information	
Chi-square	2.707	X2/DF < 2	Model Fit
Df	5.000	X2/DF < 2	Model Fit
p-value	0.745	p 0.05≥	Model Fit
RMSEA	0.000	< 0.08	Model Fit
CFI	1.000	≥0.9	Model Fit
SRMR	0.015	≤ 0.05	Model Fit

The results of the Confirmatory Factor Analysis (CFA) for the PPPUS construct are in **Table 4**. showed that the fit indices model was in an excellent range, with a Chi-square value of 2.707 (df = 5, p-value = 0.745), a Chi-square/df ratio = 0.541 < 2, an RMSEA of 0.000, a CFI of 1.000, and an SRMR of 0.015. The diagram of the results of the Confirmatory Factor Analysis (CFA) can be seen in **Figure 3** below.

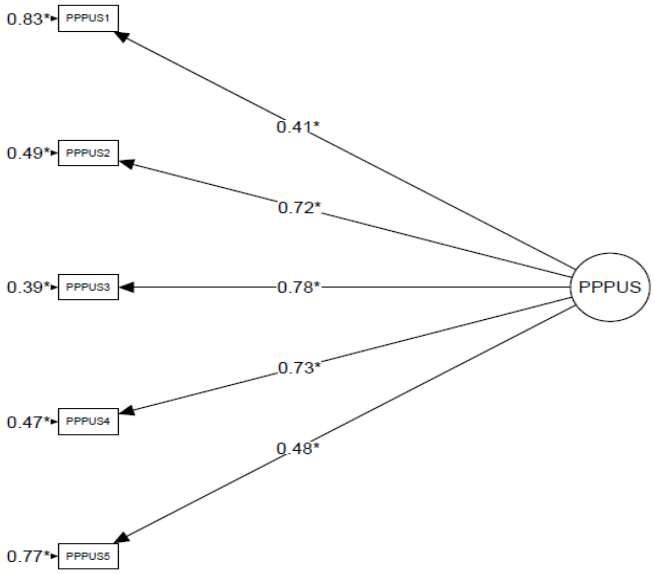

Figure 3. CFA Analysis Introduction to Lesson Presentation Indicators for Students

The factors of each indicator on the PPPUS construct in **Figure 3** show a significant relationship, with PPPUS1 (0.41), PPPUS2 (0.72), PPPUS3 (0.78), PPPUS4 (0.73), and PPPUS5 (0.48). The PPPUS2, PPPUS3, and PPPUS4 indicators have a powerful relationship with the PPPUS construct, while PPPUS5 has a moderate relationship. Overall, the results of this CFA show that the PPPUS construct is very well measured by the predetermined indicators, with excellent validity based on the fit indices model used.

4) Analysis Results of Lesson Explanation Presentation Indicators for Students

The next step is to analyze the indicators on the variables of *Lesson Explanation Presentation for Students* using CFA. This analysis aims to confirm whether these indicators form a statistically valid construct. Model fit criteria, including Chi-square, RMSEA, CFI, and SRMR values, are used to assess model suitability. The entire index value indicates that the model is within the recommended limits, indicating a good match. The full results of the CFA analysis for this indicator are presented in **Table 5** below.

Table 5. CFA Analysis Indicators Presentation Lesson Explanations For Students

Model Fit Indices		**Information**	
Chi-square	9.749	X2/DF < 2	Model Fit
Df	5.000	X2/DF < 2	Model Fit
p-value	0.083	p 0.05≥	Model Fit
RMSEA	0.052	< 0.08	Model Fit
CFI	0.993	≥ 0.9	Model Fit
SRMR	0.027	≤ 0.05	Model Fit

In **Table 5**, the final results of the CFA test for the KP construct show that the fit indices model is in a good range, with a Chi-square value of 9.749 (df = 5, p-value = 0.083) and a Chi-square/df ratio = 1.949 < 2. RMSEA of 0.052, CFI of 0.993, and SRMR of 0.027 all show excellent fit models. The diagram of the results of the Confirmatory Factor Analysis (CFA) can be seen in **Figure 4** below.

