# MULTIDISCIPLINARY JOURNAL EPISTEMOLOGY OF THE SCIENCES

Volume 3, Issue 4
October–December 2026

Quarterly publication

CROSSREF PREFIX DOI: 10.71112

ISSN: 3061-7812, www.omniscens.com

Multidisciplinary Journal Epistemology of the Sciences

Volume 3, Issue 4
October–December 2026

Quarterly publication
Made in Mexico

The Multidisciplinary Journal Epistemology of the Sciences accepts submissions from any field of knowledge, promoting an inclusive platform for the discussion and analysis of epistemological foundations across various disciplines. The journal invites researchers and professionals from fields such as the natural sciences, social sciences, humanities, technology, and health sciences, among others, to contribute with original articles, reviews, case studies, and theoretical essays. With its multidisciplinary approach, it aims to foster dialogue and reflection on the methodologies, theories, and practices that underpin the advancement of scientific knowledge in all areas.

Contact: admin@omniscens.com

The opinions expressed by the authors do not necessarily reflect the stance of the publication editor.

Total or partial reproduction of the content of this publication is authorized without prior permission from Multidisciplinary Journal Epistemology of the Sciences, provided that the full source and its electronic address are properly cited.

This work is licensed under a Creative Commons Attribution 4.0 International License

Copyright © 2026: The authors




## Legal Disclaimer

Multidisciplinary Journal Epistemology of the Sciences Vol. 3, Issue 4, October–December 2026, is a quarterly publication edited by Dr. Moises Ake Uc, C. 51 #221 between 16B and 16C, Mérida, Yucatán, Mexico, C.P. 97144, Tel. 9993556027, Web: https://www.omniscens.com, admin@omniscens.com. Responsible Editor: Dr. Moises Ake Uc. Rights Reservation No. 04-2024-121717181700-102, ISSN: 3061-7812, both granted by the Instituto Nacional del Derecho de Autor (INDAUTOR). Responsible for the last update of this issue: Dr. Moises Ake Uc, last modification date: October 1, 2026.

Multidisciplinary Journal Epistemology of the Sciences

Volume 3, Issue 4, 2026, October–December

DOI: https://doi.org/10.71112/2fznrw89

# INSTITUTIONAL RESPONSIBILITY AND THE LIMITS OF RESPONDENT KNOWLEDGE: A MIXED-METHODS ANALYSIS OF EXPERT RECOMMENDATIONS ON DIGITAL INEQUALITY IN HIGHER EDUCATION

# RESPONSABILIDAD INSTITUCIONAL Y LÍMITES DEL CONOCIMIENTO DEL INFORMANTE: ANÁLISIS MIXTO DE RECOMENDACIONES EXPERTAS SOBRE DESIGUALDAD DIGITAL UNIVERSITARIA

**Martin Romero Cruz**

**México**

DOI: https://doi.org/10.71112/2fznrw89

# Institutional responsibility and the limits of respondent knowledge: a mixed-methods analysis of expert recommendations on digital inequality in higher education

# Responsabilidad institucional y límites del conocimiento del informante: análisis mixto de recomendaciones expertas sobre desigualdad digital universitaria

Martin Romero Cruz[a,*]

martin.cruz@unison.mx

https://orcid.org/0009-0008-5199-083X

[*]Corresponding author: martin.cruz@unison.mx, [a]Universidad de Sonora, México

## ABSTRACT

Digital inequality surveys may ask students to assess other people's circumstances or determine whether a technical interruption arose from their own connection or an institutional platform. This study examined how expert recommendations reshape those knowledge demands and the institutional actions represented in questionnaire items. A mixed-methods documentary analysis compared 20 original statements with 60 recommendation records from three specialists; 58 contained alternative wording. Directed coding assessed third-party knowledge, conceptual inference, situated events, institutional actor visibility, and observable practices. Three original items required judgments about others; none of their nine alternatives retained that demand. Of 58 reformulations, 48 maintained institutional visibility, eight reduced it, and two increased it. Eight described identifiable institutional practices. Sensitivity analyses distinguished explicit institutional references from reportable organizational responses. The

findings show that improving answerability also involves decisions about which institutional responsibilities an instrument can investigate.

**Keywords**: digital inequality; institutional responsibility; respondent knowledge; content analysis; expert review; mixed methods.

## RESUMEN

Los cuestionarios sobre desigualdad digital pueden solicitar a estudiantes valoraciones sobre experiencias ajenas o atribuciones de fallas técnicas que exceden su conocimiento. Este estudio examinó cómo las recomendaciones expertas modifican esas exigencias y las prácticas institucionales representadas en los reactivos. Mediante un análisis documental mixto se compararon veinte enunciados originales y sesenta registros de recomendación de tres especialistas; cincuenta y ocho contenían formulaciones alternativas. La codificación dirigida examinó demandas de conocimiento, visibilidad institucional y actuaciones observables, y se complementó con comparaciones pareadas y análisis de sensibilidad. Las reformulaciones eliminaron juicios generalizados sobre otros estudiantes, aunque también modificaron los referentes institucionales. Los resultados distinguen entre mencionar a la universidad y registrar acciones concretas de respuesta. El estudio aporta un procedimiento integrado para evaluar cómo las decisiones de redacción modifican la información disponible sobre las desigualdades digitales universitarias.

**Palabras clave:** desigualdad digital; responsabilidad institucional; conocimiento del informante; análisis de contenido; juicio de expertos; métodos mixtos.

