

## GUIDELINES FOR REVIEWERS

Thank you for agreeing to review papers for PME-NA 09. Before you begin your reviews, please read the following comments. This year, we have many more research report papers than we can accept. Therefore, it will be necessary not only to reject inappropriate papers but also to recommend whether a good research report should be relegated to a brief research report. We hope these guidelines will assist you with your reviews. The guidelines consist of general remarks, the goals of PME-NA, the questions a reviewer will have to answer, some examples of helpful and unhelpful reviews, and then more specific guidelines for reviewers of empirical and theoretical papers.

### General Remarks

Recent communications from PME-NA members have led to the elaborations of criteria for reviewing research papers. This information is a result of discussions within the steering committee about those communications. In addition to adhering to the following requests, reviewers are encouraged to read the guidelines for reviewers of research reports for PME at the following web page:

<http://igpme.org/view.asp?pg=guidelines>

The expectations of reviewers are described in (5) of that document. Although the goals of the North American Chapter of PME (PME-NA) are not identical to those of the international organization, the goals of both organizations are similar. PME guidelines provide explicit instructions that may help some reviewers. In addition to the guidelines, there are several specific examples of helpful and unhelpful reviews (examples appear here as well).

The steering committee strongly believes that research reports sessions are designed to accommodate research efforts that are not only well written, interesting and well designed, but are significant and have potential TO MOVE THE FIELD FORWARD. As the submission guidelines state, research reports can be theoretical or empirical. Less substantial studies are more appropriate to be shared as brief research reports. In addition to the specific areas you will be asked to rate for each paper, these questions should influence your overall recommendation:

- Does the research build on and move an area of mathematics education forward?
- Does the methodology alone justify the paper as a research report?
- Is the study interesting, but not highly significant?
- Can the main information be presented in a short time (e.g., 10-15 minutes) or as a poster?

Depending on the answers to these questions, a proposed research report might be more appropriate as a brief research report (or as a poster). We are interested in having as many people share their work as possible, so if you believe that it is appropriate, you are encouraged to suggest that the paper be accepted in another format. However, please be careful about recommending acceptance of research report papers as brief research reports. Keep in mind that rejected research reports will not have a better chance of being included as brief research reports

than papers originally submitted as brief research reports. This belief has guided acceptance decisions at past meetings. If you have questions about the expectations of reviewers or the review guidelines, please contact a member of the steering committee. Emails are available on the First Announcement.

### **Goals of PME-NA**

- To promote international contacts and the exchange of scientific information in the psychology of mathematics education;
- To promote and stimulate interdisciplinary research in the aforesaid area with the cooperation of psychologists, mathematicians, and mathematics educators;
- To further a deeper and better understanding of the psychological aspects of teaching and learning mathematics and the implications thereof.

### **The questions reviewers are asked to answer**

When you enter the electronic page to submit your review, you will be asked to rate the following aspects of the paper:

- Mode of inquiry
- Relationship to PME-NA goals
- Theoretical framework
- Choice of problem or question
- Rigor of analysis
- Interpretation
- Quality of writing

You are asked to write some comments to PME-NA and some comments to the Author.

The former is of great importance for helping the committee in its decision about the paper; the latter will help the author of a rejected paper to submit a better paper next year. Finally, you will be asked to make a recommendation for the paper: Accept it, Reject it or Accept in Another Category.

### **Some examples**

#### Examples of helpful reviews

Helpful reviews state their points clearly and justify their recommendations based on what is actually contained in the paper.

- A helpful review of an accepted paper  
Title of paper: Obstacles related to the notion of limit  
Reviewer's recommendation: Accept

Reviewer's comments:

This is a qualitative study that builds on prior work by Cornu, Robert, and \_\_\_\_\_ on the learning of the notion of limit. The theoretical framework about epistemological obstacles is laid out clearly, and the author uses it to justify her choice of research questions. The research is well-connected to PME-NA goals from both empirical and theoretical points of view (some references are to previous works presented in PME-NA conferences).

The study is primarily descriptive. Qualitative analysis of discussions among small group members is ongoing. Scheduled individual interviews provided data on students' work in groups and individually. The results are presented clearly.

