

DOCUMENT DESIGN COMPANION SERIES

Information and Document Design

Edited by
Saul Carliner,
Jan Piet Verckens and
Cathy de Waele

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Information and Document Design

Document Design Companion Series

DOCUMENT DESIGN COMPANION SERIES accompanies the journal DOCUMENT DESIGN and focuses on internal and external communication of medium sized to multinational corporations, governmental bodies, non-profit organizations, as well as media, health care, educational and legal institutions, etc.

The series promotes works that combine aspects of (electronic) discourse — written, spoken *and* visual — with aspects of text quality (function, institutional setting, culture). They are problem driven, methodologically innovative, and focused on effectivity of communication. All manuscripts are peer reviewed.

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Volume 7

Information and Document Design: Varieties on Recent Research
Edited by Saul Carliner, Jan Piet Verckens and Cathy de Waele

Information and Document Design

Varieties on Recent Research

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Acknowledgements

The research presented in this book emerged from the Information Design Conference, presented January 2004 at the University of Tilburg in Tilburg, the Netherlands. The conference was notable for a number of reasons: not only was it the first such gathering in six years, at that conference, our publisher, John Benjamins decided to combine the journals *Information Design Journal* and *Document Design*, thus creating the synergies that are reflected in this book. The organizers of that conference were Jan Renkema, Hans Hoeken and Wilbert Spooren, as well as two of the co-editors of this book, J. Piet Verckens and Cathy de Waele.

After reviewing the research presented at that conference, the editors of this volume chose ten studies that we felt represented the current state of research in information design and document design. The studies were subjected to a double-blind review process. We would like to thank the reviewers for their helpful and timely comments: John Flowerdew, Debbie Folaron, Geoff Hart, Martha Komter, Leo Lentz, Simon Moore, Henk Pander Maat, Sam Racine, Annette Reilly, Mark Sadoski, Doreen Starke-Meyerring, Daniele Torck, Michael Steehouder, Annette D. Reilly, Anne Vermeer, Karel van der Waarde and Carel van Wijk.

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Preface

About this book

This book explores recent research in information and document design, the first to do so in nearly two decades and the first to do so explicitly under the names of the disciplines, information design and document design.

This book primarily explores research by presenting reports of actual research studies. It specifically reports on ten studies in the areas of marketing communication, functional communication, and online communication. Because some people do not understand why professionals conduct research in this field and, even for those who do, the research in this field is interdisciplinary (from fields such as applied linguistics, communication, composition, graphic design, human-computer interaction, organizational communication, rhetoric, technical communication, and typography) and, therefore, subject to a variety of research beliefs and practices, this book begins with an introductory chapter that places the research into a broader context.

Who should read this book

This book is intended for:

- Researchers, so they can consider the different areas of study in information design and document design, the different research traditions guiding study in these disciplines, learn about recent studies in the field, and consider how future research in the field may develop
- Students and professors in information design and document design and related fields, as a guide to discussion in a seminar on research on information design and document design as well as to inform emerging research projects
- Experienced practicing professionals in the field, who want to keep abreast of current developments in the field and be prepared for upcoming ones

How this book is organized

This book has an opening chapter, followed by three parts.

- Chapter 1 explores research in information design and document design. It quickly surveys past developments, suggests why we need further research in the field, explores the different research traditions in the field, and suggests ways to bridge the gaps among disciplines – including a format for reporting research that crosses disciplines and is used in this book.

Part One: Recent Research on Marketing Communication reports on projects intended to understand and improve the effectiveness of materials intended to sell a product or service, and to create relationships with customers. Chapters in this part include:

- Chapter 2: Branding and relationship communications by Judy Delin, Abi Searle-Jones and Rob Waller
- Chapter 3: Job advertisements in the Dutch mental health care sector: Preferences of potential applicants by Lonneke van Rooy, Berna Hendriks, Frank van Meurs and Hubert Korzilius

Part Two: Recent Research on Functional Communication reports on projects intended to understand and improve the effectiveness of informative materials, such as medical and job information. Chapters in this part include:

- Chapter 4: Distance education and the transformation of foreign language learning: Issues and challenges by Jenny Castillo
- Chapter 5: Differences between Germany and the Netherlands in patient package leaflets for Ibuprofen 400 tablets and consequences for adequate drug use by Marinel Gerritsen, Ulrike Nderstigt, Fabia Orlandini
- Chapter 6: The Scarier, the better? Effects of adding images to verbal warnings on cigarette packages by Carel Jansen, Mariet van den Berg, Chèr Buurman, and Martine Smits
- Chapter 7: Reading and expertise: The impact of connectives on text comprehension in the financial field by Nicolas Roebben and Yves Bestgen

Part Three: Recent Research on Online Communication report on projects intended to understand and improve the effectiveness of communication conducted through e-mail, web-sites, and other online contexts. Chapters in this part include:

- Chapter 8: Developing an E-mail analysis tool for writing research by Kirstie Edwards, Noel Williams, Anne-Florence Dujardin and Arthur Spaepen
- Chapter 9: Explicitness in interactive e-commerce communication by Päivö Laine
- Chapter 10: Definition in natural language between cognitive interactionism and conceptual integration by Paul Sambre
- Chapter 11: Between customer and computer-discursive effects of the use of computers in telephone complaints by Guido Schnieders

Conventions used in this book

Although the studies presented in this book use a variety of research techniques, the reports of each follow an identical format to ensure that readers have complete information about the study. Therefore, each research report includes the following sections:

- Descriptive abstract, which briefly summarizes the study and is intended for readers who do not plan to read the entire study.
- Background, which places this research into the larger context of research in this area.
- Literature review, which reports on other studies influencing and guiding this one.
- Methodology, which reports how the researchers chose their methodology, selected communication products to study, selected test subjects (if an experimental, survey, or observational study was conducted), and planned to analyze the data.
- Results, which reports the results of the study.
- Conclusions, which reports the conclusions based on the data collected.
- Limitations of the research.
- Applications of the research, especially in practical contexts.

