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## Topic Relevance and Retrieval Effectiveness\*

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A report of a case study which attempted to obtain further insight into topic relevance, as distinguished from relevance to a user's need. Utilizing one search topic and two groups of searches, the experiment aimed to determine whether statistically significant differences existed in the proportion of matches against fifty articles on the topic and present in three information sources. Each group had a different set of strategies and used specified combinations of search techniques and fields of the basic index. This report emphasizes the first group of searches which included the manual as well as the computer mode. Reasons behind retrieval performance are analyzed for the resultant eleven statistically significant differences. Approaches to the topic are examined with respect to descriptors available in the thesauri, descriptors assigned to the records, and descriptors used in the search strategies. Topic relevance may be a more serious problem in retrieval effectiveness than suspected. (Author)

### 1. Overall Purpose

Topic relevance of documents has an important role in providing useful intermediary direction in a search. Evaluation of thesauri and of indexing must be done in the context of search procedures. Fields accessed and the use of truncation techniques influence retrieval effectiveness. Through a case-study approach on one search problem, the experiment reported here aimed to obtain further insight into topic relevance as related to retrieval effectiveness.

Two quite different frameworks of meaning for "relevance" have been defined by Don Swanson: 1. A creative, subjective mental act by the requester, expressing whether a document fulfills whatever information need prompted the request; and 2. A reflection of a requester's judgment that a document is "on the same topic" as the stated request, but not necessarily whether that document fulfills the underlying information need (1). There is likely to be greater potential for common agreement in framework two than in the first.

### 2. Specific Objective and Basic Assumption

The study utilized one search topic and two groups of searches run on the Lockheed system. This report concentrates on group one which also included the manual search mode (2). The objective was to determine whether statistically significant differences existed in the proportion of matches against fifty articles on a control bibliography on the search topic and present in three information sources. The topic and control bibliography are described below under "Materials and Methods". Although the user does not ordinarily approach a search

\* Computer Searches Conducted by Ann Scott

specialist with a list of articles in mind to be retrieved, the study utilized a control bibliography to be able to identify the reasons behind success and failure in retrieving the target items. Figure 1 presents the three information sources relevant to the topic that were utilized in the study, abbreviations of their print and computerized formats, and the edition and pagination of the thesaurus or authority file available for each source at the time the study was conducted.

Sources	Abbreviations		Edition and Pagination of Thesaurus or Authority File
	Print	Computerized	
<i>Current Index to Journals in Education</i>	CIJE	ERIC/CIJE	Completely Revised 1980 258p. (Alphabetical Descriptor Display)
<i>Language and Language Behavior Abstracts</i>	LLBA	LLBA/Online	1977, 5 p.
<i>Psychological Abstracts</i>	PA	PsycINFO	2nd ed., 1977, 198 p. (Relationship Section)

Figure 1: Sources, Abbreviations, Edition and Pagination

Each of the two groups of searches had a different set of strategies but used identical combinations of search techniques and fields of the basic index. These are enlarged on below under "Materials and Methods". The following analyses were made with respect to proportion of matches: A) Comparisons of search patterns within information sources, B) Comparisons of information sources, C) Comparisons of computer and manual modes (group one only), and D) Comparisons of groups one and two computer searches (different "set" strategies). In addition, descriptors assigned by the sources to the same items on the control bibliography were compared. The manner in which sources identified the "educational/age level" of items was also analyzed as a factor affecting search outcome.

A basic assumption was that an appropriate performance measure for a retrieval system is the maximum possible retrievability of items on a topic when searching on that topic. This was considered true regardless of whether or not a patron desires one hundred percent recall. The possibility of retrieving excessive output was considered to be an entirely different problem. Concern for alleviating it was not seen as a reason to displace the assumed importance of potential retrievability. The study did not treat time and cost factors, duplication among databases, nor items retrieved but not on the control bibliography.

### 3. Materials and Methods

The control bibliography's topic which also constituted the search problem is: "Psycholinguistics Applied to the Child's (Through Age 13) Acquisition and Development of Language and Reading Skills: Background Reading for the Elementary and Nursery School Teacher". "Psycholinguistics" may be defined briefly as "the

science that investigates the mental processes that underlie language use" (3). The scope excludes articles whose major thrust analyzes reasons behind performance by members of special groups, such as ethnic groups, the disabled, or the disadvantaged. It also excludes the related areas of "pragmatics" and "sociolinguistics". Eight different journals, dated 1973 through 1979, are represented among the fifty items, all of which are in the English language. The journal articles selected convey research findings largely from classroom experiments that contribute to the body of knowledge in psycholinguistics. Teachers could use the acquired background knowledge by subsequently applying it in their teaching of language and reading.

