What Information Studies Experts Say About the Abstract Genre: Sharing Common Ground With Language Experts

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Abstract

This paper aims to motivate language experts towards another orientation and treatment of the abstract. It is common for language experts to teach the abstract as the preceding section of a research paper or as the emissary sent to procure an audience at a forthcoming conference. It aims to help learner-writers produce linguistically and rhetorically acceptable abstracts for such purposes.

A literature review of work done by information experts whose writings are focused on scholarly communication and information services, along with their research interests revealed that there is an additional quality of abstract desired in this discipline, namely that of text surrogate for information retrieval. The discussion of the text surrogate was within a context larger than its linguistic or genre level. The results point to how the language expert has a pedagogical role to play in the field of information studies, and that there are common grounds for collaboration.

Introduction

This paper focuses on the professionals involved in the production, organization, transfer, storage, distribution, and service provision of information. These experts are trained to work in information-rich environments like education, research, finance, information technology, publishing, and library services, and are referred to henceforth as information experts (IE). IE are concerned with issues such as the quantity and quality of information
flooding information service systems, and about how effectively and efficiently information is transferred or communicated between producers and users. Within this context the IE have an important role to play in scholarly communication, which is about how people in the scholarly or academic world inform as well as share knowledge. As such, top priority is given to providing information that meets user-needs. Studies have been conducted to investigate how accurately information systems meet users’ inquiries. Some of these inquiries would include whether the information contains novel ideas or contributes to increasing and enriching existing knowledge, and whether there is reliability and validity in methodologies of studies and their results. Hills (1983), described scholarly communication as a transfer and exchange process of information involving the scholar-producer and user of information, the learned societies that convene conferences, the publishers, the library services that collect, organize, store and provide information, and the new pervasive electronic information carriers. These six components are fundamentally interrelated, co-dependent and collaboratively responsible for the communication or the “flows of information”.

However, research on scholarly communication has indicated that such information flow has not always been smooth. Lorenz (1969) reported language barrier as a major problem in international information transfer between Europe and US, but added that nothing much happened until the advent of computers in 1960s. Lorenz concluded, “international transfer can only build on strong information systems”. Subsequently, nations scanned information into categories and compiled information under bibliographic descriptions and subject headings or indexes and stored them in directories, and the early databases of abstracts of research articles were produced. Thus, it was during the 60s that the abstract first became an important text surrogate that negotiates between the producers and users in information systems.

In more recent times, advance technology has made information transfer and exchange even more widespread and expedient via high-tech computerization, and information could now be stored in full texts in electronic forms for efficient retrieval. Would this mean that the abstracts databases be outdated and redundant in the process of knowledge discovery? This question was answered by several IE. Pinto and Lancaster (1999) were of the opinion that abstracts are still useful summaries for human readers and in fact full texts often contain details that cloud efficient identification of significant and precise information intended by the author. Tenopir (1985) showed that reading abstracts is in fact cost-effective and not less effective than reading the full text for knowledge discovery or information extraction. Information experts are more concerned with the quality of abstracts, particularly in view of current problems of information overload, rising costs of scholarly publications, and the continuing alienation of information flows caused by language barriers. Indeed, the IEs have much to say about the abstract and its significant role in the process of scholarly communication.

At this point it would be pertinent to ask about the role of the language experts (LE) with regards to teaching the abstract. “As language providers, are we well-informed about what IE say about the abstract in information systems? Are there areas of commonality that could have pedagogical and research implications for language providers?” Language
experts would remember that the 1960s saw the birth of ESP (English for Specific Purposes). The ESP teacher bases his pedagogical practice on the principle that language is for communication, and if non-native learners were to survive their specialized courses in English they had better be socialized or initiated into this new environment. They would have to be taught the language of appropriate rhetorical conventions and linguistic appropriateness peculiar to the discipline they aspire to belong. For example, the ESP learner would need to learn the how to write a research article for publication following the specific linguistic styles and information conventions set by the discipline community.

A conference in the 80s on Communication in English resulted from this growing awareness (Williams, Swales, Kirkman, 1984). Many papers at the conference offered pedagogical insights on how to teach English communicatively in this interdisciplinary environment. Some studies established common ground by consulting with specialist informants; others have recommended teaching the study skills like note taking and summarization, and language purists have also used the genre to teach specific language items. However, the overall emphasis was to find the common ground between these two frameworks of operation. On the one hand, the ESP expert needs to examine and understand the sociolinguistics of a discipline and how it is used to communicate among the members of the discourse community. On the other hand, he has to exploit his own language expertise and adopt specific approaches and design courses for his ultimate clients, the novices, to function competently in the scholarly communication process. The ESP expert therefore needs to realize these two halves of his single profession.