Introduction

Current challenges of research in information design and document design

Saul Carliner

Concordia University in Montreal, Canada

Background

“What more can we research about writing and designing a manual?” a noted scholar in Rhetoric recently proposed when speaking to a group of PhD students. “Instead, we should just focus on developing theory.”

Hers is hardly an isolated position among academics teaching in information design and document design, and its associated disciplines: technical communication, applied linguistics, and graphic design. A few years earlier, a past president of a European professional society for technical communicators commented in a public meeting that “research had yielded all it can about the design and development of manuals.”

With this type of support from colleagues in high places, it’s a wonder that anyone would have an interest in researching information design and document design for the workplace.

But one could just as easily reply that these remarks seem to come from a limited understanding of the real challenges of designing and developing content for the workplace, and little or no hands-on experience with the challenge of designing, developing, and deploying content for the workplace, and an equally limited familiarity with the actual research that informs this practice.

This book explores research in information design and document design. It presents ten studies, each exploring a different aspect of the use of functional content in workplace settings. To provide a context for this research, this first chapter provides an overview of research on content for the workplace – that is,

research on information design and document design. This chapter first provides some basic definitions of the field and research, so that everyone reading this book works with the same understanding of terms that the authors do. Next, it provides a quick history of research already conducted in this field and the various fields and traditions in which this research was conducted. Then, this chapter explains why more research in information design and document design is needed now more than ever by exploring six current trends in the field. Afterwards, this chapter explores some challenges regarding the interdisciplinary approach to research in this field, and how that creates problems in understanding and accepting research methodologies. Next, it explores some of the challenges in conducting research in information design and document design, especially those of methodology. Last, this chapter previews the studies presented in this book, how they address the concerns raised earlier in the chapter, and calls for both additional research in the field, as well as research practiced with the rigor represented in this volume.

Reaching common ground

Before considering the specific topic of research in information design and document design, because these terms mean different things to different people in the field, defining terms might be appropriate to ensure that readers understand the terms in the same way that the authors do. This section does that. It first defines the terms document design and information design, then considers who uses the different terms and what the terms mean to them.

The first place to start is by defining the terms document design and information design. Although some people use the terms interchangeably, the terms are anything but. First, consider the definitions of document design. According to Schriver (1997) document design is:

a field concerned with creating texts (broadly defined) that integrate words and pictures in ways that help people to achieve their specific goals for using texts at home, school, or work.

In an earlier work (2000), I note that document design focuses on providing readers with physical markers that help them find content of interest and with the general appearance of information so it is both pleasing and usable.

In contrast, I see that information design takes a broader perspective, focusing on the meaning-making of text. Specifically, I define information design as:

preparing communication products so that they achieve the performance objectives established for them. This involves:

1. analyzing communication problems,
2. establishing performance objectives that, when achieved, address these objectives,
3. developing a blueprint for a communication effort to address those objectives,
4. developing the components of the planned communication effort solution,
5. evaluating the ultimate effectiveness of the effort.

Some of the terms in this definition have specific meanings.

- *Performance objectives* are observable, measurable tasks and business goals that users should be able to perform, the conditions for doing those tasks, and the level of acceptable work (Mager 1997, cited in Carliner 2000).
- A *blueprint* is a detailed design plan for a document that indicates not only the content to be presented, but the extent and format of the presentation (Kostur 1999, cited in Carliner 2000).

In this view, information design differs from document design in that information design addresses the issue of whether readers can understand a text, not merely whether they can find information in it.

However, the two definitions just provided are North American definitions. As Verckens, a co-editor of this book observes, although the terms information design and document design are widely used in Europe, the meanings are transposed. That is, in Europe, the term document design “has a broader perspective than information design. That is, if I take into account that “information” is only one of the aims and objectives of communication, document can have other aims and objectives (like persuading, diverting, ...)” (Verckens 2005).

Although not addressed by the title of this book, a third type of design exists: communication design. Communication design refers to the emotional reaction of readers to a text (Carliner 2000). That is, readers may be able to find the content they seek and may have comprehend it with ease, but they may face challenges in responding as the designer intended because of emotional barriers to the text, such as concern about the impact of the content on their lives (such as a computer automating the readers’ job out of existence or a strong emotional response to a word or phrase in the text, such as a perceived racial or ethnic slur).

The three fields are related in that they ultimately, hope to create usable texts, though each focuses on a different issue.

Furthermore, the three fields share a common foundation in research. Although many people today take for granted the importance of headings, margins, type font, retrievability aids, and layout that characterize effective document design, these concepts were considered groundbreaking when the research supporting them was first reported.

Although information design and document design are terms that are used interchangeably (in contrast, the term communication design does not appear to be in wide use in the vernacular), information design actually has two distinctly different meanings because it emerges from two distinctly different disciplines. One tradition is the European graphic design community, and is focused on the visual display of information.

The other is the American technical communication community, which uses the term information design to refer to a change in focus on surface issues such as the design of headings and the layout of pages to a focus on more fundamental issues, such as the structure of content and the approach to its presentation (Albers & Mazur 2003).

Certainly these are not the only two communities interested in information design. Indeed Jacobsen's (1999) initial attempt to define information design included representatives from a variety of disciplines, including architecture, graphic design, and museum exhibit design.

Despite the differences in backgrounds and foci, the fields of information design and document design are not only directly linked, but are merging. Consider, for example, the 2004 merger of the journals 'Information Design Journal' and 'Document Design' into a single journal.

