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Análisis de validez de contenido por criterio de jueces de un instrumento para evaluar un manuscrito

Content validity analysis by judge's criteria of an instrument to evaluate a manuscript

Análise da validade de conteúdo por critérios de juízes de um instrumento de avaliação de um manuscrito

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Resumen

Ante los altos niveles de exigencia de las revistas científicas, las cuales requieren una gestión editorial exitosa, es necesario tener herramientas que sirvan para obtener valoraciones confiables que ofrezcan una ventaja competitiva dentro del ámbito de la investigación. Por eso, el propósito de esta investigación fue examinar la validez de contenido a través del juicio de árbitros para evaluar un manuscrito. Esta investigación se realizó en tres etapas: la primera consistió en las bases teóricas. La segunda comprendió el proceso de diseño. La tercera abarcó la validez. Esta última fue elaborada a través de un grupo de ocho jueces y para la validez de criterio se utilizó la prueba Friedman. Los hallazgos de la presente investigación muestran un acuerdo significativo entre los expertos para la validez del contenido para el manuscrito evaluado.

Palabras clave: criterio, instrumento, jueces, validez.

Abstract

Given the high levels of demand in scientific journals that dictate having a successful editorial management, it is necessary to have tools that serve to obtain reliable evaluations, which will provide a competitive advantage within the field of research. The purpose of this study was to analyze the content validity by judging criteria of an instrument to evaluate a manuscript. This research was carried out in three stages: the first consisted of the theoretical bases. The second, he understood the design process. The third covered validity. The content validity was elaborated through a panel of eight judges and the Friedman test was used for the criterion validity. The findings of the present investigation show a significant agreement among the judges for the categories of clarity, coherence, relevance and sufficiency.

Keywords: criteria, instrument, judges, validity.

Resumo

Diante dos altos níveis de demanda dos periódicos científicos, que exigem uma gestão editorial bem-sucedida, é necessário contar com ferramentas que sirvam para obter avaliações confiáveis que ofereçam uma vantagem competitiva dentro do campo de pesquisa. Portanto, o objetivo desta pesquisa foi examinar a validade de conteúdo por meio do julgamento de pareceristas para avaliar um manuscrito. Esta pesquisa foi realizada em três etapas: a primeira consistiu nas bases teóricas. A segunda compreendeu o processo de design. A terceira abrangia a validade. Este

último foi elaborado por meio de um grupo de oito juízes e foi utilizado o teste de Friedman para validade de critério. Os achados da presente investigação mostram uma concordância significativa entre os especialistas quanto à validade de conteúdo do manuscrito avaliado.

Palavras-chave: critério, instrumento, juízes, validade.

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Introduction

Currently, there is a growing interest on the part of those responsible for scientific journals to periodically carry out evaluation processes of these means of dissemination in order to promote their quality (Borrego and Urbano, 2006). In accordance with this idea, since 2020 work began on improving the editorial processes of an internationally recognized peer-reviewed and indexed journal in order to guarantee the quality of its manuscripts, which are produced by researchers, professors and students from various fields of engineering.

According to Vildózola (2003), to achieve a prestigious editorial management, the manuscripts received must go through an evaluation process focused on the structure, writing and scientific quality of said texts, for which it is important to have instruments that facilitate their process of evaluation. evaluation. In this sense, Elosua (2003) considers that the purpose of research focused on the issue of validity should be to collect sufficient evidence for the correct decision-making in the interpretation of the data analyzed.

Salas (1998) argues that the meaning of validity corresponds to what an instrument wants to measure against what is actually being evaluated, which must be compared to verify that the requested requirements have been met. Thus, validity —according to García (2002)— is associated with the consistency of the necessary situations in which an act takes place in its validity and authenticity. The American Educational Research Association —also known as AERA— indicates that, according to its standards, validity refers to the level of congruence that exists with the conjecture that supports the measurement tool itself and the experimental certainty obtained in its implementation. . Aiken (2003), however, objects that the meaning of authenticity of a topic is referred to a database, which is measured by an instrument that must provide a reliable result. Rodríguez and Sossa (2004) mention that validity is divided in this way: content validity, criterion validity, appearance validity and construct validity. For Piratoba (2011), reliability together with validity are the criteria that determine the quality of an instrument.

