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Problem statements in seven LIS journals: An application of the Hernon/Metoyer-Duran attributes

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Abstract

Problem statements are an important component of research writings. Using the attributes of problem statements identified and discussed by P. Hernon and C. Metoyer-Duran, a content analysis of seven journals in the discipline of library and information science was performed. This article examines the results of this content analysis. The presence of problem statement attributes in the writings of a particular journal may provide guidance to those who are learning to write research proposals or articles and those who teach research methods courses by providing useful examples. © 2002 Elsevier Science Inc. All rights reserved.

1. Introduction

The components of a research article work together in a manner similar to those of a long-span structure, such as a bridge. Critical to the strength and flexibility of the bridge is the use of some sort of truss. Such is the role of the problem statement in research writings, providing structural strength to the presentation of argument, method, and analysis. Analyzing characteristics of problem statements in the writings of library and information science (LIS) is one way in which the communication system of the discipline can be understood. After all, scholarly writings are social entities. LaTour (1987) said that they are “*more* social than so-called normal social ties” because of the “disproportionate amount of linkages” used to support the creation of technical literature (p. 62). Such linkages include the very structure of the scholarly article. Hernon and Metoyer-Duran (1993) maintained that “the statement of the problem is the first, and perhaps most important, step in setting up a research study” (p. 71). If we are to teach research methods and writing to future professionals and scholars, and if we are to construct our own research studies, problem statement attribute models such

as Hernon's and Metoyer-Duran's (1993; Metoyer-Duran & Hernon, 1994) provide an approach to understanding the substructure (problem statement) of the structure (scholarly/research writing).

This study addresses the question: To what extent do problem statements in library and information science research publications exhibit the attributes identified by Hernon and Metoyer-Duran (1993)? The following subsidiary question is also explored: On the basis of this set of attributes, can characterizations be made of problem statements in published research writings of certain journals in the field of LIS?

This study is a content analysis of writings using previously established attributes; it is not a study of research quality. Further, it is limited to the research writings published during calendar years 1995 and 2000 in seven journals: *College & Research Libraries*, *Reference & User Services Quarterly (RQ)*, *Library & Information Science Research*, *Journal of the American Society for Information Science*, *Library Quarterly*, *Journal of Academic Librarianship*, and *Library Resources and Technical Services*.

2. Literature review

The literature of LIS research has been examined from several perspectives. These perspectives include perceptions of prestige (Blake, 1994, 1995; Kohl & Davis, 1985; Tjomas, 1994; Tjomas & Blake, 1992;); rankings based on use (Esteibar & Lancaster, 1992); and analysis of content, method, and author affiliation (Buttlar, 1991; Fisher, 1999; Jarvelin & Vakkari, 1990; Riggs & Zhang, 1999). Others have discussed the LIS literature in the context of editorial processes and mechanics (Mury & Walters, 1997; Wallace & Van Fleet, 1998).

2.1. Perceptions of prestige

Examinations of perceptions of prestige, while not assessments of quality, do speak to the social structure of scholarly communication in LIS. For example, Blake's (1995) replication of the Kohl and Davis (1985) study relied on perception rankings of 57 titles in LIS. Deans or directors of American Library Association (ALA) accredited programs and directors of Association of Research Libraries (ARL) libraries were asked to rank journals on the basis of significance in promotion and tenure considerations. Data from the survey of the two subject groups revealed distinct hierarchies of perceived prestige. For example, deans/directors placed the following four journals within the top 10 rankings: *Special Libraries*, *Journal of Education for Library and Information Science*, *Library & Information Science Research*, and *Journal of Documentation*. These four journals were not ranked among the 10 most prestigious by the ARL directors (Blake, 1995, p. 161) and, in fact, were ranked 15th, 19th, 21st, and 22nd, respectively. Conversely, the ARL directors placed three publications in their 10 most prestigious ranks that were ranked lower by the deans and directors: *Information Technology and Libraries* (ranked 13th by deans/directors); *Library Journal* (ranked 19th by deans/directors); and *Chronicle of Higher Education* (ranked 28th by deans/directors; pp. 161–162).

