



# STAR Technique in the ABCD5E Learning Model to Improve Teacher Assessment Capability in Early Childhood Education

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## Abstract

Assessment is an inseparable part of the learning process. However, teachers in the ABCD5E learning model do not conduct assessments optimally. In the results of discussions and questionnaires, more than 65% found it difficult to conduct assessments. This encourages the creators of the ABCD5E learning model to find techniques to make it easier for PAUD teachers to conduct assessments with the ABCD5E learning model. The creator of the ABCD5E learning model adopted the STAR technique from DDI. The purpose of this research is to determine the effectiveness of the STAR Technique (Situation, Task, Action, and Result) in learning with the ABCD5E model to improve PAUD teachers' assessment skills. The research method used was experimental, using a Pretest-Posttest Control Group Design. The results showed an increase in the ability of teachers to conduct assessments using the STAR technique in the implementation of the ABCD5E learning model.

**Keywords:** *STAR Technique, ABCD5E Learning Model, Assessment in PAUD*

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## INTRODUCTION

The ABCD5E learning model is a learning model created based on the needs of teachers in Indonesia so that they understand how to plan, implement, and conduct assessment and evaluation properly (Handayani, 2022). This model was also created for the resilience of early childhood teachers in any situation, including during the COVID-19 pandemic, namely manifesting the tough teacher in the implementation of the ABCD5E learning model (Handayani, 2022). Currently, many people are starting to use the ABCD5E learning model in PAUD. After some time implementing this learning model in Early Childhood Education, the creator of this learning model conducted discussions and reflections. The results of the discussion showed that the teachers felt inadequate in carrying out assessment in the learning process with the 5E phase (Engagement, Exploration, Explanation, Elaboration, and Evaluation). Besides discussion, the researchers distributed a questionnaire and conducted a survey to determine the level of difficulty in using assessment in the learning process, and the results of the survey were as follows:

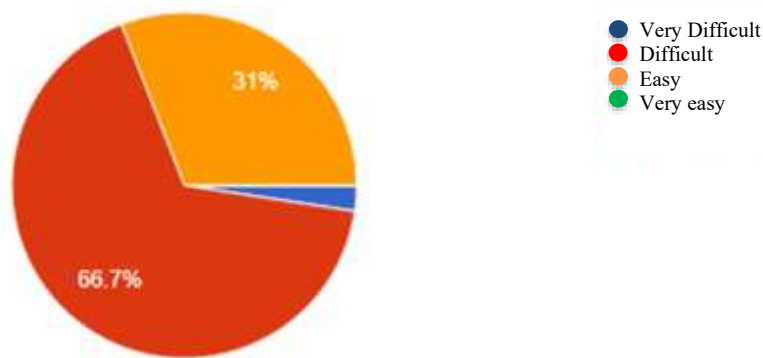


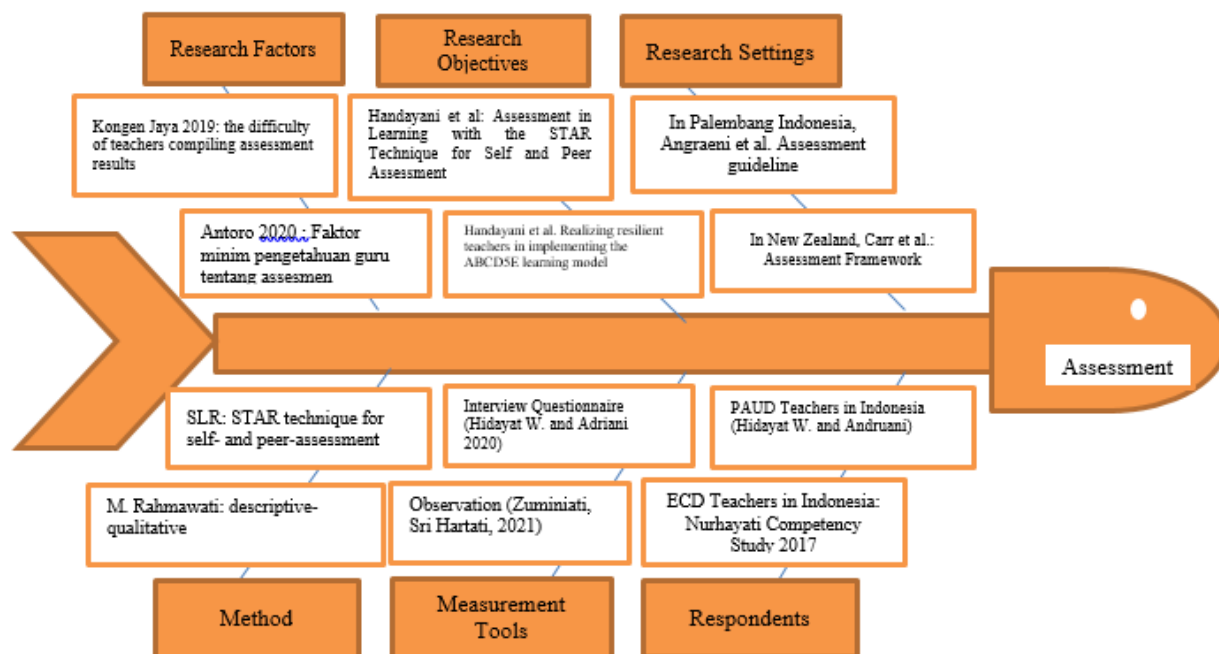
Figure 1. The Results of a self-evaluation survey conducted as a learning assessment in the implementation of the ABCD5E learning model

Figure 1 shows that 69% of the implementers of the ABCD5E learning model found it difficult to carry out the assessment, 66.7% of those who found it difficult, and 2.3% of those who found it very difficult. While 31% of the implementers of the ABCD5E learning model found it easy to carry out the assessment, this shows that most of the implementers have difficulties conducting learning assessments. Meanwhile, it is said that assessment in learning is very important, and even the application of the principles of assessment is found when assessment takes place in learning (Rahmawati, 2019). The implementation guide for the ABCD5E learning model also states that teachers and students conduct assessment during the learning process, specifically in phase 5E (Handayani et al., 2022).

In fact, based from discussion on July 2023, the difficulties in carrying out assessments were also felt by other early childhood teachers. Anggreani, in her research conducted in Palembang entitled Development of authentic assessment guidelines-based curriculum 2013 stated that Early Childhood Education teachers still had little knowledge about assessment. The results of the research also showed that after using assessment guidelines, the teachers' ability to carry out authentic assessment improved. (Anggreani et al., 2018). By Antoro, Eko Budi, in his research entitled The Implementation of the 2013 Early Childhood Education Curriculum, conveyed that the obstacles the teachers had in implementing the curriculum (planning, implementation, and evaluation) were that they still had minimal knowledge, including in carrying out evaluations (Antoro, 2020). The difficulty of Early childhood Education teachers in compiling assessment data and preparing an evaluation results report was also conveyed by (Kongen & Jaya, 2019).

Furthermore, through a survey conducted by Hidayat W and Anggraini A 2020, researchers from the University of Malaysia stated that the results of a survey using a questionnaire toward Early childhood Education teachers in Aceh indicate that as many as 85.71 had not carried out authentic assessments conducted during the learning process (Hidayat & Andriani, 2020). Likewise, research conducted by Hartati, S., and Zulminiati, Z., using observation, interview, and documentation methods, showed that state kindergarten teachers in Padang City still have difficulty carrying out assessment in the learning process. Important notes, such as those from anecdotal records, were not used as reports and were left piled up, which should be used as an analysis of children's developmental achievements (Hartati & Zulminiati, 2020). This is also in accordance with research by Sri Nurhayati and Anita Rakhman regarding a study of the competency of Early childhood Education teachers in conducting assessments, which stated that 96.5 percent have attended learning assessment training, but their level of understanding and mastery remains low (Nurhayati & Rakhman, 2017).