Received: 7 November, 2026 | Accepted: 23 November, 2026 | April: 24 November 2026

DOI: https://doi.org/10.71112/2fznrw89

## INTRODUCTION

In a university questionnaire, the statement “I experienced difficulties during an online assessment” appears to capture a straightforward incident. Yet the same response may refer to an unstable home internet connection, an inaccessible institutional platform, an assessment designed without alternatives, or a combination of all three. That these circumstances result in an interruption does not mean that they support the same interpretation of its causes. Research on digital inequality has long argued that access cannot be reduced to being connected: the material characteristics of devices, opportunities for use, and outcomes of technology are unevenly distributed (van Deursen & van Dijk, 2019; Robinson et al., 2015). Once such differences are translated into measurement instruments, a further, less frequently examined problem arises: the wording of a question can determine which circumstances become observable and which disappear from the record.

This distinction is particularly consequential in higher education, where digital participation depends both on resources managed by students and on decisions taken by educational organizations. Warschauer (2003) challenged accounts of technological inclusion based solely on possession of devices; his argument helps explain why a question about internet availability cannot, by itself, represent the forms of support, institutional requirements, or pathways through which students participate. From a critical perspective on educational technology, Selwyn (2010) likewise calls attention to the social and political conditions under which tools are used rather than assuming that their availability constitutes an independent advantage. Seen in this light, survey items are not neutral containers. By foregrounding an individual's connectivity experience, they may make a material disadvantage easier to identify while obscuring whether a course or institution could have responded differently.

Nor is this difficulty confined to one national setting. Lythreatis et al. (2022) show that digital inequality involves infrastructure, training, support, and wider social conditions, among other factors. In Pakistani universities, Amjad et al. (2024) documented barriers to digital

accessibility and discussed institutional responses, reminding us that university policies are part of the empirical phenomenon rather than merely its background. Timmis and Valladares-Celis (2026) also examined how household conditions intersect with organizational assumptions about digital participation across the Global North and South. Taken together, these studies suggest that asking about the home environment, the learning platform, and institutional support does not provide three interchangeable measures of a single difficulty. Rather, each opens a different window onto potentially distinct relationships of inequality.

A second problem emerges when moving from what researchers wish to know to what an individual is actually able to report. Tourangeau et al. (2000) describe survey responding as a process involving comprehension, retrieval, judgment, and communication; the ability to read a sentence is therefore not sufficient. Collins (2003) notes that standardized wording does not guarantee that all respondents interpret the request in the same way, while Krosnick (1999) explains why demanding tasks may encourage less carefully considered responses. An item about the fairness of assessments for “all students” illustrates the issue: it asks an individual to know other people's circumstances, compare them, and arrive at an overarching judgment. Even if the respondent regards the concern as legitimate, the information needed to answer in the intended sense may simply be unavailable.

Survey-design research helps locate this difficulty within specific response operations. Lenzner et al. (2010) connected linguistic complexity to greater cognitive burden, while Dillman et al. (2014) emphasized the need to specify precisely the referent of a question. Working from another direction, Beatty and Willis (2007) developed cognitive interviewing as a means of studying response processes, and Presser et al. (2004) brought together complementary approaches to question evaluation. These contributions raise a productive issue for documentary analysis: before a questionnaire is administered, it is possible to examine what knowledge a formulation requires and how that requirement reorganizes the phenomenon the researcher intends to study.

Maitland and Presser (2018) compared question-evaluation methods and found that different methods detect different kinds of problems. Their findings speak to Haynes et al. (1995), who locate content validity in the definition of the domain and the inferences supported by its items, and to Terwee et al. (2018), who distinguish relevance, comprehensiveness, and comprehensibility. Read together, this research indicates that item revision involves conceptual decisions as well as linguistic ones: by specifying who should respond, what experience matters, and which action is described, the researcher also decides which part of the phenomenon can appear in the findings.

That decision matters particularly when the phenomenon is shaped by institutional relationships. Young (2011) understands responsibility for structural processes in terms of the collective capacity to change persistent conditions, thereby redirecting attention from individual attributes to available rules, support, and alternatives. From the standpoint of transformative justice, Gready and Robins (2014) similarly emphasize the conditions that reproduce disadvantage. In educational measurement, these perspectives encourage a distinction between recording that a student encountered a difficulty and recording which organizational responses were available when it occurred. This distinction runs through the expert recommendations examined here.

The epistemic dimension complements this institutional argument. Fricker (2007) explores the relationship between knowledge and social position, making it possible to recognize that people's capacity to describe an experience depends partly on their access to relevant information. In a university questionnaire, requesting an assessment of the circumstances of “all students” is a different task from asking about a personal experience or an alternative actually offered. Instrument quality thus depends on the correspondence between the knowledge available to the respondent and the degree of generality built into the question.

The postdoctoral project previously conducted a content evaluation of twenty items concerning digital inequality in higher education with three specialists. The manuscript

submitted to REDSA examined their ratings of relevance, clarity, and adequacy and identified avenues for revision. The same assessments also contain textual recommendations whose comparison opens up a second object of inquiry: how the referent of measurement changes. When a recommendation substitutes “my courses” for “all students,” or separates an internet outage from a platform failure, it establishes a different way of recording personal experience and institutional action. The present study reconstructs and quantifies those revision decisions as a methodological and sociological phenomenon in their own right.