The pedagogical implications of this sociolinguistic approach had far reaching repercussions for teaching ESP to novice writers. In the field of academic writing came the call for teaching the research paper to novice or learner-writers. Different ESP writers have approached this call but among the most influential are Swales (1990, 1985), Bhatia (1993), and Evans (1986), who have proposed the genre analysis approach to teaching research writing systematically to non-native writers. They established common ground with subject disciplines by identifying their writings as genres comprising conventional macro and microstructures. To Swales the macrostructure of a research article (RA) comprises the IMRAD structure of the Introduction, Methodology, Results and Discussion or Conclusion sections, and each section comprises substructures expressed in certain language conventions. He selected the Introduction section (1981), which he considered most problematic to write, in his teaching and research. Later, much research replicated this popular approach, which Swales called, move analyses. Others extended his methodology to the Discussion section (Evans, 1986). Others adopted and adapted it to study the abstract genre. (Meyer, 1990; Keogh, 1994; Santos, 1996; Chan and Foo, 2000). These studies were based mainly on genre analyses of text corpuses. The major objective was to analyze the move structures and compare the results with prescribed advice and recommendations in textbook guides and standards, and to determine what writers do in real world practice.

Thus, on the pedagogical front, language experts are concerned with teaching novice writers the basic structures and production rules of abstracts so that they could model their own scholarly communication style after these norms. No doubt this perspective fulfills the
communicative objectives of the ESP curriculum but the abstract has a larger role in information communication within the current new age of information systems. Language experts would need to reexamine their role as the bridging agent in teaching communication by abstracts to novices. As mentioned they have focused on teaching the product quality, but what about the qualities of process, service, and user perspectives that are major concerns of information experts?

This study surveyed literature to identify these perspectives, and compare them with the language experts’ pedagogical perspectives on the abstract genre. The purpose is to draw implications for LE to re-negotiate the common ground with IE and employ collaborative measures for inducting novice abstract writers to write effective text surrogates for scholarly communication.

**Review of Literature**

This paper first examines significant literature by IE and *listens* as it were to what they say about the surrogate. The review identified two major groups of writers. The first group comprises the providers of advice and guidelines on abstracting, the writers of influential documents called standards like ANSI (1979) and ISO 214 (1976), and the gatekeepers who screen journal papers and conference abstracts. The second group includes the investigators who set out to verify the criteria claims of the first, and evaluate the qualities of abstracts. The work of these two groups is discussed and summarized in the following section.

**The library and information systems professionals**

As has been mentioned, abstract databases arose out of the need to systematize the flows of information in the 60s. The abstract would alleviate the problem of the glut of information (Day, 1983) as well as facilitate the circulation of new information efficiently and speedily. This resulted in a demand for abstracting services because not all documents were complete with abstracts, and even if there were accompanying abstracts it was felt that most of the author abstracts were not of high quality (Borko and Bernier, 1975).
### Table 1: Abstracts and Abstracting by Library and Information Systems Professionals

<table>
<thead>
<tr>
<th>Authorship history</th>
<th>Characteristics</th>
<th>Purpose and uses</th>
<th>Rules for writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jennifer Rowley (1982) “Abstracting and Indexing”. For trainee abstractors in abstracting services</td>
<td>Content: purpose of the study, methodology used, results obtained, conclusions drawn and incidental findings if applicable style: Clarity and conciseness important. Maximum content minimum length</td>
<td>Surrogate; a time and cost saver for user and producer</td>
<td>Four-step plan: Read sections of the document several times; take notes, write the draft; revise draft for accurate language use and good style. Must be ‘tailored’ to the original document, the user needs, the requirements of abstracting organization. Begin with topic sentence. No complex sentences. In one paragraph. Use direct expressions, active verbs, and present tense for facts and past for method.</td>
</tr>
</tbody>
</table>

This development motivated professionals in library services and information systems to prescribe advice and rules for writing abstracts that could fulfill this surrogate role. Although their books were for professional abstraction their writings have been
recommended to author abstractors. The early contributors among these authors of indexing and abstracting are Collison (1971), Borko and Bernier (1975), Rowley (1982), and Cleveland and Cleveland (1983), Table 1 presents the summary of their works.

