



Knowledge Applied Realistic Assessment (KARA) in Araling Panlipunan 8: Development and Validation

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Abstract

Knowledge Applied Realistic Assessment (KARA) for Araling Panlipunan 8 was crafted and validated. Assessment is based on the Most Essential Learning Competencies (MELCs) of the Department of Education. Traditional assessment sometimes focused on rote memorization rather than using practical assessment that promotes analysis, problem-solving as well as higher-order thinking skills.

This study utilizes the Research and Development (R&D) wherein it needs a number test experts in the validation of the assessment tool. In addition, this study needs 30 Grade 9 students of Concepcion National High School to check its reliability. Knowledge Applied Realistic Assessment underwent a content validation with the use of Content Validity Index (CVI) and a series of reliability testing by employing Kuder-Richardson 20, Test-Retest, and Split-Half methods.

The results indicated that KARA gained a perfect content validity score ($S-CVI = 1.00$), it affirms that the entire assessment tool measures the intended learning competencies in Araling Panlipunan 8 under the (MELCs). This study exhibited a strong internal consistency because it acquired a score ranging from 0.81 – 0.84 in KR-20 in all four quarters. The reliability statistics of KARA in test-retest produced a high correlation ranging from 0.88-0.97, which confirms that the assessment tool is reliable. In split-half method, KARA demonstrated an acceptable to good reliability across all four quarters.

With these results, it suggests that KARA is a valid and reliable assessment tool in assessing students' competence in analyzing, in interpreting and in applying knowledge in actual scenarios. This study promotes another innovative assessment that highlights the value of applying knowledge in Araling Panlipunan 8.

Keywords: validity and reliability, realistic assessment, KARA, curriculum alignment, Araling Panlipunan 8, test construction, applied knowledge, quarterly assessment

Introduction

Araling Panlipunan teaching has conventionally anchored on imparting knowledge about historical events and global perspectives through objective assessments and rote memorization. Although this pedagogical approach has proved its efficacy in learning and teaching, it may not be sufficient to prepare students for the complexities of the status quo.

Critical thinking must be encouraged in classrooms because it improves academic performance and prepares students for real-world scenarios. According to Dede (2009), "students must engage in problem-solving and critical thinking to navigate contemporary global issues," highlighting the importance of dynamic learning settings. Inquiry-based learning can foster a deeper comprehension of concepts and foster civic engagement, as the National Council for Social Studies (NCSS, 2013) noted. Teachers can better prepare students to handle the complex problems they face in the future by emphasizing critical analysis over rote memorization. Conventional approaches frequently emphasize remembering facts more than comprehending difficult ideas. It claims that this can result in students learning things superficially, memorizing facts without understanding their meaning or consequences.

The Araling Panlipunan curriculum should be developed to engage students with real-world situations. Students are increasingly likely to be involved in addressing global issues and historical, political, and social matters. To apply theoretical knowledge to practical contexts, students must develop critical thinking skills and participate in fieldwork, gaining valuable hands-on experience.

The Knowledge Applied Realistic Assessment (KARA) tool stresses applying knowledge to real-world scenarios. It is crafted to push critical thinking and problem-solving, where students apply their knowledge to real-world problems or scenarios, such as case studies, simulations, or project-based learning. While growing evidence supports the effectiveness of the KARA approach, further research is necessary to fully understand its impact on teaching araling panlipunan, particularly in historical events and global perspectives.

Studies conducted about teaching and learning social studies only focused on innovative approaches in historical education, challenges in implementing experiential learning in social studies, limitations in teaching historical contexts, student resistance to interactive learning in social studies, needs in social studies education on global perspectives, differentiated instruction in social studies, experiential learning in history education, assessment in social studies education, collaborative learning in social studies, and interdisciplinary approaches in social studies education (Martinez, 2020; Lee, 2020; Johnson, 2021; Harris, 2021; Nguyen, 2022; Thompson & Lee, 2022; Carter & Jones, 2022; Robinson & Smith, 2022; Roberts, 2023; Nguyen & Allen, 2023). However, there is a lack of literature investigating the Knowledge Applied Realistic Assessment (KARA), and a lack of realistic and applied assessment promotes higher-order thinking skills (HOTS), critical analysis, and problem-solving skills essential in understanding history.