The author makes strong connections between her analysis of students' learning and the notion of epistemological obstacle. She also extends our understanding of epistemological obstacle by distinguishing among different kinds of obstacles students encounter in building an understanding of limit. The paper is interesting to read, contains original data, and adds to our understanding of how students learn the concept of limit. I encourage the author to see the recent article by \_\_\_\_\_ in \_\_\_\_\_, which provides an interesting comparison to this paper's work.'

- A helpful review of a rejected paper

Title of paper: Strategies and errors about solving problems in algebra

Reviewer's recommendation: Reject

Reviewer's comments:

The questions addressed are vague and the paper's overall goal is unclear. The literature review, on strategies and errors in solving algebra problems, has a weak connection to the study as actually conducted. However, the work is related to PME-NA goals and it addresses important questions regarding students learning algebra.

The research design and mode of inquiry are appropriate, but the sampling procedure is inappropriate for a study that claims to generalize to a larger population. Also, the paper does not give enough information about the study's conduct. It is unclear what the authors actually did to generate the data they got.

The poor sampling procedure and unclear methodology make the data difficult to interpret. As such, the author does a poor job of grounding his conclusions in the data. The author presumably knows more information than is presented in the paper, but it is not possible for the reader to assess the reasonableness of his conclusions.

I have recommended that this paper be rejected. This is not to say that the paper contains nothing of value to PME-NA members. Indeed, it outlines a piece of research in an area where research is needed. I suggest that the author see recent articles by \_\_\_\_\_ in \_\_\_\_\_ and \_\_\_\_\_, which provide an interesting comparison to the author's paper. I highly recommend that the author resubmit this paper to next year's PME-NA after taking these articles into account and after clarifying the study's questions, goals, and methodology.

### Examples of unhelpful reviews

Reviews that merely state a recommendation or state an objection without clear justifications

based on the paper's content are of little assistance to the Program Committee.

- An unhelpful review of an accepted paper  
Title of paper: Mental models related to geometric thinking  
Reviewer's recommendation: Accept  
Reviewer's comments:  
The goal of the paper is clearly formulated and is related to PME-NA goals. I am not familiar with his theoretical framework, but it seems relevant.  
The mode of inquiry and rigor are fine.
- An unhelpful review of a rejected paper  
Title of paper: Learning fractional numbers in context  
Reviewer's recommendation: Reject  
Reviewer's comments:  
A clear goal of the paper is not indicated. The theoretical framework is not well based. Poor relationship to PME-NA goals.  
The research design and mode of inquiry are inappropriate.  
The analysis of results is not well connected to the conclusions.

### **Guidelines for Reviewers of Empirical Papers for PME-NA**

An empirical paper is one that presents a study based in data and draws conclusions from that data. The quality of an empirical paper has a number of dimensions, such as:

- Does the study address an important question? Is it clear what question the study addresses?
- Is the study aligned with the goals of PME-NA?
- Is the study framed by theory? This is not to say that the paper explicates the theory that frames it. This is an unreasonable expectation for a short paper and paper. Rather, does the study employ a theoretical framework and therefore contribute to a deeper understanding of the question it addresses?
- Does the study employ a methodology appropriate for the question it investigates?
- Does the paper present data and analyses thereof? Are the analyses supported by the data and methodology?
- Does the paper provide claims, conclusions, or suggestions that are based in its data?
- Does the paper display high quality writing?

### **Guidelines for Reviewers of Theoretical Papers for PME-NA**

A theoretical paper is one whose main thrust is to give principled analyses of issues. It draws connections among current explanatory frameworks and extends them in important ways.

The purpose of theory is to provide coherent ways to think about issues, situations, or phenomena. A theoretical paper emphasizes explanations and connections. For example, a person might propose to address parallels and tensions between neo-Piagetian perspectives and

socio-historical or sociocultural perspectives on students' difficulties within the multiplicative conceptual field.

Theoretical paper should be judged on these dimensions:

- Does the paper address issues that are important for mathematics education?
- Does the paper offer a penetrating analysis of the issues? Does it extend our understanding of them?
- Does the paper build stronger connections within a theory or among theories? Does it sharpen our understanding of distinctions that had not been made before or that were made weakly?
- Does the theoretical discussion have implications for practice in the field of mathematics or mathematics education? This is not to say that the implications must be immediate. But it should have implications for practice nevertheless.
- Does the paper display high quality writing?