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Reproductive writing—writing from sources

Eva-Maria Jakobs

*Department of German, University of Technology (RWTH) Aachen, Eilfschornsteinstraße 15,
D-52062 Aachen, Germany*

Abstract

The subject of this paper is 'reproductive writing', a term covering all forms of writing that involve other texts. Different kinds of reproductive writing are discussed with the main focus on text production in which the writer uses other texts in academic writing for the development of his or her own ideas as well as for references to the scientific literature. Receptive, reproductive, and productive processes all interact in reproductive writing. Situational and individual constraints on this type of text production are discussed in terms of the results of a survey of scientific writers from a variety of disciplines at German universities.

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1. Introduction

The subject of this paper is reproductive writing as a specific type of text production. The concept of 'text production' will be understood here to be more extensive than that of 'writing', comprising as it does the whole range of actions employed by the writer in producing a text. Whereas previously the focus of research was on the writing process in general, today it has shifted, influenced by the realization that text production processes vary depending on the production task and the situational context in which they are embedded. In recent research on writing, this has led to increasing concentration on specific types of text production. An investigation of these types promises, on the one hand, to provide more detailed insights into text production procedures, while a comparison among them will permit differentiation of text production procedures into those of a more general nature and those which are more specific.

E-mail address: e.m.jakobs@germanistik.rwth-aachen.de (E.-M. Jakobs).

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Classification of text production activities varies according to the focus of investigation and can derive its criteria from: the text type to be produced, such as the writing of instructions (Becker-Mrotzek, 1997); the place of production and its conditions, such as writing at work (van Gemert and Woudstra, 1997) or journalistic writing (Perrin, 1997); or the underlying text production processes (e.g. reproductive writing).

In this paper, different kinds of reproductive writing are discussed (Section 2). The main focus is on text production in which the writer has recourse to other texts and uses these for the development of his or her own ideas. In the subsequent discussion, reproductive writing is characterized as the interaction of receptive, reproductive, and productive processes (Section 3). Finally, situational and individual factors of relevance for this type of text production are discussed (e.g. culture, social context, and individual constraints; in Section 4). The discussion is based on my own theoretical assumptions and those of others, as well as on a survey which I conducted in 1993–1994.

2. Reproductive writing as a main strategy or as part of the production process

The term 'reproductive writing' covers all forms of writing which involve the use of other texts. Essentially two main forms may be distinguished: (1) writing that serves primarily to convey the contents of other texts, such as the writing of abstracts and summaries (cf. Endres-Niggemeyer and Schott, 1992; Keseling, 1993), and (2) reproductive writing as part of more complex text production processes. This paper focuses on the latter type of text production, in which writers have recourse to other texts and use them for the development of their own thoughts.

Writers may consult other texts for a variety of motives, such as inspiration and acquisition of knowledge for the purposes of their own written representations. Grésillon (1997) describes the case of literary text production. As an example, she chooses the genesis of Flaubert's story *Hérodias* of 1876. In order to achieve the most precise picture possible of the location (the story was set in Palestine on the Dead Sea in a fortress known as *Machaerous*), Flaubert invested several weeks in intensive research into sources. He read and made notes from a wide range of texts (mainly scientific treatises of his period and earlier epochs), gathering details on Jewish history and the landscape described as well as on the flora and fauna.

This research work was gradually incorporated into the text as the narrative framework was textualized. According to Grésillon (1997: 245), the syntax, prosody, and text structure of the story can be unambiguously attributed to the writer, in this case Flaubert. In addition, fragments of the sources used can be identified in the text, mainly in the form of isolated syntagms. Some passages were quoted verbatim, while in other cases the draft contained labels that functioned as 'place-holders' and referred to text sources which Flaubert apparently did not have at his fingertips while writing the text. In the various phases of textualizing and revising the draft text, the boundaries between Flaubert's own formulations and those of his sources gradually vanished, and all traces of them disappeared in the final result, which did not provide any indication of the sources used for its production.