The pioneering works of Robert Collison (1971) first presented the concept of the abstract as a documentary tool for knowledge discovery and discussed the characteristics and rules for writing. In view of the usefulness of the surrogate Collison pointed out that authorship of this stand-alone document is important, but stressed that it is more important for the resultant abstract to present an accurate representation of the full document without biases.

Next, Borko and Bernier (1975) derived a comprehensive set of uses and rules about the abstract from their survey of writer’s instructions. They added that if abstracts of foreign language papers were translated it could promote a wider circulation of information that would otherwise be missed out. Borko and Bernier also wrote that the abstracting and indexing organizations are important links in the chain of communication between the author and his or her ultimate reader/user. These organizations are secondary services and they provide comprehensive coverage of a given field by capturing new information at the time of its publication, indexing it, and making it available quickly and storing it for later use in the form of abstract databases.

In 1982 Jennifer Rowley joined the ranks of these writers with her book, “Abstracting and Indexing”. Her main concerns were the trainee professional abstractors. She provided a four-step plan for abstracting but stressed that no one style, length or content is the correct one, but that the most important criteria of style and content are to ensure maximum content in the briefest length possible.

Shortly after that Cleveland and Cleveland published their book in 1983 in which they elaborated on the methods and procedures of abstracting. However, they cautioned that professional abstractors work within constraints of cost in terms of time and production, content in terms of the contribution value of the research, publication sources in the sense that respectable publications would always be considered for abstraction, and users’ interest. Based on these four constraints the professional abstractors should abide by set rules of abstracting stated in Table 1.

Apart from the distinct features highlighted in each book above Table 1 shows that generally professional abstracting services have said similar things about the definition, purpose, uses and functions of the abstract in the process of information communication between producer and user. They have also offered similar advice or prescriptions for processing the surrogate text. However, the fundamental issue is all abstracts are judged by their users. Lancaster’s book, “Indexing and Abstracting: Theory and Practice” (1991), would present the summary of this discussion especially since his work has the benefit of the previous writers’ contributions.

Lancaster summed up the characteristics of a good abstract as one that has brevity, accuracy and clarity reflecting much the same opinion as the earlier writers. Like others he also recommended that the abstract should be self-contained, include information that is
new and interesting, focused on what the author accomplished, and present it in a style that avoids jargon and unintelligible abbreviations. However, he thinks that the use of active voice versus the passive is a matter of style and should not be imposed, although the logic of using the past tense for discussing method and present tense for expressing conclusions and results holds. He agrees that the abstract should begin with the topic sentence because it is the ‘safer advice’. He agrees with the others that the content of an abstract would depend on the type of publication involved, the abstracting organization’s policy, and the nature of the original document. As for the length he appears to suggest between 100-250 words but qualifies that it also depends on the length of the original, the subject matter, its importance, its physical availability and accessibility. He agrees with Borko and Bernier and Cleveland that the abstract should be in one paragraph and subheading the text is unnecessary. Like the others, Lancaster’s over riding criterion of an abstract is whether it serves the needs of the user. For example, does the abstract allow the reader to predict accurately whether the article is relevant to his or her present interests? In this respect the skill of the abstractor is paramount, and whether the abstractor is the author, the subject specialist, or the professional abstractor, he or she must have some understanding of the subject matter under consideration for abstraction, have proficient writing and editing skills, and the ability to read, understand and make salient notes. The most important criteria to reckon with would be:

“Are the major “points” of the document brought out in the abstract?
Are these points described accurately, succinctly, and unambiguously?”

Lancaster: (1991:105)

Finally, the name of Edward T. Cremmins (1996) cannot be omitted. He is among the most cited for discussions on the abstract and abstract production, and his book, “The Art of Abstracting” has been constantly up-dated to teach the skills of abstracting. His interest is to advice abstractors to focus on the critical and analytical skills of reading and selecting information in the original document for inclusion. He attributes the art of abstracting to the application of “extensive reading, thinking, writing, editing, and revising skills” (1996:4) in order to achieve conciseness, coherence, and refinement in the piece of writing.