Past research in information design and document design

Although the fields of information design and document design are both research-based, because people come to each from different disciplinary backgrounds, they tend to favor different types of research questions and methods for answering these questions. This section explores those issues. It first provides a brief chronology of research in the field, then considers the different traditions that informed those studies. Figure 1 presents a summary timeline of the major developments.

A brief summary of major developments in research on information design and document design

1920s–1940s	Studies in typography and audience response.
1960s	Plain language movement. Additional research on textual features associated with reader performance.
1970s	Research specifically labeled as information design (Europe) and document design (US). More studies on features of text as well as retrievability aids, the composition process. 'Information Design Journal' starts publication at the end of the decade.
1980s	Research on effects of new publishing technologies, online communication. Emergence of usability in communication. The book 'Guidelines for Document Design' is published.
1990s	More research on effects of new publishing technologies and online communication, as well as theoretical developments in multimodal discourse, genre theory, visual rhetoric. 'Document Design' starts publication at the end of the decade. The book 'Dynamics of Document Design' is published. The book 'Reading Images: The Grammar of Visual Design' is published.
2000s	Research on the effect of the Internet, in addition to online presentation and delivery of content. The book 'Multimodal Discourse' is published. 'Information Design Journal' and 'Document Design' merge as a single journal.

Figure 1. A brief summary of major developments in research on information design and document design

A brief chronology of research in information design and document design

Since the early decades of the twentieth century when market researchers sought to understand the effects of advertising on consumers and the features of publications and advertising that would increase consumer attention, researchers have studied the effects of documents on their users. What has changed with time is the number of disciplines that have developed an interest in this area of research, and the nature of their research.

For example, in the period between the 1920s and 1940s, US researchers Paterson and Tinker studied the effects of typography, looking at issues such as the effect of type sizes and type font on the performance of readers.

In the 1960s, researchers associated with a plain language movement emerging on both sides of the Atlantic sought to understand ways to make official documents, like insurance policies and public legislation, more understandable to their intended users. Buoyed by public outcries for official documents that were readable by the average person. This research gained steam into the 1970s, when cognitive psychologists, linguists, graphic designers, and researchers in similar disciplines sought answers to similar questions, as well as related questions. To support the aims of plain language, researchers sought to identify features of text associated with higher comprehension, such as typography choices, retrievability features (like headings and index entries), and page layout. Other researchers, such as composition theorists, sought to understand how people composed texts, so they could determine how to help authors more efficiently and effectively prepare documents. Still others, like the team of US cognitive psychologist Kintsch and Dutch linguist Van Dijk, focused on issues of comprehension. By this time, the term information design came into use in Europe and document design came into use in the US, and, by the end of the decade, the European community of information designers started the 'Information Design Journal' (Taylor 2000).

With the rise of desktop publishing and the early versions of online information, researchers in information design and document design spent much of the 1980s trying to understand new publishing technologies and figuring out ways to most effectively communicate with them. Researchers in information designs and document design also took notice of the field of usability, which emerged from the field of ergonomics in earlier decades, as corporate communicators begin staking out their roles as user advocates. This research and interest in usability that started in the late 1970s continued into the 1980s and 1990s and the current decade, fueled by significant technological leaps in online communications and publishing technologies, that vastly changed the ability of people to publish and distribute materials online. The field looked at ways to make products and content more usable by actively involving users in its design (Ehn 1989, reported in Spinuzzi 2005) and assessing how easily people could use products and content. In the current decade, the role of usability research has gained momentum, as has interest in the Internet as a medium for delivering and viewing content, and the compilation of research-based heuristics, especially for communicating online, such as the US National Institutes for Health's website, www.usability.gov, and the joint project of researchers

from the Universities of Twente (Netherlands) and Washington (US), which was published in the third quarter 2000 issue of 'Technical Communication'. While these researchers focused their research work on changes in technology, style researchers and researchers in critical discourse analysis focused on different types of changes: changes in society and their effect of social structures. For example, Renkema studied official-ese (1986) and Wodak studied issues such as the discursive creation of European identity (1999).

As the research has evolved, different disciplines have taken an interest in the field, each taking a slightly different, both in terms of the topics researched and the methodologies used. Although I tried to be comprehensive, it is possible that some group was inadvertently left out.

The different cultural and disciplinary traditions that have influenced research in information design and document design

One primary additional division in the research is geographic: between Europeans and North Americans. Research in information design and document design has emerged on both sides of the Atlantic, but the two research communities seem to have had limited contact, based on a review of the references in research articles published in Eurasian and North American journals. The two groups tend to primarily cite work from their own spheres of influence.

Part of this results from the fact that the research is performed by different disciplines in the two regions, disciplines that have limited contact with one another outside of their geographic regions. In Europe, research on document design comes from the fields of psychology, graphic design, and applied linguistics. Among the major contributors are Hartley, who has studied the effect of headings (among other things) (1987, 1980), Wright, who has studied a number of aspects of text, including some of the earliest studies on online text (1983, 1987), and Kress and Van Leeuwen, who have proposed ways to analyze and understand multimodal discourse (2001, 1996).

Although characterizing research is always a risky activity because a simple label cannot adequately cover the complexity of a research program, the following characterizations seem to hold some validity.

- Researchers in psychology in Europe have been primarily focused on identifying characteristics of texts that are associated with improved user performance, and the effect of context on the communication process.

- Graphic designers, especially in sub-disciplines like typography, have researched similar issues, though with a particular focus on the effects of typography on user performance and communication context.
- Researchers in applied linguistics in Europe have been focused on understanding the meanings in discourse.