In contrast to the procedure described above, recourse to other texts in academic writing does not represent a possible, but in fact a prototypical and indispensable, constituent of text production. This is because modern science is based on existing knowledge. A further difference is that loans from other texts, generally from the scientific literature, must be clearly identified as such. References to scientific literature are typically created and indicated by the linguistic act of referring to other texts, such as by quoting and citing. A third difference is purpose: in academic writing, references to the literature serve, among other things, to integrate the author's opinions into the shared knowledge of the scientific community, to critically assess different positions, and to support and justify approaches. Within narrow limits, individual goals of groups and persons, such as self-promotion or the establishment of relationships, may also be pursued in addition to conventionally agreed purposes.

The convention of explicitly having to relate the argumentation to other literature in the field necessitates a systematic extension of the text production process, which includes exploring and processing the literature relevant to the topic. The quantity and quality of references to the literature integrated into the text product ultimately depend on the quality of the author's receptive and reproductive actions in dealing with the literature and productively incorporating it into his or her own positions.

Just how these receptive, reproductive, and text-productive actions coexist is explained in the following section, and the situational and individual parameters influencing them are described in Section 4.

3. Reproductive writing as the interaction of receptive, reproductive, and productive processes

3.1. Empirical data

Those who are interested in how text production processes are actually carried out, and in what goes on in the minds of writers, have various methods at their disposal, including analyses of successive drafts and of experimental settings or surveys of writers. The latter method was chosen for this study. The survey was conducted in 1993–1994 and included 104 scientific writers from various disciplines (linguistics, psychology, education, chemistry, and medicine) at 19 German universities. Its aim was to gather comments on typical and common procedures adopted by writers in handling texts from the secondary literature. Furthermore, I was interested in how producing texts and dealing with others' texts are influenced by situational and individual factors (for a more detailed discussion, see Jakobs, 1999).

The questionnaire contained 240 items. The participants in the survey had to answer both closed and open questions. The former were stated as simple *yes/no* questions or as lists of items. Where items were provided, the respondents had to indicate on a rating scale the extent to which the statement was applicable (ranging from "1 = does not apply to me" to "5 = applies fully to me"). The statistical evaluation of closed questions was primarily descriptive (Kruskal–Wallis test). The answers to open questions were classified, counted and finally content-analytically

interpreted (for detailed information on the survey as well as the obtained data, see Jakobs, 1999).

The questionnaire method has an advantage over traditional linguistic text analyses in that it elicits comments not only on the product of the activity (the text), but also on the process of production. However, compared with experimental methods such as participatory observation, thinking aloud, or analyzing video recordings, generalized surveys have the disadvantage that their results are regarded as less valid (for the discussion of methods, see Krings, 1992: 58). The handling of scientific literature in writing scientific papers consists of various actions and decisions which take place in a more or less routine, unconscious manner. When asked what they do and how they do it, even professional writers—and these are the writers with whom I was primarily concerned—often need a period of self-reflection. Superimpositions, generalizations, and subjective theories of their own authorial actions must therefore be expected. On the other hand, the assumed subjectivity of the responses provides an advantage for the questionnaire which should not be underestimated: “Direct questioning and the right amount of ‘empathic understanding’ [Bogdan and Taylor, 1975: 14] could, conceivably, result in a portfolio of reasons, strategies, motivations and observations about the citation process, derived, not from textual analysis, but from the experiences of publishing authors” (Cronin, 1981: 21).

3.2. Making references as a result of receptive, reproductive, and productive processes

The writing of scientific texts can be regarded as an intentionally and motivationally governed purpose-, reader-, and task-oriented complex of actions influenced by a wide variety of parameters. The actions range from examining the material (survey data, secondary literature) and developing ideas up to verbalizing one’s thoughts and organizing them into complex textual representations.