Research conducted in New Zealand by Margaret et al. stated that assessing or observing children must occur within the context of meaningful activities and relationships that form the basis of a holistic curriculum. Carr et al. (2016) identified three key observations: contribution, communication, and collaboration. In previous research, (Handayani et al., 2023) utilized the the STAR (Situation, Task, Action, and Result) technique for self- and peer-assessment in the ABCD5E learning model, making it easier for teachers to conduct assessments in this research. Based on various previous research results, assessment is the most important part of the learning process. This research focuses on the ease of assessment implementation by PAUD teachers. The following is a research road map with a fishbone design for previous research:



## RESEARCH METHODS

This study employs a quantitative research approach with an experimental design, utilizing a one-group single pretest-posttest group design; specifically, the design includes a pre-test before administering the treatment and a post-test after administering the treatment to the experimental group (Borg & Gall, 1983: 657). The experiment involved conducting trials on the teacher's ability to carry out assessments in the pretest before implementing the STAR technique in the ABCD5E learning model for the experimental group's posttest.

## RESULTS AND DISCUSSION

The results and discussion of experimental research using the STAR technique on the ability of PAUD teachers to **carry** out assessments in the implementation of the ABCD5E learning model can be described as follows:

### Validity Test

The researchers tested the questionnaire instrument as a pre-test and post-test questionnaire before collecting data. For this research, the instrument must first undergo testing with an expert lecturer to obtain approval on its appropriateness, followed by a trial involving testing the instrument on test subjects who share the same characteristics as the research subjects.

Researchers conducted instrument trials with 43 teenagers from 10 kindergartens, including Klampok Handayani Kindergarten (Brebes City), ABA Kindergarten Brebes Regency, Satria Gombong Kindergarten (Pemalang), Andayani Kindergarten 10 Kuta Pemalang Regency, TK Negeri Pembina Mbelik Pemalang Regency, Tk Aisyiyah Pesantunan, Brebes Regency, PERTIWI 26-83 Tamansari Kindergarten Tegal Regency, and Handayani Kindergarten Lebaksiu Kidul Tegal Regency. After respondents complete the questionnaire, the items will be processed to determine their validity. Researchers can then use the sorted items that are classified as invalid and valid as instruments to collect research data.

Validity aims to measure the extent to which the instrument measures what it wants to measure. Analysis of the validity of questionnaire test data with the STAR Technique intervention in learning with the ABCD5E model in the experimental group of the Product Moment trial technique with SPSS software. Validity testing criteria using product moments are as follows: 1) If  $r_{count} > r_{table}$ , then the instrument is declared valid, 2) 2) If  $r_{count} < r_{table}$ , then the instrument is declared invalid.

The following are the calculation results from the validity test of the STAR Technique questionnaire in learning with the ABCD5E model in the Product Moment trial technique experimental group, as table 1.

**Table 1. Calculation Results of Pre-Test Questionnaire Instruments Validity Testing by Using Product Moment**

No. Item	Pearson Correlation	r Tabel (Sig,0,05)	Description
Item KAG1	0,636	0,2940	Valid
Item KAG2	0,636	0,2940	Valid
Item KAG3	0,636	0,2940	Invalid
Item KAG4	0,636	0,2940	Valid
Item KAG5	0,141	0,2940	Invalid
Item KAG6	0,317	0,2940	Valid
Item KAG7	0,236	0,2940	Invalid
Item KAG8	0,488	0,2940	Valid
Item KAG9	0,752	0,2940	Valid
Item KAG10	0,624	0,2940	Valid
Item KAG11	0,844	0,2940	Valid
Item KAG12	0,752	0,2940	Valid
Item KAG13	0,752	0,2940	Valid
Item KAG14	0,793	0,2940	Valid
Item KAG15	0,540	0,2940	Valid
Item KAG16	0,844	0,2940	Valid
Item KAG17	0,710	0,2940	Valid
Item KAG18	0,844	0,2940	Valid
Number of Valid Items			15
Number of Invalid Items			3

*Source: Output SPSS***Table 2. Calculation Results of Testing the Validity of Post Test Questionnaire Instruments by using Product Moment**