Construction of the control bibliography involved these steps: 1. A preliminary study of approximately fifty chapters of books and articles on the topic and its boundaries as background preparation for selecting articles. This step did not constitute the preparation of the bibliography itself. The topic as originally formulated was further refined at this point, but no changes in wording were made thereafter; 2. The perusal of journals included on a full and selective basis in all three information sources for relevant articles; 3. The selection of three hundred articles as possible candidates for the control bibliography; 4. The narrowing of the three hundred articles to sixty on the basis of direct pertinence to the topic and of inclusion in all three information sources. Checking for inclusion involved use of author access to avoid contact with subject areas assigned to the articles; 5. A language/reading specialist's evaluation of the sixty items through study of the citations and abstracts. These surrogates corresponded with the possible basis of selection during an actual search. The specialist chose those items that he considered to be directly on the topic as presented. The result numbered fifty. Evaluation of the abstracts was not an objective of the study.

Group one searches, emphasized in this report, included both computer and manual searches. The computer searches were conducted in the ERIC/CIJE, LLBA/Online, and PsycINFO information sources in what will be referred to as search patterns. They are as follows, along with their abbreviations which will be used henceforth in this paper to avoid cumbersome repetition: 1. Descriptor terms used to search the controlled vocabulary field (DE in CV); 2. Natural language terms formulated without consulting a thesaurus and used to search the controlled vocabulary field with free text techniques (NL in CV); and 3. Free text searching of the entire basic index using natural language terms (FT). Comparison will be shown by "c", for example, NL in CV c FT. The NL in CV and FT strategies, although differing from each other, were each identical for the three information sources within each group.

The manual searches performed in group one only were based on the DE in CV and NL in CV search formulations. The manual and computer modes were contrasted rather than compared. The former involved concept searching based on the judgment of the searcher, whereas the latter was limited to concept searching based on specific words. No library staff member could have been expected to perform the manual search. The fact that the same individual who compiled the control

bibliography also searched for the items was mitigated by the unlikelihood of distinctly recalling the fifty items, as well as by strict adherence to the criteria for selection. These included the presence of one or more concepts from each of the computer search strategy sets and the absence of the NOT concepts. Minor descriptors in ERIC/CIJE were not available in CIJE. Examination of all three sources included citations, available index phrases and identifiers, as well as an occasional abstract when only citation numbers were provided in recent indexes. Possible sources of error included eye fatigue from reading quantities of small print, as well as the problem of occasional peculiarities in alphabetizing. Because the search required nearly two weeks of full-time effort, the manual mode contrast to the computer mode was dropped from group two as an impractical feature of the research design.

The group one overall search strategy consisted of three sets of terms that began with a set consisting of a broad term and continued with two modifying sets. The search formulation included: 1. The term PSYCHOLINGUISTICS alone; 2. A cognitive/language/reading set, including terms to associate PSYCHOLINGUISTICS specifically with the cognitive acquisition of language and reading skills; and 3. Terms to designate "children" as subjects experimented on in reported research. A set of NOT terms was included to rule out articles whose major thrust treated special groups, in accordance with the established scope of the topic. These terms had one effect on retrieval which is noted below. The computer searcher, chosen by reputation for excellence, followed the usual practice of refining the suggested search terminology.

The group two computerized searches included the same sources and the same search patterns as those in group one but differed in overall search strategy. In place of a broad set followed by two modifying sets used in the group one searches, a "building block" approach resulting in three sets defined the topic. The search formulation included "cognitive" terms (psychological element), "language/reading" terms (linguistic element), and "subject" terms (educational/age level). Thus, the group one cognitive/language/reading set was split into sets one and two. PSYCHOLINGUISTICS was not used as set one, nor was it used as a search term at all. No NOT terms were included.

#### 4. Analysis of Data: Procedure

Retrieval performance, defined operationally as the number of matches with the fifty articles on the control bibliography, was recorded item-by-item for each search in the two groups. The percent of the fifty articles retrieved by each search was then obtained. Significant differences were identified between two independent proportions computed within and between sources in group one, as well as between group one and group two computerized searches (4). Analyses within group two searches are not enlarged on in this report. Because PsycINFO produced no matches at all in any of the group one computer searches, statistical differences were not computed relative to these searches. Figure 2 gives the number and percent of articles retrieved. Statistically significant differences between compared searches are

numbered identically as pairs. Figure 3 shows the statistically significant differences with level of significance by search pattern, information source, mode (computer/manual), and search group.