The incorporation of secondary literature considerably complicates the text production process. Before the linguistic act of referring to the literature can be performed, the writer must first take a number of preliminary steps to determine the quality and quantity of references to other texts. This is, moreover, not only true of the formulation of references to texts but also of the entire process of text production:

“Early choices of questions to consider, claims to pursue, literature to read, colleagues to discuss ideas with, investigative techniques to employ, analyses to carry out, and so on will all affect what kind of product will emerge at the end.[...] In fact, process is so important to the production of persuasive scientific arguments that the final representation or writing-up seems a limited activity, with all the major parameters of the text determined by prior decisions. Well considered procedure is not only good science, it results in good rhetoric” (Bazerman, 1988: 328).

Sub-steps of the production process involve accessing, developing, and processing the literature (and other texts) as well as selecting, interpreting, and integrating the

relevant sources (and their contents) into one's own ideas and text product. Errors and deficiencies in processing the literature may be documented in the text in a number of ways: for example, as misinterpretations, attributions of nonexistent contents, or ineffective arguments. Too great a degree of mental incorporation may lead to unintentional plagiarism, too superficial an assimilation, to unverifiable references (cf. Jakobs, 1993, 1997).

Interplay between receptive, reproductive, and text-productive actions in handling scientific literature may vary, depending on the stage of the text production process. The receptive aspect tends to be dominant in the early stages. Writers familiarize themselves with the literature in order to gain an overview of the state of research, to compare their own positions with those of others, or to gather ideas to resolve their own academic concerns. At this stage, writing is largely of a reproductive character, mainly serving to fix and record the results of critical reading and thinking.

In the course of actual text production, the reception of literature fades into the background. The author increasingly concentrates on the structural drafting of the text product and on formulation attempts. Reproductive processes are necessary if the writer intends to refer to other texts developing a train of thought. Reproduction may be confined to mentally reconstructing ideas, arguments, or formulations previously read in the literature, or may require rereading of the source—for example, if the writer is no longer certain whether he or she has correctly reconstructed the contents and contexts. Also, it may be that in the course of text production, the author's interest, focus, or perspective alters with respect to the literature. In my survey, a PhD student of linguistics described the process of a change of focus as follows: "The way I handle the facts in the literature becomes more precise as I realize what I want to say. I then know better what exactly I am looking for, how I should interpret what I have found, and what part of it will appear in my text." (Similar comments can be found in Knorr, 1999.) A third situation which may require the author to reconsult the original text is typically found in the acts of quoting and making references. The results of my survey confirm this. In making references to the literature, 62.5% of the respondents ($n = 104$) stated that they need the sources at hand when writing their texts. Writers who do not have the required literature available or who do not want to interrupt their formulation processes by leafing through specialist texts frequently use 'place-holders', for example in the form of special sequences such as XXX or references to the source in question such as LIT + initials. There are similarities here to the strategies adopted by producers of literary texts that were mentioned in Section 2.

The need for the direct availability of secondary literature is handled differently by authors who import quotations¹ from electronic literature data bases into their text

¹ Use of the terms 'citation' and 'quotation' is somewhat inconsistent in the literature on scientific writing: they may be used synonymously or to refer to two different things, or 'citation' may be used as the general term for various ways of integrating literature into a text. In this paper, the following distinction is made: 'quotation' means the verbatim rendering of part of another author's text; 'references to the literature' are brief references to other texts or parts of other texts; and 'citation' is used as the general term for both.

product. This option has given rise to the assumption that the use of computers would lead to an explosion in quotations and references (e.g. Giese and Januschek, 1990: 60ff), an assumption which was, however, not confirmed by the data from my survey. When asked about the influence of electronic media on their citations, those respondents who use a computer (97 out of 104) mentioned effects of a primarily technical nature, including, for example, assistance in compiling the lists of references. Only 2.1% of the 104 respondents stated that they had actually modified their previous approach to writing. They reported that, although the text being produced was previously the dominant factor, now the text was produced around quotations assigned after the chapter headings had been drafted.² A further 4.1% of the respondents said that they used quotations more, and one interviewee said that he quoted more extensively using smaller fonts.

