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Evaluation of Content Validity for an Educational Media Instrument to Enhance Early Childhood Education (PAUD) Teachers' Nutrition Knowledge

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Abstract: This study aims to evaluate the content validity of an educational media instrument developed to measure the quality of educational magazine media designed to enhance Early Childhood Education (PAUD) teachers' knowledge of nutrition. Evaluating educational media instruments is crucial to ensure that the materials used in teacher professional development are relevant, accurate, and clear. Without a well-validated instrument, there is a risk that the media applied in educational settings may not effectively achieve its intended learning outcomes. A descriptive quantitative research design was employed, with expert judgment serving as the central approach for validation. Several specialists in the fields of education and instrument development were involved in evaluating the instrument. Their assessment focused on three main aspects: media design, language clarity, and content relevance related to nutrition education. The findings indicate that the instrument achieved strong content validity across all domains, demonstrating its potential to accurately assess the feasibility and quality of nutrition education media. The study contributes to the field of educational evaluation by highlighting the critical role of content validity in the development of instruments intended to support teacher professional learning and the improvement of instructional materials.

Keywords: Evaluation; Education; Instrument; Early Childhood

Abstrak: Penelitian ini bertujuan untuk mengevaluasi validitas isi dari instrumen media pendidikan yang dikembangkan untuk menilai kualitas media majalah pendidikan yang dirancang guna meningkatkan pengetahuan gizi guru Pendidikan Anak Usia Dini (PAUD). Evaluasi instrumen media pendidikan menjadi sangat penting untuk memastikan bahwa media yang digunakan dalam program pengembangan profesional guru memiliki relevansi, ketepatan, dan kejelasan. Tanpa adanya instrumen yang tervalidasi dengan baik, terdapat kemungkinan media yang diterapkan di lingkungan pendidikan tidak mampu secara efektif mencapai tujuan pembelajaran yang diharapkan. Desain penelitian deskriptif kuantitatif digunakan dengan pendekatan penilaian ahli sebagai metode utama dalam proses validasi. Beberapa pakar yang memiliki keahlian di bidang Pendidikan dan instrument, dilibatkan untuk memberikan penilaian terhadap instrumen. Aspek yang dievaluasi mencakup tiga dimensi utama, yaitu desain media, kejelasan bahasa, dan relevansi konten dengan pendidikan gizi. Hasil penelitian menunjukkan bahwa instrumen memiliki validitas isi yang sangat baik pada semua domain, sehingga layak digunakan untuk menilai kelayakan dan kualitas media majalah pendidikan gizi. Temuan ini menegaskan pentingnya validitas isi dalam pengembangan instrumen evaluasi pendidikan, sekaligus memberikan kontribusi bagi peningkatan kualitas media pembelajaran dan mendukung pengembangan profesional guru.

Kata kunci: Evaluasi; Pendidikan; Instrumen; Anak Usia Dini

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INTRODUCTION

Evaluation is a systematic process aimed at gathering and interpreting data to assess the quality, effectiveness, and feasibility of educational tools and media. In education, proper evaluation ensures that instructional materials meet learning objectives and support pedagogical goals (Nurjanah et al., 2023). Educational evaluation has become increasingly important in the context of teacher professional development and curriculum reform(Iqba et al., 2024). Particularly in early childhood education or in Indonesia commonly called as PAUD, the use of innovative media is one of the most effective ways to deliver knowledge related to child health and nutrition. Early Childhood Education plays crucial role in children's development, particularly in areas such as cognitive, social, and physical growth (Riyadi et al., 2019), and so the teachers (Februhartanty, 2021). Proper nutrition significantly impacts a child's development both physically and mentally (Marsanti et al., 2022; Pondagitan & Agustina, 2022). However, many PAUD teachers still lack sufficient training on appropriate child nutrition and how to convey this information effectively through media that is easily understood by young children(Oktaviani Amalia et al., 2022). This gap in knowledge can result in inadequate nutrition practices and poor health outcomes for young children.

