Barriers to the Influence of Research: Research Quality in School Librarianship

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This paper for the Seventh International Forum on Research in School Librarianship describes a small-scale pilot study that is part of a much larger longitudinal study of "Research and Researchers in School Librarianship". The pilot study is a preliminary attempt to address issues associated with determining the quality of the published research in the field of school librarianship. The main aims are first, to test the extent to which experienced evaluators agreed in their rankings of research articles on the basis of quality; and secondly, to investigate the ways in which experienced evaluators evaluate research articles. A qualitative, naturalistic research design is used. The data collection was still proceeding at the time the paper was being written; the conference presentation will therefore provide further information about the results of the data analysis and draw some conclusions from the analysis. However, it is already clear from the literature review that the relationship between research quality and the adoption of the results of that research in decision making is more complex than we have supposed.

Background

> Good he pronounces to be that in which the beast delights and evil to be that which he dislikes; and he can give no other account of them except that the just and noble are the necessary, having never himself seen, and having no power of explaining to others the nature of either, or the difference between them, which is immense.
> (Plato, *The Republic,* Book VI)

The small-scale pilot study that is described in this paper forms just one part of a larger longitudinal research study that is investigating "Research and Researchers in School Librarianship" over more than a decade from 1991 onwards. The research is supported by a growing bibliographic database of research articles and papers in the field of school librarianship, published in English. A preliminary report, provided at the 2001 IASL conference in Auckland, New Zealand, discussed the research methods being used in the long-term project as a whole. This report also discussed the strategies used to define "research publication" and the boundaries of the field of "school librarianship" (Clyde, 2001), and the strategies used to identify the research articles and papers.

A presentation of mine at the 2002 IASL conference in Petaling Jaya, Malaysia, concentrated on the characteristics of the research in the field of school librarianship that was reported in English, from 1991 to 2000 inclusive, the methodologies used by researchers, and the topics that were investigated (Clyde, 2002). It showed that through the decade the amount of published research (in the form of research articles and conference papers) increased, that researchers were using a greater variety of methodologies to address research problems in the field of school librarianship by the end of the decade, and that important questions related to library and information services in schools (such as the role of the school librarian in information literacy work in schools) were being studied. Other work currently being undertaken by the author for the "Research and Researchers in School Librarianship" project is looking at the characteristics of the researchers in the field of school librarianship and their perceptions of the current state of research in our field.

Despite the signs of progress mentioned above, problems remain. The "Discussion and Conclusions" section of the paper presented at the 2002 conference in Petaling Jaya drew attention to some of the problems and highlighted one in

particular: "the quality of the research that is being published in the field of school librarianship [is] an issue that has to be faced if we expect that the profession's research will influence decision-makers" (Clyde, 2002, p.68) or the people who are responsible for library and information services in schools. Further,

> Between 1991 and the end of 2000, only a relatively small proportion (58 articles of 389, or 14.9%...) of the research articles in school librarianship were published in journals that are on the ISI (Institute of Scientific Information) "Master Journal List" (an indicator of quality that is accepted by many universities for purposes of faculty evaluation). However, this "Master Journal List" omits the two major research journals in the field of school librarianship, School Libraries Worldwide and School Library Media Research, both peer-refereed journals of obvious quality, that attract articles from the best-known researchers in the profession. (Clyde, 2002, p.68)

Evaluation of Published Research

While many commentators have discussed research quality in library and information science as a whole (for example, Katzer, 1989; McClure & Bishop, 1989; Hernon, 1999) and school librarianship in particular (for example, Henri & Freeman, 1998; Haycock, 1994), there is little agreement about what represents "quality" in a research publication in this field or how quality can be recognized or measured. The criteria that exist (including the criteria established for the "Research and Researchers in School Librarianship" project) are generally descriptive rather than evaluative; that is, they describe features that an evaluator would expect to see in a research report, rather than indicators of quality. Thus, for example, according to Gu›rún Pálsdóttir et al. (1997, p.88) a research report should include a statement of aims, research questions or hypotheses, a description of the methodology, information about data collection and analysis, discussion of the results, and a bibliography, among other things.