The aim was to analyze how expert recommendations alter the knowledge demands placed on respondents and the visibility of institutional practices in items dealing with digital inequality in higher education. To this end, original formulations and their alternatives were classified, their transitions reconstructed, changes concentrated in particular items identified, and patterns compared using explicit coding rules. The guiding argument is that the precision of a question and the retention of its institutional referent are related but distinct decisions. Studying them together provides criteria for designing instruments capable of documenting both individual experience and the responses of educational organizations.

## METHODOLOGY

### Design, Scope, and Corpus Provenance

A mixed-methods documentary content study examined the consequences of recommendations for revising survey items. The qualitative component reconstructed the meanings of the original statements and their alternatives, while the quantitative component described how knowledge demands and references to institutional practices varied within the same set of items. Both components were designed to address one research question and were integrated at the item level rather than treated as two separate studies. This approach draws on Hsieh and Shannon (2005), for whom directed content-analysis categories may be derived from

prior conceptual distinctions, and on Sandelowski et al. (2009), who explain that converting textual content into counts is an analytical choice that requires a clear rationale. Here, the conversion supports comparison of patterns without replacing interpretation of the actual recommendations.

The corpus came from the expert-review reports produced within the postdoctoral project and systematized by the principal researcher in a consolidated matrix. It comprised twenty original items (R01–R20) and sixty recommendation records identified as J01, J02, and J03, with three records per item. Fifty-eight records contained alternative formulations, while two recommended withdrawal or reassignment without providing replacement wording. The matrix preserves the connections among item, specialist, proposed revision, and clarity rating. The complete corpus was analyzed: the item was the primary unit, and each proposal was examined in relation to the original item from which it arose.

The comparison addressed the complete statements and the functions performed by their wording rather than isolated lexical similarities. In the available documents, the original items are in English and the proposed revisions in Spanish. The analysis therefore prioritized referents that remain stable across languages, including the person reporting, the action described, the group concerned, and any possible involvement of the university or teaching staff. This approach draws from Guillemin et al. (1993) the importance of distinguishing lexical correspondence from conceptual equivalence, without treating the study as a cross-cultural adaptation. For example, changing “all students” to “in my courses” alters the scope of the judgment, whereas changing “support is available” to “I received a timely response” changes the type of institutional action being measured.

**Selection and Profile of the Specialists**

The expert review used non-probability convenience sampling guided by academic relevance. Three researchers with doctoral qualifications and established teaching and research careers participated; they were affiliated with a public university in northwestern Mexico. Their

research areas and scholarly publications were related to the variables covered by the instrument, particularly digital education, inequalities in access, university practices, and institutional processes. The panel was assembled on the basis of the specialized experience needed to evaluate the items, rather than to obtain a statistically representative sample of academics. Confidentiality was maintained through the identifiers J01, J02, and J03.

Inclusion criteria were a doctoral qualification, an established academic and research trajectory, publications connected to at least one of the dimensions examined, and completion of an assessment that allowed each of the twenty items to be linked to its ratings and recommendations. Exclusion criteria were the absence of relevant research experience concerning the variables studied and, for inclusion in the analytical matrices, records that did not permit reconstruction of the relationship among item, evaluator, and decision. All three assessments included complete evaluations of the twenty items. Their sixty recommendation records formed the corpus of this study, comprising fifty-eight alternative formulations and two withdrawal or reassignment decisions without replacement wording.

**Development of Variables and Decision Rules**

The coding categories combined two analytical concerns: what a respondent must know to answer a question and what organizational conduct becomes reportable. Three binary indicators described knowledge demands. “Knowledge about third parties” identified statements requiring judgments about other individuals or an entire student population. “Conceptual inference” captured judgments about equity, causes, or intentions rather than directly reportable circumstances. “Situated event” marked references to an experienced failure, a request for assistance, or a specific academic encounter. These distinctions follow the response operations described by Tourangeau et al. (2000) and the question-evaluation research of Collins (2003) and Maitland and Presser (2018). Directed coding was organized around explicit decision rules and textual evidence, consistent with Hsieh and Shannon (2005) and Krippendorff (2019).

Institutional actor visibility and observable institutional practice were coded separately. Visibility ranged from 0 (no identifiable organizational actor), through 1 (institutional involvement implied by an academic procedure), to 2 (the university or teaching staff explicitly named). Observable practice was coded 1 when wording identified a reportable act or procedure, such as a deadline applied, an alternative offered, treatment received during an assessment, or a response to a request for support; general statements about available resources or fair conditions without a specified institutional act were coded 0. This rule preserves the difference between knowing that assistance may exist and reporting what the institution actually provides or does. Young's (2011) account of structural responsibility informed the distinction between locating an actor and identifying a practice.

The analytical sequence involved five connected operations. First, the sixty records were organized by item and evaluator, separating proposed text from withdrawal or reassignment decisions. Next, the twenty original items and fifty-eight alternatives were coded with the same codebook; original–proposal pairs were constructed, and the excerpts explaining each transition were retained. Items R07, R08, R10, R13, R18, and R20 were then examined closely because they revealed tensions among the reporting subject, the institutional actor, and the observable practice. Finally, frequencies and transitions were interpreted together with these cases. Matrix-based organization follows the approach to qualitative data outlined by Gale et al. (2013); development and application of the categories formed part of the author's analysis for the present study.

