How to Get a Good Review

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1   Introduction

For several years I have been reviewing submissions for SIGCSE conferences and, unfortunately, recommending rejection of the majority of the submissions. While some undoubtedly deserved the recommendation, others described work that is potentially interesting and relevant, but the papers were so poorly written that it was impossible to judge the ideas fairly. I am writing this message to help SIGCSE members write better papers and improve their chances of acceptance.

A review is like an audition: you have prepared your presentation for weeks or months, yet you only have a few minutes to convince a director (who knows nothing about you) that you are better than those appearing before or after you. The key words here are that the reviewer knows nothing about you. You may have been working on a project for months, but you only have four pages in which to "perform." You have two tasks when you write a paper. First, you must structure your paper so that your ideas and work are clearly and fully described within the page limit. Second, and more importantly, you must place your work in context so that the reviewer can decide if it is significant and relevant.

2   The Reviewer's Task

There are significant differences between the submission of a paper to a conference as opposed to submission to a refereed journal. There is no feedback loop in a conference submission–you submit and you receive a decision. Generally, you cannot revise your paper based on the referees'

reports, nor can you try to convince the editor that the referees are mistaken. On the plus side, the standards of originality for a conference paper are lower than for a journal article. (See the discussion by John Impagliazzo in the *SIGCSE Bulletin* 30(2), 1998, p. 3.) However, there is no justification for a lower standard of relevance and clarity.

I hope I am not revealing any dark secrets by reproducing the questions that reviewers are asked. Make sure that your paper is written so that the reviewer can answer all of these questions positively.

- Q1: Does the paper present an idea or work suitable to the intended audience?

- Q2: Is the idea or work presented original, or, if not, does it appropriately build on and acknowledge previous work in the area?

- Q3: Does the paper include evidence for any statements or conclusions that it contains?

- Q4: Does the idea or work presented have potential to contribute to CS and/or CS education?

- Q5: Is the paper presentation (organization & writing style) of good quality?

3 Context

Newton said: "If I have seen farther, it is because I have stood on the shoulders of giants." With all due respect to SIGCSE members, it is hard to imagine that we write papers so novel that no related work has ever been done! I simply cannot understand why I routinely receive submissions without a single reference, or including at most a list of technical manuals.

When a student comes to me to discuss a tentative topic, the first thing I do is to send her away with a pile of the proceedings of the SIGCSE and ITiCSE conferences for the past five years. There is always something relevant. Articles in the SIGCSE literature are certain to be available to a reviewer if he needs to refresh his memory or look up an unfamiliar reference. If fact, I believe that it is contrary to good scientific practice to even embark on a project without doing a literature search. If you are lucky, your idea is quite original and you will only find a few marginally relevant papers; otherwise, given the space limitations, include just the four or five most relevant or most recent articles.

SIGCSE encourages reports of classroom experience that are not research papers as such. However, this encouragement is not an excuse for omitting a discussion of previous work. In the SIGCSE literature you will almost certainly find reports of educators who have taught the same course, used similar software, attempted related methods of assessment, and so on. Your report must be placed within this context.

4 How Should You Present Previous Work?

Give one or two sentences describing each article and your evaluation of the work. Yes, you are also an educator and a researcher, and you are qualified to criticize. Your (polite!) criticism is in fact what justifies your work. Examples:

1. Developed a good system, but it is not portable.

2. Performed an empirical evaluation, but only in one class setting.

3. Our results contradict the results obtained by X.

4. We believe that the opinions expressed by Y are not applicable to our type of institution.

5. We extended the system built by Z.

Remember, the reviewer may be a specialist in the field of you paper, in which case she will be justifiably upset that you did not reference her work. Alternatively, the reviewer will have a general knowledge of the field, in which case an analysis of existing work is essential for judging significance and relevance.

If you need to cite your own work, it will be less conspicuous if the citation is one of several references. To preserve anonymity, disguise or omit technical reports of your previous work or expanded versions of the material. In one submission, the author removed all references to preserve anonymity, and the reviewers found this more than suspicious!