Therefore, this study aims to develop and validate a Knowledge Applied Realistic Assessment (KARA) tool for Araling Panlipunan 8 anchored on the Department of Education's Most Essential Learning Competencies (MELCs). It will explore the tool's potential to enhance student learning by ensuring that it measures students' ability to analyze, interpret, and apply historical and social concepts in a real-world context.

The findings from this study could contribute to the ongoing discussion on innovative assessment practices and their role in shaping the future of education. By including realistic tasks

that encourage critical thinking and problem-solving abilities, it also overcomes the drawbacks of traditional assessment.

Statement of the Problem

This study evaluated the content validity and reliability of the Knowledge Applied Realistic Assessment in Araling Panlipunan 8 through systematic validation and testing methods. It answered the following questions:

1. What is the content validity index of the Knowledge Applied Realistic Assessment (KARA) in four quarters in terms of:
 - 1.1 item-content validity index; and
 - 1.2 scale-content validity index?
2. What is the reliability of the Knowledge Applied Realistic Assessment in four quarters in terms of:
 - 2.1 internal consistency through KR-20;
 - 2.2 test-retest method; and
 - 2.3 split-half method?

Methodology

The Knowledge Applied Realistic Assessment (KARA) tool for Araling Panlipunan 8 was developed and validated. This study used the Research and Development research design to determine the implications of KARA in teaching Araling Panlipunan 8 involving Grade 8 students. The main goal of this research design was to develop and test new educational resources or interventions to enhance teaching methods. According to Brown and Campione (1996), research and development in education strongly emphasizes the useful application of theory to address specific educational challenges, ensuring the developed tool is relevant and effective.

This study involved Junior High School students at Concepcion National High School in Barangay Concepcion, Koronadal City, South Cotabato for the 2024-2025 School Year. Six social studies master teachers participate in the assessment's validity. It was reviewed by experts using a four-point Likert scale to assess its relevance, clarity, and alignment with the Most Essential Learning Competencies (AERA, APA, & NCME, 2014). Stake (1995) asserts that expert validation was required to guarantee that the instructional materials were pedagogically sound and aligned with academic standards. With their extensive experience, master teachers offer professional judgment on the materials' efficacy, relevance, and quality, guaranteeing that the test suits the target grade level and subject matter. With expert validation, this study aims to ensure that the assessment was effective and rigorously evaluated for real-world application.

This study was conducted in the Junior High School of Concepcion National High School for the School Year 2024-2025, located at Brgy. Concepcion, Koronadal City, South Cotabato. The Knowledge Applied Realistic Assessment (KARA) was pilot-tested using a purposive sampling technique in this study. This method worked well for choosing a particular set of participants who could offer insightful opinions about how well the KARA tool worked (Etikan, Musa, & Alkassin, 2016).

The researcher created the 200-item multiple-choice test used in this study and covered subjects from the first to the fourth quarters. The instrument has to be placed via validity and reliability testing to guarantee its efficacy. Validity was measured through Item-Content Validity

Index (I-CVI) and Scale-Content Validity Index (S-CVI), while reliability was established using the Kuder-Richardson Formula 20 (KR-20), Test-retest, and Split-Half methods. These rigorous evaluations confirmed the tool's consistency and appropriateness for assessing students' applied knowledge and critical thinking in Araling Panlipunan. Gay, Mills, and Airasian (2011) highlight that internal consistency testing, such as KR-20, was essential for determining whether the test consistently measures the same construct across different items. By applying these procedures, the study ensured that the instrument was valid and reliable, providing accurate and consistent measurements of students' competence from historical and global perspectives.

Presentation, Analysis at Interpretation of Data

This chapter presents the results, discussions, and analysis of the data gathered that sought to answer the study's objectives.

Content Validation of Knowledge Applied Realistic Assessment

Table 1. Item-Content Validity Index for the First Quarter

First Quarter Topic	Total Items	I-CVI	UA	Validity Status
Heograpiya at mga Sinaunang Kabihasan sa Daigdig	50	1.00	1.00	All items are valid

Based on the scores given by 6 test experts in Araling Panlipunan, the Item-Content Validity Index or the I-CVI for Knowledge Applied Realistic Assessment (KARA) for the first quarter covering the competencies on *Heograpiya at mga Sinaunang Kabihasan sa Daigdig* gained a score of 1.0. This means the experts rated the item in complete agreement, indicating perfect content validity. This result affirms that the test items in quarter 1 were aligned with the intended learning competencies and are valid for assessing students' knowledge in the Araling Panlipunan 8 subject.