For this reason, this research aims to analyze the content validity by judges of an instrument to evaluate a manuscript, for which the selection of experts was used. In this sense, the NC 49:1981 standard was applied in order to know the number of referees necessary to complete the study, and the Delphi technique was applied, suitable for the contrast of the hypothesis (Ortega, 2008).

Likewise, the free Google Form tool was used, which serves to obtain greater benefits in terms of their employment (Lorenzo et al., 2017). For the evaluation of the judges' results, the non-parametric Friedman test was used because it is the one recommended when three or more related samples are compared (Berlanga and Rubio, 2012). The results obtained provide consistent information on the existence of a significant agreement between the experts.

Methodology

Participants

For the study, the people who served as judges, who have knowledge and experience on the subject, were selected in a non-probabilistic and discretionary manner. The Cuban standard NC 49:1981 was used to determine the number of experts.

In the investigation, email was established as a fundamental means of communication, and the Google Forms tool was used to answer the instrument. During the course of the study, contact was maintained with each of the judges to answer their questions and comments. The selected members are part of the journal committee, which facilitated the purpose of the investigation; In addition, a collective discussion was acquired with a direct or indirect impact on the objectivity of their judgments.

Method

In the present study, a quantitative, non-experimental, cross-sectional and descriptive approach was used. Quantitative because it was based on a problem that, in order to develop it and culminate it successfully, required an order in its execution. Descriptive because it sought to know the problem studied and the behavior of the variables involved, exposing the results obtained. Transversal because in a given time, the problem was analyzed through evaluation instruments in a real way, and not experimentally because the variables involved in the study were not manipulated.

Procedure

The research was developed in three phases suggested by Poblano et al. (2019), Garcia et al. (2021) and Rodríguez et al. (2021). In the first, the theoretical bases were elaborated, for which it began with the approach of the study. Subsequently, the scope and justification were developed; In addition, the purpose and the problem were raised, which together guided the present investigation. In this stage, antecedents were sought in order to know the current situation of the topic in the existing literature. The information acquired was obtained from reliable repositories such as Redalyc, Scielo, Latindex, Google Scholar, etc. The selection criteria were the following: 1) the material had to include the topic of the investigated study, and 2) academic books were reviewed, as well as articles written in Spanish and English published in peer-reviewed and indexed journals.

In the second stage, validity was developed, which was carried out with the support of referees who were invited to participate in the research. For this, the Delphi method was applied. Specifically, there was the intervention of eight judges, who are part of the magazine.

In the third phase, the content validity tests were implemented with the selected referees. In order for the study to be objective, each judge was guaranteed the support and privacy of the study. Once the study was completed and all the information was collected, the content validity was calculated, for which the Friedman parameter was applied in order to determine the differences in the central location (median) for the analysis of trials with unidirectional repeated measures. that have three or more dependent samples. The following hypotheses were proposed in order to establish the p value, which helped to establish the degree of agreement between the people (experts) who participated in the study. The hypotheses were:

$$H_0: X \sim N(\mu, \sigma 2)$$

$$H_1: X \nsim N(\mu, \sigma 2)$$

Results

The first part consisted of the identification of the variables that the evaluation of a manuscript should contain, for which a theoretical review of several contribution evaluation instruments in Mexico and in other parts of the world was carried out. A consensus was made on the criteria found to then ask three members of the journal to assess the variables located in the literature review in order to issue their opinion and suggestions. The result of this phase was

to obtain the first draft of the evaluation instrument, which included four criteria and eighteen quality conditions (Table 1).

Tabla 1. Lista de criterios de calidad para el instrumento de evaluación

CONSTRUCTOS	ASPECTOS POR EVALUAR
ENCABEZADO	Título Autor (es) Institución Correo electrónico
RESUMEN	En español Palabras clave En inglés Keywords
ESTRUCTURA	Introducción Desarrollo Análisis de resultados Conclusiones y discusión Referencias Extensión
EVALUACIÓN	Dimensión Recomendación Comentarios adicionales Identificación del evaluador

Fuente: Elaboración propia

In the design phase of the evaluation instrument, the recommendations of the members of the journal were taken into account. The suggestions were to complement some pre-established criteria, which were updated again, as well as changes in some sentences to facilitate their understanding (Table 2).