5 Structure

You have only four pages to audition. Each section of the paper is important, but proper balance is more important. I recall one poorly written paper which devoted over three pages to describing a problem in computing that every SIGCSE member knows about, leaving less than one page to describe the work. So let's go through the structure of a paper.

The title should be short and informative. Those of us brought up on the dining philosophers of concurrency have a penchant for cute titles (e.g., Bill Bynum and Tracy Camp, "After You, Alfonse," 27th SIGCSE). However, it is more important to be concise. The essential information in a rambling title like "Use of Java Version 2 for Windows/NT in a Novell Networking Lab for a Course on Trees, Directed and Undirected Graphs" can be expressed concisely and generically as "Teaching Graph Theory with Net-Based Java."

The abstract is extremely important because it is used as a tool for browsing and searching. The first thing I do at a conference is to read the abstracts and plan my schedule. (Of course, Murphy's Law ensures that during any time period, there are either two sessions I want to attend, or no session that can compete with summer in Uppsala, Cracow, or Helsinki.) Writing an abstract is hard because you must encapsulate the entire paper in five or six sentences. In effect, the abstract is an advertisement for the paper. Specific technical details or numeric results are not important and can be left to the paper. Make sure that the abstract states what the problem is, what you did, and what the results were, so that the reader can get an overview of the entire paper just from reading the abstract.

The following topics form a good way to structure the paper itself. Briefly, state the problem. As I discussed above, you are most likely writing on a problem that SIGCSE members know about, so a few sentences will suffice. Then give the context of the work so that the reader can judge relevance and significance. One-half page should probably be sufficient, but you should write it carefully so that your analysis of previous work is complete and fair. The introductory material might be a bit longer if your topic is relatively unfamiliar to many SIGCSE members. I cannot overemphasize the importance of a clear statement about what is new in your work. It is not the task of the reviewer to figure out what you have done, only to evaluate it.

If you use 1 to 1.5 pages for the title, abstract and introduction and save one-half page for a conclusion and list of references, you are left with somewhat more than two pages to describe your work. If you are describing a software package, give an overview of the implementation tools and techniques, but do not get bogged down in technical details and never include long sections of code. Post an expanded version with source code on your web site and put a link in the published paper. A screen shot or two is much more informative than a long technical discussion, even though it uses valuable "real estate." Keep the size small at the expense of readability, because a conference article is really just a report that invites the reader to study an expanded publication, which today means a web site.

6 Relevance

I have reviewed articles that describe software packages in excruciating detail, but contain at most a few sentences about their use in the classroom. I recommended that these articles be rejected because, by definition, people who attend SIGCSE conferences have a primary interest in education, not software development.

Whatever the topic of your article, you must evaluate what you have done and discuss the results. Given the nature of the community (educators, rather than specialists in education), it is

unrealistic to expect every project to be a formal controlled experiment, but you should do your best. Many, many submissions are of the form: "We did X; we had fun; the students thought it was great; it seemed to work." This is not sufficient and will tend to get your paper rejected or downgraded to a poster. At the very least, try to analyze the successes and the failures of what you did. Tell us exactly how the students' learning improved, conjecture why this is so, relate the difficulties that you had, and provide explanations and suggestions for other educators and researchers. The more you write about education, the more attractive your paper is for SIGCSE members and their representatives, the reviewers, and program committee.

7   Conclusion

The best advice for any writer is to pretend that you are the reader. You are undoubtedly excited by your work and you must convey your enthusiasm to your readers. If you cannot read your paper with sufficient detachment, ask a (not-too-close) colleague to criticize it before submission.

Finally, remember that SIGCSE conferences accept only about a third of the submissions. Furthermore, the program committee will attempt to compose a balanced program that appeals to all members, so rejection is not necessarily an indication that the paper has no merit. (I follow my own advice scrupulously, yet I have had my share of rejections.) Hopefully, when the notification comes, you can start packing your suitcase. If not, spend an hour muttering dark deprecations about reviewers and the program committee; then, rewrite, resubmit or submit elsewhere, or start another project!