Table 2. Item-Content Validity Index for the Second Quarter

Second Quarter Topic	Total Items	I-CVI	UA	Validity Status
Ang Daigdig sa Klasikal at Transisyunal na Panahon	50	1.00	1.00	All items are valid

Based on the scores given by 6 test experts in Araling Panlipunan, the Item-Content Validity Index or the I-CVI for Knowledge Applied Realistic Assessment (KARA) for the first quarter gained a score of 1.0. This means the experts rated the item in complete agreement, indicating perfect content validity. This result affirms that the test items in the second quarter were aligned with the intended learning competencies and were appropriate for assessing students' knowledge in the Araling Panlipunan 8 subject.

Table 3. Item-Content Validity Index for the Third Quarter

Third Quarter Topic	Total Items	I-CVI	UA	Validity Status
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Pag-Usbong ng Makabagong Daigdig: Transpormasyon Tungo sa Pandaigdigang Kamalayan	50	1.00	1.00	All items are valid
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As shown, the Item-Content Validity Index of Knowledge Applied Realistic Assessment (KARA) for the third quarter covering the competencies on Pag-Usbong ng Makabagong Daigdig: Transpormasyon Tungo sa Pagbuo ng Pandaigdigang Kamalayan. was 1.0, meaning the test items were valid. The experts gave the item a score of 1.0, which indicates perfect content validity. This confirms that the test items in the third quarter were in line with the intended learning competencies and suitable for evaluating students' knowledge in the Araling Panlipunan 8 subject.

Table 4. Item-Content Validity Index for the Fourth Quarter

Fourth Quarter Topic	Total Items	I-CVI	UA	Validity Status
Ang Kontemporaryong Daigdig: Mga Suliranin at Hamon	50	1.00	1.00	All items are valid

Based on the scores given by 6 test experts in Araling Panlipunan, the Item-Content Validity Index or the I-CVI for Knowledge Applied Realistic Assessment (KARA) for the first quarter gained a score of 1.0. This means the experts rated the item in complete agreement, indicating perfect content validity. This result affirms that the test items in the fourth quarter were aligned with the intended learning competencies and were appropriate for assessing students' knowledge in the Araling Panlipunan 8 subject.

Scale-Content Validity of Knowledge Applied Realistic Assessment

Table 5. Scale-Content Validity Index of Knowledge Applied Realistic Assessment in Araling Panlipun 8

Test (Quarter)	Number of Validators	Number of Test Items	S-CVI	Interpretation
1	6	50	1.00	Valid
2	6	50	1.00	Valid
3	6	50	1.00	Valid
4	6	50	1.00	Valid

As shown in Table 9, the scale-level content validity index was 1.0 from the first to the fourth quarter. This indicates perfect content validity since the experts gave each item an ideal rating. This outcome confirms that the test items for each of the four quarters align with the desired learning competencies and are suitable for evaluating students' understanding of the Araling Panlipunan 8 subject. The assessment tool validated by the six experts in Araling Panlipunan 8 is valid since the S-CVI received a score of 1.0.

Hence, it affirms that the assessment tool measures the intended learning competencies in Araling Panlipunan 8 under the Most Essential Learning Competencies (MELCs). It suggests that all items in the tool from the first to the fourth quarter are highly relevant and appropriate for assessing the subject matter. According to Yusof's study (2019), content validity is essential for ensuring the assessment's overall validity. Thus, a systematic content validation process was

needed to accurately measure and align the intended content with the learning objectives. Additionally, Lawshe (1975) emphasized the importance of content validity in creating a test. The assessment should be comprehensive and meaningful.

Reliability Statistics of KARA through Kuder-Richardson 20

Table 6. Reliability Statistics using Kuder-Richardson 20 for First Quarter

Number of Items	Σpq	Variance(s^2)	KR-20	Interpretation
50	9.35	44.43	0.81	Strong internal consistency

Based on the results of the reliability test in table 9, the assessment gained a favorable result. For the first quarter covering the competencies on *Heograpiya at mga Sinaunang Kabihasan sa Daigdig*, the result of the Kuder-Richardson 20 (KR20) for Knowledge Applied Realistic Assessment was 0.81, which indicates that the said assessment demonstrates a strong internal consistency. As a result, the KARA in quarter 1 was highly reliable and consistently measure the needed competencies in the first quarter. Higher values in KR-20 implies better reliability and values above 0.70 are generally acceptable for educational assessment.