**Table 1.**

*Operational Definitions and Analytical Categories*

| Analytical dimensión | Coding | Classification rule | Use in this study |
|---|---|---|---|
| Knowledge about third parties | 0/1 per statement | 1 if the item asks about other individuals or an entire group; 0 if the referent is limited to the respondent's own experience. | Distinguishes the scope of information requested from the respondent. |
| Conceptual inference | 0/1 per statement | 1 if the statement requires a judgment about equity, causes, or intentions; 0 if it directly describes availability, an event, or a practice. | Separates evaluative judgments from descriptive information. |
| Situated event / experiential condition | 0/1 per statement | 1 if a statement concerns a specific academic incident, an experienced technical failure, or support sought or received; 0 if it expresses only a general appraisal. | Describes how recommendations shift toward reportable experiences; compared qualitatively and summarized by frequency. |
| Institutional visibility | 0 absent / 1 implicit / 2 explicit | 0 if no actor is identifiable; 1 if a practice is indirectly attributable to an institution; 2 if the university or teaching staff are explicitly named. | Compares changes from original wording to proposed alternatives. |
| Observable institutional practice | 0/1 per statement | 1 if the statement identifies a concrete institutional act or procedure (e.g., an applied deadline, alternative offered, treatment received, timely support response); a general assertion of service availability is 0. | Separates reportable institutional behavior from general mentions of a university or support. |
| Prior clarity rating | Mean of three scores (1–4) | Original item-level clarity score assigned by J01–J03. | Exploratory comparison of knowledge demands and expert assessment. |

**Quantification, Dependence Between Observations, and Sensitivity**

Quantification preserved the paired structure of the corpus. For each of the fifty-eight alternative statements, the difference between institutional visibility in the new formulation and in the original was calculated as Δ = V(proposal) − V(original). Negative values indicated a less explicit institutional actor, positive values a more explicit actor, and zero indicated no change in category. Category-transition frequencies were calculated, and the items in which changes were concentrated were identified. Because several alternatives derived from the same original item, the aggregate change was calculated by first averaging differences within each item and then averaging the twenty item-level means. The two recommendations without replacement wording were examined as documentary decisions and were not assigned artificial visibility values.

Interpretive consistency was examined using three alternative coding rules. The first treated references to learning platforms in R10 as an implicit institutional mention; the second reduced visibility to a binary distinction between the presence and absence of any institutional reference; and the third required explicit naming of the organizational actor. Results from all four specifications, including the initial coding, appear in Table 4 and show which transitions remain when the definition of visibility changes. Consistent with Sandelowski et al.'s (2009) discussion of quantitizing qualitative material, this examination makes the relationship between textual interpretation and statistical synthesis transparent.

As a complementary comparison, the documentary categories were related to the mean clarity score previously assigned by the three specialists to each of the twenty items on a four-point scale. Mean differences between items classified as requiring knowledge about third parties and the remaining items were tested using exact permutation procedures. Under the initial three-item classification, all 1,140 possible assignments were enumerated; the comparison was repeated using an expanded classification that included R13 and a restrictive classification comprising only R08 and R18. This procedure shows both the observed clarity pattern and how it changes under alternative definitions of epistemic demand.

### Integration of Findings, Analytical Controls, and Scope of Evidence

The findings were integrated through joint tables and close readings: frequencies described the extent and concentration of transitions, while comparisons of formulations explained their conceptual meaning. This strategy follows the principle of integration set out by Fetters et al. (2013) and the points of connection in mixed-methods designs developed by Creswell and Plano Clark (2018). Young's (2011) structural account of responsibility and Mertens's (2007) transformative perspective guided the examination of institutional conditions, rules, and responses. The resulting analytical matrix links textual records, coding decisions, and quantitative findings to reconstruct the implications of each reformulation.

Analytical control operated at three levels. First, the relationship among the sixty records, their item and evaluator identifiers, and the text of each recommendation was preserved. Second, the composition of the corpus and the consistency of the counts were checked: twenty items, sixty records, fifty-eight textual alternatives, and two decisions without replacement wording; among the alternatives, forty-eight showed no change, eight showed a decrease, and two showed an increase in institutional visibility. Third, coding decisions were compared with the six detailed cases and the alternative sensitivity specifications. This sequence supports documentary traceability, numerical consistency, and the interpretive grounding of the author's findings.

## RESULTS

### Composition and Organization of the Corpus

The corpus comprised twenty original items, each accompanied by three expert-review recommendations, for a total of sixty records. Fifty-eight contained alternative wording that could be compared with the original statement, while two recorded withdrawal or reassignment decisions. Maintaining this distinction preserves the nature of the recommendations and ensures that textual transitions are examined only where a proposed formulation actually exists. Withdrawal recommendations were retained as expert decisions serving a different

documentary function. The resulting comparison dataset keeps each proposal linked to its original item.

The three original items R08, R10, and R18 required respondents to judge circumstances beyond their own experience; all nine corresponding textual reformulations removed that demand. Two further indicators help characterize the corpus. Conceptual inference appeared in five of the twenty original items and eight of the fifty-eight alternatives, while references to a situated event appeared in three originals and twelve alternatives. These figures describe the two sets of texts; each alternative remains linked to its original item. The detailed readings below explain how shifts in referent, inference, and reported experience alter the information obtainable through a question.