Tabla 2. Instrumento para evaluación de manuscritos por juicio de expertos

	Aspecto por evaluar	Descripción
Encabezado	Titulo	El título se encuentra escrito en idioma español y contiene en su extensión de 16 a 18 palabras claves.
	Autor	Se señala la formación académica y el nombre completo de la persona.
	Institución	Se identifica la dirección completa de la institución de procedencia de la persona.
	Correo electrónico	Se estipula la cuenta de correo de la persona.
Resumen	En español	Responde a las preguntas ¿qué se hizo?, ¿cómo se hizo? y ¿a qué resultados llegó? Contiene una extensión máxima de 350 palabras.
	Palabras claves	Contiene de 3 a 7 palabras escritas en idioma español.
	En inglés (*abstract*)	Se encuentra traducido al idioma inglés.
	En inglés (*key words*)	Se encuentran traducidas al idioma inglés.
Estructura	Introducción	Se señalan las referencias del tópico y el problema de estudio. Se estipula el propósito del trabajo con énfasis en la justificación de la contribución presentada.
	Desarrollo	Se relata con entendimiento la metodología manejada; además, se incluyen cálculos que sustenten la contribución presentada.
	Análisis de resultados	Se expresa fácilmente y con una lógica los resultados logrados; además, estos responden al propósito de la investigación.
	Conclusiones y discusión	Se pronuncia claramente y se discuten las evidencias con otros estudios; además, se adhieren datos para futuras investigaciones.
	Referencias	Se presentan extraídas de fuentes confiables, se contabilizan al menos 20 y se ajustan a la norma Vancouver.
	Extensión	La conformación de la contribución cumple de 10 a 12 páginas, teniendo en cuenta un total máximo de 5 figuras y 5 tablas.
Evaluación	Dimensión	La contribución posee una lógica en su contenido, es novedosa y aporta al ámbito de la disciplina.
	Recomendación	La contribución debe de aceptarse como se presenta, debe de tener correcciones significativas, debe de poseer una revisión estricta o debe de no aceptarse.
	Comentarios adicionales	La contribución debe de incluir alguna recomendación por usted. De ser afirmativa su respuesta, por favor estipular su opinión.

	Identificación del juez	Presenta el visto bueno y el nombre del árbitro.

Fuente: Elaboración propia

In the validation stage of the expert evaluation instrument, the number of people who should participate in the study was first determined. To establish said Lao number, Pérez and Marrero (2016) recommend following the procedure approved by the National Standardization Office, and stipulated by NC 49:1981, which states that, in order to achieve a high level of confidence and qualification, the group of experts should range between 7 and 15. An estimated error rate (P) of 0.05, a confidence level (K) of 95 % and a precision level (i) of 0.15 were used for the study. The result obtained was 8 experts for the content validation of the present investigation.

The consultation was made to 11 people who are part of the magazine's team. Once the study was completed, 8 judges achieved a passing coefficient of competence, given that their results were between medium and high, which —according to Cruz (2006) and Hernández and Robaina (2017)— makes them part of the team of experts. to evaluate the instrument of this research. Table 3 represents the final result of the Delphi method.