Sometimes research evaluation is "externalised", that is, it is based on factors external to the content of the research article or paper itself, such as the quality of the journal in which the article was published. The assumption behind these approaches is that "high-quality journals ... are likely to publish high-quality research" (Lee, *et al.,* 2002, p.2805). Evaluation of research articles then becomes a matter of identifying the quality journals. Examples of strategies that use this approach include citation analysis (see, for example, Garfield, 1979; Harter, 1996; Nicolaisen, 2002), journal impact factor analysis (see, for example, Opthof, 1997), approaches based on the reputation of journals (see, for example, Giles *et al.,* 1989; Blake, 1996; Kohl & Davis, 1985), peer-review status (Lee, *et al.,* 2002), manuscript acceptance rate (Lee, *et al.,* 2002), indexing of the journal in established indexing or abstracting services (Gehanno & Thirion, 2000), and number of subscribers to the journal (Lee, *et al.,* 2002). All approaches have their strengths and limitations. However, there are some who believe that while they have their uses, these strategies should not be used for research evaluation. MacRoberts and MacRoberts (1989), for example, have studied "problems of citation analysis" in a critical review, while Seglen (1997) has written an article titled "Why the impact factor of journals should not be used for evaluating research". Lowi (1992) has criticised the "reputational" approach to journal evaluation on the grounds that the studies are based on the subjective evaluations and perceptions of the participants; Nkereuwem (1997, p.75) noted that the "ranking of a journal will depend to a large extent on the values which one brings to the evaluation process".

Alternatively, a research article or paper will be assumed to be of good quality if it appears in a publication that is on the "ISI Master Journal List" or the "Guide to the Core Journals of China" (Calvert & Zengzhi, 2001) or other recognised list — despite the fact that it is the journals that are evaluated for inclusion in these lists (see, for example, Testa, 2002) rather than individual articles, and despite the fact that the criteria used for evaluating the journals tend to reflect the characteristics of the journals rather than of the articles they contain. An example of this is the ISI journal selection criteria:

> The evaluation process consists of evaluation of many criteria such as, Basic Journal Publishing Standards (including Timeliness of publication, adherence to International Editorial Conventions, English Language Bibliographic Information (including English article titles, keywords, author abstracts, and cited references.) ISI also examines the journal's Editorial Content, the International Diversity of its authors and editors. Citation Analysis using ISI data is applied to determine the journal's citation history and/or the citation history of its authors and editors. (Institute of Scientific Information, 2002b)

Katzer, Cook and Crouch caution that consumers of research cannot "assume that an editor will successfully weed out all major errors and poorly constructed studies. The explosion of information, the reward structure in higher education, the increasing number of new journals being published, the evaluation procedures used by editors, and a variety of other factors" (Katzer, Cook & Crouch, 1998, p.6) all mean that it is necessary that each published research report be evaluated on its own merits if the results of the research are to be used to improve practice. "When, if ever", they say, "can you rely on the reputation of a journal or author instead of evaluating the research itself? What is the trade-off in terms of your time and effort versus the danger of acting on the basis of erroneous information?" (Katzer, Cook & Crouch, 1998, p.11) It is this aspect of research evaluation - the evaluation of individual research publications in the field of school librarianship — that is the basis of this pilot study.

Aims

This paper will discuss work that begins the process of addressing questions associated with the quality of published research articles and papers in the field of school librarianship. How do we understand quality? Is there any agreement about the nature of research quality? Is there any agreement about what constitutes a quality research report in our field? Do experienced research evaluators have explicit or implicit criteria that they use when evaluating research reports? Or is it rather a case of "I can't explain what quality is but I know it when I see it"? What are the strategies employed by experienced research evaluators who are evaluating published research reports in the field of school librarianship?

The small-scale pilot study had two main aims: first, to test the extent to which experienced evaluators agreed in their rankings of research articles on the basis of quality; and secondly, to investigate the ways in which experienced evaluators evaluate research articles. The pilot study was also designed to test the efficacy of the methodology as a means for studying issues associated with research quality.