The way to improve PAUD teacher's knowledge, one possible approach is the development of educational media focusing on child nutrition. Learning media such as magazines possibly used as a potential media to enhance PAUD's teacher knowledge, which could serve as a teaching tool for them to introduce concepts in a fun and easily understandable. Before any educational media can be implemented widely, its quality must be seriously assessed (Vargas et al., 2024). This requires the use of valid instruments (Ngurah & Laksana, 2024). Unfortunately, many studies only focus on evaluating the media itself without adequately validating the instruments used for assessment. Without proper validation, such instruments risk producing biased or inaccurate results, which can undermine decision-making in educational settings.

However, without proper validation, the instruments used to assess such educational media may produce misleading results (Hidayati et al., 2019; Nurlaili, 2022). One essential step in instrument development is establishing content validity, which ensures that an instrument's items adequately represent the construction being measured. Content validity defines to the degree to which the content of an instrument is representative of the construct it is intended to measure (Yusoff, 2019) and content validity is typically assessed through expert judgment and quantified using indices such as the Content Validity Index (CVI) and Aiken's V, which are widely endorsed in educational research(Alamsyah Mansur & Manaf, 2023; Hidayati et al., 2019).

By ensuring that each item on the instrument is both relevant and representative, researchers and practitioners can make confident claims about the effectiveness of the intervention. Numerous studies emphasize that ignoring rigorous validation processes results in instruments that are unfit for educational settings. Therefore, the present research addresses a significant gap by conducting a content validity evaluation of an instrument designed for assessing a nutrition-focused magazine for PAUD teachers. The purpose of this research is to evaluate whether the developed instrument can serve as a valid tool for evaluating nutrition education magazines for PAUD teachers, ensuring that its items are accurate, comprehensible, and aligned with professional standards through expert validation using Content Validity Index and Aiken's V.

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METHOD

Unvalidated tools can mislead decisions about teacher development and nutrition media, we conducted a content-validity study for an assessment instrument targeting an Early Childhood Nutrition Magazine designed to advance PAUD teachers' nutrition knowledge. The focus in this phase was content validity only; reliability and construct testing are reserved for subsequent pilot work. This sequencing aligns with recommended validation workflows for new educational instruments. This study employed a descriptive quantitative design focusing on expert judgment as the core method for content validation. It follows established methodologies using Content Validity Index (CVI) and Aiken's V, commonly applied in Indonesian educational instrument development studies (Alamsyah Mansur & Manaf, 2023; Nurjanah et al., 2023).

Three experts were recruited as raters to evaluate the instrument. Importantly, all three experts were lecturers at Faculties of Education and Postgraduate Programs in Indonesian universities, ensuring they possessed both pedagogical insight and research competence in instrument development and validation. Such a profile aligns with common practices in Indonesian educational evaluation research (Putri et al., 2025; Utaminingsih, 2025).

Table 1. Domain Instrument

Domain	Item Focus	Number of Items	Sample Indicators
Content	Relevance, clarity, completeness, up-to-dateness, scale suitability	5	The nutrition material presented is relevant to PAUD teachers' needs.
Language	Clarity, readability, consistency, inclusivity, scale suitability	5	The language used in the magazine is simple, clear, and age-appropriate.
Media Design	Clarity of indicators, layout & typography, color & illustration, text-visual integration, scale suitability	5	The layout, illustrations, and typography support comprehension and engagement.
Total		15	Each item rated on a 5-point Likert scale (1 = very invalid, 5 = very valid). Experts also provide comments for items ≤3.

The instrument consisted of 15 items grouped equally into three domains. The content domain (5 items) focused on relevance, clarity, completeness, up-to-dateness, and scale suitability. The language domain (5 items) emphasized clarity, readability, consistency, inclusivity, and scale suitability. Meanwhile, the media design domain (5 items) covered clarity of indicators, layout and typography, color and illustration, visual–text integration, and scale suitability.