Pertinent to this study are the seven journals placed by the ALA deans/directors and the ARL directors in the top 10 ranks of both groups: *College & Research Libraries*, *Journal of Academic Librarianship*, *Journal of the American Society for Information Science*, *Library Quarterly*, *Library Resources and Technical Services*, *Library Trends*, and *RQ* (Blake, 1994, p. 161). These seven journals are analyzed in this study.

2.2. Problem statement characteristics

In their examination of the structural elements and qualities of the problem statement in LIS research, Hernon and Metoyer-Duran (1993) identified 17 possible attributes of a problem statement. Their survey of research methods course instructors at ALA-accredited schools in Canada and the United States was based on a questionnaire they developed that “probed respondent perceptions about the characteristics of a problem statement” (p. 75). In addition to the questionnaire, sample problem statements from published writings in the field were presented to the subjects to elicit suggestions related to improving the problem statements. On the basis of these suggestions for improvement and subsequent to a collapsing of the original 17 attributes, the following attributes were identified:

1. Clarity and precision;
2. Identification of what to study;
3. Identification of an overarching question;
4. Definition of key concepts/terms;
5. Articulation of study’s boundaries/parameters;
6. Some generalizability;
7. Conveyance of study’s importance;
8. No use of unnecessary jargon; and
9. Conveyance of more than descriptive data.

Attribute 1, clarity and precision, refers primarily to the writing quality of the statement as well as avoidance of “sweeping generalizations” (Hernon & Metoyer-Duran, 1993, p. 82). Identification of what to study, attribute 2, is primarily about objectivity and calls for “avoiding the use of value-laden words and terms” (p. 82). Identification of an overarching question includes identification of “key factors or variables” (p. 82). Definition of key concepts/terms (attribute 3) refers to the precision of the language used as well as the ideas of the study. Attribute 6, some generalizability, reflects a preference for problem statements that can be useful in other situations. Attribute 7, conveyance of study’s importance, includes “benefits and justification (addresses the question of ‘so what?’)” (p. 83). Terminology arises again in attribute 8. Attribute 9 reflects “providing more than a ‘snapshot,’” indicating, perhaps, desirability of inference.

In Metoyer-Duran and Hernon’s (1994) study, researchers in a variety of fields were interviewed to assess the usefulness of the nine attributes identified in 1993. Disciplines represented included anthropology, chemistry, English, ethnic studies, history, literature and languages, mathematics, philosophy, psychology, religious studies, and sociology (p. 107).

Asked to indicate the importance of each attribute using the scale “very important,” “somewhat important,” and “not important,” the 31 respondents were in relative agreement regarding most of the attributes. The attribute of “clarity and precision” was viewed as “very important” by 25 of the 31 subjects (p. 110), perhaps indicating that this attribute is more important than any of the other attributes. One attribute in particular drew a mixed response, the attribute of some generalizability (p. 110). Comments from the subjects on this attribute referred to issues such as not belonging in the problem statement and the difficulty of achieving this attribute (p. 111). Of the nine attributes, five emerged as generally important for all disciplines. These attributes were clarity and precision; identification of an overarching question; articulation of study’s boundaries/parameters; some generalizability; and conveyance of the study’s importance, benefits, and justification (p. 110).

Slightly over 64% of the respondents believed that a problem statement was a required component of published research. However, 90% agreed that a research proposal was required to contain a problem statement (Metoyer-Duran & Hernon, 1994, p. 108). Because research proposals are typically not available to those outside of the proposed project, problem statements from research proposals are problematic as examples for teaching research methods to LIS students.

3. Methodology

This study uses the attributes of Hernon and Metoyer-Duran’s 1993 and 1994 studies as a basis for a content analysis approach of research writings in the LIS field. Before analysis of the writings began, a training session was held with each person analyzing the writings to try to eliminate uncertainties of understanding the attributes and to ensure a fair application of the attributes. The team of analyzers consisted of four graduate-student research assistants and the author. The reading of these two articles by Hernon and Metoyer-Duran prior to the training session was required. In addition, each research assistant was given two articles to analyze that were not published in any of the seven journals included in this study. In each case, the author concurred with the analysis of the attributes by the research assistants. Throughout the study, if the research assistants encountered difficulties of interpretation, the author, in discussion with the research assistant, made the final decision.