In general, the studies by psychologists and graphic designers tend to be experimental and intended for the purposes of generating universal design recommendations. Universal design recommendations are ones that are intended to apply in most communication contexts (Kostelnick & Roberts 1998).

In contrast, applied linguists have developed an interest in document design as many focus on issues of second language. Applied linguists look at the hidden meanings of various types of texts, and primarily use critical techniques like discourse analysis to unlock these meanings.

In North America, research on information design and document design was pioneered by cognitive psychologists, linguists, instructional designers, and rhetoricians. Much of the early work was performed at the American Institutes for Research (AIR) Document Design Center (DDC), which produced the groundbreaking ‘Guidelines for Document Designers’ in 1981 (Felker, Pickering, Charow, Holland, & Redish 1981). Other ground breaking work in research and theory includes work conducted by researchers working in English composition, such as Linda Flower’s research on the composition process (1989); work by researchers in technical communication, such as Schriver’s 1997 ‘Dynamics of Document Design’, which summarized and synthesized developments in the field to that date, and work by people in rhetoric, such as the application of genre theory to practical communication (Berkenkotter & Huckin 1995).

Further research in North America was conducted in a number of other disciplines, including instructional design (which conducted the research under the term in the area of message design, and is reported in ‘The Technology of Text’ (Jonassen 1982) and on the effects of various educational media (Clark & Mayer 2002). Most of this research relies on experimental techniques.

Some of the research was conducted by people working in the field of technical communication, which inherited the tradition of research conducted by the DDC and composition researchers. A large part of the research focused on the teaching of technical communication (especially to non-professional communicators), another large part was devoted to the use of writing practices in work places, especially engineering environments. Much of the research on teaching was conducted through survey methodology; research on workplaces

was often conducted using naturalistic techniques, like participant observation and interview-based research. This community was so focused on studying the teaching of writing and the use of writing by non-professional communicators in the workplace that Rude, then-president of the Association of Teachers of Technical Writing, admitted at the organization's 2003 banquet that perhaps the organization missed the boat on researching the web.

Still others technical communicators researched use of the web in great detail. They were joined in this effort by researchers in the field of computer-human interaction (also called usability and ergonomics). These researchers attempted to understand how people find and read information online, and develop heuristics for communicating online. To best understand how people find and read information, these researchers used a form of observational research known as usability testing. To devise heuristics, many researchers used the technique of literature review, with a system for rating the quality of the content in the articles reviewed.

In addition, researchers in other branches of computer science and cognitive psychology have sought to understand how people find and read information online. Some of these researchers conduct survey and experimental research, others design and develop prototype systems, then observe and assess their use.

Although this brief summary cannot do full justice to the history of research in information design and document design, despite its brevity, a few key trends seem to appear. First, people in a number of different disciplines have developed an interest in the way that people design and develop texts in print and online, and in the meaning that users take from these texts. Second, the primary research focus and research methods vary as widely as the disciplines. The result is a variety of different attitudes about researching texts intended for practical purposes uses, different means of generating research-based knowledge about these texts, and different beliefs about what is important to research. On the one hand, it may not be appropriate to try to ask for a consensus or drive researchers to one. On the other hand, locked inside disciplinary boundaries, researchers can easily lose sight of the bigger picture in which their research exists and their findings can be applied.

Current imperatives driving the need for research in information design and document design

One of the key purposes of this book is to provide researchers in information design and document design with that broader perspective. Perhaps that lack of a broader perspective is what drove the rhetoric professor and the past president of a technical communication society, who were quoted at the beginning of this chapter, to eschew further research on documents. Indeed, a number of developments in and out of the field are driving the need for research in information design and document design. This section explores ten such issues. They admittedly represent one person's perspective on the field, but are rooted in its literature and practice. Some of these are similar to the issues that drove the founding of the journal 'Document Design' (Renkema, Hoeken, & Spooren 1999). Others emerge from changes in the design and production of content resulting from new technologies. Still others represent concerns expressed to me privately by colleagues and publicly in response to my own research.

The first issue emerges from some basic beliefs about the fields of information design and document design. If researchers and practicing professionals in the field subscribe to the belief that certain principles of effective document design can be identified through research and applied in practice, we believe in the science of information design and document design. According to Merrill and Wilson (in press, 2005), a science involves theory and research. "Theory is about describing phenomena and predicting consequences from given hypotheses. Research is applying appropriate methodology to test those predictions" (pp. 6–7). They add that research involves choosing an "appropriate methodology" to test the predictions. The theory is about "understanding what conditions are necessary" for readers to achieve the goals intended for the text.

In other words, theory is essential for guiding effective communication, and research is essential to devising and testing these theories. A combination of new technologies, new forms of communication, broader audiences, and the changing manner of producing and using documents continually create opportunities to devise and test theories. To merely develop theory without assessing its veracity in empirical contexts is to only conduct half of the job.

That brings us to the second development driving the need for research in information design and document design: the emergence and continuing growth of publishing technology, which has not only changed the way that professional communicators produce and deliver content (Rockley 2002), but has also led to the development of new genres of communication (Carliner & Boswood 2004). Research can inform us about the changes to the compos-

ing and production process, essential characteristics of these emerging genres, user expectations regarding these genres, and the environmental conditions that can produce the most effective performance from these materials (effective referring to a response that best matches the authors' intentions) (Stolovitch & Keeps 1999).