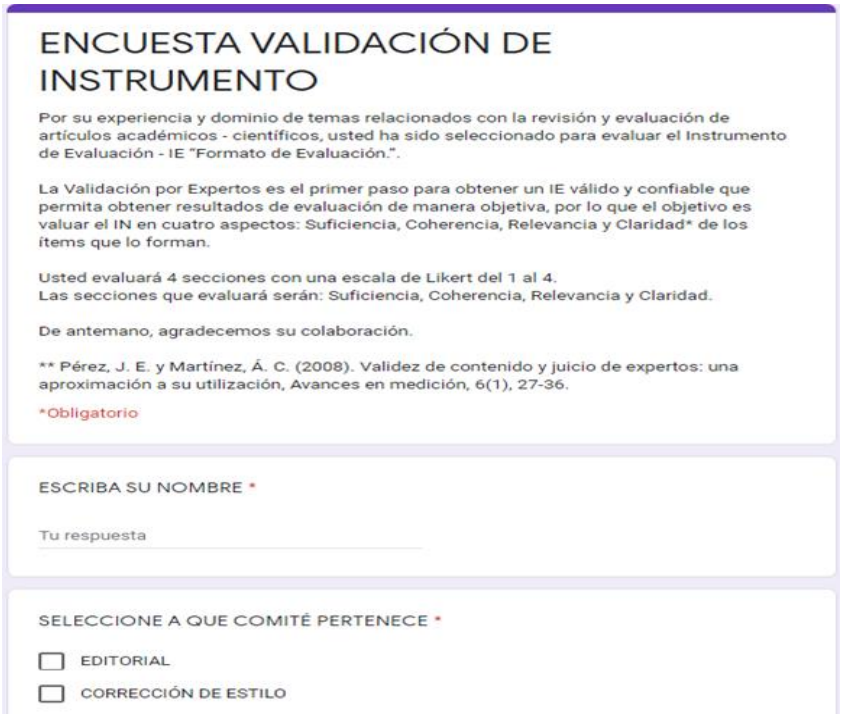
Tabla 3. Resultados del procesamiento para la determinación del coeficiente de competencia de los expertos

RESULTADO FINAL MÉTODO DELPHI					
K = 0.5 x (Kc + Ka)					
EXPERTO	Ka	Kc	K	Resultado	Decisión
1	0.90	1.05	0.975	Alta valoración	Sí
2	0.70	0.95	0.825	Alta valoración	Sí
3	0.80	0.65	0.725	Media valoración	No
4	0.90	0.95	0.925	Alta valoración	Sí
5	0.50	0.95	0.725	Media valoración	No
6	0.80	0.95	0.875	Alta valoración	Sí
7	0.50	0.85	0.675	Baja valoración	No
8	0.80	1.05	0.925	Alta valoración	Sí
9	0.90	1.05	0.975	Alta valoración	Sí
10	0.80	0.95	0.875	Alta valoración	Sí
11	0.90	0.95	0.925	Alta valoración	Sí

Fuente: Elaboración propia con base en Cruz (2006) y Hernández y Robaina (2017)

Once the results of the previous table were analyzed, the group of 8 experts was asked to evaluate the checklist in four different areas: sufficiency, relevance, clarity and coherence (Escobar and Cuervo, 2008). Figure 1 represents the survey that was sent via Google Form.

Figura 1. Formulario para evaluación de manuscritos por juicio de expertos



ENCUESTA VALIDACIÓN DE INSTRUMENTO

Por su experiencia y dominio de temas relacionados con la revisión y evaluación de artículos académicos - científicos, usted ha sido seleccionado para evaluar el Instrumento de Evaluación - IE "Formato de Evaluación.".

La Validación por Expertos es el primer paso para obtener un IE válido y confiable que permita obtener resultados de evaluación de manera objetiva, por lo que el objetivo es valuar el IN en cuatro aspectos: Suficiencia, Coherencia, Relevancia y Claridad* de los ítems que lo forman.

Usted evaluará 4 secciones con una escala de Likert del 1 al 4.
Las secciones que evaluará serán: Suficiencia, Coherencia, Relevancia y Claridad.

De antemano, agradecemos su colaboración.

** Pérez, J. E. y Martínez, Á. C. (2008). Validez de contenido y juicio de expertos: una aproximación a su utilización, Avances en medición, 6(1), 27-36.