Quantitative data from the expert ratings were analyzed using the Content Validity Index (CVI) and Aiken's V. The item level CVI was computed as the proportion of expert who assigned a score of 4 or 5 to each item

$$\text{I-CVI}= \frac{Number\ of\ experts\ rating\ 4{-}5}{Total\ number\ of\ experts}$$

The scale level CVI (S-CVI) was calculated using two approaches, first to know the average of all I-CVI values across items using formula:

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$$\text{S-CVI/Ave} = \frac{\sum I\text{-}CVI}{k}$$

where k is the number of items. Second to know the proportion of items that obtained universal agreement (all experts rating ≥4) using formula:

$$\text{S-CVI/UA} = \frac{Number\ of\ items\ with\ I\text{-}CVI\text{=}1.00}{k}$$

Thus, to complement the CVI, Aiken's V coefficient was used to measure the degree of agreement among experts for each item using formula:

$$V = \frac{\sum s}{n(c-1)}$$

where $s = r - l_0$, here r = rating given by an expert, l_0 = lowest category score (1), c = number of categories (5), and n = number of experts.

RESULT AND DISCUSSION

The evaluation of the developed instrument was carried out by three experts representing backgrounds in media, language, and content. Each expert assessed 15 items distributed across three domains—content, language, and media design—using a 5-point Likert scale. The experts also provided qualitative comments for items rated ≤3. The results of expert evaluation on the 15 items are presented in Table 2. All items reached acceptable values for both I-CVI and Aiken's V, with decisions classified as KEEP. The Item-level Content Validity Index (I-CVI) values ranged between 0.80 and 1.00, while Aiken's V coefficients varied from 0.83 to 1.00.

Table 2. Result of Expert Evaluation

No	Instrument	Aspect	Indicator	Mean Score	I-CVI	Aiken's V	Decision
1	Content	Relevance of Indicator	Item matches nutrition content construct (accuracy, relevance for PAUD)	4.67	1.00	0.92	KEEP
2	Content	Clarity of Statement	Statement clear, operational, unambiguous	5.00	1.00	1.00	KEEP
3	Content	Coverage Completeness	Important dimensions included (accuracy, depth, coherence)	4.67	1.00	0.92	KEEP
4	Content	Up-to-dateness	Refers to updated standards (Kemenkes, BSNP, SDGs)	4.67	1.00	0.92	KEEP
5	Content	Scale Suitability	Anchor scale aligns with content criteria	4.33	1.00	0.83	KEEP
6	Language	Clarity of Statement	Statements are clear and easy to understand	5.00	1.00	1.00	KEEP
7	Language	Readability	Indicators support readability (sentence length, structure)	4.67	1.00	0.92	KEEP

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8	Language	Consistency & Standard	Consistent with PUEBI/EYD	4.67	1.00	0.92	KEEP
9	Language	Inclusivity & Sensitivity	Culturally sensitive, non-discriminative indicators	4.33	1.00	0.83	KEEP
10	Language	Scale Suitability	Anchor scale matches language indicators	5.00	1.00	1.00	KEEP
11	Media	Clarity of Item	Media design indicators are clear and operational	4.33	1.00	0.83	KEEP
12	Media	Layout & Typography	Assessing readability, balance of layout, white space	4.67	1.00	0.92	KEEP
13	Media	Color & Illustration	Color contrast appropriate, illustrations relevant	4.33	1.00	0.83	KEEP
14	Media	Visual–Text Integration	Clear relationship between text and image	4.33	1.00	0.83	KEEP
15	Media	Scale Suitability	Anchor scale aligns with media quality indicators	4.33	1.00	0.83	KEEP

The results of the content validity analysis presented in Table 2 indicate that all 15 items achieved satisfactory validity. The I-CVI values were consistently equal to 1.00, reflecting universal agreement among experts that each item is relevant and representative of its intended construct (Polit & Beck, 2006). In addition, both S-CVI/Ave and S-CVI/UA reached 1.00, providing evidence that the instrument comprehensively meets the required thresholds for content validity.