Journal selection relied primarily on the Blake replication (1995) of the Kohl and Davis (1985) study of perceived prestige of professional journals. The journals selected were as follows:

- College & Research Libraries (CRL)
- Journal of Academic Librarianship (JAL)
- Journal of the American Association for Information Science (JASIS)
- Library Quarterly (LQ)
- Library Resources and Technical Services (LRTS)

- Library Trends (LT)
- RQ/Reference and User Services Quarterly (RQ; Blake, 1995, p. 161).

In addition, *Library & Information Science Research (LISR)* was included because of the Hernon and Metoyer-Duran articles discussing problem statements. As a journal focusing on research methods in LIS, it is appropriate to include it in the study.

A publication year of 1995 was chosen as a beginning point because the Hernon and Metoyer-Duran articles were published in 1993 and 1994. Then, a five-year snapshot was taken using a publication year of 2000. A five-year span is long enough for a journal to exhibit changes in editorial style, research agendas, and research perspectives. Some of the journals did have a change in editor(s) within the five years; other journals in this study did not. Other changes included an increase in the number of issues published within a calendar year, more frequent special-topic issues, and a change in physical format or journal name. Using these two calendar years may suggest, if not definitively identify, a trend in the presence or absence of problem statement characteristics.

Writings within these eight journals were selected based on the definition of “research-based article” used by Buttlar (1991): “A research-based article was defined as one in which a formal research methodology was used in order to collect and/or analyze data” (p. 40). Following Buttlar, an analysis of the coverage by page count of research and nonresearch content by each journal was calculated. The coverage of page count of research and nonresearch content was determined by examining each article in each of the journal issues.

Once selected, the articles were read and a log sheet containing the attributes was completed. The log sheets consisted of the attribute and columns for “yes,” “somewhat,” and “no.” These categories were selected as appropriate for the nature of this study. Although the “somewhat” score may appear arbitrary, in the trial analysis it became clear that a problem statement might exhibit an attribute in some respects and not in others. The log sheets were consolidated and data were entered into an Excel (Microsoft® Excel ver. 5.0) spreadsheet. The categories of “yes,” “somewhat,” and “no” correspond to the nominal classes of 2, 1, and 0.

4. Discussion of findings

4.1. Research content coverage

Across the selected population, research content coverage for calendar year 1995 averaged 54%, with a high of 82% in *JASIS* as indicated in Table 1. Research content coverage for calendar year 2000 averaged 48% with a high of 75% in *JASIS*. Despite the slight decline, there has been a substantial increase in average research content coverage from the 38% reported by Buttlar (1991) for the publication time period of January 1987 through June 1989 (pp. 46–47). Hence, the importance of problem statements has increased since Buttlar’s study.

Table 1
Research content coverage

Journal title	Research content by pages of coverage (%)		Research articles (no.)	
	1995	2000	1995	2000
<i>JASIS</i>	82	75	42	73
<i>LISR</i>	71	64	14	11
<i>LQ</i>	71	61	13	11
<i>CRL</i>	62	56	28	30
<i>LRTS</i>	54	16	16	4
<i>RQ</i>	21	27	11	10
<i>JAL</i>	17	38	13	16
<i>LT</i>	6 ^a	—	3	—
Average	54	48		

^a Not included in computation of average percentage of research content pages.

The relatively low percentage of research content coverage by *LT* was not surprising because this journal assigns special topics to each issue and authors are invited to submit articles. Because of this low percentage, however, after analyzing the 1995 issues of *LT*, it was eliminated from further data analysis.

4.2. Analysis overall by attribute

Table 2 provides the data for all attributes and all journals for calendar years 1995 and 2000. Examining all attributes taken together, there was considerable variation in the attributes evident in problem statements (columns 1–3). In nearly one third of the cases (31%), the change between 1995 and 2000 showed a 28% to 46% decrease in the presence of that attribute. Increases in the remaining two thirds were modest, averaging 17%.

A decision was made to examine attributes that varied by 15% or more. The reason for this is that of the 63 attribute scores (7 journals \times times; nine attributes), roughly half, or 31, of the attribute scores were above the 15% mark. With this parameter of 15% change, three attributes revealed a decline in appearance: identification of what to study (–29%), definitions of key concepts/terms (–28%), and articulation of study's boundaries (–36%). "Articulation of study's boundaries" was identified by Metoyer-Duran and Hernon (1994) as among the most important attributes in problem statements. The most notable attribute for increase in score was reduction of jargon (31%), an attribute rated as not important by Metoyer-Duran and Hernon (1994).