The Literature

The protagonist (a university teacher in one manifestation) in Robert Pirsig's book *Zen and the art of motorcycle maintenance*, confronts the idea of quality in academic writing:

> Quality ... you know what it is, yet you don't know what it is. But that's self-contradictory. But some things are better than others, that is, they have more quality. But when you try to say what the quality is, apart from the things that have it, it all goes *poof!* There's nothing to talk about. But if you can't say what Quality is, how do you know what it is, or how do you know that it even exists? If no one knows what it is, then for all practical purposes it doesn't exist at all. But for all practical purposes it really does exist. What else are the [students'] grades based on? Why else would people pay fortunes for some things and throw others in the trash pile? Obviously some things are better than others ... but what's the 'betterness'? ... So round and round you go, spinning mental wheels and nowhere finding any place to get traction. What the hell *is* Quality? What *is* it? (Pirsig, 1975, p.178)

An extensive literature search was undertaken to provide an overview of the literature related to quality and particularly research quality. Among other things, it sheds some light on ideas about quality and the ways in which quality has been perceived and measured, across a number of fields and within a number of different theoretical frameworks. It provides some insights into the problems associated with making judgments about quality and the attempts that have been made to address these problems. It was also expected that the literature review would provide a theoretical framework for data analysis.

The literature suggests that there are at least four distinct approaches to the assessment of quality in research reporting. The first is based on the Platonic idea of quality as ultimate truth or ultimate good. While in the world everything may fall short of true quality, it is nevertheless something at which we might aim. The second notion of quality is as relative value - research reports are assessed in relation to each other, and found to be relatively superior, average, or inferior in relation to the collection of reports as a whole. The third notion of quality is of something that varies according to the social and cultural context. What represents quality in one setting might not be appropriate in another. And finally, a fourth approach to quality is based on criterion-referenced evaluation — an assessment of the

extent to which a research report meets certain pre-established criteria, those criteria often being related to the purpose of the evaluation. These four approaches will be discussed briefly in order.

1. *Quality as ultimate good.* In Plato's Republic, Socrates says to Adeimantus, "Then let me ask you to consider further whether the world will ever be induced to believe in the existence of absolute beauty rather than of the many beautiful, or of the absolute in each kind rather than of the many in each kind?" Later, in a dialogue between Glaucon and Socrates, there is a discussion of "an absolute beauty and an absolute good... the very essence of each". In our postmodern world, absolutes are greeted with suspicion, and while philosophers still discuss quality in relation to aesthetics, there has been little work in library and information science or education in recent decades that assumes a reference point of absolute quality or "perfection".

2. *Quality as a relative value.* When this approach is taken, research reports are assessed in relation to each other, with the aim of identifying the best of the group, and those that are acceptable, while eliminating the weakest. This type of evaluation may be carried out for a particular purpose - for example, for selecting articles for a research journal, or for a research conference, or for inclusion in a book. Except that its aim is not so much to evaluate the articles as to investigate the process of evaluation, this present pilot study in one sense fits into this approach; certainly an earlier project within the context of the longitudinal study of "Research and Researchers in School Librarianship" (Clyde, 1996) fitted into this approach.

3. *Quality as a social or cultural construct.* In discussions at the IFLA (International Federation of Library Associations and Institutions) Continuing Professional Education Round Table pre-conference in Aberdeen, Scotland, in August 2002, it was noted that "quality" has different meanings in different contexts, different cultures, different countries, and for different groups of people (Clyde, 2003). A Danish study of research evaluation (Hansen, 1996) stressed the different aims of evaluation in different countries (for example, whether research evaluation was aimed at controlling research output or supporting the development of research productivity and quality) and the different processes used for evaluation in different places as a result. This is supported by the work of Murphy (1994) who studied the different approaches to research assessment in the United States, the United Kingdom, Australia and northern Europe.