Standards Bodies

Two most influential standards bodies have undertaken to provide internationally accepted and recognized criteria for the production of abstracts for scholarly communications: American National Standard commonly called ANSI Z39.14-1979, and International Standards ISO 214:1976 (E). Both these standards are almost synonymous in defining the abstract. For example, International Standards ISO 214:1976 (E) has defined the abstract as:

" … an abbreviated, accurate representation of the contents of a document, without added interpretation or criticism and without distinction as to who wrote it. An abstract should be informative. Informative abstracts are
especially desirable for texts describing experimental work and documents devoted to a single theme”

Both Standards provide guidelines for the preparation and presentation of abstracts by authors of primary as well as secondary publications. They inform that the main purpose of abstracts is for readers to identify the basic content quickly and accurately, determine its relevance to their interests, and decide whether or not to read the full text. They also inform that abstracts are found in journals; theses or dissertations; monographs; proceedings; patents; access services, and give guidance on the presentation and style of abstract. A summary of the standards recommended for the abstract is in Table 2.

### Table 2: Standards for Abstracts and Abstract Writing

<table>
<thead>
<tr>
<th>STRUCTURE: Information conventions</th>
<th>PROCESS: Recommended rules for writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Background (ANSI)</td>
<td>➢ Begin with a topic sentence that is major thesis.</td>
</tr>
<tr>
<td>➢ Purpose: Objective and scope</td>
<td>➢ Write one paragraph abstract, more than one for long reports or theses.</td>
</tr>
<tr>
<td>➢ Methodology: Techniques or approaches</td>
<td>➢ Write in complete sentences,</td>
</tr>
<tr>
<td>➢ Results: findings concisely</td>
<td>➢ Use transition words for coherence.</td>
</tr>
<tr>
<td>➢ Conclusions: implications of results. Can be recommendations, evaluations, applications, suggestions, new relationships, and hypotheses accepted or rejected.</td>
<td>➢ Key words for indexing may follow</td>
</tr>
<tr>
<td>➢ Other information incidental findings to the main purpose of the document must not distract attention from main theme.</td>
<td>➢ Use verbs in active voice whenever possible.</td>
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</tbody>
</table>

**Journal (IEEE) guidelines to authors of abstracts**

Another category of writers who provide prescriptions for the production of abstracts comprises the IE in conference organization and journal editorial boards. Although they may not be as comprehensive in providing guidelines for abstract writing as the writers discussed above they nevertheless hold great clout as gatekeepers of scholarly communication. Among them one learned society is discussed here. The Institute of Electrical and Electronic Engineering (IEEE) is a professional body set up in 1950s to coordinate research and related academic activities of electrical and electronic engineers. Several societies come under this banner of which the Computer Society is one. The latter caters to the research and academic activities of computer engineers and professionals in computer related fields. IEEE enjoys high prestige and respect, and demands high standards in order to maintain high quality in the research papers submitted for conferences and publications. As a result of its rapid growth and expansion numerous special interest
groups have been formed, each actively participating in the process of scholarly communication. Their publication activities are all prefixed by IEEE Transactions. They provide authors with similar instructions to prepare their papers, and the guidelines for writing the abstract are expectedly very brief. An example is presented in The IEEE TRANSACTIONS on Speech and Audio Processing: a publication of the IEEE SIGNAL PROCESSING SOCIETY which advised that for regular papers,

… “an abstract of not more than 200 words is required. The abstract should not only indicate the scope of the paper but should also summarize the author’s conclusions so that the abstract by itself may be useful in information-retrieval systems”.

Adapted from Source: September 1997 Volume 5 Number 5

As discussed above many writers have identified desirable qualities of an abstract, but less have studied measurements of the quality of abstracts. A reason could be the lack of consensus on a single set of criteria for measuring quality. The next section traces work conducted to validate some desirable qualities identified by the first group of IE. However, the issue of quality will be discussed first.

In general, quality can be examined from different perspectives, and each perspective would require a different set of judgment criteria. (Pinto and Lancaster, 1999) For example, if we measure abstract quality from the process perspective we would base judgment set by standards, regulations or norms of abstracts writing, and considerations of exhaustivity, accuracy, readability, coherence, and cost in the process of producing the abstract will be paramount.