The assumption that computer text production would lead to an excess of citations is based on a very mechanical understanding of the acts of quoting and citing references, which does not do justice to the reality of these processes. Focusing, interpreting, and integrating the literature into the text places very high demands on a writer's skills and knowledge. The processing of source literature requires, for example, expertise and the ability to read critically, relating specialized texts to each other, a broad knowledge of the literature, and also the ability to identify relationships between texts. On a more local level, what has been read must be related to one's own assumptions and to those of others, and then verified and followed up in the context of one's own assumptions.

In addition to global and local decisions, integrating citations presupposes both contextual and cotextual integration actions. Contextual integration is the adaptation of others' formulations to the present communication context; cotextual integration is the adaptation of text passages to the linguistic cotext.³ Depending on the type of citation, different linguistic actions must be performed. These may include the formulation of transitions between citations (or quotations) and the contexts in which they appear, interpolations optimizing passages to be integrated into the text (e.g. omitting parts of quotations), reformulations of units to be integrated into the text (e.g. giving the gist of a passage), or new formulations (e.g. summarizing references or giving further references under a key word). In the final phase of checking the text product, citations must be verified for correctness and for their function in the context of the overall presentation.

² This technique is a combination of the 'outline draft' writing strategy described by Sharples and Pemberton (1992: 324) whereby the writer first drafts the individual chapter headings and then the associated text, and the 'cut and paste' approach where the writer collects previously formulated passages (texts, notes, and citations) and rearranges them according to the task at hand.

³ Errors in the cotextual integration of text passages lead to discontinuities on the morphological-syntactic and/or the lexico-semantic level. They are one of the few indications that allow conclusions to be drawn about unmarked loans from other texts.

4. Situational and individual constraints

As mentioned in the previous section, the quality and quantity of references in texts is influenced by a number of factors. These may result from the broader situational context in which the text production tasks are embedded (see Section 4.1), the conditions of the concrete text production situation (see Section 4.2), or the individual characteristics of the writer (see Section 4.3).

4.1. The situational context in a broader sense

The production of academic texts is a form of situated action. The organization, contents, and implementation of text-producing actions may differ depending on the type of situation. This is also true of recourse to the literature in writing academic texts. References to the literature are “typified actions within typified situations” (Bazermann, 1988: 319).

In the case under discussion here, the situational context in a broader sense is the result of the production and reception of scientific texts being firmly embedded in the institution of science, which may be regarded as a historically and culturally influenced social community. The institutional context thus largely determines the overarching goals of the writer as well as the norms and criteria of acting in the scholarly community. The goals, methods, and organization of the institution have a more or less direct impact on all forms of academic text production and reception. This means that psychologists read texts in a different way from linguists, as do physicists from technicians. Geologists’ conventions for referring to the literature differ from those of linguists.

Differences are apparent, for example, in quoting patterns. The results of my survey show that representatives of the natural sciences and life sciences use significantly fewer quotations than representatives of linguistics, psychology, or education. A study by Dubois (1988) indicated that biologists actually rule out quotations as an option for their discipline. There are differences between the disciplines in preferred citing patterns as well. In my survey, 87.55% of the academics in the educational sciences, 91.3% of the psychologists, and 80.6% of the linguists said that in their discipline the citation form of ‘author (year)’ was predominant. In contrast, the majority of chemists use a numbering system.

Differences are also apparent in the positioning of references. Whereas in psychology, footnotes should not be used for references (cf. American Psychological Association, 1983), in archaeology, they are required to be utilized precisely for this function (*Archäologischer Anzeiger*, 1985: 766). Differences between academic disciplines further emerge in the functions of citations as well as in their content focus. For example, the linguists and psychologists I interviewed referred more frequently to concepts than to data, whereas for the chemists the converse was true. The information from the linguists and psychologists differs significantly from that of the chemists ($P < .01$). Further differences can be found in the focus of references (i.e. how global or specific a reference is) and in the quantity of references to the literature (discussed in detail in Jakobs, 1999).