No. Item	Pearson Correlation	r Tabel (Sig,0,05)	Description
Item XKAG1	0,756	0,2940	Valid
Item XKAG2	0,756	0,2940	Valid
Item XKAG3	0,729	0,2940	Valid
Item XKAG4	0,607	0,2940	Valid
Item XKAG5	0,756	0,2940	Valid
Item XKAG6	0,756	0,2940	Valid
Item XKAG7	0,756	0,2940	Valid
Item XKAG8	0,756	0,2940	Valid
Item XKAG9	0,756	0,2940	Valid
Item XKAG10	0,729	0,2940	Valid
Item XKAG11	0,756	0,2940	Valid
Item XKAG12	0,756	0,2940	Valid
Item XKAG13	0,254	0,2940	Invalid
Item XKAG14	0,664	0,2940	Valid
Item XKAG15	0,664	0,2940	Valid
Item XKAG16	0,756	0,2940	Valid
Item XKAG17	0,756	0,2940	Valid
Item XKAG18	0,756	0,2940	Valid
Number of Valid Items			17
Number of Invalid Items			1

*Source: Output SPSS*

An item can be considered valid if  $r_{count} > r_{table}$  with (sig. 0.5) based on the table above. To determine the value of the  $r_{table}$  (sig. 0.05), you can look at the  $r$  product moment table with total data ( $N = 43$ ) in the attachment section. It is known that the  $r_{table}$  is 0.2940. The teacher assessment ability scale in

the pre-test consists of 18 items, with 15 items declared valid and 3 items declared invalid or excluded from the research.

The results of the validity test of the teacher assessment ability questionnaire in the post-test are shown in Table 2.

In the post-test, the teacher assessment ability scale compared 18 items, with 17 items declared valid and 1 item declared invalid or excluded from the research.

**Reliability Test**

Researchers use reliability to assess how much an instrument can be trusted for data collection due to its effectiveness. The researchers conducted the reliability test for more than two alternative answers using the Cronbach's alpha test with the assistance of the SPSS (Statistical Package for Social Science) program. The calculated results from the reliability test of the teacher assessment ability questionnaire in the pre-test and post-test were 38 items, as table 3.

**Table 3. Calculation Results of Reliability Testing of Questionnaire Instruments Assessing Teacher Ability Using Cronbach's Alpha with Pre-Test and Post-Test Instruments**

Variable	Alpha Cronbach Value	Reliability Standard	Description
KAG	0,912	0,70	Reliable
XKAG	0,915	0,70	Reliable

Source: Output SPSS

From the output table above, the researchers compared the Cronbach alpha value for all teacher assessment ability variables in the pre-test and post-test tests to 0.70, declaring the questionnaire reliable.

**Normality test**

The research results determine the form of the data through the normality test, indicating whether it has a standard or abnormal distribution. In this study, the data normality test used the Kolmogorov-Smirnov formula with a significance level of 0.05. Kolmogorov-Smirnov as Table 4 are the results of calculating the normality test of the data obtained during the research:

**Table 4. Calculation Results of Pre-Test and Post-Test Normality Tests Using One Sample of Kolmogorov-Smirnov**

**One-Sample Kolmogorov-Smirnov Test**

		PRE_KAG	POST_XKAG
N		43	43
Normal Parameters <sup>a,b</sup>	Mean	3,5116	15,2326
	Std. Deviation	4,23350	3,16105
Most Extreme Differences	Absolute	,291	,317
	Positive	,291	,288
	Negative	-,203	-,317
Kolmogorov-Smirnov Z		1,906	2,076
Asymp. Sig. (2-tailed)		,001	,000

a. Test distribution is Normal.

b. Calculated from data.

The hypothesis to be tested in this case is: H0: Normal population distribution; if probability > 0.05, H0 is accepted, and H1: The population distribution is not normal; if the probability is > 0.05, H0 is rejected.

Obtain pre-test and post-test statistics for the Kolmogorov-Smirnov Sig from the output above. If the p-value is > 0.05, then H0 is accepted as not significant. The population data from teacher assessment abilities in the pre-test and post-test tests did not follow a normal distribution.