*Obligatorio

ESCRIBA SU NOMBRE *

Tu respuesta

SELECCIONE A QUE COMITÉ PERTENECE *

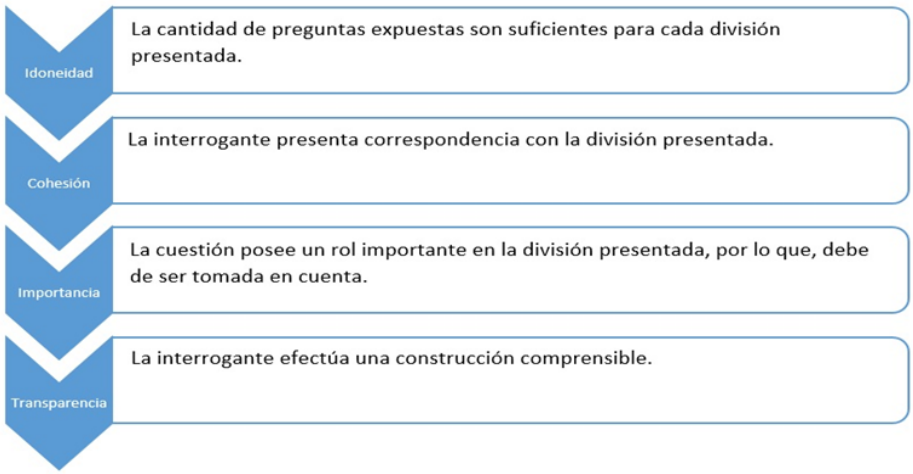
EDITORIAL

CORRECCIÓN DE ESTILO

Fuente: Elaboración propia

The Delphi technique —according to van Der et al. (2002)—helps to obtain a synergy between the participants. Figure 2 represents information provided by Escobar and Cuervo (2008), which is made up of classes and criteria used to assess an instrument.

Figura 2. Categorías empleadas para la valoración del instrumento



Fuente: Escobar y Cuervo (2008, pp. 35-36)

As an example, in relation to the coherence criterion, the experts rated each item with a value (between 1 and 4) as they considered correct or appropriate (Table 4).

Tabla 4. Resultados de la evaluación por expertos al criterio *coherencia*

CRITERIO	EXPERTOS	ÍTEMS																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
COHERENCIA	1	3	3	4	3	3	3	4	3	4	3	4	3	4	3	4	3	4
	2	3	2	4	4	3	2	4	4	3	2	4	4	3	2	4	4	4
	3	3	4	2	4	3	4	2	4	3	4	2	4	3	4	2	4	3
	4	3	3	3	3	3	3	3	3	2	3	3	3	4	3	3	3	4
	5	3	4	2	4	3	4	2	4	3	4	2	4	3	4	2	4	4
	6	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3
	7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2
	8	2	2	3	2	2	2	3	2	2	2	3	2	2	2	3	2	3

Fuente: Elaboración propia

Subsequently, the data in Table 4 were statistically analyzed with the help of the SPSS software (Statistical Package for Social Science), version 22, to measure the distribution followed by the quantitative data, which Flores, Miranda and Villasís (2017) point out that should be analyzed to determine if they have normal behavior. For this, the normality test was applied, which is recommended to determine if there is a normal distribution or not (Argote, 2009).

Table 5 shows the results obtained by the SPSS software. To do this, the recommendation of Galindo (2020) was followed, who points out that when there is a sample of more than 50 data, the test that should be used is the Kolmogorov Smirnov. The hypotheses formulated were the following:

H_0: The sample does not symbolize significant discrepancy

H_1: The sample yes symbolizes significant discrepancy

Tabla 5. Resultados de prueba de normalidad para el criterio *coherencia*

	Kolmogorov-Smirnov[a]		
	Estadístico	Gl	Sig.
Coherencia	.248	272	.000

Fuente: Elaboración propia

The result shown in table 5, in the Sig. column (that is, 0.000) is less than 0.05, so the hypothesis H0 has to be rejected; consequently, the null hypothesis (H1) should be chosen, which means that the data sample does not follow a normal distribution. Table 6 represents the values for the three remaining criteria: sufficiency, clarity and relevance.