Numerous factors arising from the social and institutional incorporation of the writer and the text production task also have an impact on the academic’s mode of

text production. Increasing competition and decreasing funding lead to conflicts over acceptance between rival conceptions and schools of thought (cf. Fiehler, 1990: 119). In this context, publications and being mentioned in publications and citation indexes become more and more important. This sometimes leads to practices such as 'in-house citation' in order to support and establish the position of certain individuals. Another extreme is simply ignoring the competition (cf. Phylax, 1995).

Other parameters of the situational context that affect the way in which literature is handled in text production include the reader or, more precisely, the community for whom the text has been produced as well as relationships within the community and with the writer. As in other forms of professional text production, the production of academic texts is embedded in a network of social relationships. Interactions result from the mutual perception of the literature. In some cases, papers are direct reactions to each other.

In the literature, academic text production is thus sometimes characterized as a conversation, as a multifaceted, continuous dialogue between individuals, schools of thought, and theories (cf. Vipond, 1993: 26ff). The writing of academic texts therefore cannot be reduced to the transfer of assumptions and research data. It is an important type of social interaction in the scientific community, characterized by the norms, expectations, and relationships among its practitioners. An explicit expression of scientific writing as social interaction is found in the way references are made in scientific texts to scientific texts.

“The use of other people’s words or ideas in text is often a way of establishing alliances or oppositions with individual readers or groups. Attribution, use of quotations, and referencing are all methods of establishing, altering, and maintaining relationships within discourse communities. When, in academic discourse, we use another’s criticism of a community member, rather than being critical ourselves, we often do so to preserve our relationships” (Paré, 1991: 54–55).

Working contacts within the scientific community frequently have an effect on the way authors handle secondary literature. The ‘in-house citation’ mentioned above is relevant here. In discussing the boundary conditions resulting from the situational and pragmatic environment of text production, attention must of course also be paid to the preferences of professional journals. These may be expressed explicitly in guidelines for authors, such as the requirement of only taking the most recent literature into consideration, or expressed indirectly in the criteria applied in peer review. The journal *Kognitionswissenschaft*, for example, asks whether the author of a submitted manuscript has paid sufficient attention to relevant papers published in earlier editions of the journal.

4.2. The immediate text production situation

In addition to social and institutional factors, the circumstances of the immediate text production situation also have a considerable impact on the way in which

source literature is incorporated into text production. Factors related to the direct text production situation are those which have a direct impact on text-production actions in general and on the handling of other texts. They comprise constraints resulting from the text production task (text type and subject), level of treatment, nature of the literature used, and conditions at the place of work. The last factor includes access to special literature and text-production media. Further influencing factors arise from time constraints and interaction between the writer and other people in the course of the production process. Some of these parameters were mentioned in Section 3.2.

4.3. *Individual constraints*

The way in which writers react to complex situational requirements and restrictions, and how they integrate these into the handling of the production task, depends on their individual capabilities and opportunities. These include knowledge and expertise as well as motivation and interest in the production task. Another domain is defined by the strategies, routines, and methods applied in solving the task (see Section 4.3.1).

The nature of the author's abilities and preferences in handling scientific literature is influenced by various autobiographical factors. These include the writer's academic socialization, social and academic status, and culture-specific socialization (see Section 4.3.2). The author's current physical and mental disposition (due to the time of day or personal circumstances) are also of significance but will not be discussed further here.

4.3.1. *Knowledge, strategies, and skills*

The critical examination, evaluation, and integration of source literature into academic texts requires skills and knowledge which are often only acquired in the course of a long academic socialization. This can be seen clearly in students' texts. Uncertainty in handling the literature, lack of expertise, and deficiencies in knowledge about the forms and functions of references to the literature result in many student papers resembling patchworks of poorly reworked citations rather than consistent scholarly discussions.

Not only writing strategies have an effect on the integration of secondary literature, but also the strategies applied in compiling the text product. In the literature these are known as strategies of 'source reading'. These strategies are acquired gradually and differ in difficulty and usefulness.