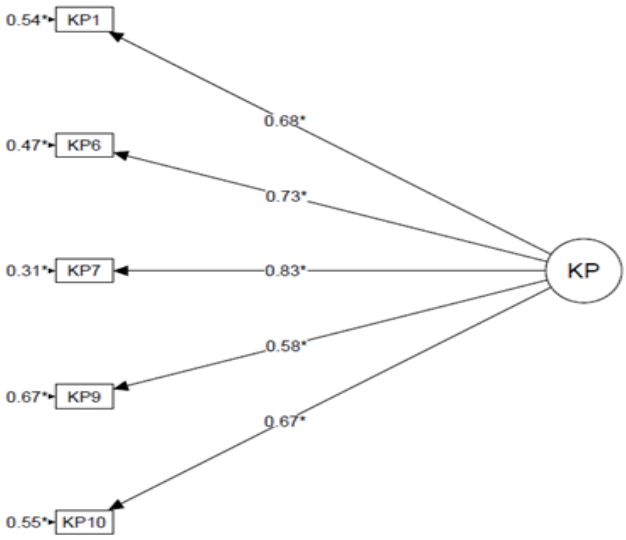

Figure 4. CFA Analysis Indicators Presentation Lesson Explanations For Students

The factors of each indicator against the KP construct in **Figure 4** show a significant relationship, with KP1 (0.68), KP6 (0.73), KP7 (0.83), KP9 (0.67), and KP10 (0.58). Overall, the results of this CFA show that the KP construct is well measured by the predetermined indicators, with good validity based on the fit indices model used. Previously, this indicator had 10 items, but after conducting the CFA test, only five indicators showed a significant relationship with the KP indicators, namely items 1,6,7,9, and 10.

5) Results of the analysis of Pedagogic Ability Indicators

Furthermore, a CFA analysis was carried out on the indicators in the *Pedagogic Ability* variable. This analysis is important to ensure that the indicators represent the construct. Model fit testing considers various fit indices such as Chi-square, RMSEA, CFI, and SRMR. The values obtained indicate an excellent level of model compatibility, even close to perfect. **Table 6** presents the complete results of the CFA analysis for *the Pedagogic Ability* indicator.

Table 6. CFA Analysis of Pedagogic Ability Indicators

Model Fit Indices		Information	
Chi-square	0.495	X2/DF < 2	Model Fit
Df	2.000	X2/DF < 2	Model Fit
p-value	0.781	p 0.05≥	Model Fit
RMSEA	0.000	< 0.08	Model Fit
CFI	1.000	≥ 0.9	Model Fit
SRMR	0.008	≤ 0.05	Model Fit

A solid CFA analysis of **Table 6** shows that the fit indices model is in the excellent range with a Chi-square value of 0.495 (df = 2, p-value = 0.781), a Chi-square/df ratio = 0.247 < 2, RMSEA 0.000, CFI 1,000, and an SRMR of 0.008. The diagram of the results of the Confirmatory Factor Analysis (CFA) can be seen in **Figure 5** below.

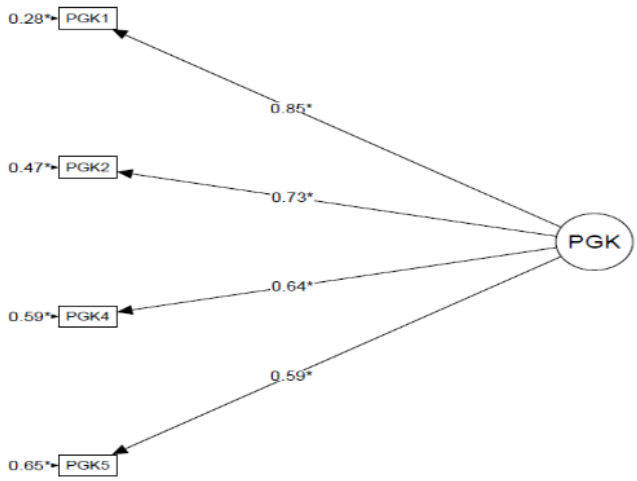

Figure 5. CFA Analysis of Pedagogic Ability Indicators

Figure 5 shows that all indicators (PGK1 = 0.85, PGK2 = 0.73, PGK4 = 0.64, PGK5 = 0.59) have a significant and strong factor load, suggesting that they measure the CKD construct well. Overall, the results of this CFA show that the CKD construct is very well measured and valid by the specified indicators. The KGK construct initially had five items, but through Confirmatory Factor Analysis (CFA) analysis, only four items fit the CKD model.