**Table 2.**

*Corpus Composition and Distribution of First-Round Coding Categories*

| Result | Value | Unit / criterion |
|---|---|---|
| Original ítems | 20 | Primary unit: item |
| Recommendation records | 60 | Three per item; two withdrawal/reassignment records without replacement wording |
| Alternative formulations suitable for coding | 58 | Texts nested within 20 items |
| Original items requiring knowledge about third parties | 3/20 | R08, R10, and R18 |
| Alternatives retaining that requirement | 0/58 | Under the initial operational definition |
| Decrease / no change / increase in visibility | 8 / 48 / 2 | Counts of alternatives, not independent trials |
| Alternatives describing observable practices | 8/58 | Concentrated in five items |
| Mean visibility change per item | −0.092 | Scale 0–2; mean of 20 item-level changes |

### Distribution of Changes in Institutional Visibility

Under the initial coding, forty-eight proposals retained the institutional-visibility level of the original item, eight reduced it, and two increased it. The mean change per item was −0.092 points on a scale from 0 to 2. The eight decreases occurred in R07 (three), R10 (three), and R13 (two), while the two increases appeared in R04 and R18. This distribution locates the changes precisely: they cluster around particular wording problems and acquire meaning when we examine which referent was retained, narrowed, or replaced.

Observable institutional practice followed a pattern distinct from actor visibility. Eight of the fifty-eight proposals specified a reportable institutional act, whereas none of the twenty original statements met this stricter definition. The distinction is clearest in R20: the original refers broadly to institutional support being available, but does not identify a particular response to a request; the J03 reformulation asks whether timely assistance is received when a technical problem arises. R04, R08, R13, and R18 similarly introduce ascertainable deadlines, treatment, or alternatives. The count therefore concerns the specificity of institutional action rather than the mere appearance of the words “university,” “teacher,” or “support.”

### Six Items Show Why the Referent Matters

R07 illustrates how information can potentially be lost during revision. Its original formulation combined personal internet disconnections with platform interruptions during assessments. All three alternatives ask only about the availability or stability of the student's connection, while an accompanying note recommends assessing platform failures through a separate indicator. The change reduces causal ambiguity: respondents can report on their own connection without diagnosing the university server. Yet if only the revised question were adopted, an interruption of the institutional platform would lack a specific indicator at that point in the questionnaire. The supplementary recommendation shows that the expert review did not necessarily seek to erase the institutional event; the subsequent selection of items would determine whether this content was retained.

In R10, the original asked whether platforms used in class were accessible and easy to use “for all students.” The proposed alternatives shifted the referent toward the individual's ability to carry out activities and the ease of use experienced by the respondent. All three narrowed the required knowledge. The visibility coding also revealed another effect: treating the term “platform” as an implicit institutional referent changes the counts, while requiring an explicitly named actor yields a different classification. This contrast shows precisely how the operational definition of a category influences a result, and why platform, institution, and action, although related, remain distinct referents.

R13 provides a particularly revealing counterpoint. The original explicitly mentioned teachers and asked whether they considered technological differences when designing activities and assessments. Two alternatives omit the subject “my teachers” and ask whether “in my courses” there are options for submission or participation when access difficulties arise. On a scale focused on named actors, this may appear as a decline; from the standpoint of observable action, however, it records a specific decision rather than an intention that the student must infer. R20 partly reverses the pattern: the alternatives retain a recognizable institutional actor, and one distinguishes knowing that assistance exists from receiving a response in time. This change makes the timeliness of support measurable, rather than merely its stated availability.

R08 and R18 show that transformation also takes place within the language of justice. R08 shifts a general statement about fair assessments toward three distinct objects: treatment when a difficulty occurs, technological requirements, and measures planned for contingencies. R18 replaces a judgment about opportunities “for everyone” with references to personal circumstances, university support, and alternative means of participation. These comparisons identify different measurement decisions: asking whether an alternative exists, whether it was offered, or whether it is considered fair yields information about related but distinct dimensions of institutional response. This differentiation increases the analytical capacity of the instrument.

**Table 3.**

*Integrated Reading of Proposals Associated with Six Items*

| Item | Empirical tension across proposals | Measurement consequence |
|---|---|---|
| R07 | Personal connection failure vs. platform interruption | Separate the events without losing the institutional variable |
| R08 | Treatment received vs. requirements vs. planned measures | Do not assume that different meanings of fairness are equivalent |
| R10 | Universal accessibility vs. individual ease of use | Classification depends on the rule adopted for platforms |
| R13 | Teacher intention vs. concrete alternatives | Explicit actor and observable practice can shift in different directions |
| R18 | Universal equality vs. support and alternatives | Explicit visibility increases in only one alternative |
| R20 | Availability of support vs. timely response | Service availability and institutional responsiveness are not synonymous |

## Sensitivity of the Findings to Classification Rules

The sensitivity analysis showed how classification rules change the counts. When references to platforms in R10 were treated as implicit institutional mentions, decreases fell from eight to five, unchanged cases rose from forty-eight to fifty-one, and the mean change per item shifted from −0.092 to −0.042. Under a binary definition counting any institutional reference, there were six decreases and no increases. When an explicitly named actor was required, there were two decreases and two increases, with a mean change of +0.008. These four scenarios capture different dimensions of visibility and support the analytical distinction among nominal presence, implicit reference, and concrete action.

Comparative reading of the cases completes this finding. R07 and R10 show how recommendations narrow a statement toward information grounded in the student's experience. R13, R18, and R20 show how some proposals specify institutional alternatives and responses

that were previously described in general terms. Integrating these two forms of analysis identifies the circumstances in which a revised item retains its organizational referent, makes that referent more concrete, or replaces it with an individual experience. This is the substantive contribution of the sensitivity analysis: differences between coding schemes become explicit criteria for evaluating questionnaire-design decisions.