Exhaustivity deals with how extensively the abstract represents the original document in terms of the ideas, conclusions and so on in the original and yet maintains its brevity. Accuracy refers to the extent to which the abstract correctly represents the original text. Problems in accuracy may arise from misinterpretation of the original content, or wrongly quoting information from the original. This is highly probably if the abstractor has linguistic inadequacies. Readability is determined by the ability of the abstractor to express the abstract clearly, concisely, and precisely. This again relates to the linguistic and organizational proficiencies of the abstractor. Cohesion/coherence is related to readability, but its focus is on connectivity of the ideas presented in the abstract. Table 3 presents the different perspectives of examining abstract quality.
Table 3: Attributes of Quality Associated with Different Perspectives on Abstracts and Abstracting

<table>
<thead>
<tr>
<th>A. Process perspective</th>
<th>C. Service perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø Exhaustivity</td>
<td>Ø customer satisfaction</td>
</tr>
<tr>
<td>Ø Accuracy</td>
<td>Ø cost-effectiveness</td>
</tr>
<tr>
<td>Ø Readability</td>
<td></td>
</tr>
<tr>
<td>Ø Cohesion/coherence/linguistic</td>
<td></td>
</tr>
<tr>
<td>Ø Cost (intellectual)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Product perspective</th>
<th>D. User perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø Consistency</td>
<td>Ø Cost</td>
</tr>
<tr>
<td>Ø Brevity</td>
<td>Ø Value</td>
</tr>
<tr>
<td>Ø Cost</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Process/product perspective</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø Density</td>
<td></td>
</tr>
<tr>
<td>Ø Cost</td>
<td></td>
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</table>

Source: Adapted from Pinto and Lancaster, 1999:241

Early interests in the quality of abstracts was in the form of suggestions without research, but later, some of these suggestions were applied. The most favored was the test of the ability of an abstract to predict relevance of the document to a particular information need. (Saracevic, 1969; Thompson, 1973). Saracevic conducted her study on 22 users who submitted 99 questions to experimental IR systems and received 1086 documents as answers, receiving first titles, then abstracts, and finally full texts. The ability of users to recognize relevance from shorter formats in comparison to full text judgment was observed. The results indicated that different representations of documents significantly affected the users' relevance judgment. It seemed to be easier for the users to recognize non-relevance from shorter formats than relevance, and the judgment from abstracts was clearly preferred over the judgment from titles.

Studies more closely related to linguistics were conducted to assess the readability of the abstract using readability formulas, comprehension measures, or both. Investigators were Dronberger and Kowitz (1975) and Tenopir and Jasco (1993). Dronberger and Kowitz suggested that the measurement of the readability of abstracts could provide an assessment of one phase of an information system. They explored abstracts published in Research in Education (RIE), and whose full documents are stored by Educational Resources Information center (ERIC). The hypothesis was abstracts would be easier to read than source documents. The results of the study showed that the reading level of abstracts was significantly higher than the reading level of source documents because of its concise nature, its condensed information or high density of information, and perhaps the more precise and concise expressions. It was concluded that readability measurement provides one useful technique for the evaluation of abstracts.
Next, Tenopir and Jacso (1993) conducted a study to measure the quality of abstracts and based the criteria of consistency of style and readability, the extent to which the ANSI standard is observed, and the informativeness or exhaustivity of the abstract. They took three major CD-ROM general periodical indexes that contain abstracts. They used the Grammatik to analyze machine-readable texts. They found that the passive voice, prepositions, too many sentences per paragraph, too many words per sentence, and too many syllables per word all lowered readability. The criteria set by ANSI was used to measure the different aspects of the abstract. It was concluded that exhaustivity could not be so easily tested because of individual user needs. The study concluded that objective global measures of quality of abstracts are less problematic than subjective aspects of quality measurement.

Another linguistic approach was studied by Salager-Meyer (1991), who analyzed a sample of medical abstracts from the linguistic perspective and found poor structuring, poor linkages and missing purpose statements. These linguistic problems make abstracts ineffective in information communication.

To bring the discussion more up-to-date, the study by Pinto and Lancaster (1999) follows. They based their study on the different levels and perspectives of judging the quality of abstracts (Table 2). They then matched these attributes of quality to human produced abstracts with computer-generated abstracts and the human user was the basis for evaluation. They concluded that although the computer has enabled the wide availability of full texts in electronic forms this has not reduced the value of human produced abstracts in knowledge discovery for the following reasons. Machine abstracting or as more currently known, text summarization generates good extracts for searching purposes but does not provide the human reader with good quality abstracts such as exhaustivity, accuracy, readability, coherence, and cost effectiveness.

From these studies it is apparent that the readability concerns of IE in effect are closely linguistic issues and LE have inherent common grounds for close collaboration.

