



## Using a Rubric to Evaluate Quality in Case Study Writing

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This rubric has been developed by the Oregon College of Oriental Medicine doctoral faculty for over 10 years. Faculty members who have made significant contributions include Elizabeth Burch, Zhaoxue Lu, Bob Quinn, Lee Hullender-Rubin, Henry McCann, and Edward Chiu. Please contact [echiu@ocom.edu](mailto:echiu@ocom.edu) with any comments or suggestions for changes.

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A case study, also called a case report, is defined as an individual record of the diagnosis and treatment of a single patient by a single physician. Case records have been found in Chinese medical writings dating back to the legendary physician Huatuo in the 3<sup>rd</sup> century CE.<sup>1</sup> Throughout Chinese history, their structure has varied greatly. In the early 20<sup>th</sup> century it shifted from a “notebook” format, which was more similar to a published chart note, to a “didactic” type of case study, which was used to explain why a particular treatment course was chosen.

During the past several centuries, large numbers of case studies by Chinese doctors have been published. They are regarded as an important aspect of scholarly work in Chinese medicine.<sup>2</sup> Case studies have been written to not only illustrate successful treatment of difficult diseases but also to guide a reader through the thought process of Chinese medicine by demonstrating practical application of theory to achieve an effective result. A small number of modern case studies in Chinese medicine have also described situations where treatment has not necessarily been successful, but the case is instructive nevertheless (e.g., cautions and contraindications).

Biomedical case studies have generally been used to build hypotheses or to highlight unusual aspects of patient care.<sup>3</sup> In 1972, a publication entitled *The American National Standard for the Preparation of Scientific Papers for Oral or Written Presentation* established a specific format known as IMRaD (Introduction, Methods, Results, and Discussion).<sup>4</sup> This convention was widely accepted by biomedical journals for research articles, and the format has been adopted for case study writing. In modern journals, an abstract, conclusion, and reference sections are often included.

The content within each section of a quality case study must be detailed, concise, and flow logically. With these ideals in mind, the evaluation of a complex narrative report can be somewhat subjective. In an academic context, assigning a number grade to a case study is not straightforward.

Peer reviewers for journal publications recognize and evaluate the quality of case studies by virtue of having written and reviewed such papers in the past. However, what constitutes “quality” is not well-defined.<sup>5</sup> While checklists can ascertain all sections are included,<sup>6</sup> we must ask, “How do we rigorously evaluate the quality of a case study?”

At the Oregon College of Oriental Medicine (OCOM) in Portland, Oregon, over the past ten years, the doctoral faculty have developed and applied an assessment rubric to evaluate the quality of case studies written by doctoral students. A rubric is an educational scoring tool that lays out specific expectations for a complex assignment. Rubrics separate an assignment into its component parts and provide a detailed description of what constitutes acceptable or unacceptable levels of performance for each of those parts.<sup>7</sup>

The OCOM Case Study Rubric has 12 separate elements, each of which delineates specific expectations. A number of these elements are associated with specific sections within the format of the case study (e.g., Element 10: evaluating the quality of the Discussion section). Some elements consider more global aspects (e.g., Element 12: evaluating the use of references throughout the paper).

In a rubric, descriptions under each trait are not meant as a checklist but are followed by indicators of performance level.<sup>8</sup> For each of the elements in this rubric, there are four levels of performance: 1) unacceptable, 2) improvement required, 3) professional level, and 4) exemplary. A case study reviewer, after reading an entire case study, would choose a performance level indicative of the quality of writing regarding each element. The reviewer then writes comments after each element to indicate areas of strength and areas of weakness. By reading these comments, it should be clear to the author what changes would be necessary to achieve the highest level.

**Please Note:** Before discussing the elements of the rubric, it is important to state that the expectations for an academic paper written for a master’s or doctoral program is somewhat different from those for submission to a peer reviewed journal. However, this rubric may be adapted by instructors or editors, depending on the purpose. After each listed rubric element, annotations are included for consideration by peer reviewers and journal editors, which may help to guide its use.

### Element 1 – OVERALL APPEARANCE AND WRITING QUALITY

The document looks professional as indicated by: well-organized sections with clearly labeled headings, proper formatting (page numbers, margins, and use of standard fonts).