Searches	ERIC/CIJE	LLBA/Online	PsycINFO
<i>Group One</i>			
<i>Computer:</i>			
DE in CV:	2 (4%) <sup>1, 2, 8, 9</sup>	3 (6%) <sup>7</sup>	0
NL in CV:	17 (34%) <sup>2, 4</sup>	8 (16%) <sup>4, 6</sup>	0
FT:	17 (34%) <sup>1, 3, 11</sup>	5 (10%) <sup>3, 10</sup>	0
<i>Group One</i>			
<i>Manual:</i>			
<i>With</i>			
Thesaurus:	16 (32%) <sup>5, 8</sup>	22 (44%) <sup>7</sup>	27 (54%) <sup>5</sup>
<i>Without</i>			
Thesaurus:	25 (50%)	23 (46%) <sup>6</sup>	23 (46%)
<i>Group Two</i>			
<i>Computer:</i>			
DE in CV:	9 (18%) <sup>9</sup>	5 (10%)	10 (20%)
NL in CV:	24 (48%)	12 (24%)	23 (46%)
FT:	3 (6%) <sup>11</sup>	13 (26%) <sup>10</sup>	10 (20%)

Figure 2: Number and Percent of Fifty Articles Retrieved. (Identical numbers indicate statistically significant differences in compared searches involving group one.)

A. Comparisons of Search Patterns Within Information Sources (Group One):

1. FT over DE in CV – ERIC/CIJE (.01)
2. NL in CV over DE in CV – ERIC/CIJE (.01)

B. Comparisons of Information Sources (Group One):

3. ERIC/CIJE over LLBA/Online – FT (.01)
4. ERIC/CIJE over LLBA/Online – NL in CV (.05)
5. PA over CIJE – Manual, With Thesaurus (.05)

C. Comparisons of Computer and Manual Modes (Group One):

6. Manual over Computer – LLBA, Without Thesaurus; LLBA/Online, NL in CV (.01)
7. Manual over Computer – LLBA, With Thesaurus; LLBA/Online, DE in CV (.01)
8. Manual over Computer – CIJE, With Thesaurus; ERIC/CIJE, DE in CV (.01)

D. Comparisons of Groups One and Two Computer Searches (Different "Set" Strategies):

9. Group two over group one – ERIC/CIJE, DE in CV (.05)
10. Group two over group one – LLBA/Online, FT (.05)
11. Group one over group two – ERIC/CIJE, FT (.01)

Figure 3: Statistically Significant Differences With Level of Significance by Search Pattern, Information Source, Mode, and Group

Reasons for the statistically significant differences were identified. The entire basic index for each article in all three sources was inspected for the presence of terms involved in FT searches when analyzing reasons behind performance. Printouts of the fifty bibliography items from LLBA/Online reported two items unavailable and lacked descriptors for four items. ERIC/CIJE annotations, not mandated prior to 1977 and shorter than those for the other two sources, were lacking for eleven articles. PsycINFO lacked an abstract for one item and identifier terms for three items.

### 5. Analysis of Data: Outcome and Implications

Following are the statistically significant differences with discussion. They follow the numbering in Figure 3.

Implications are present for the construction of thesauri, how indexers and searchers use them, as well as concerning the terminological problems of subject areas which work against sharp focus in indexing.

#### A. Comparisons of Search Patterns Within Information Sources (Group One):

1. For all fifteen articles retrieved in the FT pattern but not in the DE in CV pattern of ERIC/CIJE, the latter pattern in every case failed to match in the educational/age level descriptor set. This set refers to "subjects", or those studied in the research reported in the articles. Sixteen educational/age level descriptors were accessed. Although not strictly speaking an educational/age level descriptor, CHILD LANGUAGE, had it been used as a search term, would have provided matches in fourteen of the fifteen cases. Regardless, six of the fifteen items would not have been retrieved because of failure to match in the cognitive/language/reading set.

2. Although search terms accessed in the NL in CV search in ERIC/CIJE were not identical to those accessed in the FT search described in "1" above, retrieval was identical. The NL in CV search benefited over the DE in CV search from fuller utilization of the free text truncation techniques applied within the controlled vocabulary field. Ironically, if free text techniques had been applied to the same degree in the FT searches, these would likely have resulted in a core storage overflow problem, or at least would have produced a marked increase in output. The use of natural language with free text techniques in the CV field warrants further study for enhancing flexibility of approach and determining tradeoff points in search patterns. For example, the ERIC/CIJE NL in CV search yielded a total of 249 prints over a total of 69 prints in the DE in CV search.