6) Results of the analysis of Participation Indicators Based on Gender and Students with Special Needs

The CFA analysis was also applied to the variable indicators *of Gender-based Participation and students with special needs*. This analysis aimed to assess the model's suitability in representing inclusive engagement in learning. Several fit model indices such as Chi-square, RMSEA, CFI, and SRMR are used to evaluate model fit. The results of the analysis show that the entire value of the index is within very good limits. **Table 7** presents a breakdown of the CFA results for participation indicators by gender and special needs.

Table 7. CFA Analysis of Participation Indicators by Gender and Students with Special Needs

Model Fit Indices		Information	
Chi-square	0.734	X2/DF < 2	Model Fit
Df	2.000	X2/DF < 2	Model Fit
p-value	0.693	p 0.05≥	Model Fit
RMSEA	0.000	< 0.08	Model Fit
CFI	1.000	≥ 0.9	Model Fit
SRMR	0.009	≤ 0.05	Model Fit

The Confirmatory Factor Analysis (CFA) results for PSP in **Table 7** show that the model matches well. Based on the Fit Indices given, the Chi-square of 0.734 with df 2 meets the criteria of X2/df < 2, and the p-value of 0.693 meets the criteria p >= 0.05. Other indices, such as RSMEA (0.000), CFI (1.000), and SRMR (0.009), also show excellent matches by meeting their respective criteria. The diagram of the results of the Confirmatory Factor Analysis (CFA) can be seen in **Figure 6** below.

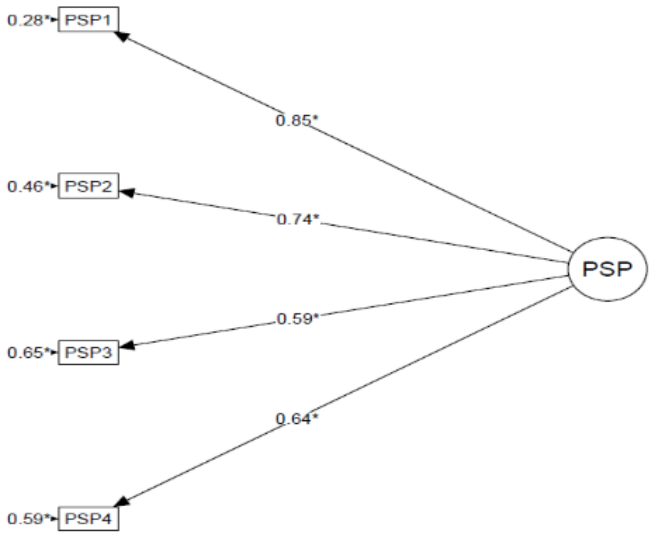

Figure 6. CFA Analysis of Participation Indicators by Gender and Students with Special Needs

The loading factors for PSP1, PSP2, PSP3, and PSP4 in **Figure 6** are 0.85, 0.74, 0.59, and 0.64, respectively, indicating that each indicator significantly contributes to the PSP construct. In conclusion, this CFA model shows good compatibility and strong construct validity.

7) Results of the analysis of the Assessment Indicators during the lesson

As the final part of the CFA analysis, tests were carried out on the indicators in the *Assessment During Lesson* variables. This analysis aims to ensure that each indicator validates the assessment aspects teachers carry out during the learning process. The evaluation was carried out by looking at the values of the fit model, such as Chi-square, RMSEA, CFI, and SRMR. All values indicate that the model has a good and acceptable level of compatibility. Details of the CFA analysis results for this variable are shown in **Table 8** below.

