

Language forms and rhetorical functions in technical instructions

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1

Biographical background

Michael Sharpe is an English instructor at Kochi University of Technology, University of Kochi and Kochi College of Technology, where he is involved in the teaching of and further development of a variety of EST courses. He holds an MAELT from the University of Reading. Particular areas of interest are academic and technical writing, educational technology and the use of text visualisation techniques for teaching.

Abstract

The present study examined the structural forms and the linguistic devices in two samples of technical instructional text; the texts describe the same procedure, and are realised within the larger framework of technical manuals. The findings add support to previous reports in the literature that authentic instructional texts are seldom realised as an ordered series of tasks operating in mutual exclusion, but in actuality as a less linear descriptive, expository and argumentative discourse. The main pedagogical implication is that technical writing instructors must work to develop and awareness of these characteristics to develop better teaching approaches.

Introduction

Approximately 70% percent of global technical communication is technical instructions, encompassing such things instructions for end-users (manuals), instructions for service professionals (service manuals), instructions for installation and construction, and instructions embedded in products, including user-interface. However, to date, most research on technical communication has focused on the 'upper levels of the industrial hierarchy' (Lassen, 2003: PAGE) such as lab reports,

technical reports and so forth. A disproportionate number of studies have been reported that attempt to analyse technical instructions much beyond the sentence level. In order to address this gap in the research and so further understanding of this prolific genre, the researcher analysed two samples of authentic technical instructions. The texts were analysed at both text and discourse level to explicate the rhetorical structuring, communicative moves and language forms.

Methodology

The texts analysed (Appendices A and B) are extracts from automotive technical manuals. Although both deal with the same technical procedure, one (TEXT A) is the English language version of the procedure realised in a multi-lingual manufacturers maintenance manual; the other (TEXT B) is the same procedure as realised in an independently produced manual, published in English. In terms of both style and content they were considered to be broadly representative of the technical procedures genre. The texts were analysed on three levels; firstly, in terms of the overall rhetorical structure; secondly, in terms of the communicative moves and the functions of those moves; finally, in terms of the language forms. The findings of these analysis are detailed in the following section.

Results

In both Text A and Text B three clearly defined stages were identified. They follow a linear sequence and together comprise the macro generic framework of the text. The three stages and their rhetorical functions are described in Table 1.

Table 1: The macro-generic framework of instructional texts

Stage	Function
ORIENTATION	Familiarises the user with system and mental processes/actions that the user can or must engage in to prepare for task of working on the system.
EXECUTION	Describes the actions that the user can or must perform during the realization of task.

Stage	Function
CONSOLIDATION	Describes the actions that the user can or must perform in order to review the completed actions to ensure successful execution of task.

B. Communicative moves and functions

Within this macro generic framework the authors use a number of explicit and implicit communicative moves, each with a specific purpose, to guide the reader/user through the task at hand. The explicit moves and their functions are detailed in Table 2.

Table 2: Explicit and implicit communicative moves in technical instructional texts

Communicative move	Explicit function/purpose
Orientation/familiarization	To locate user in area of work, and general workings of the system
Instruction	To explain in linear steps the actions required to complete the procedure
Validation	To explain/persuade user the positive and negative consequences of completing the procedure
Facilitation	To introduce user to methods/techniques that simplify the procedure
Optimization	To introduce user to methods/techniques that allow the procedures to be completed in the most efficient manner.
Optioning	To offer user alternative procedures

In addition to these explicit purposes, the authors have a number of implicit purposes that define the structure and language of the text. The two most apparent implicit purposes are persuasion and dissuasion. In both texts, the objective of the persuasive rhetoric is to convince the user about the positive outcomes of completing the task on a regular basis; however, to achieve this purpose the

writers use different rhetorical ploys. This is apparent in the preliminary (ORIENTATION) stage of each text. While the writer of Text B makes overt efforts in these preliminaries to persuade the reader by *validating* the task, the persuasive intent of this section in TEXT A is more oblique; here the authors simply familiarise the reader with the system through a schematic diagram and by explicating the function of the individual components, thereby nuancing the importance of the task.

The texts also differ in their use of dissuasive rhetoric. This is apparent in the preliminaries. The authors of TEXT A make oblique efforts to dissuade the user from self-performing the task; the language they use implies that a low level of expertise among the readership is assumed, and that many of the tasks described should be performed by accredited dealerships. One of the reasons that the authors might have taken this stance is because the publisher is also the manufacturer, which might have many motives for discouraging an owner from attempting his/her own repairs/maintenance. On the other hand, the authors of Text B take a more neutral position. No assumption is made, but the degree of complexity of each task is communicated through graphic symbols, leaving the users to make their own judgement.

4

These findings contradict the suggestion made in some texts that procedural text have just one explicit purpose. In the analysed samples, 'instruction' -which is often stated as the purpose of such texts - is just actually one of four explicit purposes including 'optimization' of the task (Mohammed & Swales, 1984: 206). Furthermore, both the explicit purposes operate with both implicit purposes and with what V.K. Bhatia might see as 'hidden' purposes (Askehave, 1999: 20). In Text A these include promoting the use of a product (Shell Oil), and in both Text A and Text B protecting the manufacturer/publisher from litigation arising from failure to follow proper procedures. Therefore, in sum, it is plain that attributing any single 'communicative purpose' to technical procedures can be problematic, given that a 'complexly layered' set of purposes can be identified. What emerges also is the critical importance of context.