Flower (1990) describes three reading strategies employed by students in assimilating scientific literature for academic text production. These are termed 'gist and list', 'TIA' (True, Important and I Agree) and 'dialogue'. The 'gist and list' strategy is characterized as follows: "The writer goes through the text looking for the main points, finds an idea or term that links them, and uses that to organize the text" (Flower, 1990: 235). This approach is even taught at school. It is strongly text-oriented, permits fast and efficient work, keeps close to the text, and thus allows rapid progress for the reader.

The 'TIA' strategy, in contrast, is oriented to the reader's individual interest. The text is processed through a special evaluative filter. Reading is determined less by the text and its rhythm than by the readers' (existing) knowledge and their attitudes, assumptions, motivation, and interest. "TIA is an effective method for selecting the ideas you like, already know about, and could write on—and for deleting the rest" (Flower, 1990: 235). The advantage of this method is that it leads to ideas which can be used to organize one's own text and further developed there. A major limitation of the strategy, on the other hand, is that the readers tend to learn little new.

Only the 'dialogue' strategy promises a real gain in knowledge, combining as it does the first two forms of text assimilation mentioned. "By questioning what the text means, the writer using the dialogue strategy begins to move toward a *qualified, negotiated understanding of the ideas in question* (Flower, 1990: 236). Whereas the 'gist and list' and the 'TIA' strategies primarily help the users to organize their knowledge or reorganize existing knowledge, the 'dialogue' strategy supports a modification of knowledge (in the sense of 'knowledge transforming'). The dialogue may take different forms. Flower (1990: 237) mentions the following variants:

1. *Comparing* statements by authorities in the source text: "This one says X and/but that one says Y."
2. *Elaborating* statements in the source text: "Building on a TIA response, the student goes on to extend or elaborate the source's meaning with an inference, an example, or a reason (a supportive dialogue)."
3. *Contextualizing* ideas: The reader develops a scenario or an instance for an idea, or a hypothetical situation in which the idea has to prove itself. "As a result of these contextualizing dialogues, readers end up adding qualifications to their own ideas or to those of the supposed authorities. They start seeing claims as conditional."
4. A combination of (1), (2), and (3).

In the course of an academic career, an individual develops the ability to enter into a dialogue with other opinions. In the most elaborated form, other opinions are examined with respect to their tenability, and positions are reassessed, discarded, and/or followed up on.

4.3.2. *Cultural socialization and communicative styles*

Cultural socialization determines among other things the way writers produce a text. Culture is regarded here in Rehbein's (1985: 30) sense as a collection of ideas, modes of thought, and other types of knowledge in a historically standardized form, which is embodied as reproductive knowledge of major social units such as classes, regions, or even nations and nationality. The impacts of cultural socialization are expressed, on the one hand, in the different values attached to oral and written forms of communication as well as in different assessment of patterns of linguistic acts. For example, whereas in the Western world the explicit marking of citations is one of the conventionally agreed rules for academic texts, reproductive techniques are accorded a rather different status in some other cultures, such as the Chinese.

Here, texts are not so much regarded as the private property of persons and groups, whose copyright has to be protected by identifying loans, but rather as common cultural property. Differences of this type tend to lead to conflicts when academic writers from different cultures come into contact. At the English Centre of Hong Kong University, this state of affairs led to the establishment of a working group to deal with plagiarism (cf. Pennycook, 1993, 1994; for differences concerning individual languages within one educational system, cf. Pieth and Adamzik, 1997).

The assumption that different styles of thought can be attributed to different cultures and are expressed, among other ways, through differing styles of communication has been put forward by, for example, Galtung (1983) in his comments on styles of academic discourse in texts. However, the view he outlines does not ultimately go beyond clichés ascribing rigor and aggressiveness in intellectual discourse to the Teutonic style, which would primarily lead to citations being used to provide support for one's own position. In contrast, Anglo-Saxon discourse is said to aim at a discussion among colleagues, the major scientific virtue of which being a thorough examination of all sources (1983: 312).