4. *Quality based on criterion-referenced evaluation.* Criteria for assessing the quality of research are outlined in a number of studies. Andy Smith (2001) suggests that "relevance, timeliness, objectivity, and methodological integrity are the hallmarks of high quality research in applied fields" such as our own. Calvert and Zengzhi (2001) used six criteria (with articles rated on a ten-point scale for each) for evaluating research articles. The criteria were the presentation of new information or data, an acceptable research design, an acceptable level of scholarship, work that furthers the advancement of knowledge, "theoretical soundness", and the use of "appropriate methodology and analysis". In the field of clinical medicine, scoring criteria have been developed to enable general practitioners to assess the quality of research articles on the basis of the quality of the research methodology; one such set of criteria is known by the acronym READER (MacAuley, 1994).

One well-known variation of the fourth approach is quality as "freedom from error". In their textbook, *Evaluating information: A guide for users of social science research*, Katzer, Cook and Crouch (1998, p.7) advocate an "error model" of research evaluation. They believe that "the researcher's job is first to identify, and then to remove or reduce, sources of potential error so that findings can be trusted. Consequently, it is the job of an evaluator to challenge a research report by searching for possible errors missed by the author." Thus their strategies for evaluation focus on "how well the researchers have identified, removed, and controlled the potential errors in their study. To evaluate information means to weigh those factors in a study that have the potential to add error with those factors a researcher uses to decrease error." (Katzer, Cook & Crouch, 1998, p.8) Their strategies include criteria and points to consider when evaluating research.

Within these four contexts, for some people quality might reflect something that is quantitative and easily measurable; for others, the measurement of quality may require a more qualitative approach (Clyde, 2003).

There is little research in the field of library and information science that deals with the evaluation of individual research articles or papers, though the education literature provides some examples. The work of Asher and Vockell (1973) will be referred to later; they carried out an experiment in which both researchers and administrators evaluated a collection of documents and the evaluations by the two groups were compared. A 1963 study discussed briefly by Wandt (1965) also compared evaluations of research reports in the field of education, though too little information is provided to assess the conclusions drawn from this work.

However, the medical literature provided a number of examples of this type of study. For instance, Lee *et al.* (2002) had reviewers assess the quality of 243 research articles chosen from medical journals, using the READER research evaluation instrument (an instrument previously tested for validity and reliability). The reviewers received training in using the instrument and had access to detailed printed instructions as well. Two reviewers looked at each article independently, and where the two scores for an article were significantly different, the reviewers were required to reach a score by consensus. The inter-rater reliability was only fair, and in ten per cent of cases, the scoring required adjudication. The results supported the observation that "articles of higher methodological quality are published in journals whose articles are cited more frequently (higher citation rates and impact factors), read more widely (higher circulation, indexed ...), and scrutinized more carefully by editors and outside peer-reviewers (lower manuscript acceptance rates)" (Lee, et al., 2002). However, this is not altogether surprising, given that the articles were selected from journals on the ISI lists, and identified through searches of the MEDLINE indexes. Further, articles that did not meet basic clinical research methodology requirements were excluded on the grounds that the READER instrument was not designed to deal with them. The field of library and information science has no generally accepted research evaluation instrument (that is, an instrument designed for the evaluation of individual articles), nor one that has been tested through research. An instrument such as READER, from another field, could not be used in library and information science because it relates specifically to the methodological concerns of research in medicine (for example, the use of randomized control trials, case-control, and cohort studies). In addition, use of such an instrument requires that the research articles for the study be pre-evaluated to ensure that they meet certain research requirements.

Methodology

The pilot study was based on a qualitative, naturalistic research design, with subjects being asked to perform a task associated with the evaluation of published research reports and then to comment on the task. A number of people who are experienced in evaluating research were asked to evaluate a set of five research articles by ranking them in terms of their quality as research reports, and then commenting on their reasons for choosing the article they ranked first. The data collection instrument forms Appendix I.