The text is well written, as indicated by consistent professional tone and absence of significant spelling and grammatical mistakes. The text flows well, and concepts are presented in a logical manner.

- 1 – Occasional spelling or grammatical errors, poor formatting;  
Lack of consistent professional tone, poor organization
- 2 – Minor spelling or grammatical errors;  
Minor inconsistencies in tone and/or poor formatting;  
Minor issues with organization and flow
- 3 – Well-organized with proper formatting;  
consistent tone;  
Very minor spelling or grammatical errors
- 4 – Well organized with clearly labeled headings, tables if appropriate;  
No spelling or grammatical errors; consistent tone and proper formatting

This first element evaluates the readability of the case study, which should be written in a way that communicates clearly and is easy to follow. Instructors teaching a course on case study writing may find it helpful to supply students with sample case studies to communicate general expectations.

*When preparing a case study to submit to a professional journal, it is advisable to read case study papers previously published in that journal. Before submitting a manuscript to a journal, it is essential to consult and comply with the “Instructions for Authors,” also called “Author Guidelines.”*

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## Element 2 – TITLE AND LANGUAGE

The case study has an informative title, which is concise and accurately reflects the contents. Relevant and appropriate medical vocabulary and terminology are used. A complete title should include at least three items: the condition, the treatment modality, and the words “case study” (or “case report”). These three items are often sufficient.

- 1 – Inappropriate or insufficient medical terminology used, unclear title
- 2 – Insufficient use of medical terms or unclear title
- 3 – Relevant and sufficient use of medical terminology, appropriate title
- 4 – Publishable or nearly publishable quality, outstanding title

Biomedical terminology should be used appropriately. Any acronyms or abbreviations should be spelled out in parentheses the first time they appear in the text. Chinese medical terminology, if used improperly, can cause confusion or misinterpretation. A good reference for accepted definitions is *Wiseman's A Practical Dictionary of Chinese Medicine*.<sup>10</sup> Chinese medicine terms should be should be capitalized if the same word exists as a biomedical term. For example, names of meridians and Chinese medicine organs (e.g. Kidney, Liver, and Heart,) are capitalized to alert the reader and to prevent incorrect correlations between biomedicine and Chinese medicine that would lead to imprecise thought and practice. All words in Chinese pinyin should be italicized.

*Each professional journal has its own conventions. A copy editor will help in the final revision stages if there is any question concerning capitalization or italicizing of specific terms. The wording of the title is especially important in publication; if the title does not accurately reflect the article's contents, a search might overlook the article in its results, thus negating the author's efforts.*<sup>9</sup>

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## Element 3 – ABSTRACT

A concise abstract is included, which adequately summarizes the overall contents of the document and includes appropriate information on the Background, Case Description, Results, and Discussion/Conclusion. No references are used in the abstract.

- 1 – Substantial relevant information missing; or provides different information or content than that which is included in the article
- 2 – All relevant information included as well as excessive extraneous material; or some relevant information lacking
- 3 – All relevant information included with minor extraneous material, or minor relevant material missing, or unclear rationale for writing case study
- 4 – All relevant information included with no extraneous material, good rationale for writing the case study

There are two types of abstracts. Structured abstracts include subheadings. Descriptive abstracts are written as a narrative paragraph. Either style of abstract should summarize information covered in the background, case description, results, and discussion. The rationale for writing the case study is the reasoning behind why this case is worthwhile reading. Abstracts should be concise yet complete, generally ranging between 150 and 250 words.<sup>11</sup>

*When writing for publication, consult previously published case reports to determine which style of abstract is preferred as well as to follow typical subheadings if the abstract is structured. The abstract should include enough information (including background, case description, results, and discussion points) for the reader to decide whether or not to read the full article. The preferred word count of the abstract should be indicated in the “Instructions for Authors.”*

#### Element 4 – INTRODUCTION – BIOMEDICAL

A biomedical introduction section establishes a context for the case through an appropriate review of biomedical journal articles, texts and other research information. This introduction should include biomedical information on the condition being discussed in the case, including typical signs and symptoms, biomedical diagnosis, demographics, etiology and pathogenesis, and treatment options.