**Table 4.**

*Sensitivity of Estimates to Different Institutional-Visibility Criteria*

| Coding rule | Decreases | No change | Increases | Mean change per item |
|---|---|---|---|---|
| Baseline: absent / implicit / explicit | 8 | 48 | 2 | −0.092 |
| R10: platforms = implicit mention | 5 | 51 | 2 | −0.042 |
| Binary: any institutional reference | 6 | 52 | 0 | −0.100 |
| Binary: explicitly named actor only | 2 | 54 | 2 | +0.008 |

**Note.** Four coding rules were applied to the same 58 textual formulations. The table presents the distribution of changes under each operational definition.

**Clarity and Knowledge Demands**

Comparison with the clarity ratings added another dimension to the analysis. Under the initial definition, the three items requiring judgments about third parties had a mean clarity score of 1.778, compared with 2.647 for the other seventeen; the two-sided exact test yielded $p = 0.0132$. When R13 was added to this category, the mean for the first group was 2.083 and $p = 0.0962$. When the category was restricted to R08 and R18, the result was $p = 0.1737$. The three scenarios show how the statistical contrast changes depending on how broadly or narrowly the knowledge demand is defined. Their analytical value lies in linking the numerical results to the specific tasks each question asks students to perform.

**Table 5.**

*Exploratory Clarity Comparison Under Three Definitions of Epistemic Demand*

| Definition of epistemic demand | n exposed | Clarity: exposed | Clarity: others | Difference | Two-sided exact p |
|---|---|---|---|---|---|
| Initial: R08, R10, R18 | 3 | 1.778 | 2.647 | −0.869 | 0.0132 |
| Expanded: + R13 | 4 | 2.083 | 2.625 | −0.542 | 0.0962 |
| Restrictive: R08, R18 | 2 | 2.000 | 2.574 | −0.574 | 0.1737 |

**Note.** Exact tests were calculated by enumerating possible label assignments among the twenty items; each scenario corresponds to a distinct operational definition of epistemic demand.

The comparison reveals an important relationship between content and clarity. Items requiring judgments about a group received less favorable clarity ratings under the initial classification, while broader and narrower definitions yielded different contrasts. These differences sharpen the meaning of the coding categories and provide a further reason to examine them through close textual reading. Rather than reducing the assessment to a significance value, the analysis identifies which features of an item are associated with the specialists' clarity ratings and how those relationships change when the scope of a category is altered.

## DISCUSSION

### Making a Question Answerable Does Not Necessarily Preserve Its Object

The findings point to a tension less obvious than the opposition between “clear” and “confusing” questions. In R07, separating two technological systems makes it easier to identify the respondent's connectivity experience, but also requires a decision about where platform interruptions will be captured. The same dilemma runs through R08 and R18: replacing universal judgments with course-specific experience may lessen an excessive epistemic demand, yet it changes the scope of the claims that can be made from the survey. This issue is

consistent with the understanding of validity as a justification of score interpretations and uses, rather than a fixed property of a set of words (American Educational Research Association et al., 2014). A textual change may be appropriate for one purpose but diminish what can be learned for another if its effect on the construct is not made explicit.

Research on response processes provides a basis for this contribution. Tourangeau et al. (2000) and Collins (2003) distinguish comprehension of a question from retrieval and appraisal of the information needed to answer it. Presser et al. (2004) and Maitland and Presser (2018), working in questionnaire pretesting, explain the complementary role of procedures designed to detect different kinds of problems. The present study extends these discussions to the analysis of expert recommendations by showing how a change in wording alters the referent, the knowledge requested, and the institutional actions that can subsequently be recorded through the instrument.

**From Naming the Institution to Measuring Its Responsiveness**

Institutional interpretation becomes stronger once we move beyond the assumption that mentioning a university is equivalent to measuring its responsibility. An item can name the institution without referring to any identifiable action, as happens when respondents are asked in abstract terms whether conditions are fair. By contrast, an R13 alternative referring to options for submitting assignments captures a practice that students can recognize even without explicitly attributing it to teaching staff. Young's (2011) approach helps clarify the distinction: responsibility for structural processes concerns possible transformations, not simply the identification of someone to blame. Accordingly, questionnaire design should retain variables that distinguish the availability of services, assessment rules, concrete actions, and the consequences of their absence, rather than creating a scale that confuses verbal mention with organizational response.

This concern is particularly important in research on digital inequality, where Robinson et al. (2015) and van Deursen and van Dijk (2019) document how material and social conditions

shape technological experiences. Timmis and Valladares-Celis (2026) extend the discussion to expectations about participation that operate within higher education institutions. When an item captures only individual capability and omits whether support or alternatives were offered during an incident, it describes one aspect of an experience while leaving out another dimension of inequality. Mertens's (2007) transformative perspective makes it possible to understand the choice of indicators as a decision about which institutional relationships become open to investigation. The present findings locate that decision in specific, comparable reformulations.

Reading Gready and Robins (2014) alongside Fricker (2007) extends the argument across two distinct debates: changing the conditions that generate disadvantage, and recognizing people's position as sources of knowledge. Their connection leads to a precise methodological requirement: a questionnaire should ask students for information they can provide while also recording organizational decisions and support relevant to their experience. The proposals associated with R08, R10, R13, and R18 illustrate different ways of addressing this tension. Rather than alternating between general claims about “everyone” and explanations based entirely on personal skill, an instrument can organize distinct questions about individual circumstances, available alternatives, and institutional responses.