A third development driving the need for research is new approaches to designing and delivering information that may or may not work with end users, such as single-source documentation (that is, online and print documentation produced from a single source file) (Rockley 2002) and reusable learning objects (Wiley 2002). Two types of research inform such technological developments. One is "build and evaluate" projects, in which researchers produce prototype projects that employ the new technologies then assess, first, whether they work as intended from a technical perspective and, second, the impact of these projects on the intended users. Such research assesses the feasibility and commercial viability of such technology. The other type of research is assessments of the usability of these prototype projects with their intended audience. One need for this research is to assess the practical viability of research ideas. Ideas like reusable learning objects and single source documentation are merely theoretical construct. Often, they are promoted with few or no practical applications and, before encouraging organizations to invest heavily in the financial and human resources needed to make these concepts work in practice, the research community has an obligation to assess the practical viability of these concepts.

Related to these new approaches to designing and delivering information are the fourth, fifth, and sixth developments driving the need for research. The fourth pertains to who actually prepares this content. Although, in the past, much content has been produced by communications professionals, new technologies like Content Management Systems (CMS) let technical professionals prepare and publish content with little or no assistance from a communications professional. In these situations, the role of the communications professional often does not involve translating the content from experts to those who have a need-to-know, but in preparing templates, guidelines, and other resources so that subject matter experts can write content on their own in formats that are useful to their intended audiences. Research can help us better understand the role of communication professionals in such environments, and suggest ways that universities can better prepare future communicators to work in them.

Not only do these new technologies place publishing capabilities with subject matter experts, they significantly reduce the cost of publishing material (especially when it is published online), letting individuals and organizations

can publish endless quantities of content. This, in turn, creates the problem of information overload for users (Wurman 1989), the fifth development driving the need for research. Although our ability to publish content is approaching infinity, the capabilities of users to find, read, and process that content is not, and research can help us identify and manage these limits.

With the ability of content experts, communication experts, and others to make content available so widely comes the related challenge of figuring out how to place value on the content itself, as well as the services of professionals who participate in the design, development, and publication of it, the sixth development driving the need for research in information design and document design. Some address this concern by certifying the skill of communication, as is happening in the United Kingdom. Others address this concern by trying to determine the economic value contributed by the content (such as Redish 1995; Spencer 1995; Blackwell 1995).

A seventh development driving the need for research is the increasing globalization of communication. Although theory tells us that strategies that work with audiences in one geographic area may not work with audiences in another, detailed research can provide us insights into those specific strategies that work and those that fail. Some early validation studies suggest the research originally reported as “generalizable to all organizations” does not generalize so widely. Consider the case of the research on the context of producing public relations materials by Dozier, Grunig and Grunig (1995). It was conducted with large organizations in the US, Canada, and the UK, but reported to generalize to organizations of all sizes around the world. Shipp-Evatt, Crispin, and Triplett (2002) replicated the research in small organizations and found the context differed substantially. Similarly, other studies like those by Ulijn and St.Amant (2000) have shown that people in different countries responded differently to the same text. Studies like these suggest that the many experimental studies on characteristics of text that were conducted with US and European-based university students and whose results have been generalized to audiences of all ages and in all cultures may need to be replicated to determine just how widely they really generalize. For example, many studies about the ideal qualities of text have been conducted with students who are ages 18 to 23; the ability of people who are over 40 to read the same text may differ because of changes in eyesight that occur after people turn 40. Similarly, many US-based studies are conducted with people whose only language is English; do the results generalize to people who are reading English as a second or third language? To materials produced in other languages?

Not only should the studies be replicated with different subjects, but this question raises a eighth development driving the need for research: a need for more specific guidelines on communication than the research currently provides. Most of the research on information design and document design has yielded guidelines like those just described – universal, ones, intended to apply to any communication context (Kostelnick & Roberts 1998). Some research must be contextual, based in the specific communications challenge faced. In fact, if communication is ultimately a problem-solving discipline (Flower 1989), then the field needs more contextualized research. The need for such research is already being identified by some researchers, who are questioning earlier document design research. Some questions pertain to methodological issues with the previous research. Some question whether results of research with texts that are decontextualized from an everyday use and primarily performed with a heterogeneous group of university undergraduates in the US can be generalized to other populations (Boswood & Carliner in preparation; Thalheimer 2005). Similarly, some wonder whether guidelines developed from research on print-based publications can be transferred to online publications without re-testing – as has been done with many of the guidelines (for example, see some of the guidelines in Williams 2000). Some question whether generalizable guidelines can be extrapolated from research based on use of a single publication, as is typical in most universal research.

Some contextualized research exists, primarily from usability tests. But some question whether such tests can produce generalizable results because of the small sample sizes and the fact that many usability tests are performed on beta materials (and, therefore, the assessments are formative and not appropriate for making summative judgments (Boswood & Carliner in preparation; Tessmer 1993). Others are calling for the study of design over the life of the text within its specific communication context (Reeves, Herrington, & Oliver in preparation). In other words, researchers are calling for more complex studies that more effectively capture the complexity of information design and document design challenges.

Indeed, some researchers say that, not only does existing research need to be replicated and conducted over the lifespan of a product, but with several instances of similar texts and viewed from a variety of perspectives (Carliner & Boswood 2004). That is, rather than basing generalizations on how to write questions for presentation online from looking at one site, researchers should systematically study a number of sites that use Frequently Asked Questions and base guidelines on the results of all of these studies. Similarly, the guidelines for asking and answering questions on a Frequently Asked Questions site might

differ from that in an informational article that merely uses the question-and-answer format to engage readers. This second format would require a similar amount of study.

This issue raises the ninth development driving the need for research in the field: not only are researchers calling for more complex studies that more effectively capture the complexity of information design and document design challenges, funding organizations are expecting it. On both sides of the Atlantic, funding organizations like the European Research Council (ERC), National Foundation of Scientific Research of Belgium, Social Sciences and Humanities Research Council of Canada, Royal Netherlands Academy of Arts and Sciences, and the U.S. National Science Foundation, among others, are recasting themselves as knowledge management organizations, with as much of a mission to share knowledge as generate it. These funding organizations are increasingly showing interest in research that represents a variety of disciplines and employs a variety of different research methods. Using multiple methods triangulates the results – that is, provides multiple sources of evidence and, therefore, provides more credible evidence than that emerging from a single study of a single text.