Table 7. Reliability Statistics using Kuder-Richardson 20 for Second Quarter

Number of Items	Σpq	Variance(s^2)	KR-20	Interpretation
50	10.35	52.65	0.82	Strong internal consistency

Based on the results of the reliability test of Knowledge Applied Realistic Assessment under KR-20 for second quarter covering the competencies on *Ang Daigdig sa Klasikal at Transisyunal na Panahon* was 0.82, a slightly higher than quarter 1, which indicates that the assessment demonstrates strong internal consistency. Hence, KARA was a reliable tool in assessing students' applied knowledge in Araling Panlipunan 8.

Table 8. Reliability Statistics using Kuder-Richardson 20 for Third Quarter

Number of Items	Σpq	Variance(s^2)	KR-20	Interpretation
50	11.28	55.11	0.81	Strong internal consistency

Based on the results of the reliability test in table 8 for the third quarter covering the competencies on *Pag-Usbong ng Makabagong Daigdig: Transpormasyon Tungo sa Pagbuo ng Pandaigdigang Kamalayan*, the result of the Kuder-Richardson 20 for KARA was 0.81, which indicates that the said assessment demonstrates a strong internal consistency. As a result, the assessment was highly reliable and consistently measure the needed competencies in the third quarter. Higher values in KR-20 implies better reliability and values above 0.70 are generally acceptable for educational assessment.

Table 9. Reliability Statistics using Kuder-Richardson 20 for Fourth Quarter

Number of Items	Σpq	Variance(s^2)	KR-20	Interpretation
50	10.38	58.69	0.84	Strong internal consistency

As shown in table 9, the result of the Kuder-Richardson 20 for Knowledge Applied Realistic Assessment was 0.84, which indicates that the said assessment demonstrates a strong internal consistency. As a result, KARA in quarter 4 was highly reliable and consistently measure the needed competencies in the fourth quarter.

Overall, the reliability test results using Kuder-Richardson 20 shows that the Knowledge Applied Realistic Assessment was a valid tool for evaluating students' applied knowledge of Araling Panlipunan 8 .The KR-20 values based on the interpretation table that ranges from 0.81 to 0.84 falls under the *Very Good* category. In general, the results of the reliability test confirms that the KARA was a reliable instrument for assessing students' knowledge in Araling Panlipunan 8 across all four quarters. Tavakol and Dennick (2011) emphasized that a high internal consistency of an assessment tool guarantees accurate and fair measurement of student's performance. Thus, administering a KR-20 reliability test in Knowledge Applied Realistic Assessment was essential for validating examination's effectiveness across all four quarters.

Reliability Statistics using Test-Retest Method

Table 10. Reliability Statistics on KARA using Test-Retest Method for the First Quarter

Correlations			
Test		Test	Retest
Test	Pearson Correlation	1	.882**
	Sig.(2-tailed)		<.001
	N	30	30
Retest	Pearson Correlation	.882**	1
	Sig.(2-tailed)	<.001	
	N	30	

Table 10 shows the results of the test-retest reliability analysis of KARA and how consistent was the assessment over two administrations for the first quarter. With a sample size of 30 students, the Pearson correlation coefficient between the initial test and the retest for the first quarter was $r=0.882$. This indicates good reliability. The p-value was less than 0.001, which indicates that the correlation was statistically significant at 0.01 level. The results confirmed that the observed correlation was unlikely due to chance. A strong and significant correlation indicates a good test-retest reliability making it reliable tool in measuring students' applied knowledge.