Table 8. CFA Analysis of Assessment Indicators During Lessons

Model Fit Indices		**Information**	
Chi-square	7.977	X2/DF < 2	Model Fit
Df	5.000	X2/DF < 2	Model Fit
p-value	0.157	p 0.05≥	Model Fit
RMSEA	0.041	< 0.08	Model Fit
CFI	0.988	≥ 0.9	Model Fit
SRMR	0.029	≤ 0.05	Model Fit

The Confirmatory Factor Analysis (CFA) results for the PKS in **Table 8** show that the model matches well. Based on the Fit Indices given, the Chi-square of 7,977 with df 5 meets the X2/df < 2 criteria, and the p-value of 0.157 meets the criteria p >= 0.05. Other indices such as RSMEA (0.041), CFI (0.988), and SRMR (0.029) also showed excellent matches by meeting their respective criteria. The diagram of the results of the Confirmatory Factor Analysis (CFA) can be seen in **Figure 7** below.

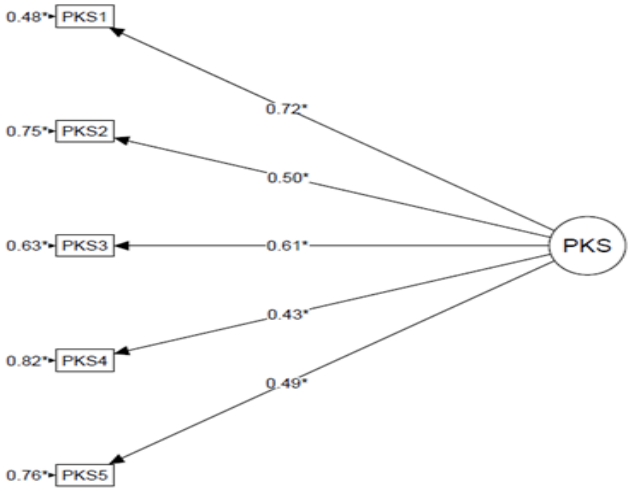

Figure 7. CFA Analysis of Assessment Indicators During Lessons

The loading factors for PKS1, PKS2, PKS3, PKS4, and PKS5 in **Figure 7** are 0.72, 0.50, 0.61, 0.43, and 0.49, respectively, indicating that each indicator significantly contributes to the PKS construct. In conclusion, this CFA model shows good compatibility and strong construct validity.

3.2 Discussion

1) Results of the Analysis of Indicators of Preparation for Teaching

The results of *the Confirmatory Factor Analysis* (CFA) of the *Preparation for Teaching* (PUM) construct show that the measurement model is compatible with empirical data. The Chi-square value of 7.977 with degrees of freedom (df) = 5 and *p-value* = 0.157 indicates that there is no significant difference between the proposed model and the observed data ($p \geq 0.05$). The Chi-square/df ratio of 1.595 is within the ideal limit (< 2), further strengthening the model's suitability. Other indices also support this conclusion, with RMSEA values = 0.041 (< 0.08), CFI = 0.988 (≥ 0.90), and SRMR = 0.029 (≤ 0.05). In addition, based on the factor estimation in **Figure 1**, all indicators have a significant contribution to the PUM construct, with the loading factor values PUM1 = 0.72, PUM2 = 0.50, PUM3 = 0.61, PUM4 = 0.49, and PUM5 = 0.43. The PUM1 and PUM3 indicators made the most substantial contributions, while the others were in the moderate category. These findings confirm that these five indicators validly measure the PUM construct and support the consistency and reliability of the measuring tools used in this study.

These findings are in line with the results of recent research by Radde et al. (2021) and Fitrizqi & Susanto (2021), which shows that construct validation using CFA is able to identify strong indicators in the assessment of teaching readiness and provides empirical evidence of the

instrument's reliability in the context of teacher training in a contextual and applicable manner.

2) Results of Analysis of Introduction to Lesson Presentation Indicators for Students

The Confirmatory Factor Analysis (CFA) analysis of the Introduction to Lessons for Students (PPPS) construct shows that the measurement model fits adequately. The Chi-square value of 9.476 with degrees of freedom (df) = 5 and *p-value* = 0.092 shows no significant difference between the model with empirical data ($p \geq 0.05$), with a Chi-square/df ratio of 1.895, which is still within the ideal limit (< 2). Other feasibility indices also support model suitability, namely RMSEA of 0.051 (< 0.08), CFI of 0.987 (≥ 0.90), and SRMR of 0.030 (≤ 0.05). In addition, the estimated value of the factor in **Figure 2** shows that all indicators have a significant contribution to the PPPS construct, with the values of the loading factor PPPS1 = 0.77, PPPS2 = 0.52, PPPS3 = 0.43, PPPS4 = 0.71, and PPPS5 = 0.52. The PPPS1 and PPPS4 indicators contributed most, while the others were moderate. These findings prove that the designed indicators validly measure the PPPS construct, show a stable factor structure, and support the theoretical foundation.