The articles were randomly selected from among the articles and published conference papers in the database that supports the "Research and Researchers in School Librarianship" project as a whole. At the time of selection (November 2002), the database contained records for more than 500 articles and papers. Each article or paper represented in the database was given a number, and then numbers were drawn from a barrel; after being recorded, each number was returned to the barrel so that all articles and papers stood an equal chance of being selected. More numbers were drawn than needed, in case any of the selected articles or papers were written by the people who were chosen to be the evaluators. The five articles came from *International Information and Library Review, School Library Media Research (online), Journal of Librarianship and Information Science, Journal of Education for Library and Information Science,* and *African Journal of Library, Archives and Information Science.* For purposes of the research, each of the five articles was allocated a letter from A to E (again, by a process of drawing letters from a barrel), and the articles were listed by this letter on the data collection instrument. Because the purpose of the research was not to evaluate these five articles as such, but rather to gain an understanding of how evaluators determined research quality, the relationship between the identifying letters and the articles will not be revealed in this report. In discussion during the conference presentation, only the identifying letters will be used to refer to articles.

The evaluators fell into two distinct groups: people with experience in evaluating research in the specific field of school librarianship (and with knowledge of school librarianship as a topic); and people with experience in evaluating research *per se* (and who had no specialist knowledge of school librarianship as a topic). The invited evaluators included editors of research journals, referees for research conferences, professors whose teaching field is research methodology, experienced examiners of research theses, and assessors for research databases.

Table 1: Experienced Research Evaluators Who Took Part in the Pilot Study

	Editor of research / journal/sect	**Referee for research conference**	**Teacher of research methodology**	**Examiner of research thesis**	**Assessor for research database**	**Other**
Specialist knowledge of school librarianship	2	3			1	1
No specialist knowledge of school librarianship	3	1	1			1

Note that the categories used in this Table indicate the primary reason for selection of each evaluator.

Each evaluator was first contacted in person or by email to seek his or her cooperation in the pilot study. The purpose of the study was explained and the potential participants were given an indication of the nature of the work involved and the likely time commitment needed. Those who agreed, received by mail a package with a copy of the data collection instrument, a covering letter with instructions, the five articles, a return envelope for the data collection instrument, and an International Reply Coupon. The packages were sent out in the first three months of 2003 as people agreed to participate; responses were still arriving as this paper was being prepared.

The original research design called for the evaluators to be paid an honorarium for their work. The reason for this was the amount of work involved in reading, analyzing and evaluating the five research articles, as well as in commenting on the evaluation. Unfortunately, an expected source of funds for the honoraria did not materialize. The possible implications of this for the pilot project will be discussed in discussing the results of the data analysis.

Data Analysis

Because the research was still proceeding as this paper was being written, data collection had not completed by mid-March 2003. This meant that though data analysis was being done as the responses arrived from the evaluators, the material presented here is in very preliminary form. More information will be provided in the conference presentation itself. The data analysis strategies include a presentation of the rankings assigned to the articles by the evaluators, and content analysis of the comments made by the evaluators. Among other things, the content analysis will use as a framework, the four approaches to quality that were identified through the literature review.

Table 2: Rankings of the Five Research Articles by the Evaluators

Article	**Evaluators with specialist knowledge of school librarianship: E1 E2 E3 E4 E5 E6 E7 E8 E9 E10**	**Evaluators with no specialist knowledge of school librarianship E11 E12 E13 E14 E15 E16 E17 E18 E19 E20**
A	5	5 5 5 5
B	4	3 3 3 1
C	2	4 2 1 3
D	1	2 1 3 4
E	3	1 4 2 2

Table 2 shows the rankings of the five research articles by each of the experienced evaluators. The rankings of evaluators with specialist knowledge of school librarianship are presented separately from those of the evaluators with no specialist knowledge of school librarianship. As the data collection instruments are returned, it is anticipated that a better picture will emerge of the levels of agreement among the evaluators about the ranking of the five articles. In addition, the analyses of the comments about the process itself should shed light on the ways in which quality is evaluated, for example in relation to the approaches to quality that were identified in the literature review.