Table 11. Reliability Statistics on KARA using Test-Retest Method for the Second Quarter

Correlations			
Test		Test	Retest
Test	Pearson Correlation	1	.968**
	Sig.(2-tailed)		<.001
	N	30	30
Retest	Pearson Correlation	.968**	1
	Sig.(2-tailed)	<.001	
	N	30	

Table 11 shows the results of the test-retest reliability analysis of KARA for the second quarter. With a sample size of 30 students, the Pearson correlation coefficient between the initial

test and the retest was $r=0.968$. This indicates excellent reliability. The p-value was less than 0.001, which indicates that the correlation was statistically significant at 0.01 level. The results confirmed that the observed correlation was unlikely due to chance. A strong and significant correlation indicates a good test-retest reliability making it reliable tool in measuring students' applied knowledge in Araling Panlipunan 8.

Table 12. Reliability Statistics on KARA using Test-Retest Method for the Third Quarter

Correlations			
		Test	Retest
Test	Pearson Correlation	1	.948**
	Sig.(2-tailed)		<.001
	N	30	30
Retest	Pearson Correlation	.948**	1
	Sig.(2-tailed)	<.001	
	N	30	

Table 12 shows the results of the test-retest reliability analysis of KARA for the second quarter. With a sample size of 30 students, the Pearson correlation coefficient between the initial test and the retest was $r=0.948$. This indicates excellent reliability. The p-value was less than 0.001, which indicates that the correlation was statistically significant at 0.01 level. The results confirmed that the observed correlation was unlikely due to chance. A strong and significant correlation indicates a good test-retest reliability making it reliable tool in measuring students' applied knowledge in Araling Panlipunan 8.

Table 13. Reliability Statistics on KARA using Test-Retest Method for the Fourth Quarter

Correlations			
		Test	Retest
Test	Pearson Correlation	1	.950**
	Sig.(2-tailed)		<.001
	N	30	30
Retest	Pearson Correlation	.950**	1
	Sig.(2-tailed)	<.001	
	N	30	

Table 13 shows the results of the test-retest reliability analysis of KARA for the second quarter. With a sample size of 30 students, the Pearson correlation coefficient between the initial test and the retest was $r=0.950$. This indicates excellent reliability. The p-value was less than 0.001, which indicates that the correlation was statistically significant at 0.01 level. The results confirmed that the observed correlation was unlikely due to chance. A strong and significant correlation indicates a good test-retest reliability making it reliable tool in measuring students' applied knowledge in Araling Panlipunan 8.

Overall, the Test-Retest reliability analysis of the Knowledge Applied Realistic Assessment (KARA) in Araling Panlipunan 8 exhibit a good to excellent reliability with a correlation coefficient ranging from 0.882 to 0.968. Correlations from first quarter to fourth quarter were statistically significant ($p<0.001$) which means they were unlikely due to a chance. With these results, KARA across all four quarters were valid and reliable assessment tool for evaluating students' applied knowledge in Araling Panlipunan 8.

A test is considered reliable if it consistently yields results regardless of who scores it, when it is given, or how it is formatted. When making decisions in research or education, the results' consistency helps ensure that they are reliable and accurate (Mueller & Knapp, 2018). Thus, administering a Test-Retest Method of reliability test in Knowledge Applied Realistic Assessment was essential for validating examination's effectiveness across all four quarters.

Reliability Statistics on KARA based on Split-Half Method

Table 14. Results of the Reliability Statistics on the KARA for First Quarter

Cronbach's Alpha	Part 1	Value	.728
		N of Items	25 ^a
	Part 2	Value	.706
		N of Items	25 ^b
	Total N of Items		50
Correlation Between Forms			.610
Spearman-Brown Coefficient	Equal Length		.757
	Unequal Length		.757
Guttman Split-Half Coefficient			.757

The 50-item multiple-choice test in Araling Panlipunan 8 is subjected to a reliability assessment using the split-half method. This produces results that show moderate to high reliability. The two halves' Cronbach's Alpha values were 0.728 and 0.706, respectively, suggesting that the items measure related concepts and have acceptable internal consistency. In educational research, values greater than 0.70 are generally considered reliable.

The correlation between the two halves was 0.610, showing a moderate positive relationship. This suggests that although the two parts are connected, there might be minor variations in their subject matter or level of difficulty. The Spearman-Brown and Guttman Split-Half Coefficients both produced a value of 0.757, suggesting the full test is reliable and likely to yield consistent results. For split-half testing, a correlation above 0.60 is regarded as good.