The last development driving the need for further research is the recognition that the research base available is limited and has huge holes. No where is this more tangibly represented than in the compilation of research-based guidelines for communicating material online at the website, www.usability.gov. These guidelines, developed through a thorough review of the literature by highly qualified researchers, not only provides an extensive list of guidelines that are rooted in the research, but rate the empirical evidence for each guideline. A five-star guideline is one that is based in two or more empirical studies (considered the strongest evidence for a guideline). Only a small percentage of the guidelines at the site – less than 10 percent – are five-star guidelines. Other guidelines either have only one empirical study, or are based on different types of anecdotal evidence.

In other words, although researchers have conducted much research on information design and document design already, the design, development, and use of texts in print and online still leave us with an infinite number of topics to explore, and ways of exploring those topics. The next section explores how.

Methodology as an ongoing challenge in research in information design and document design

Although some may view variety as an asset – like the variety of research topics yet to explore in information design and document design and the variety of research methods available to explore these topics – this variety is also representative of the divisions among the various disciplines that conduct research in information design and document design. This section explores those divisions and what they mean in terms of the conduct of research in the field, and suggests ways to bridge the divide among the differences.

Although, as mentioned earlier, essentializing often creates a number of problems because it attempts to place boundaries around groups of people when the individuals that do not accurately reflect specific individuals within the groups, one advantage of essentializing is that it provides a quick glance at groups and allows people to easily see similarities and differences with other groups. With this in mind, I am going to try to characterize the differences in the approach to research taken by different disciplines that support the field of information design and document design.

One group of disciplines typically relies on the critical method for conducting research, like discourse analysis. Typically, such methods are used by researchers in the fields of rhetoric (which, in turn, informs the field of technical communication), and applied linguistics. Most often, critical researchers look for insights from texts themselves. Such research is often conducted by a single researcher with limited assistance from a co-investigator or research assistant. Furthermore, critical researchers rarely consult the authors or users to gain different perspectives on the text. Instead, these researchers try to extrapolate these reactions from clues given by the text itself.

In contrast, another group of disciplines relies on the experimental and survey research techniques. In experiments, researchers hypothesize about the relationships among two characteristics of text, called variables, and conduct an experiment in which people interact with a text to see whether the hypothesis holds true. To ensure that the experiment is actually measuring what it intends to measure, researchers must carefully control the research environment. In surveys, researchers may also have hypotheses about texts, but rather than observe the interaction of people and texts, they ask people to report on how they interact with texts. In some cases, researchers conduct surveys to gather descriptive information about a particular context, instead of testing a hypothesis. Questions are carefully worded to make sure that they actually ask for the intended information, and are not going to be easily misunderstood by

respondents to the survey. Experimental research is favored by cognitive psychologists, some educational technology researchers, some usability engineers, and some communications researchers including some branches of visual communication and technical communication. Other communication researchers and, in some instances, cognitive psychologists, use survey research.

A third group of researchers also observes phenomena, but looks at more complex situations. Rather than testing hypotheses and controlling situations so that they assess the impact of one variable on another, these researchers try, instead, to observe the complexities of individual communication contexts. Rather than controlling a couple of variables, these researchers want to identify every characteristic that may affect communication and observe their interactions. Such methods are observational, and are widely used by usability engineers and some researchers in educational technology and visual and technical communication.

Underlying each of these approaches are discipline-based beliefs about the nature of knowledge and knowing. For example, underlying the critical technique is a belief that knowledge is individually created and known. Underlying the experimental and survey techniques, often called quantitative or positivist research, is a belief that a single body of knowledge exists and researchers' jobs are to identify this body of knowledge. Underlying the phenomenological techniques, often called qualitative or naturalistic research, is a belief that knowledge is constructed individually or socially, and, through research, we can identify a broad range of meanings and knowledge.

In other words, different research methodologies yield different types of information about the design and effect of texts. They also represent different belief systems. Because they represent different belief systems, differences in research methodology have also led to strong friction among disciplines, like the debate over the critical versus empirical methodologies that raged on the pages of 'Technical Communication Quarterly' in the late 1990s (Charney 1997). Note, however, that that debate occurred in the context of technical communication research – not research in information design and document design, and such debates are not currently typical of our research community. But if we do not address the differences in methodologies and belief systems that underlie the different approaches to research in our field, these debates could occur.

Yet all of the research has essentially a similar set of goals: to provide insights into a particular type of communication context or text and, when feasible, offer guidance to practicing professionals for effectively handling such situations. As a result, some moderates, like me, prefer to look past the ideo-

logical differences and see, instead, how this broad range of research methods provides us with a wide range of tools for understanding information design and document design, and yields valuable insights.

Although aware of the differences in philosophy and the limitations of each method, pragmatists are also aware of the strengths of each method and how different methods can ultimately be used to generate rich knowledge about a discipline. Borrowing from approaches used in fields like marketing research, such pragmatists believe that critical and qualitative research techniques are most effective for generating hypotheses, quantitative methods are most effective for confirming hypotheses, and critical and observational methods are effective for determining whether resulting guidelines are being implemented as intended.

Consider this practical example. Researchers want to identify whether Frequently Asked Questions are indeed a genre. If it is, they want to identify the essential characteristics of the genre and user responses to that genre, and use this information to generate guidelines for effectively writing Frequently Asked Questions. Researchers would use critical and qualitative research techniques to identify the essential characteristics of Frequently Asked Questions, then use quantitative techniques to determine how broadly the characteristics might generalize.