Discussion

It is already clear that there are problems with the methodology employed in this pilot study - not that the methodology is inappropriate for the problem, but rather that it is impractical as a methodology. The experienced research evaluators were busy people and the reading and evaluation of five articles required a considerable amount of work. Informal discussions with some of the evaluators after their work was received, suggested that an honorarium or similar recognition of their work would have made a difference. An alternative could have been the strategy adopted by Lee *et al.* (2002), of training a group of evaluators specifically for the task. However, short-term training cannot replace experience, which may play an important part in the evaluation of research articles. There are indications that many people believe that it does play a part; for example, the research journals use referees with experience of the topic, experience of the methodology, and experience in the evaluation of research, as do universities when research theses are being assessed.

Despite the problems, the results of this pilot study will inform the next stage of the "Research and Researchers in School Librarianship" project as a whole – a survey of the current active researchers in the field of school librarianship. Among other things, the survey instrument will address issues of research quality, as understood by the researchers. It will also provide for the collection of data about their experiences of research evaluation and their perceptions of the problems associated with evaluating research quality. It is expected that the pilot project will identify issues that can be explored further using quantitative strategies in this survey. In addition, depending on the outcome of the pilot study, the methodology used in it may be used again in further investigations of issues associated with research quality.

One of the aims of the larger research project of which this pilot study is a part, is to investigate further the conclusions of a previous study (Clyde, 2002, p.68) of "Research and Researchers in School Librarianship". One of those conclusions was that "the quality of the research that is being published in the field of school librarianship [is] an issue that has to be faced", and the pilot study was designed to begin the investigation of issues associated with research quality. It was assumed that "if we expect that the profession's research will influence decision-makers", then that research had to be perceived to be of good quality; in other words, perceptions or assumptions about the quality of the research might be a barrier to the influence of research.

Unfortunately, the literature review carried out for this pilot study suggests that more work may be needed before a direct relationship between research quality and its impact on decision-makers can be assumed. For example, a study carried out in the early 1970s suggests that this relationship might be more complex than is generally thought (Asher & Vockell, 1973). A group of researchers assessed the quality of 102 research documents from ERIC, while a group of educational decision makers evaluated the utility or applicability of the documents in the educational setting. "Results showed that the researchers rated the overall quality of the … documents as low, but that their acceptance by decision-makers was high. Decision-makers with less research sophistication tended to overrate the quality of the documents…" (Asher & Vockell, 1973). Nevertheless, this study does not tell us whether or not the decision makers actually used this research (or any research) in making decisions. On the other hand, there is a great deal of concern among school librarians at present that what they consider to be quality research is being ignored by educational decision makers, and that budgets for school library services are being cut despite this research evidence. Some of the cuts to school library budgets are coming even in places, such as Canada and Colorado (USA), where research has been done to show the connection between the academic achievement of school children and their access to school library services (CBC News, 2002; McPherson, 2002). Further research is recommended, so that we have a better understanding of the relationship between research quality and the adoption of the results of the research in decision-making and practice.

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Appendix 1: Data Collection Instrument

Research And Researchers In School Librarianship
Pilot Study On Research Quality

This small-scale pilot study is investigating the extent to which experienced research evaluators agree in their ranking of research articles on the basis of quality, and the ways in which experienced evaluators evaluate research articles. In this package, you will find five research articles, selected randomly from the database that supports the "Research and Researchers in School Librarianship" project. You are asked to read these articles, and then to rank them on the basis of research quality (as you understand that concept). You are then asked to write comments about this process, indicating your reasons for choosing the article that you ranked first. If you would prefer to word process your response to the second part of this data collection instrument, then please feel free to do so, and attach the sheet to this form. Guidelines for returning this form are in the covering letter.

Part 1:

Each of the five articles is marked with a letter, A to E. Rank the five articles on the basis of quality, by putting the number 1 beside the letter representing the article you think is best; 2 beside your second choice, and so on.

A ☐
B ☐
C ☐
D ☐
E ☐

Part 2:

Please comment on your reasons for choosing the article that you ranked first. Any comments are welcome, including comments about the way in which you carried out the evaluation, any special things that you took into account, and so on. Feel free to use space on the back of this form as well if necessary.