- 1 – Superficial treatment of biomedical condition, possibly without treatment options
- 2 – Inadequate depth of coverage of biomedical condition; or no journal articles referenced
- 3 – Well written, but missing minor aspects of condition or treatment, appropriate journal articles referenced
- 4 – Thorough description of biomedical condition with treatment options, good use of biomedical literature

The biomedical introduction section is a review of the condition being discussed in the case study. This is especially useful if the condition is rare but can also be helpful if the condition is fairly common. Establishing a biomedical context will make the reader aware of the range of severity and the variety of symptoms experienced by patients with this condition. When the individual patient is discussed in later sections of the case study, the reader will have an idea as to how the individual patient's experience fits within this range.

*Consulting biomedical introduction sections from case report articles of the target journal may help the writer determine the scope of this section.*

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#### Element 5 – INTRODUCTION – ACUPUNCTURE AND ORIENTAL MEDICINE (AOM)

An AOM introduction section establishes a context through an appropriate review of relevant journal articles, texts and other research information. Biomedical efficacy research should be reviewed for the condition, and articles from AOM journals with advanced information on the subject should be included where appropriate.

- 1 – Superficial treatment of AOM approach to the condition, possibly without treatment options; or section reiterates textbook description of disease treatment
- 2 – Inadequate depth of coverage of AOM analysis of the condition; or no journal articles referenced
- 3 – Well written, missing minor aspects of condition or treatment, review at least one article from an AOM journal
- 4 – Thorough description of AOM differentiation and treatment options with material cited from a variety of sources, thorough biomedical efficacy research review, and review of information from more than one AOM journal article

The AOM introduction section can take a variety of forms, depending on the case. For an academic paper, this section should review the AOM perspective on the condition discussed in the case, including differential diagnosis, etiology and pathogenesis, and treatment options. For a traditional Chinese medicine (TCM) case, the writer needs to identify the relevant AOM disease categories (*bian bing*). A chart may be included that indicates likely patterns (*bian zheng*), typical signs and symptoms, and sample treatment points or traditional Chinese herbal formulas to outline the basic approach. For a non-TCM case, including some basic concepts about any non-TCM approach applied in the case can greatly enhance the case for an uninitiated reader. This is particularly true because many TCM colleges do not necessarily have elective courses introducing students to the non-TCM schools of thought (e.g., Five Element or Japanese styles).

A review of biomedical research is also appropriate here. Systematic research reviews are good sources which can be used to determine our current understanding of efficacy. If relevant to the case, individual studies can be briefly mentioned by including basic details.

*Journal publications vary greatly in their approach to this section. A biomedical journal generally will not emphasize AOM theoretical content and will lean more towards including evidence from mechanism research and clinical trials relevant to the condition.*

*Writers should consult sample articles from the journal to gauge the level and depth of AOM content, and journal peer reviewers may want to have a conversation with editors regarding AOM content expectations.*

### Element 6 – CASE DESCRIPTION – CASE HISTORY

The document includes a thorough narrative presentation of the patient's case history, including full details of the chief complaint, relevant past and present biomedical history, and AOM diagnostic information.

- 1 – Incomplete details on chief complaint; lack of AOM diagnostic information, lacking in both AOM and biomedical aspects of medical history
- 2 – Basic details on chief complaint; lack of adequate AOM diagnostic information, OR lack of significant biomedical history information
- 3 – Detailed description of case history, including AOM diagnostic information and biomedical history information
- 4 – Detailed description of case history, including AOM diagnostic information, possibly biomedical lab values and their relevance to the biomedical diagnosis

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The case description is divided into four sections: case history, diagnostic assessment, treatment, and results. This section should be written in past tense and third person format. Accuracy and good reporting in the case description will offer a baseline to compare outcomes later stated in the paper. The case history section includes the patient's gender and age and full details about the chief complaint. The patient's chief complaint should be described by including information about the severity, specific symptoms experienced, and circumstances and time of onset. Relevant lab results and radiologic studies should be summarized along with any biomedical diagnosis made by an allopathic practitioner. This should be followed by a review of systems or a "10 questions" section where additional information relevant to the patient's AOM diagnosis is provided. Other pertinent observations should be noted, including pulse, tongue, and palpatory findings.