Another source of friction among researchers is that different research traditions ask researchers to report different amounts of information about the research process. As a result, some research studies are fully documented while others seem poorly documented and, as a result, are dismissed as poor by researchers who work in disciplines that routinely disclose more information.

A pragmatic solution to this problem is to ask researchers to structure reports of all studies in the same way and report the same types of information, regardless of the research method. As Spinuzzi notes, research should be reported in a way that users can easily understand it (2005). One area in which wide variation among research reports currently exists is in the description of research methodology. For example, qualitative researchers routinely justify their choice of a qualitative methodology, while other researchers often do not report why they chose the method they did. Because so many methods exist, researchers should probably report why they chose the method they used and why this method is better suited than any other available method for answering the research questions. Quantitative and qualitative researchers usually report extensively how they chose their test situations and subjects, but all types of researchers should probably indicate why they chose the texts (or communication context) that they studied from all other contexts and the selection criteria

used to choose the test subjects (if used). Some research methodologies require that researchers report on the measures that they are taking to ensure that the results and conclusions are accurate; but all research should include such information. In other words, one way to ensure that all researchers understand one another's work is for all researchers to provide one another with the same type of information. Figure 2 shows the format that a report of research in information design and document design should take.

Information to report in a research report

Descriptive abstract

A descriptive abstract is written for readers who do not have time to read the entire chapter. It states both the topics covered in the chapter and the points that participants should remember about them. For more information, please visit <http://saulcarliner.home.att.net/id/summaries.htm>.

Background

How did this study emerge? What information design and document design practice is targeted for study? What questions exist about current practice in this area and what did the study hope to uncover about it? The background section concludes with the research questions.

Literature review

Before proceeding, the researcher should situate the research within the larger framework of research already conducted on this area, and suggest how this study would contribute overall to the literature on information design and document design.

Research methodology

This is the heart of the report, in which researchers explain how they chose to answer their research question. Specifically, the following information should be reported:

- *Explanation of methodology.* Explain why the methodology was chosen, such as discourse analysis, usability study or experimental study, and why this methodology – rather than another one – is best suited for answering the research question.
- *Selection of texts to study.* Explain the criteria used to choose the texts studied. For example, if the researcher conducted a discourse analysis of three communication products, explain (a) how the researcher chose the number to review (such as three rather than two or four) and (b) the criteria used by the researcher to choose the particular candidates.
- *Selection of subjects,* (for reports on research with users or other types of test subjects). State the criteria used to select the people who participated in the study, such as the demographics sought and how the number of participants was ultimately reached.

Note that these two sections on selection provide readers with the information they need to assess the extent to which the results transfer to other environments.

Figure 2. Information to report in a report on research in information design and document design

- *Selection of other data*, such as communication plans and evaluation reports, which were collected and analyzed as part of the research.
- *Data collection techniques*. Explain how data was collected, such as interviews or surveys. Provide additional details, as appropriate. For example, if subjects were interviewed, also state how the interview responses were recorded. Were the interviews audiotaped? Videotaped?
- *Data analysis techniques*. Explain how the data was analyzed. Cite sources that describe the use of this technique for similar types of studies.
- *Reliability and validity/trustworthiness and credibility*. Explain the measures taken to ensure that the data collected can be trusted. That is, if the researcher is conducting a quantitative study, how has the researcher ensured that the data and analysis are reliable and valid? If the researcher is conducting a qualitative study, how has the researcher ensured that the data and analysis are trustworthy and credible?

Results

Present the results of the study, as clearly and succinctly as possible. If the researcher has quantitative data, use charts and illustrations. If the researcher has qualitative data, provide detailed observations, direct quotations, and other direct empirical evidence.

Limitations of the research

First, anticipate and report possible challenges to the research, and explain why those challenges exist. Then, based on these challenges as well as methodological issues, the choice of text, and the choice of participants (subjects), explain how widely the results generalize or transfer – and how far they don't generalize or transfer.

Applications of the research

Explain how a typical information design and document design professional, working in a corporate, government, or nongovernmental environment, would apply the results of the research in their every day work.

Suggestions for further research

Suggest additional studies that may extend the results of your study, or add further confirmation of the results.

Figure 2. (continued)

Recent research and this book

Rather than advocating for one form of research over another, this book prefers, instead, to celebrate all of the different forms of research in information design and document design. In fact, the different studies reported in this book reflect the range of research methods used in information design and document design. The studies were originally presented at the '2004 Document Design Conference', hosted by the University of Tilburg in the Netherlands. The editors selected these studies for this book because they represented the

strongest research presented at the conference. The research reported here was further shaped by additional peer review and editorial guidance.

Although the methods vary widely from chapter to chapter, to ensure complete disclosure, each author uses the same format for reporting the research and provides information on the same aspects of the research. This similarity among reports allows researchers from different backgrounds to more effectively understand the work of colleagues working with different types of research methods. In the process of doing so, my co-authors and I hope that this book establishes new standards for reporting research on information design and document design.

In addition, we hope that this book raises a new interest in studying information design and document design within the context of its most wide use – the workplace. The ten chapters in this book each look at information design and document design in a different workplace or similarly practical context.

The two studies presented in part one, ‘Recent research on marketing communication’ report on projects intended to understand and improve the effectiveness of materials intended to sell a product or service, and to create relationships with customers.

In Chapter 2, ‘Branding and relationship communications’, Delin, Searle-Jones and Waller use an historical analysis to explore the emergence of billing statements to forms of branding and relationship communications, and use a form of discourse analysis to demonstrate how one particular billing statement demonstrates their points.