The Aiken's V values ranged between 0.833 and 1.000, and overall mean across domains equal to 0.900. These values exceed the commonly accepted threshold of 0.80 confirming that the indicators were judged to be clear, relevant, and unambiguous. The domain-level analysis shows that the Language domain had the highest level of agreement (Mean Aiken's V = 0.934), followed by Content (0.918), while the Media domain scored slightly lower (0.848), although still within the valid range. However, since all items surpassed the minimum validity thresholds, no items were eliminated, and the entire instrument was retained, decision = KEEP.

The Agregated results per instrument domain are presented in Table 3.

Table 3. Aggregated Result per Instrument Domain

Instrument	Number of Items	S-CVI/Ave	S-CVI/UA	Mean Aiken's V	Decision
Content	5	1.00	1.00	0.92	All KEEP
Language	5	1.00	1.00	0.93	All KEEP
Media	5	1.00	1.00	0.85	All KEEP
Total	15	1.00	1.00	0.90	100% KEEP

The findings of this study demonstrate that the developed instrument possesses a very high level of content validity across three domains: content, language, and media design. All items achieved an I-CVI of 1.00, indicating complete agreement among experts, while Aiken's V values ranged from 0.83 to 1.00. This result confirms

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that the indicators were judged to be relevant, clear, and representative of the construct being measured.

From a practical perspective, the high validity scores across all domains demonstrate that the instrument can be confidently applied to assess the feasibility of nutrition education media for PAUD teachers. In the content domain, indicators reflect alignment with national nutrition and education standards (e.g., BSNP, Kemenkes, and SDGs). In the language domain, clarity, readability, and inclusivity suggest that the instrument adequately captures whether the media can be easily understood by PAUD teachers. Meanwhile, in the media design domain, although the average Aiken's V was slightly lower (0.85), it still exceeded the recommended threshold, indicating good consistency among experts. Although this value still exceeds the recommended threshold, it indicates that there remains room for improvement, particularly in terms of visualization, attractiveness, and accessibility. This is an important consideration since media design does not only serve an aesthetic role but also influences motivation and user engagement in the learning process.

When compared with similar validation studies, many have reported challenges in reaching full agreement among experts, especially in the domain of media design. Thus, the present study can be considered a methodological strength, as the instrument proved to be not only statistically valid but also practically relevant and aligned with national policy needs. Theoretically, this study enriches the literature on educational media evaluation methodology by demonstrating that content validity can be rigorously established using CVI and Aiken's V. The results reaffirm the critical role of content validity as a foundation before proceeding to reliability testing or construct validity analysis.

Practically the validated instrument can be directly applied by PAUD teachers, curriculum developers, and policymakers to assess the feasibility of nutrition education media. With this instrument, teachers are provided with a standardized tool to select appropriate, clear, and user-friendly media. The slightly lower score in the media design also offers valuable feedback for developers to enhance visual quality, accessibility, and user engagement.

In the context of future research, this study opens opportunities for further research to test the instrument in broader contexts, including different regions or teacher groups with varied characteristics. Future studies may also combine content validation with empirical testing of how validated media impacts teachers' and students' nutrition knowledge, thereby providing a more comprehensive understanding of the relationship between instrument validity, media quality, and learning outcomes.

CONCLUSION

This study aimed to evaluate the content validity of an instrument developed to assess the feasibility of nutrition education media for PAUD teachers. The three expert raters use Content Validity Index and Aiken's V to analyze the content validity. About 15 items are rated by the rater and indicate that all items over the three domains are classified as KEEP, with CVI = 1 and Aiken's V more than 0,83.

These results provide strong evidence that the instrument is valid and feasible to use in evaluating educational media, in early childhood education contexts. The validated instrument may serve as a reliable tool for researchers and practitioners to

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assess the quality of nutrition education resources for PAUD teachers, thereby supporting improved learning outcomes and contributing to early childhood health promotion. Future studies are needed to expand validation to larger expert panels and to conduct empirical trials with PAUD teachers for further construct validity and reliability measurement.

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