*A biomedical journal might reduce or omit the AOM diagnostic information, including pulse, tongue, and palpatory findings, depending on the knowledge base of the readership. Excluding this information may oversimplify the diagnosis and thereby make the case report less useful to an AOM practitioner, so determining the appropriate AOM content level for the target audience may be an important consideration for each journal.*

### Element 7 – CASE DESCRIPTION – DIAGNOSTIC ASSESSMENT

A full assessment of the patient's AOM diagnostic status is provided, including differential diagnosis, disease categories, pathogenesis and etiology, patterns and differentiations, as appropriate. Justification for the diagnosis and pattern differentiation is required (symptoms, signs, pulse, tongue, other information that supports the diagnosis).

- 1 – AOM diagnosis stated with no rationale
- 2 – AOM diagnosis stated with rationale but no discussion of pathogenesis, and etiology
- 3 – AOM diagnosis stated with rationale, pathogenesis, and etiology, but minor omissions or inconsistencies
- 4 – AOM diagnosis stated with rationale, pathogenesis, and etiology

The presentation of the diagnostic assessment depends upon the style of acupuncture being performed. In a TCM acupuncture and/or Chinese herbal medicine case, the diagnosis should include disease diagnosis (*bian bing*) and pattern differentiation (*bian zheng*). Examples of disease diagnosis include headache (*tou tong*), low back pain (*yao tong*), and atrophy syndrome (*wei zheng*); examples of pattern differentiation include Heart Blood

deficiency, Liver fire, and Phlegm obstructing the Lung. If the case involves another style of acupuncture with a diagnosis that is not conventional to TCM, this diagnosis is acceptable as long as it is explained. For example, in Kiiko Matsumoto acupuncture, diagnoses depend on palpatory findings, and include concepts like *Oketsu* (similar to Blood stasis), *Shaoyang* pattern, and Immune imbalance. In Japanese meridian therapy, a pulse pattern would determine a specific *sho* confirmation. Each of these is appropriate determination of diagnosis.

Every diagnosis requires a rationale (a set of signs and symptoms) to support it. For example, if the patient is diagnosed with Heart Blood deficiency, a list of signs and symptoms in the patient which support that diagnosis should immediately follow. A diagnosis of *Oketsu* requires the explanation that the patient exhibited sensitivity/and or hardness on palpation at left ST 25-27 area. A *sho* conformation requires a matching description of the patient's pulse. A case study models the process of medicine, and justifying the diagnosis is essential to this process.

*For a biomedical journal, the theoretical rationale justifying the AOM diagnosis and treatment choices are likely beyond the knowledge base of the reader. Again, omitting the AOM perspective altogether to make the writing more accessible to readers is a choice of journal editors, with the consequence being a potential misapplication of the case report's conclusions in clinical practice and research.*

"The presentation of the diagnostic assessment depends upon the style of acupuncture being performed. In a TCM acupuncture and/or Chinese herbal medicine case, the diagnosis should include disease diagnosis (*bian bing*) and pattern differentiation (*bian zheng*)."

## Element 8 – DESCRIPTION – TREATMENT

State the treatment principles and describe the treatment. Include details on acupuncture point combinations and/or herbal formulas, specific needling techniques, herb dosages and methods of preparation, and justifications for their use based on your diagnosis. Include information on the case management—treatment frequency, length of treatment, adjunctive therapies (diet, exercise, etc.). Include a discussion of long-term case management and treatment strategies when appropriate. For cases with multiple treatments, treatments may be appropriately summarized.

- 1 – AOM treatment stated without principles, and with no details; or treatment principles and diagnosis from previous section do not match
- 2 – AOM treatment stated with treatment principles, missing technical aspects of treatment (e.g., herbal dosage and administration, needle technique, needle gauge)
- 3 – AOM treatment stated in sufficient detail so as to be performable by reader, including sufficient technical aspects of treatment and rationale behind point and herb choices
- 4 – AOM treatment stated in sufficient detail so as to be performable by the reader, including sufficient technical aspects of treatment and rationale behind point and herb choices. Good description of case management. Treatments are described or summarized appropriately if numerous.