### Homogeneity Test

Researchers carry out the homogeneity test to determine if two or more groups of sample data come from populations with the same variance (homogeneous). This test is a requirement before carrying out other tests, which in this study used the Wilcoxon test. This test ensures that the data group does come from the same sample.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
PRE_KAG	Between Groups	3,331	1	3,331	,182	,672
	Within Groups	749,413	41	18,278		
	Total	752,744	42			
POST_XKAG	Between Groups	19,274	1	19,274	1,974	,168
	Within Groups	400,401	41	9,766		
	Total	419,674	42			

Based on its significance value, the data testing indicates homogeneity; 1) Significance value ( $p \geq 0.05$ ) indicates the data group comes from a population that has the same variance (homogeneous). 2) Significance value ( $p < 0.05$ ) indicates that each group of data comes from a population with a different variance (not homogeneous).

Homogeneity of Preliminary Test Variables; The PRE-KAG homogeneity significance value was obtained at 0.672 ( $\geq 0.05$ ), indicating that the Preliminary Test variable in the Teacher Assessment Ability Group before the STAR Technique was carried out was homogeneous. Homogeneity of Final Test Variables; The POST-KAG homogeneity significance value was 0.168 ( $\geq 0.05$ ), indicating that the Initial Test variable in the Teacher Assessment Ability group after the STAR Technique was carried out was homogeneous.

### Hypothesis Test

Researchers carry out hypothesis testing to determine which hypotheses can be accepted in this research. The hypotheses in this research are as follows: 1)  $H_a$ : There is a difference in the teacher assessment ability test before and after the STAR technique is carried out in learning with the ABCD5E model. 2)  $H_0$ : There is no difference in teacher assessment ability tests before and after using the STAR technique in learning with the ABCD5E model.

The researchers carried out the Wilcoxon test to determine the difference between the experimental group and the control group, who had completed the pre-test and post-test due to the non-normal distribution of the data. Table 5 is a summary table after several stages of testing research data obtained in the field.

**Table 5. Summary of Hypothesis Testing Calculation Results**

Objective	Analysis Technique	Results	Description
Ability Test Improving teacher assessment skills through the use of the STAR technique	<i>Wilcoxon Signed</i>	0,000 < 0,05	There was a significant difference

The results of the hypothesis testing above indicate that in this study,  $H_0$  was rejected, and  $H_a$  was accepted. This means that the STAR Technique intervention in learning using the ABCD5E model is effective in improving teacher assessment skills.

The STAR technique is an abbreviation of Situation, Task, Action and Result. The situation here is the condition or event that occurred when the assessment was carried out. A task is an activity carried out for a certain reason, which means why the assessment is carried out. Action is the action taken and the Result is the result of the assessment being carried out (Handayani, 2022).

The use of STAR Technique makes it easier for teachers to carry out assessments. Example, Situation: making a turtle from used materials is carried out in the activity, Task: The turtle made by Andi does not have a tail, Action: Wira conveys to Andi that the turtle he made does not have a tail, Result: Andi receives a correction from Wira and complete the turtle's body with a tail. From the STAR results, it was analysed

that Wira could carry out an assessment of his friend/peer assessment. From the results of Wira's STAR, the learning outcomes obtained are in the basic elements of Literacy, Mathematics, Science, Technology, Engineering and the arts with a description of critical thinking skills (Badan Standar, Kurikulum, Dan Asesmen Pendidikankementerian Pendidikan, Kebudayaan, Riset, 2022)

## CONCLUSION

The STAR technique can make it easier for teachers to implement the ABCD5E learning model based on all the details above. The research results prove that teachers have good abilities in carrying out assessments. In what situation does the teacher carry out the assessment (S = situation), what is the reason the teacher carries out the assessment (T = task), then what does the teacher do (A = action), and what are the results (R = result). Using the STAR technique, PAUD teachers can carry out assessments with the ABCD5E learning model during the learning process, especially in the 5E phase (engagement, exploration, explanation, elaboration, and evaluation).

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