4.3. Analysis of attributes by journal

Examining attributes by journal title, it is clear that from 1995 to 2000, many attributes showed marked change in a large percentage of journals.

The greatest changes were found for reducing jargon (86%), providing more than descriptive data (71%), clarity and precision (71%), and conveyance of study's importance

Table 2
Attributes and journals, 1995 and 2000 scores and percentage change

Attribute	<i>Overall</i>			<i>CRL</i>			<i>JAL</i>			<i>JASIS</i>		
	1995	2000	Change, %	1995	2000	Change, %	1995	2000	Change, %	1995	2000	Change, %
Clarity and precision	1.26	1.39	10	1.25	1.11	−11	1.23	1.25	2	1.29	1.45	12
Identification of what to study	1.52	1.08	−29	1.50	1.00	−33	1.23	1.38	12	1.74	1.00	−43
Identification of an overarching question	1.32	1.44	9	1.39	1.17	−16	1.38	1.70	23	1.43	1.45	1
Definition of key concepts/terms	1.16	0.84	−28	1.14	0.50	−56	0.69	1.06	54	1.38	0.80	−42
Articulation of study's boundaries	1.38	0.89	−36	1.79	0.44	−75	0.77	1.13	47	1.71	2.00	17
Some generalizability	1.71	1.79	5	1.70	1.64	−3	1.70	1.78	5	1.69	1.88	11
Conveyance of study's importance	1.60	1.76	10	1.79	1.39	−22	1.62	1.75	8	1.12	1.85	65
No use of unnecessary jargon	1.43	1.87	31	1.21	1.94	60	1.85	1.75	−5	1.45	1.75	21
Conveyance of more than descriptive data	1.41	1.46	4	1.21	1.39	15	1.23	1.31	7	1.52	1.90	25
Average	1.42	1.39	23	1.44	1.18	−18	1.30	1.46	12	1.48	1.56	6

Boldface indicates important attributes as identified by Metoyer-Duran and Hernon (1994).

Attribute	<i>LISR</i>			<i>LRTS</i>			<i>LQ</i>			<i>RQ</i>		
	1995	2000	Change, %	1995	2000	Change, %	1995	2000	Change, %	1995	2000	Change, %
Clarity and precision	1.29	1.18	–9	1.19	1.50	26	1.00	1.91	91	1.55	1.30	–16
Identification of what to study	1.57	1.00	–36	1.56	0.75	–52	1.62	1.55	–4	1.45	0.90	–38
Identification of an overarching question	0.79	1.64	108	1.75	1.00	–43	0.85	2.00	135	1.64	1.10	–33
Definition of key concepts/terms	1.57	0.45	–71	1.44	1.00	–31	1.15	1.45	26	0.73	0.60	–18
Articulation of study's boundaries	1.86	0.45	–76	1.00	0.25	–75	1.23	1.27	3	1.27	0.70	–45
Some generalizability	1.57	1.91	22	1.85	1.75	–5	1.69	1.96	16	1.78	1.65	–7
Conveyance of study's importance	1.36	1.91	40	1.94	2.00	3	1.46	2.00	37	1.91	1.40	–27
No use of unnecessary jargon	1.07	1.64	53	1.63	2.00	23	1.23	2.00	63	1.55	2.00	29
Conveyance of more than descriptive data	1.64	1.82	11	1.69	0.75	–56	1.31	1.82	39	1.27	1.20	–6
Average	1.41	1.33	–6	1.56	1.22	–22	1.28	1.77	38	1.46	1.21	–17

Table 3

Attributes showing improvement for all journals from 1995 to 2000

Attribute	No. journals ^a	%
Clarity and precision	5	71
Identification of what to study	1	14
Identification of an overarching question	4	57
Definition of key concepts/terms	2	29
Articulation of study's boundaries	3	43
Some generalizability	4	57
Conveyance of study's importance	5	71
No use of unnecessary jargon	6	86
Conveyance of more than descriptive data	5	71

Boldface indicates more than a 50% improvement.