**Quantification as Evidence of Revision Decisions**

Quantification made it possible to locate the most relevant changes and compare their stability across coding rules. The initial mean of −0.092 summarizes a shift concentrated in R07, R10, and R13; when the definition of visibility changes, the numerical results change as well. Sandelowski et al. (2009) describe the quantification of qualitative material as a methodological operation requiring explicit choices about categories. Here those choices become part of the findings because they clarify when an institution appears as a named actor, as an implicit referent, or as the source of a concrete action. Close reading gives meaning to these differences and turns statistical analysis into an explanatory resource for the phenomenon under investigation.

The clarity comparison reinforces the same argument. Under the initial definition of third-party knowledge, the mean difference was −0.869 points and the exact p value was 0.0132; when R13 was included, the difference was −0.542 points with p = 0.0962. The variation reflects two reasoned ways of delimiting epistemic demand: as an explicit judgment about a collective, or as a broader interpretation of other people's practices. The definitions yield different numerical results and make visible the conceptual weight of classification decisions. Considered alongside the wording of the items, the comparison enriches the analysis of clarity without replacing an examination of each question's substantive referent.

Combining close reading with quantification yields a methodological contribution that neither component offers on its own. The tables identify patterns and where they are concentrated; the cases of R07, R08, R10, R13, R18, and R20 explain what is gained and what may be lost through revision. The central finding is therefore not an overall average showing “more” or “less” institutional responsibility, but a typology of potential shifts: from collective conditions to personal experience, from causal attribution to reportable events, and from organizational mentions to practices that respondents can verify. This integration follows Fetters et al.'s (2013) principle that joint examination of different forms of evidence can generate additional inferences, and it distinguishes the study from the quantitative content evaluation presented in the first manuscript.

**The Contribution of Expert Review to Institutional Measurement**

The cases show that revising an item is not a mechanical step between detecting ambiguity and retaining a question. Recommendations concerning R08, for instance, direct attention toward the treatment received, the technological requirements of assessment, or the measures available when a disruption occurs; those alternatives differ in what they make measurable. Similarly, R20 can describe the existence of assistance or the institution's timely response. Whereas Haynes et al. (1995), Terwee et al. (2018), and Boateng et al. (2018) emphasize correspondence between a construct and its indicators, this analysis makes the

intervening choices visible: who can know the answer, which action is reportable, and what institutional condition the reformulated item represents. The resulting categories provide a practical procedure for assessing conceptual consequences before revised questions are adopted.

The present analysis draws on the expert-review corpus also used in the content-validity manuscript submitted to REDSA, but examines another problem. That assessment reports judgments of relevance, clarity, and adequacy; here the principal evidence lies in the original–proposal comparisons, coding transitions, and sensitivity analyses, with clarity scores serving as a complementary contrast. Keeping the relationship explicit makes the substantive contribution clear: expert recommendations are investigated as decisions about information and institutional responsibility, rather than as a second report of validity indices.

## CONCLUSIONS

Examination of twenty original items and sixty expert recommendations shows that revising a question constitutes a substantive research decision. Where the original items demanded judgments about third parties, the proposed alternatives narrowed the requested knowledge toward experiences and circumstances closer to the student. At the same time, the recommendations reorganized the measurement referents: personal connectivity, learning platforms, assessment rules, availability of support, and institutional response. Combining documentary reading with statistical analysis made it possible to describe and quantify these transformations rather than reducing them to stylistic corrections.

A principal finding is the distinction between institutional visibility and the observability of an action. A statement may explicitly name the institution yet identify no particular practice that a respondent can describe; conversely, a question about submission alternatives can capture an organizational response without naming the teacher. Eight reformulations recorded observable

practices under the established criteria, while changes in visibility were concentrated in a small number of items. This evidence supports treating individual conditions, academic rules, and institutional responses as distinct elements in questionnaire design.

The sensitivity analyses and clarity comparison complete the contribution. They show how different conceptual decisions yield different statistical distributions, while examination of the item wording explains what each change means. The study thus offers a mixed-methods procedure for analyzing expert recommendations that identifies who is able to answer, which experiences become information, and which institutional actions can be investigated. Linking respondent knowledge with organizational responsibility offers a specific perspective for studying digital inequality in higher education through the relationships among students, teaching practices, and institutions.

**Institutional support**

This research was carried out as part of a postdoctoral research stay supported by the Secretariat of Science, Humanities, Technology and Innovation (SECIHTI) at the University of Sonora. The research activities associated with that stay received institutional support and authorization from the University of Sonora through official memorandum DADIP/11.7-323/2026, issued on October 16, 2026. This article analyzes the expert recommendations generated within that research framework.

**Declaration of conflict of interest**

The author declares no conflict of interest related to this research.

**Declaration of authorship contribution**

Martin Romero Cruz: Conceptualization, Methodology, Investigation, Formal Analysis, Data Curation, Project Administration, Visualization, Writing – Original Draft, Writing – Review & Editing.

**Artificial Intelligence Usage Statement**

The author used AI-assisted tools to support translation and editorial refinement of the manuscript. The author reviewed and approved the final text and assumes responsibility for its intellectual content, analysis, and conclusions.