Treatment principles and goals should be determined, then all treatment details should be provided and follow STRICTA guidelines.<sup>12</sup> This section should be written such that a reader would be able to repeat the exact same procedure if presented with an identical patient. For a case study involving multiple treatments, writing out each treatment individually can be laborious and may result in a section that is wordy and cumbersome. If all treatments are exactly the same, it is only necessary to describe one treatment and how many times that the treatment was repeated. If the treatments in the case are similar, it is acceptable to write a sample treatment and then describe the variations and in what circumstances they were applied.

Another common situation involves a treatment plan that occurs in multiple stages, where one approach proves unsuccessful and then the treatment goals are shifted and results are improved. In some cases, perhaps one approach is used to clear the first level of pathology, and then a second approach can be used

to completely resolve the complex pattern. The treatments in these two situations may be described in phases. The goal of this section is to present treatment details thoroughly but in a concise way that is easy to understand.

*A biomedical journal may choose to reword or reduce the traditional treatment rationale in a way that is accessible to readers; rationales based on mechanism and clinical trial evidence may be an alternative justification for treatment.*

## Element 9 – CASE DESCRIPTION – OUTCOMES AND PROGNOSIS

The outcomes of treatment are described, including signs, symptoms and tests that indicate progress (or lack of it). Include the patient's prognosis and discuss possible circumstances when additional AOM treatment may be recommended to maintain the patient's health.

- 1 – Outcomes and results briefly stated, with no objective markers, and not related to initial endpoint
- 2 – Outcomes and results with some detail, lacking prognosis
- 3 – Outcomes and results with adequate detail, prognosis is asserted with no basis
- 4 – Outcomes and results with adequate detail, prognosis is supported

The results section should provide specific details on the patient's response to treatment. Biomedical test results are appropriate here as well as qualitative results. The condition of the patient before and after treatment should be compared. If the data can be quantified, the results may be more compelling. For example, reporting that a knee pain patient "felt improvement" is not as useful as reporting that the patient was able to walk without pain for 30 minutes after a series of treatments, compared to only 5 minutes of walking before pain onset when treatment first began. For headaches, the frequency of headaches, duration of episodes, and amount of medication taken are measurable indicators of the severity of the condition and the level of improvement. Again, if good questions are asked during the intake, comparing the outcomes to the initial baseline will be more straightforward.

*Biomedical journals will require objective measures of improvement, including but not limited to lab tests, radiology reports, range of motion measurements, and de-identified photographs of dermatological conditions. A decrease in medication levels supervised by the prescriber may also indicate recovery. Depending on the journal, limited subjective data may also be included.*

## Element 10 – DISCUSSION

Discuss your observations and the results in the case, summarizing the practical and theoretical points. Discuss how the case relates to the purpose described in the introduction. Propose recommendations for clinical practice, case management, and/or further research based on this case.

- 1 – Results superficially reviewed and no significant analysis is presented
- 2 – Results are analyzed, and conclusions drawn
- 3 – Results are thoroughly analyzed, and conclusions drawn. One reflection on or recommendation for clinical practice is suggested
- 4 – Results are thoroughly analyzed, and conclusions drawn. Discussion brings up more than one of the following: a new recommendation for clinical practice, a recommendation for further research, a newly proposed aspect of theory, or a suggestion for integrative practice

The discussion section includes a brief summary, which elaborates on important observations and recommendations for education, practice, and/or research. These may include considering specific techniques or formulas for similar patients, suggesting alternate interpretations of classical theory which are supported in the case, encouraging readers to pay attention to specific areas of diagnosis, or advising caution with particular acupuncture points or herbs. It may be worthwhile to discuss other treatment variables here because a case study can suggest a connection between treatment and results but cannot establish a clear cause and effect relationship. All recommendations should be supported by the case described in the paper.

*Publication often depends on the points of significance discussed in this section. While a novel treatment approach for a common problem might be grounds for consideration, the background behind the approach may be useful discussion to inform clinical practice and research. Merely suggesting that “further efficacy research should be pursued” does not add much to the discussion, but examining logical gaps in the current research literature and making judicious suggestions for improving research methodology can help to further the field.*

## Element 11 – CONCLUSION

A concise conclusion summarizes the practical and theoretical points of the case.