Table 14. Results of the Reliability Statistics on the KARA for Second Quarter

Cronbach's Alpha	Part 1	Value	.631
		N of Items	25 ^a
	Part 2	Value	.764
		N of Items	25 ^b
	Total N of Items		
Correlation Between Forms			.626
Spearman-Brown Coefficient	Equal Length		.770
	Unequal Length		.770
Guttman Split-Half Coefficient			.761

As shown, the 50-item multiple-choice test in Araling Panlipunan 8 for the second quarter is subjected to a reliability assessment using the split-half method. This produces results that show moderate to good reliability.

The Cronbach's Alpha values for each half of the test are 0.631 and 0.764, respectively. This means the first half has only fair consistency and may need some improvements, while the

second half is more reliable. Cronbach Alpha values above 0.70 are considered acceptable in educational research, the second half satisfies that criterion. A moderately positive relationship is indicated by the correlation coefficient of 0.626 between the two halves. The Guttman Split-Half Coefficient is 0.761, and the Spearman-Brown Coefficient is 0.770, indicating that the two sections are related but may have different content or levels of difficulty. When taken as a whole, both results imply that the entire test is reliable and consistent.

Table 15. Results of the Reliability Statistics on the KARA for Third Quarter

Cronbach's Alpha	Part 1	Value	.675
		N of Items	25 ^a
	Part 2	Value	.692
		N of Items	25 ^b
	Total N of Items		50
Correlation Between Forms			.680
Spearman-Brown Coefficient	Equal Length		.810
	Unequal Length		.810
Guttman Split-Half Coefficient			.810

As shown, the 50-item multiple-choice test in Araling Panlipunan 8 is subjected to a reliability assessment using the split-half method. This produces good reliability results. The two parts of the Araling Panlipunan 8 test have Cronbach's Alpha values of 0.675 and 0.692, respectively. Both of these values are slightly below the optimal 0.70 threshold, but they demonstrate moderate reliability. This implies that while the test is generally reliable, minor revisions could be made to improve consistency. There is a moderately positive relationship between the two halves, as indicated by the correlation of 0.680. This indicates that although there might be some variations in the questions' content or difficulty, the two sections are related. The Spearman-Brown and Guttman Split-Half Coefficients are both 0.810, suggesting that the entire test is reliable and consistent when used as a whole. In reliability testing, a correlation above 0.60 is considered as good.

Table 16. Results of the Reliability Statistics on the KARA for Fourth Quarter

Cronbach's Alpha	Part 1	Value	.697
		N of Items	25 ^a
	Part 2	Value	.771
		N of Items	25 ^b
	Total N of Items		50
Correlation Between Forms			.641
Spearman-Brown Coefficient	Equal Length		.781
	Unequal Length		.781
Guttman Split-Half Coefficient			.778

As shown, the 50-item multiple-choice test in Araling Panlipunan 8 is subjected to a reliability assessment using the split-half method. This produces results that show acceptable to good reliability. The Cronbach's Alpha values for each half of the test are 0.697 and 0.771, respectively.

The result shows that part 1 had a reliability score slightly below 0.70 and that is considered moderately reliable. In part 2 got a score above 0.70, showing good reliability. Although part 1

was a bit weaker in internal consistency, both parts are still acceptable for educational research. Both parts of the test have a moderate positive correlation of 0.641, it means that they are related but differ slightly in difficulty or content. In totality, the reliability test of KARA supported by the Spearman-Brown Coefficient of 0.781 and the Guttman Split-Half Coefficient of 0.778 which means that the assessment is reliable and consistent.

According to Heale and Twycross (2015), various reliability tests, including test-retest and Cronbach's alpha, are essential for verifying the consistency and stability of research instruments which address the significance of guaranteeing reliability and validity in quantitative studies.

Conclusion

Knowledge Applied Realistic Assessment (KARA) possess strong content validity based on the item-content validity index and scaled-content validity index across all four quarters. This confirms that KARA effectively measures the intended competencies aligned with the Most Essential Learning Competencies (MELCs), making it a reliable assessment tool for quarterly evaluation in Araling Panlipunan 8.

This study reveals that KARA exhibits moderate to good reliability in all four quarters in Araling Panlipunan 8 based on the reliability statistics using Kuder-Richardson 20, test-retest and split-half methods. Though it may have few minor improvements, KARA can be effectively utilized for classroom assessments promoting a more meaningful and practical way of learning.

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