These findings are reinforced by research. Norwalk et al., (2014) and Katsikatsou et al., (2022)This also shows that the construct of the introductory presentation consistently forms a valid factor when tested with CFA, especially on indicators related to the clarity of learning objectives and the association of the material with the student experience. These indicators are shown to have the highest loading value in measuring the readiness and effectiveness of novice teachers in the classroom.

3) Results of Analysis of Introduction to Lesson Presentation Indicators for Students

Confirmatory *Factor Analysis* (CFA) analysis of the *Introduction to Lessons for Students* (PPPUS) construct shows that the measurement model has an excellent level of compatibility. This is shown by the Chi-square value of 2.707 with degrees of freedom (df) = 5 and *p-value* = 0.745, which indicates that the model does not differ significantly from the empirical data ($p \geq 0.05$). The Chi-square/df ratio of 0.541 is well below the maximum threshold of 2, confirming that the model is a perfect fit. In addition, all other match indices reinforce this conclusion, namely RMSEA = 0.000 (< 0.08), CFI = 1.000 (≥ 0.90), and SRMR = 0.015 (≤ 0.05). The factor estimation in **Figure 3** shows a significant contribution of all indicators to the PPPUS construct, with the loading values PPPUS2 = 0.78, PPPUS3 = 0.73, and PPPUS4 = 0.73 reflecting a powerful relationship, while PPPUS1 = 0.42 and PPPUS5 = 0.48 show a moderate relationship. Overall, these results provide strong evidence that the PPPUS construct is validly and consistently measured by the designed indicators and demonstrate a very adequate structural stability of the model.

These findings are in line with the results of a study by Hidayat et al., (2021), which suggests that the construct of an advanced introductory presentation has a strong and stable factor structure, especially when novice teachers can relate learning content to the local context and student experience. This significantly strengthens the validity of the model in CFA analysis.

4) Analysis Results of Lesson Explanation Presentation Indicators for Students

Analysis results *Confirmatory Factor Analysis* (CFA) against constructs *Lesson Explanation Presentations for Students* (KP) indicates that the measurement model is in the category of good fit. Chi-square value of 9.749 with degrees of freedom (df) = 5 and *p-value* = 0.083 indicates that the model does not differ significantly from the empirical data ($p \geq 0.05$), with a Chi-square/df ratio of 1.949 that is still within acceptable limits (< 2). Other indices also showed excellent model match, namely RMSEA = 0.052 (< 0.08), CFI = 0.993 (≥ 0.90), and SRMR = 0.027 (≤ 0.05). Based on the results of the factor estimation in **Figure 4**, the indicators that contribute significantly to the KP construct are KP1 (0.68), KP6 (0.73), KP7 (0.83), KP9 (0.67), and KP10 (0.58). The KP7 indicator shows the highest contribution, while other indicators show a strong to moderate relationship. Previously, the KP construct consisted of 10 indicators, but only five met the significant criteria in the CFA model. These findings show that the remaining five indicators validly measure the KP construct and support the quality of the measuring instruments used in the context of this study (Van Huy et al., 2020).

5) Results of the Analysis of Pedagogic Ability Indicators

Analysis *Confirmatory Factor Analysis* (CFA) against constructs *Pedagogic Abilities* (PGK) showed very satisfactory model fit results. Chi-square value of 0.495 with degrees of freedom (df) = 2 and *p-value* = 0.781 indicates no significant difference between the model and the empirical data, with a Chi-square/df ratio of 0.247, well below the threshold of 2. Other match indices also confirmed the excellent quality of the model, namely RMSEA = 0.000 (< 0.08), CFI = 1.000 (≥ 0.90), and SRMR = 0.008 (≤ 0.05). **Figure 5** shows that the four remaining indicators have a high and significant factor load on the CKD construct, namely PGK1 = 0.85, PGK2 = 0.73, PGK4 = 0.64, and PGK5 = 0.59. The PGK1 indicator makes the most contribution in measuring this construct, while the other three indicators also show strong to moderate contributions. Initially, the CKD construct consisted of five indicators, but only four were proven to meet the feasibility criteria of the CFA model. These results show that the *Pedagogic Abilities* are validly and reliably measured through the four indicators, and support the accuracy of the structure of the instruments used in the study (Sideridis et al., 2019).