- 1 – Case superficially summarized or incomplete conclusions drawn
- 2 – Case is summarized and conclusions are drawn
- 3 – Case is summarized, conclusions are drawn, and practical or theoretical points are also summarized
- 4 – Case is thoroughly summarized, conclusions are drawn, practical or theoretical points are also summarized, and reference is effectively made back to the objective(s) and/or rationale for the case

A conclusion section should be very brief—just one or two paragraphs, summarizing the case and its significance.

*Not all journals include conclusions as part of the format because the information is already contained in the article itself; please check the conventions of the journal to determine the format of the conclusion section.*

## Element 12 – RESEARCH/REFERENCES

Multiple sources are cited (not just basic texts), including published journal articles. Citations are in proper format according to the journal's author instructions.

- 1 – Inadequate sources with improper format for citations; statements made in the case study which should be but are not cited; sources of poor quality
- 2 – Inadequate sources with minor problems with citation format; or sources of poor quality
- 3 – Section complete, with proper format of citations, both biomedical and AOM sources
- 4 – Section complete, with proper format of citations, both biomedical and AOM sources and more than one published journal article for both AOM and for biomedical sources

All references should be from scholarly sources. Relevant biomedical database searches should be done; biomedical material should come from current sources intended for a professional audience. Websites written for the layperson (e.g. webmd.com, mayoclinic.org) are not appropriate sources for academic papers and should



be avoided. Recent editions of specialist textbooks and biomedical journal article are acceptable resources as well as systematic literature reviews which provide current practice guidelines. For the academic paper, general AOM textbooks are acceptable but specialist textbooks are preferable. AOM journal articles may not be searchable in standard biomedical databases, but searching archives of AOM journals may turn up useful material.

*Each statement taken from source material should be cited.*

*Formatting style of references should be followed precisely, according to the journal's instructions for authors.*

This rubric can be adapted for use in a variety of situations. For example, an instructor of a clinical seminar course who creates a student assignment to write a case description section can use the relevant elements (case history, diagnosis, treatment, and results elements). An author preparing a case study manuscript for publication can use the full version of the rubric to assess his or her own work before submitting it to a journal. A journal editor assessing a case study submission might weigh certain sections of the rubric more heavily in informing a decision to reject a manuscript or to recommend it for the peer review process.

If a case study seems to follow standard textbook TCM principles but lacks significant reflections or novel ideas in the discussion, it may be more likely to be rejected outright because editors may prefer material that goes beyond standard textbook knowledge. In all of these situations, an instructor or editor can provide written feedback on each element to improve a writer's future work and make sure that all points are addressed.

This rubric may also be used to train peer reviewers to review articles in a consistent and comprehensive manner. Although for decades, peer review has been a mainstay of medical journals, it has been criticized by some as a subjective stamp of approval, as there is no consistency in the peer review process across various institutions, and there is no universally agreed on opinion as to what constitutes a "good paper."<sup>5</sup> The rubric is an attempt to more specifically evaluate quality and may add some reliability to the peer review process. This particular rubric is specific to the evaluation of Chinese medicine case studies, but it can be adapted to evaluate case studies in other disciplines.

The gradation of performance level is meant to be as clear and objective as possible. However, after working with this rubric for years, there have been times when it is not completely clear which level of performance should be chosen for a given element. For example, in Element 2, Title and Language, a student might be very strong in biomedical terminology but weak in TCM language. In these types of situations, the number grade chosen is not absolute, and the comments made after this element would be the clearest indication of what improvements are necessary.

"The rubric is an attempt to more specifically evaluate quality and may add some reliability to the peer review process. This particular rubric is specific to the evaluation of Chinese medicine case studies, but it can be adapted to evaluate case studies in other disciplines."

Finally, while this rubric was designed as an objective measurement tool, any rubric cannot fully appraise the value of a particular case study. While it may be true that a higher numerical score may indicate a case that is more likely to be of interest to readers, a low score case study can still provide valuable information to a reader who has a similar patient. Each journal reader may take different views on strengths, weaknesses, and importance of a given paper<sup>5</sup> depending on his or her own knowledge, skills, and practice situation. Much as an individual student's capability in the practice of medicine cannot be solely defined by his or her numerical test scores or a patient cannot be defined solely by measurable lab values, the success of an individual paper cannot be solely defined by a number grade. Objective measures are helpful, but they do not tell the whole story.

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