Tabla 6. Resultados de prueba de normalidad para los criterios *suficiencia*, *claridad* y *relevancia*

	Kolmogorov-Smirnov[a]		
	Estadístico	Gl	Sig.
Sufiencia	.263	272	.000
Claridad	.302	272	.000
Relevancia	.304	272	.000

Fuente: Elaboración propia

The effects obtained from the three criteria by means of the SPSS software give as results a value less than 0.05; For this reason, for each criterion, hypothesis H0 is rejected and hypothesis H1 is selected, with which it can be affirmed that the distribution does not follow a normal distribution.

To apply the Friedman test in the coherence criterion, the level of significance used was 0.05, which —according to Juárez (2015)— is the minimum acceptable established in social sciences and psychology. The hypotheses raised were those suggested by Ramírez, Murcia and Castro (2014):

$$H_0: X \sim N(\mu, \sigma 2)$$

$$H_l: X \nsim N(\mu, \sigma 2)$$

In the same way, the Friedman test was carried out for the sufficiency, clarity and relevance criteria. Table 7 shows the effects emanated for each criterion.

Tabla 7. Resultados de prueba Friedman para los criterios *coherencia*, *suficiencia*, *claridad* y *relevancia*

	Criterios			
	Coherencia	Suficiencia	Claridad	Relevancia
N	8	8	8	8
Chi-cuadrado	20.296	25.621	26.022	22.257
gl	33	33	33	33
Sig. asintótica	.959	.817	.801	.922

Fuente: Elaboración propia

The results shown in table 6 —in the Asymptotic Sig row— show values greater than 0.05; therefore, the recommendation of Guisande, Vaamonde and Barreiro (2013) is followed, according to which there is not enough certainty not to object to the null hypothesis (H0), and it is asserted that, among the opinions of the referees, there is an agreement significant in all four criteria.

Discussion

The Delphi methodology turned out to be a very useful technique in the study of a consensus of referees, a result similar to that reported by Wright et al. (1996), León and Montero (2003) and Calabuig and Crespo (2009). Likewise, the statistical analysis of the present investigation in its four criteria for content validity (coherence, sufficiency, clarity and relevance), for each of them the asymptotic Sig. test statistic had a value greater than 0.050, and supports the affirmation of Ramírez and Polack (2020), who mention that there is not enough evidence to reject H0, given that the asymptotic Sig. value is greater than the alpha level of 0.050. This statement can be supported by what has been described by the authors Quispe et al. (2019) who suggest comparing the results of chi square and critical chi. For the decision not to reject Ho, the critical chi must be greater than the chi square. Table 8 shows the results obtained.

Tabla 8. Características de la muestra

	Criterios			
	Coherencia	Suficiencia	Claridad	Relevancia
N	8	8	8	8
Chi cuadrada	20.296	25.621	26.022	22.257
gl	33	33	33	33
Chi crítica	47.339	47.339	47.339	47.339

Fuente: Elaboración propia

The obtained derivations of the chi squares and of the critical chis indicate that the first four are greater than the second; In other words, it is concluded that there is agreement among the experts on the elements that the instrument must evaluate for the review of an article. Using the criteria of judges in investigations whose purpose is the validation of content for evaluation instruments offers an alternative of prudent use of the resources involved for the execution of the studies.

Conclusions

As observed in the present investigation, content validation through expert judgment requires a systematic process, which must be fully carried out at each stage involved in order to obtain a successful result.

The purpose of this study was to analyze the content validity by judges' criteria of an instrument to evaluate a research article. The tool that was built for this purpose included four factors: header, summary, structure and evaluation.

The results indicate that the Friedman test validates the consensus of the opinions in the four variables evaluated by the referees, which provides a robust instrument in its content.

To conclude, it is suggested to develop an investigation to weigh the opinions of the judges. For this, it will be important to carry out each stage of a content validity investigation using expert judgment in its entirety in order to achieve a reliable result.

Future lines of research

The present study represents the first step in the validation of a tool to contribute to the assessment of a manuscript. By virtue of this, the next phase will focus on completing the criterion and construct validity of the tool proposed in this research.

An additional line of research will be to carry out a study of the reliability (internal consistency) of the instrument through Conbrach's alpha coefficient by means of a test or pilot run of an investigation in different groups.

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