6) Results of the Analysis of Participation Indicators Based on Gender and Students with Special Needs

Analysis results *Confirmatory Factor Analysis* (CFA) against constructs *Gender-Based Participation and Students with Special Needs* (PSP) show that the measurement model has an excellent match. A Chi-square value of 0.734 with a degree of freedom (df) = 2 results in a Chi-square/df ratio of 0.367, which is well below the ideal limit of < 2, and is supported by *p-value* = 0.693, which indicates that the model does not differ significantly from the empirical data ($p \geq 0.05$). Other feasibility indices are also very supportive, namely RMSEA = 0.000, CFI = 1.000, and SRMR = 0.009, all within optimal limits to declare model fit. In addition, the four PSP indicators' loading factor values significantly contributed to the construct: PSP1 = 0.85, PSP2 = 0.74, PSP3 = 0.59, and PSP4 = 0.64. The PSP1 indicator has the highest contribution, followed by PSP2 and PSP4, while PSP3 still shows a relatively substantial contribution. These findings confirm that these four indicators validly measure the PSP construct, and that the model used in this study has a consistent and reliable structure. (Mubarrak et al., 2022).

7) Results of the Analysis of the Assessment Indicators during the Lesson

Analysis *Confirmatory Factor Analysis* (CFA) against constructs *Assessment During Lessons* (PKS) shows that the measurement model matches empirical data well. The Chi-square value of 7.977 with a degree of freedom (df) = 5 results in a Chi-square/df ratio of 1.595, which is within the ideal range (< 2), and is supported by *a p-value of 0.157, which meets* the criteria $p \geq 0.05$. Other feasibility indices, such as RMSEA = 0.041 (< 0.08), CFI = 0.988 (≥ 0.90), and SRMR = 0.029 (≤ 0.05), also indicate that the model is in the category of excellent fit. Based on **Figure 7**, the loading factor values for the five PKS indicators showed a significant contribution to the construct, namely PKS1 = 0.72, PKS2 = 0.50, PKS3 = 0.61, PKS4 = 0.43, and PKS5 = 0.49. The PKS1 and PKS3 indicators made the most substantial contribution, while the other three indicators were still within the limit of moderate contribution. Overall, these results show that the PKS construct is validly measured by the five indicators used, with the support of a robust fit model and a stable factor structure in the context of the developed instrument (Rahayu et al., 2021).

4. CONCLUSION

Based on the results of the Confirmatory Factor Analysis (CFA) analysis of seven constructs in the internship program assessment instrument at ICFP Baucau, it can be concluded that the instrument has good construct validity and a measurement model based on empirical data. All primary constructs, namely Teaching Preparation, Introductory Presentation, Lesson Explanation, Pedagogic Ability, Gender and Special Needs Participation, Assessment During Lessons, and Lesson Closure, have *model fit indices* that meet statistical criteria, such as Chi-square/df < 2, *p-value* ≥ 0.05, RMSEA < 0.08, CFI ≥ 0.90, and SRMR ≤ 0.05. Some of the indicators initially included in the instrument did not show a statistically significant contribution and were excluded from the final model, leaving 32 items out of the initial 40 items that were considered feasible. This shows that not all indicators have the same power in representing the measured construct. This validation instrument has been proven to accurately measure pre-service elementary teachers in the context of implementing internships at schools. These findings are expected to strengthen the field practice assessment system and serve as a reference for developing similar instruments in other teacher education institutions in Timor-Leste and the broader context.

5. AUTHORS' NOTE

The authors declare that there are no conflicts of interest in the publication of this article. The authors also confirm that this article is free from plagiarism.

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