^a Number of journals of 7 total showing improvement.

(71%). Of these attributes, clarity and precision was identified as the most important of all attributes in the Metoyer-Duran and Hernon (1994) study. Providing more than descriptive data and conveyance of study's importance were also identified as important attributes.

Attributes that did not show an increase in score for most journals included what is being studied (14%), providing definitions of key concepts/terms (29%), and articulation of study's boundaries (43%). Of these, articulating a study's boundaries was identified as an important attribute by Metoyer-Duran and Hernon (1994).

4.4. Analysis by specific journal title

For the findings by attribute for each journal, four journals revealed a substantial improvement. For example, *JASIS* showed improvements in eight of nine attributes (88%), *LISR* (six of nine attributes, 66%), *JAL* (eight of nine attributes, 88%), and *LQ* (eight of nine attributes, 88%). In other journals, the results were the opposite. For example, an improvement occurred in only two of nine attributes for *CRL*, three of nine attributes for *LRTS*, and one of nine attributes for *RQ*. It is important to examine by journal which specific attributes revealed the greatest improvement and which demonstrated the least improvement (Table 3).

- *CRL* showed greatest improvement in decreasing the amount of jargon in its problem statements. Significant declines were found for identification of an overarching question (−33%), definitions of key concepts/terms (−56%), articulation of study's boundaries (−75%), and importance of study (−22%).
- *JAL* showed substantial improvement in several areas. Greatest improvements were in identification of overarching question (23%), definitions of key concepts/terms (54%), and articulation of study's boundaries (47%). There were no declines representing a 15% change.
- *JASIS* showed substantial improvement in conveyance of study's importance (65%), no use of unnecessary jargon (21%), and conveyance of more than descriptive data

(25%). Declines were found in what to study (–43%) and definitions of key concepts/terms (–42%).

- *LISR* showed increases in identification of an overarching question (108%), some generalizability (22%), conveyance of study's importance (40%), and no use of unnecessary jargon (53%). Declines were found in identification of what to study (–36%), definitions of key concepts/terms (–71%), and articulation of study's boundaries (–76%).
- *LRTS* showed increases in clarity and precision (26%) and no use of unnecessary jargon (23%). Declines were found in identification of what to study (–52%), identification of overarching question (–43%), definitions of key concepts/terms (–31%), articulation of study's boundaries (–75%), and conveyance of more than descriptive data (–53%).
- *LQ* showed increases in clarity and precision (91%), identification of overarching question (135%), definitions of key concepts/terms (26%), conveyance of study's importance (37%), no use of unnecessary jargon (63%), and conveyance of more than descriptive data (39%). No substantial declines were noted.
- *RQ* showed increases in jargon (29%). Declines were found in what to study (–34%), identification of overarching question (–33%), articulation of study's boundaries (–45%), and conveyance of study's importance (–27%).

5. Discussion

Many of the attributes recommended by Metoyer-Duran and Hernon (1994) were present as part of the problem statements in many of the journals and journal articles. This suggests that the use of problem statement attributes to teach students about research planning and writing remains a practical teaching technique.

There is no uniform improvement in terms of increasing presence of problem statement attributes; however, in general, there is cause for optimism in that, for most attributes, there was an increase in their overall presence from 1995 to 2000. In a few instances, there was a decline, most notably in the articulation of the study's boundaries and presence of definitions of key terms and concepts. This is troubling, especially for instruction, because definitions are crucial for understanding the research being conducted, and students need to experience good examples of defining a research problem. In addition, researchers in other disciplines may find our writings difficult to use if concepts are not adequately defined.

The presence of jargon is often unproductive, especially for novices such as students. Therefore, it was encouraging to discover that the reduction of jargon in problem statements has shown the greatest improvement.