## REFERENCES

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). Standards for educational and psychological testing. American Educational Research Association. https://ncme.org/resources/books/testing-standards/

Amjad, A. I., Aslam, S., Tabassum, U., Sial, Z. A., & Shafqat, F. (2024). Digital equity and accessibility in higher education: Reaching the unreached. European Journal of Education, 59(4), e12795. https://doi.org/10.1111/ejed.12795

Beatty, P. C., & Willis, G. B. (2007). Research synthesis: The practice of cognitive interviewing. Public Opinion Quarterly, 71(2), 287–311. https://doi.org/10.1093/poq/nfm006

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. Frontiers in Public Health, 6, Article 149. https://doi.org/10.3389/fpubh.2018.00149

Collins, D. (2003). Pretesting survey instruments: An overview of cognitive methods. Quality of Life Research, 12(3), 229–238. https://doi.org/10.1023/A:1023254226592

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). SAGE Publications. https://study.sagepub.com/creswell3e

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, phone, mail, and mixed-mode surveys: The tailored design method (4th ed.). Wiley. https://www.wiley.com/en-

us/Internet%2C%2BPhone%2C%2BMail%2C%2Band%2BMixed%2BMode%2BSurveys-p-9781118456149

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs: Principles and practices. Health Services Research, 48(6 Pt 2), 2134–2156. https://doi.org/10.1111/1475-6773.12117

Fricker, M. (2007). Epistemic injustice: Power and the ethics of knowing. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198237907.001.0001

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Medical Research Methodology, 13, Article 117. https://doi.org/10.1186/1471-2288-13-117

Gready, P., & Robins, S. (2014). From transitional to transformative justice: A new agenda for practice. International Journal of Transitional Justice, 8(3), 339–361. https://doi.org/10.1093/ijtj/iju013

Guillemin, F., Bombardier, C., & Beaton, D. (1993). Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. Journal of Clinical Epidemiology, 46(12), 1417–1432. https://doi.org/10.1016/0895-4356(93)90142-N

Haynes, S. N., Richard, D. C. S., & Kubany, E. S. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. Psychological Assessment, 7(3), 238–247. https://doi.org/10.1037/1040-3590.7.3.238

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. Qualitative Health Research, 15(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Krippendorff, K. (2019). Content analysis: An introduction to its methodology (4th ed.). SAGE Publications.

Krosnick, J. A. (1999). Survey research. Annual Review of Psychology, 50, 537–567. https://doi.org/10.1146/annurev.psych.50.1.537

Lenzner, T., Kaczmirek, L., & Lenzner, A. (2010). Cognitive burden of survey questions and response times: A psycholinguistic experiment. Applied Cognitive Psychology, 24(7), 1003–1020. https://doi.org/10.1002/acp.1602

Lythreatis, S., Singh, S. K., & El-Kassar, A.-N. (2022). The digital divide: A review and future research agenda. Technological Forecasting and Social Change, 175, Article 121359. https://doi.org/10.1016/j.techfore.2021.121359

Maitland, A., & Presser, S. (2018). How do question evaluation methods compare in predicting problems observed in typical survey conditions? Journal of Survey Statistics and Methodology, 6(4), 465–490. https://doi.org/10.1093/jssam/smx036

Mertens, D. M. (2007). Transformative paradigm: Mixed methods and social justice. Journal of Mixed Methods Research, 1(3), 212–225. https://doi.org/10.1177/1558689807302811

Presser, S., Couper, M. P., Lessler, J. T., Martin, E., Martin, J., Rothgeb, J. M., & Singer, E. (2004). Methods for testing and evaluating survey questions. Public Opinion Quarterly, 68(1), 109–130. https://doi.org/10.1093/poq/nfh008

Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Schulz, J., Hale, T. M., & Stern, M. J. (2015). Digital inequalities and why they matter. Information, Communication & Society, 18(5), 569–582. https://doi.org/10.1080/1369118X.2015.1012532

Sandelowski, M., Voils, C. I., & Knafl, G. (2009). On quantitizing. Journal of Mixed Methods Research, 3(3), 208–222. https://doi.org/10.1177/1558689809334210

Selwyn, N. (2010). Looking beyond learning: Notes towards the critical study of educational technology. Journal of Computer Assisted Learning, 26(1), 65–73. https://doi.org/10.1111/j.1365-2729.2009.00338.x

Terwee, C. B., Prinsen, C. A. C., Chiarotto, A., Westerman, M. J., Patrick, D. L., Alonso, J., Bouter, L. M., de Vet, H. C. W., & Mokkink, L. B. (2018). COSMIN methodology for evaluating the content validity of patient-reported outcome measures: A Delphi study. Quality of Life Research, 27(5), 1159–1170. https://doi.org/10.1007/s11136-018-1829-0

Timmis, S., & Valladares-Celis, M. C. (2026). Digital inequalities and the COVID legacy in higher education in the global South and North: Intersecting inaccessibilities and institutional assumptions. Compare: A Journal of Comparative and International Education, 56(3), 429–447. https://doi.org/10.1080/03057925.2025.2483691

Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). The psychology of survey response. Cambridge University Press. https://doi.org/10.1017/CBO9780511819322

van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. New Media & Society, 21(2), 354–375. https://doi.org/10.1177/1461444818797082

Warschauer, M. (2003). Technology and social inclusion: Rethinking the digital divide. MIT Press. https://mitpress.mit.edu/9780262232241/technology-and-social-inclusion/

Young, I. M. (2011). Responsibility for justice. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195392388.001.0001