#### B. Comparisons of Information Sources (Group One):

3. Although ten of the fourteen articles found exclusively in ERIC/CIJE (FT) lacked the required PSYCHOLINGUISTICS in the LLBA/Online basic index (FT), only two of the fourteen matched in the cognitive/language/reading set. In one instance, the accessed term, LANGUAGE, was abbreviated "lang" throughout the abstract in question. LLBA/Online matched in the educational/age level set in all but two of the fourteen instances.

4. Were it not for the requirement of PSYCHOLINGUISTICS as set one, LLBA/Online (NL in CV) would have matched in every instance but two of the eleven articles retrieved exclusively by ERIC/CIJE (NL in CV). The terminology problem surrounding PSYCHOLINGUISTICS will be explored below.

5. Although the computerized PsycINFO had retrieved zero items in all group one computer searches, the manual search of PA with use of thesaurus revealed twenty exclusive articles not found in the CIJE manual search with thesaurus. The presence of phrase identifiers in the PA volumes was a contributing factor to the inclusion of a greater number of hits in the outcome over CIJE.

#### C. Comparisons of Computer and Manual Modes (Group One):

6. Of the seventeen articles exclusively revealed by the manual search of LLBA without thesaurus, ten would have been hits in the computerized LLBA/Online (NL in CV) search had PSYCHOLINGUISTICS been

present as set one. An eleventh would have matched except for the presence of a NOT term.

7. Of the twenty articles exclusively revealed by the manual search of LLBA with thesaurus, only four would have been retrieved in the computerized LLBA/Online (DE in CV) search had PSYCHOLINGUISTICS as set one been present. As it was, PSYCHOLINGUISTICS was assigned in only three other of the twenty cases. In sixteen cases of the twenty, either the cognitive/language/reading or educational/age level set failed to match.

8. Of the fifteen articles exclusively revealed by the manual search of CIJE with thesaurus, one would have been retrieved in the computerized ERIC/CIJE (DE in CV) search had PSYCHOLINGUISTICS as set one been present. In all other cases, one or the other of the two remaining sets failed to match. PSYCHOLINGUISTICS was present as a descriptor in eleven of the fifteen cases.

D. Comparisons of Groups One and Two Computer Searches (Different "Set" Strategies):

9. Six of the seven articles retrieved exclusively by ERIC/CIJE (DE in CV) in the group two strategy lacked PSYCHOLINGUISTICS as the first set in the group one strategy. In addition, four of the seven failed to match in the educational/age level set, including the item to which the descriptor PSYCHOLINGUISTICS had been assigned. The sixteen educational/age level terms accessed did not match the assigned level descriptors. In three of the four cases ELEMENTARY EDUCATION was assigned, whereas ELEMENTARY SCHOOL STUDENTS was accessed. All seven articles matched in the cognitive/language/reading set.

10. Eleven of the twelve articles retrieved exclusively by the group two LLBA/Online (FT) search lacked PSYCHOLINGUISTICS as the first set in the corresponding group one search. In addition, nine of the twelve articles failed to match in the cognitive/language/reading set. It will be recalled that the group two strategy placed "cognitive" aspects in set one and "language/reading" aspects in set two, whereas group one combined "cognitive/language/reading" aspects into set two. Only three of the twelve failed to match in the educational/age level set.

11. The group one strategy exclusively retrieved sixteen items in the ERIC/CIJE (FT) search, notwithstanding the required presence of PSYCHOLINGUISTICS as set one. The inclusion in set three of CHILD and CHILDREN, plus symbols for one additional character, was responsible. By contrast, the group two strategy included eight terms related to educational level. For all sixteen items, however, the entire basic index lacked terms related to educational level. Had the group two strategy included the term CHILD truncated, which term had been deleted because of the core storage overflow problem characteristic of the group two searches, all but three of the sixteen items would have matched.

#### 6. Item Descriptors, Including "Educational/Age Level" Designation

Comparison of the descriptors assigned by the three sources to identical items on the control bibliography revealed that ERIC/CIJE assigned the term PSYCHOLINGUISTICS to twenty of the fifty articles, thirteen

times as a major descriptor, and twelve times exclusively. LLBA/Online assigned it to eleven articles, three times exclusively. Eight items were assigned PSYCHOLINGUISTICS by both ERIC/CIJE and LLBA/Online. PsycINFO did not assign the term to any of the fifty articles although it appeared in its *Thesaurus*.