Clarity and precision were identified by Metoyer-Duran and Hernon (1994) as the single most important attribute. The data suggest modest increases in most of the journals represented in the study. Interestingly, one journal seems to have improved dramatically: *LQ*'s mean score for clarity and precision (1.9) suggests that the problem statements are almost always clear and precise. This suggests that it may be a prime source of examples for

students when discussing this attribute. Based on the means, *LQ* could also be used for identification of overarching question, generalizability, conveyance of study's importance, and lack of jargon. *CRL* is particularly useful for absence of jargon; *JAL* for definitions of key concepts, generalizability, study's importance, and absence of jargon; *JASIS* for articulation of study's boundaries, some generalizability, conveyance of study's importance, jargon, and more than descriptive data; *LISR* for some generalizability, conveyance of study's importance, and more than descriptive data; *LRTS* for some generalizability, study's importance, and absence of jargon; and *RQ* for absence of jargon.

The attributes identified by Hernon and Metoyer-Duran persist in the journals studied. This suggests that LIS educators can use these problem statement attributes to teach students about research planning and writing. Because professionals and researchers in LIS are encouraged to acquire greater research funding, the writing of research proposals has become an important task. Furthermore, because LIS educators typically cannot use other researchers' proposals as examples or teaching tools, having problem statements in published research is the only example set for them and their students to use.

Constant improvement in the quality of publication in our field is highly desirable. Therefore, one would hope and predict that analyses by journal title and attribute would show uniform improvement, but this is not the case. Perhaps an analysis of research-methods textbooks and guides in LIS may identify any gap in instruction and teaching of the creation of problem statements.

In the future, applying these attributes to a more extensive collection of articles as well as electronic journals may be useful in furthering our understanding of the structure of research communication in LIS. Examining relationships between the other components of research writings may also aid understanding. For example, if a problem statement contains the Hernon and Metoyer-Duran attributes, is the methodology employed in the study of a certain type? Other relationships may exist between the problem statement and the academic training of the researchers.

The data reveal that there is not a great deal of consistency of form and structure of research writings within the discipline. One must be concerned about the possibility that if a problem statement is weak or even nonexistent, the research writing may also be weak. Understanding problem statements in LIS may help us communicate better with other disciplines as well as improve the quality of our own research (Metoyer-Duran & Hernon, 1994, p. 116).

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References

- Blake, V. L. P. (1994). Faculty productivity, journal prestige, and school library media faculty. *School Library Media Quarterly*, 22, 153–158.

- Blake, V. L. P. (1995). The perceived prestige of professional journals, 1995: A replication of the Kohl-Davis study. *Education for Information*, 14, 157–179.
- Buttlar, L. (1991). Analyzing the library periodical literature: Content and authorship. *College & Research Libraries*, 52, 38–53.
- Esteibar, B. A., & Lancaster, F. (1992). Ranking of journals in library and information science by research and teaching relatedness. *The Serials Librarian*, 23, 1–10.
- Fisher, W. H. (1999). When write is wrong: Is all our professional literature on the same page?. *Library Collections, Acquisitions, & Technical Services*, 23, 61–72.
- Hernon, P., & Metoyer-Duran, C. (1993). Problem statements: An exploratory study of their function, significance, and form. *Library & Information Science Research*, 16, 71–92.
- Jarvelin, K., & Vakkari, P. (1990). Content analysis of research articles in library and information science. *Library & Information Science Research*, 12, 395–421.
- Kohl, D. F., & Davis, C. H. (1985). Ratings of journals by ARL library directors and deans of library and information science schools. *College & Research Libraries*, 46, 40–47.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Metoyer-Duran, C., & Hernon, P. (1994). Problem statements in research proposals and published research: A case study of researchers' viewpoints. *Library & Information Science Research*, 16, 105–118.
- Mury, M. R., & Walters, M. (1997). Writing for journals in library and information science: A report of a survey. *The Serials Librarian*, 31, 23–40.
- Riggs, D. E., & Zhang, S. L. (1999). The human implications of technology's impact on the content of library science journals. *Library Trends*, 47, 788–795.
- Tjoumas, R. (1994). Research productivity and perceived prestige of professional journals: An examination of faculty specializing in public librarianship. *The Serials Librarian*, 25, 65–81.
- Tjoumas, R., & Blake, V. L. P. (1992). Faculty perceptions of the professional journal literature: Quo vadis? *Journal of Education for Library and Information Science*, 33, 173–194.
- Wallace, D. P., & Van Fleet, C. J. (1998). Qualitative research and the editorial tradition: A mixed metaphor. *Library Trends*, 46, 752–768.