Studies such as that by Gnutzmann and Oldenburg (1991) relativize the picture. They compare 20 articles from each of two professional journals with a similar thematic orientation, *Language* and *Linguistische Berichte*, with respect to special intralingual and interlingual features. For individual text parts (introduction and conclusion) prototypical functional units (text part segments or TPS) are identified. According to Gnutzmann and Oldenburg (1991: 126) conclusions display five text part segments: (A) summary of the author's own research; (B) summary of earlier research in the field; (C) discussion of the strengths and weaknesses of the author's own research; (D) open questions and their possible solution; and (E) evaluation of the results of the author's own research and their implications. Segment A (summary of earlier research in the field) occurs with comparable frequency in English (18.2%) and German (12%) conclusions. Segment E tends to be typical of papers in *Language* but atypical of the German texts. Moreover, segments A and B are frequently combined in papers published in *Language* in order to underline the importance of the author's own research by playing down the value of previous research: "[...] typical conclusions in *Language* argue that earlier studies on the subject concerned leave important questions open or are in some other way unsatisfactory (in TPS B), whereas the author's own research provides satisfactory answers to these questions (in TPS A)" (1991: 129).

Other tactics of self-promotion spell out the significance of the author's research for the field in question or for linguistics as a whole. The majority of short conclusions in *Language* (cf. Gnutzmann and Oldenburg, 1991) have the function of positive self-assessment. In contrast, the conclusions in *Linguistische Berichte* are considered to be more neutral in tone. Gnutzmann and Oldenburg regard this as a culturally determined difference:

"In *Language* [conclusions] mainly serve to stress the importance of the author's research and are taken to be a very important part of the text, whereas in *Linguistische Berichte* they mainly serve to summarize the author's own

research and do not play a prominent role at all. These differences could be a reflection of the different traditions in the respective scientific communities, with American scientists being much more competitive. 'Publish or perish' is obviously not an empty phrase in American linguistics, as witnessed by the conclusions in *Language*" (1991: 130).

5. Summary and conclusions

Reproductive writing is a specific type of text production with two basic variants. In the first variant, the entire text production process is focused on reproducing already known texts, such as in the production of summaries and abstracts. The second variant is a necessary or possible component of complex text production, a prototypical example that can be found in the writing of scientific texts, which conventionally requires a writer to work through and integrate the relevant literature. From this perspective, scientific texts are the result of interaction between receptive, reproductive, and productive processes.

As already shown, the creation of texts depends not only on the specific requirements of the text pattern. The writer's decisions are influenced by a whole range of factors such as the broader situational and pragmatic context in which the text production task is embedded (e.g. culture), the circumstances of the immediate text production situation, and his or her own personal aims, capabilities, and preferences.

The results of the 1993–1994 survey of researchers working in a variety of disciplines show that the implementation of patterns and processes can vary greatly from field to field. The skills and knowledge needed to handle scientific literature are acquired slowly in the course of academic socialization. Thus, lack of experience as well as different cultural norms and strategies can lead to errors in text reproduction, incorrect attribution of sources, and even plagiarism.

Expanding the scope of investigation from the text product to the text production process not only permits a more precise and subtle assessment of the text product's characteristics (e.g. as discussed in Section 4.3.1, in the educational sector) but also allows suggestions to be put forward as to why certain patterns are preferred, changed, or replaced in certain contexts. A consideration of domain- and task-specific forms of text production is supported by the fact that communicative actions can be regarded as reactions to recurring tasks which arise in certain social contexts (domains) and have to be solved economically. Insights into text production permit deeper insights into the specific conditions under which certain forms of expression are (or may be) used for certain goals, thus providing a broader understanding of language-in-action and the work invested by the individual.

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Eva-Maria Jakobs is Professor of Text Linguistics at the University of Technology (RWTH) Aachen, Germany. Focus of research: professional text production, technical communication, new media communication, business communication. She is co-initiator of the German group called PROWITEC, concerned with academic text production in the electronic age.