Establishing Common Ground

The paper set out on the premise that language experts or ESP teachers have been mainly concerned with teaching novice writers to produce linguistically and structurally acceptable abstracts for their readers within the discourse community of their specialist disciplines. No doubt this perspective fulfills the objectives of the ESP curriculum and IE writers have in all accounts fully supported that language proficiency is critical for maintaining abstract qualities like accurate representation of the original document, readability, and brevity. However, the present objective is to persuade LE to another perspective of the abstract. It is felt that these perspectives should not be ignored especially in the context of current information technology. Therefore, based on these IE writings what further common ground can be established and shared here and how should this be exploited for ESP pedagogy?
Table 4 summarizes the major perceptions of the information experts on the one hand and the language experts on the other. The aim is to identify the areas about the abstract which language experts have so far not focused on and suggest how ESP instructors can teach the communicative function of the abstract more effectively and more currently.

**Table 4: Two Expert Groups’ Perspectives about the Abstract Genre**

<table>
<thead>
<tr>
<th>Information Experts</th>
<th>Language Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Global orientation</td>
<td>1. Learner-writer orientation</td>
</tr>
<tr>
<td>2. Focus on professional abstracting</td>
<td>2. Focus on author produced abstracts: personal business for writing</td>
</tr>
<tr>
<td>3. The abstract as documentary tool in information systems.</td>
<td>3. Abstract for target audience.</td>
</tr>
<tr>
<td>4. The abstract is an efficient knowledge discovery tool</td>
<td>4. Abstract as a tool to teach writing skills of: summarization; conciseness and precision</td>
</tr>
<tr>
<td>5. Process of abstracting: Modeled on the profession</td>
<td>5. Process of abstract writing examined from the perspective of the structural and linguistic accuracy</td>
</tr>
<tr>
<td>6. Research interest on qualities of an abstract from various perspective</td>
<td>6. Research interest on quality judged from genre and linguistic perspective</td>
</tr>
</tbody>
</table>

The first significant perceptual difference is in positioning the abstract. Information experts view the abstract as a global tool for more equitable scholarly communication. It plays the mediator between the information seeker and the wealth of information out there. But because abstract databases are globally accessible to anyone who cares to search it should contain unbiased information elements that reflect the author’s original work so that it truly is an accurate, exhaustive but abbreviated representation, which the user can rely on objectively. On the other hand, language instructors have paid attention to abstracting from the position of the learner-writer’s motivation. The abstract is the summary text to be written after the whole document or the whole study has been completed so that it gives an overview to the full document. The abstract is also written as a promisory preview (Swales, 1990) to conference convenors. As such the writer is often encouraged to make his abstract attractive so that the intended reader selects it. Although this orientation cannot be overstated, it is also suggested here that ESP instructors also direct the writer’s attention to writing for submission to global information services by paying attention to qualities like representation, exhaustivity and objectivity.

Next, library and information systems professionals are focused on professional abstracting services. Their books have identified consistent characteristics of effective abstracts, persuaded users on the benefits of using and writing the surrogate text, and rationalized for the seriousness of the abstracting business by suggesting training and application of strict processing rules (Table 1). This would require the abstractors to be knowledgeable in abstracting as well as informed about the specialist subject under abstraction. A result is the high cost of abstracting. One solution is to turn to author abstracts but unfortunately,
author abstracts have been found to lack quality and several writers have remarked that authors do not know how to write abstracts for information systems. Establishing common ground with this aspect of professionalism would not only expand the perspective of ESP instructors but also motivate them to direct their learner-writers to not only treat the abstracting process as a summarizing exercise but adopt the attitude of wanting to approximate international standards. If authors can deliver better quality abstracts information systems could save a lot in terms of money, time as well as intellectual costs.

In information-rich environments and information service systems value the abstract as a documentary tool for efficient knowledge discovery. This abbreviated text contains compact information that is concisely and clearly expressed. As such it contains keywords within the text that can be indexed during information search. As a documentary tool the abstract is formatted specifically with metadata such as the title, author, institution, date documentary sources and keyword identifiers for information search systems. In consideration of this effect, it would be beneficial if ESP teachers also instruct learner-writers to select information that would function effectively as keywords and include these reference data in order to approximate the quality of professional abstracts.