C. Language forms in technical procedures

Technical writers achieve their communicative purposes when constructing texts by employing linguistic devices and structural forms that, while patterned arbitrarily in the generic framework of the text, are governed by rules. In the analysis provided in Appendices A and B I have tried to explicate

both the prototypicality and the variation in linguistic devices and structural forms in technical instructions. Within the general framework of communicative moves described above, the writers use three rhetorical modes; description and exposition (the explicative component); and argumentation (the seductive component), in addition to linguistic devices such as titles and visual elements. These are explained in detail in the following table.

Table 3. The rhetorical modes employed by technical instructions writers.

Mode	Sub-modes	Representative schemata
Description		<ul style="list-style-type: none"> • Noun Phrase - Prepositional Phrase - Verb Phrase (e.g. <i>'The oil strainer for the transmission oil is located forward of the drain plug ...'</i>)
Exposition		<ul style="list-style-type: none"> • Imperative linear sequence instruction (e.g. <i>Remove the bolt</i>) • Optional sequence (e.g. <i>If.....</i>) • Alternative sequence (A or B) • Imperative co-temporal sequence.
Argumentation	<p style="text-align: center;">Explanation</p> <p>Arguments that usually introduce procedures.</p>	<ul style="list-style-type: none"> • Purpose connector-infinitive (<i>to change....</i>) • Causal connector-deverbals (<i>because it may...</i>) • Titles

Mode	Sub-modes	Representative schemata
Argumentation	<p style="text-align: center;">Warning</p> <p>Imperative argument that highlights the negative consequence of acting or failing to act.</p>	<ul style="list-style-type: none"> • Negative connector-infinitive ('risk' verbs, prevention verbs <i>in order to, to prevent</i> etc) • Purpose connector-infinitive ('risk' verbs, prevention verbs <i>in order to, to prevent</i> etc)
Argumentation	<p style="text-align: center;">Tip</p> <p>Less imperative argument that highlights the positive consequence of an action.</p>	<ul style="list-style-type: none"> • Causal connector-performing NP • Causal connector-performing verbs • Causal connector-modal-performing verb • Performing proposition.
Additional features	<p style="text-align: center;">Text title</p> <p style="text-align: center;">Summary title</p> <p style="text-align: center;">Picture</p>	<p>References a visual element that interacts with the text.</p>

Discussion and practical recommendations

Technical writing textbooks (e.g Brusaw, Alred & Oliu, 1982; Huckin & Olsen, 1991) often tell us that the purpose of procedural texts is simply to communicate 'how to' accomplish a task, or a set of related tasks. They also focus on two basic rhetorical features of procedural writing, namely the linear organisational structure, and the reliance on imperative information structures.

However, as this study has shown, in actuality technical instructions can be a much more complex form of discourse. Firstly, as shown in this and other studies, they are typically realised not in isolation but within the complex *macro-generic* framework of a technical manual. In addition, during the process of writing technical procedures, authors are often working to achieve a multi-layered set of both explicit and implicit communicative purposes (Bhatia, 1991; Flowerdew, 2005). In the analysed texts, it was demonstrated that a explicative, or objective, linguistic purpose - to instruct the reader how to accomplish the task at hand - is operating in parallel with several other purposes. Together these purposes form what has been described as an implicit 'seductive' component (Aouladomar, Amgoud, Saint Dizier, 2006), encompassing a complex array of arguments, conditions, warnings and recommendations which are realised through one or several linguistics systems such as description, explanation etc.

The clearest implication for technical writing pedagogy is that a well-formulated and comprehensive procedural writing syllabus should include means of raising awareness of these features. In addition, writing instructors should explore ways to acquaint their learners with the typical discursive elements of authentic procedural texts, including;

- The significant influence of contextual elements.
- The high level of assumption and presupposition about the potential users, their knowledge and skill level, adaptability.
- The high interaction between different text types.
- The proximity between text and action.
- The high cognitive load for the target user. Texts often employ a large technical vocabulary to describe methods and equipment.
- The high level of interaction between writer and user.
- The submissive role of the reader (because the reader must realise the instructions)
- The extensive use of justification and rationalisation to validate the task.

Specific grammatical elements that also need to be highlighted include:

- The economy and accuracy of expression; frequent ellipsis of articles; auxiliaries etc
- The use of imperative.
- The use of sequence mapping by numerals and, less frequently by employing infrequent sequence words.
- The extensive verbal visual linking.
- The use of modality, (can, must, have to...).
- The use of contingency (if, when).
- The use of adverbs of manner to condition the execution of a given task; (carefully, slowly).

Conclusion

This paper examined two technical instructional texts, as realised within the macro generic system of technical manual. It was illustrated that in practice, technical instructions are realised through many different text types in order to accomplish several communicative purposes. Together these form both an 'explicative', or objective, linguistic component, and also a less acknowledged component, containing arguments, conditions, warnings and recommendations.

However, while function and feature remain central to an understanding of this important genre, L2 technical writing instructors need to develop classroom methodologies that engender knowledge of function, form *and* context (Pang, 2002).

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