PSYCHOLINGUISTICS was at times distinguished by its absence from the basic index as the following two examples indicate. The author of item #22 places it in context of "a growing body of psycholinguistic research". However, the term PSYCHOLINGUISTICS does not appear among the descriptors nor is it found in the abstracts of any of the three sources, nor among the index phrases or identifiers of LLBA/Online and PsycINFO respectively. The article was not retrieved at all in the group one searches. Only PsycINFO retrieved the article in the group two searches. It did so in all three search patterns. Item #12 provides another example. It begins with a statement that psycholinguistic research workers in the early 1960s reached a consensus that children's grammatical competence is mostly acquired before age five. It goes on to place the article in context of that psycholinguistic research and the research that followed. The term PSYCHOLINGUISTICS is absent as detailed in the example immediately above. The article was not retrieved at all in either the group one or group two searches.

Identical terms assigned by the three sources to an item were few in number. A total of nine instances involved eight of the fifty articles with these terms in common to all three sources: READING MATERIALS, VERBAL LEARNING, SEMANTICS, VOCABULARY, SYNTAX, PHONETICS, COGNITIVE PROCESSES, WRITTEN LANGUAGE (in two instances). Figure 4 shows a comparison of terms assigned by the three sources to item #4 which was not retrieved by any of the searches in either group. No heading was assigned in common by all three sources. Three of the terms were available in all three heading lists. Presence of the terms in the thesaurus or authority file for the two remaining sources are indicated in parentheses.

Figure 5 gives the same information for item #30 which was retrieved sixteen times in searches including both groups. This was the highest number of times that any item was retrieved. No heading was assigned in common by all three sources. Four of the terms were available in all three heading lists. Scope notes might usefully be added to the descriptor lists for PsycINFO and LLBA/Online, a process already begun in the third edition of the *Thesaurus of Psychological Index Terms*. The question arises as to how to exploit the different viewpoints of information sources through unique terminology in thesauri and at the same time facilitate multiple database searching. Training of indexers might benefit from a reconsideration of how to approach analysis of articles for concepts while avoiding rigid procedure. Problems faced by authors in the field of psycholinguistics when expressing concepts require further attention.

The analysis of "educational/age level" designation by the sources raised the question of whether descriptors and/or index phrases, or identifiers, appropriately serve the function of indicating educational/age level. Index phrases provided by LLBA/Online and identifiers provided by PsycINFO are natural language descriptive state-

Terms Assigned by ERIC/CIJE	Terms Assigned by LLBA/Online	Terms Assigned by PsycINFO
*READING INSTRUCTION (LLBA/Online)	READING ABILITY (ERIC/CIJE) (PsycINFO)	READING READINESS (ERIC/CIJE) (LLBA/Online)
*LITERATURE REVIEWS	READING INSTRUCTION (ERIC/CIJE)	COGNITIVE DEVELOPMENT (ERIC/CIJE)
*READING SKILLS (PsycINFO)	COGNITIVE PROCESSES (ERIC/CIJE) (PsycINFO)	PERCEPTUAL DEVELOPMENT (ERIC/CIJE)
*EARLY READING	WORD RECOGNITION AND DISCRIMINATION	
EARLY CHILDHOOD EDUCATION	LETTER RECOGNITION AND DISCRIMINATION SENTENCE GRAPHEME PHONEME CORRESPONDENCE	

\* Major descriptor

Figure 4: Descriptors for Item #4 Assigned by Each Source. (Sources in parentheses include the identical terms in their Thesaurus or Authority File.)

Terms Assigned by ERIC/CIJE	Terms Assigned by LLBA/Online	Terms Assigned by PsycINFO
*LANGUAGE RESEARCH	COGNITIVE PROCESSES (ERIC/CIJE) (PsycINFO)	PRESCHOOL AGE CHILDREN
*PSYCHOLINGUISTICS (LLBA/Online) (PsycINFO)	PSYCHOLINGUISTICS (ERIC/CIJE) (PsycINFO)	SENTENCE STRUCTURE (ERIC/CIJE)
*LANGUAGE DEVELOPMENT (PsycINFO)	CHILD LANGUAGE (ERIC/CIJE)	SEMANTICS (ERIC/CIJE) (LLBA/Online)
*VERBS (PsycINFO)	SYNTAX (ERIC/CIJE) (PsycINFO)	SENTENCE COMPREHENSION
*COMPREHENSION DEVELOPMENT	SEMANTICS (ERIC/CIJE) (PsycINFO)	
LANGUAGE ABILITY	ANOMALOUS STRINGS	
SYNTAX (LLBA/Online) (PsycINFO)	VOICE (PsycINFO)	
CHILD LANGUAGE (LLBA/Online)		
LANGUAGE LEARNING LEVELS		
LANGUAGE PATTERNS		
CHILD DEVELOPMENT		