As reviewed in the literature, research by IE has validated in several studies that the abstract is a reliable and cost effective prediction tool in knowledge discovery. Despite the easy access to full texts, the surrogate is still regarded as very valuable for knowledge mining, and despite the advent of computer generated abstracts most information experts remain convinced that the human abstract cannot be replaced (Pinto and Lancaster, 1999). But, in ESP this has been a relatively neglected genre compared to the other sections of the research article. Swales (1990) and others have rationalized that because the abstract is usually written after the whole document it is presumed by most writers as well as instructors to be easy. In fact, with this current emphasis on the role of the abstract in global scholarly communication language experts have an important role to train learner-writers to write abstracts for knowledge discovery, and focus on the process perspective of the abstract.

In terms of the process perspective, academic writing handbooks and ESP instructors agree with information experts that the abstract must be clear, concise, well-organized, cohesive, and self-contained representations of full texts. ESP instructors have been teaching the communicative functions of abstracts from the genre and linguistic perspective in various ways. For example, Glatthorn, (1998) suggested to write 2 sentences for the purpose, 2 for the prior research, 2 for method, 2 for results and 2 for implications for dissertation abstracts. Lester (1996) suggested borrowing from the Introduction, using some of the topic sentences from the paragraphs, and using one or two sentences from the Conclusion. Santos (1996) found a 5-moves model with submoves, and recommended that abstracts should include situating the research, presenting the research, describing the method, summarizing the results, and discussing the results. Azirah (1996) in her dissertation stressed the Hallidayan treatment of analyzing the abstract and by implication suggested the functional approach to teaching the genre. Although these recommendations are sound it is felt that there is a need for more attention in training the cognitive strategies inherent in abstracting as perceived and practiced by
the professional abstractors. These professionals as mentioned before are particular about the production process of the surrogate. Pinto and Lancaster (1999) illustrated the cognitive process of writing an abstract modeled in Figure 1.

**Figure 1: Integrated Model of the abstracting Process**  
*Source: Adapted from Pinto and Lancaster 1999:239*

The figure illustrates how the abstracting process is a complex and demanding process requiring high level critical and analytical skills. Four levels of processing are identified. The abstractor first defines the goals of abstraction and follows writing guidelines obtained from various sources (indexing and abstracting books and standards). He proceeds to the next two steps in the abstracting process. In the "Interpretation or Selection process, the abstractor has to fully comprehend the original full text and selects the relevant and most salient information elements to include. The next step requires the abstractor to compose the abstract product, using his knowledge of the abstract structure, guidelines on writing effective and linguistic proficiency. The last step 'Checking' is directly related to quality of the product. The author reviews his writing before submission, but this is dependent on his or her knowledge ability to do that, which in turn is influenced by linguistic and non-linguistic knowledge. The abstract may undergo editing and proofreading by the editors. The writing process is indeed, as Cremmins claimed a complex, critical thinking activity needing much cognitive processing. This is the ground where the language expert has an extended role.

Finally, research by IE has focused mainly on measuring the qualities of abstracts because of their concerns for user needs. Two of these qualities are closely related to the full
documents, such as accuracy and exhaustivity of its representation with regards to the main information elements in the original document. These two qualities have been difficult for ESP instructors to teach or verify because most of the abstract writing is about specialist technical subjects, which are alien to the language experts. Except for alerting their learner-writers to maintain these qualities they have little control over them. On the other hand, this quality is regarded as one of the most important criteria by which abstracts are evaluated. Some ESP writers have resolved this problem by consulting or collaborating with specialist informants (Evan, 1985; Bhatia, 1993), and it is probably the most effective solution although its practicability is sometimes unfeasible. Nevertheless, this step is recommended for training learners to write for information service provision. The other quality of readability is easier to ensure, and it is this quality that is most within the control of the ESP instructors. To ensure readability the text has to be clear, well organized, comprehensible and yet brief. Language experts are most comfortable in this role. Their roles is to train learner-writers to be concise, select precise word choice, structure clear simple and direct sentences for comprehensibility, and organize information elements coherently and cohesively, and ultimately groom better author abstractors who can contribute meaningfully to the information systems.

To conclude, it is suggested that if language experts are better informed about the abstract from the IE perspective and establish common grounds with some of the perspectives discussed, useful implications for course design could be drawn to enhance their traditional teaching of language and rhetorical conventions. Involvement with specialist informants over the validation of learner-writers’ work would promote the much-desired interdisciplinary collaboration. Learner-writers, especially the non-native speakers of English would be the ultimate beneficiaries. They could be better equipped to create the desirable first impressions they need for the larger context of scholarly communication.

References


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