\* Major descriptor

Figure 5: Descriptors for Item #30 Assigned by Each Source. (Sources in parentheses include the identical terms in their Thesaurus or Authority File.)

ments of major variables or concepts in the article that further aid retrieval when browsing manually or by computer. For example, for item #19 in the control bibliography, LLBA/Online shows "second graders" as an index phrase but no educational/age level descriptor. For the same item, PsycINFO shows "2nd graders" as an identifier but also includes SCHOOL AGE CHILDREN among the descriptors. In twenty-three cases in LLBA/Online, CHILD LANGUAGE was the only descriptor that served the function of an age level descriptor. No educational level descriptor was present in any of the twenty-three cases.

Figure 6 shows the number of time that LLBA/Online and PsycINFO utilize index phrases and identifiers respectively to indicate the educational/age level function by assuming the function alone or sharing the function with the controlled vocabulary field. The number of times that the function is not assumed is also included. CHILD LANGUAGE was counted as serving the function. Policies relative to the choice of "educational/age level" terminology when assigning descriptors and formulating search strategy, as well as to the omission of "level," require further attention. A group of educational/age level descriptors stored as a string of OR logic terms could provide practical assistance. Discreteness in set design requires further study for consequences when using terms such as CHILD LANGUAGE that may straddle sets.

	LLBA/Online Index Phrases	PsycINFO Identifiers
Assuming the educational/age level function alone	15	0
Sharing the educational/age level function with the controlled vocabulary field	25	45
Not assuming the educational/age level function	8 2 prints unavailable	5
<b>Total:</b>	<b>50</b>	<b>50</b>

Figure 6: Educational/Age Level Function. (Figures refer to the number of articles out of fifty on the control bibliography.)

## 7. Summary and Conclusion

Comparisons by search pattern, information source, mode, and strategy concentrated on the first of two groups of searches on three information sources run on the Lockheed system against a fifty-item control bibliography on the search topic. In no case did any search in either group retrieve more than twenty-seven, or fifty-four percent, of the fifty articles. Reasons behind the eleven statistically significant differences in the group one searches were analyzed. Terms assigned by the three sources to the same item and designation of "educational/age level" were examined. Results suggest that topic

relevance, as distinguished from relevance to an information need, may be a more deceptively simple problem in retrieval effectiveness than suspected.

Perhaps the application of the Unesco-sponsored INTERCONCEPT Project into subject areas other than those in the social sciences would ultimately benefit physically-removed indexers, searchers, and those who construct thesauri. An objective is to collect, store, process, and disseminate information on the concepts attached to key social science terms (5). Its broader application could enhance understanding about a topic and improve the choice of terminology for expressing it. Indexers, like sailors, do well to regard the tip of the iceberg. They stand to fare more efficiently and effectively, however, when they take into account the problem beneath.

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The CONTA CONFERENCE brought together social scientists from all over the world as well as information scientists, classificationists and terminologists to discuss the urgent problems of social science conceptology and terminology as recognized by the Unesco Program INTERCONCEPT and to look for solutions to overcome the present pitfalls and difficulties.

The carefully edited 32 papers and 12 reports of this COCTA\*-sponsored conference are arranged with their introductions and discussions in three parts. I: Problems - Difficulties and Examples, II: Theories - Modes of Analysis, III: Solutions - Approaches and Proposal. The Appendix contains a conference resumé, the participants list and the reports on the activities of various international and national organisations in this interdisciplinary endeavour given in a preconference seminar to update especially the representatives of developing countries. The Conference Recommendations (which are included too) have already found the interest of the professional world and also acceptance in the current UNESCO Program. The volume concludes with a name and subject index.

\* COCTA = Committee on Conceptual and Terminological Analysis, of IPSA, (Int.Pol.Sci.Assoc.), ISA (Int.Sociol.Assoc.) and the ISSC (Int.Soc.Sci. Council). The CONTA Conference was supported by UNESCO, the Deutsche Forschungsgemeinschaft, and the Gesellschaft für Dokumentation eV; it was organized by the Gesellschaft für Klassifikation eV.

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