In Chapter 3, ‘Job advertisements in the Dutch mental health care sector: preferences of potential applicants’, Van Rooy, Hendriks, Van Meurs and Korzilius report on an experimental study comparing four possible job advertisements, trying to find out which one would most effectively recruit applicants in a tight job market.

The four studies presented in part two, ‘Recent research on functional communication’ report on projects intended to understand and improve the effectiveness of informative materials, such as medical and job information.

In Chapter 4, ‘Distance education and the transformation of foreign language learning: issues and challenges’, Castillo reports on a year-long study of students learning second and third languages using distance education technologies. Her study uses observational and survey data.

In Chapter 5, ‘Differences between Germany and the Netherlands in patient package leaflets for ibuprofen 400 tablets and consequences for adequate drug use’, Gerritsen, Nederstigt and Orlandini report on an experimental study comparing reactions of users to product literature in two different cultures.

In Chapter 6, 'The scarier, the better? Effects of adding images to verbal warnings on cigarette packages', Jansen, Van de Berg, Buurman, and Smits report on an experimental study comparing the effects of existing verbal warnings on cigarettes in the European Union with proposed visual warnings.

In Chapter 7, 'Reading and expertise: the impact of connectives on text comprehension in the financial field', Roebben and Bestgen report on an experimental study in which they compared the performance of high- and low-expertise readers on coherent texts (ones with connectives among ideas) and less coherent texts (ones without connectives among ideas).

The four studies presented in part three, 'Recent research on online communication' report on projects intended to understand and improve the effectiveness of communication conducted through e-mail, web-sites, and other online contexts.

In Chapter 8, 'Developing an e-mail analysis tool for writing research', Edwards, Williams, Dujardin and Spaepen report on an information design project by analyzing the e-mail correspondence among participants against a critical analysis technique.

In Chapter 9, 'Explicitness in interactive e-commerce communication', Laine analyzes the explicitness of language instructing users on e-commerce web sites. He uses a critical analysis technique.

In Chapter 10, 'Definition in natural language between cognitive interactionism and conceptual integration', Sambre uses discourse analysis techniques to examine the interaction between discourse and cognition in media definitions of new technology.

In Chapter 11, 'Between customer and computer-discursive effects of the use of computers in telephone complaints', Schneiders reports a discourse analysis study of an increasingly common situation: complaints made to a company by telephone. Schneiders looks at the way that the computer systems used to assist customer service representatives in responding to complaints, called work flow systems, shape complaint discourse.

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PART I

**Recent research
on marketing communication**

CHAPTER 2

Branding and relationship communications

The evolution of utility bills in the UK

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Enterprise IG

This chapter gives an overview of the shifting role of relationship communications such as bills, letters, and statements and their growth in importance as companies seek to retain, rather than just attract, customers. Tracing a path through the development over time of the genre of domestic bills as they have come through our practice, we argue that the design of bills as examples of these communications has shifted from delivering data from IT systems to communicating branded information to customers. Using as an example a telephone bill designed and developed at Enterprise IG Information Design, we suggest that brand values permeate every level of information presentation from layout to language. We comment on how branding has affected the genre of the bill, and suggest some reasons for acceptance of, or resistance to, genre shift in the presentation of personal information.

Keywords: brand, branding, information design, language, genre, customer communications, Tone of Voice, letters, bills, statements, service brand

Background

Information design has always been about making information clear, accessible, and (as far as possible) pleasant to use (cf. Waller 1979; Kinross 1989; Sless 1992, among others). Information designers are accustomed to satisfying a complex set of goals and constraints to satisfy a design brief. These arise out of the nature of the content to be communicated, the purpose of the communication, the constraints on the size, shape, medium, and extent

of the resulting document, the context in which the information is to be consumed and the goals of its consumers, the need (in some cases) to stand out from similar documents and to attract attention, the need for an attractive and easy-to-use appearance, the constraints of *actual*, rather than merely apparent, usability, and the limitations of timescale, budget, and production technology (see Waller 1987; Delin, Bateman, Allen 2003).

What happens when we add branding to this already-complex mixture. How do documents express the personality and values of a particular brand? What is the effect on design, at a range of levels, from logo and typeface to design and layout? In a separate but linked development, brand owners are becoming increasingly aware not only of the importance of the visual identity of the brand in communications of all kinds, but of its verbal identity (cf. Simmons 2000; Delin submitted). This means that the 'look and feel' of the brand is increasingly accompanied by branded language – in the commercial world, this is often termed 'Tone of Voice' (although it applies equally to written as well as spoken language). Branded language is deliberately developed so that it expresses the brand identity. More than just plain English, branded language hopes to create and exploit distinctive language positions that become identified with the brand.

But how has an organization's visual and verbal identity been represented in the kinds of communications customers receive after they have subscribed to a service? This chapter presents an exploratory study that looks specifically at the changes in one type of transactional communication, bills and statements, to suggest ways in which both visual and verbal expressions of brand are now reflected in post-sale documents. It begins with a discussion of some of the relevant concepts of branding from the literature. Next, it explains the methodology we followed to conduct this study. Then, this chapter presents the data we found and the analysis of that data. The chapter continues with conclusions and closes by suggesting some of the implications for practice.

Literature review

Relevant concepts for this exploratory study include customer communications and the brand experience, 'deep branding,' and branding language. The following sections explore each of these concepts in detail.

Customer communications and the brand experience

When the word ‘brand’ is mentioned, it is tempting to think of product brands such as Coca-Cola, McDonalds, and Microsoft. However, service brands may be of even more interest to those concerned with the design of communications, because the ‘product’ that is involved is often constituted substantially in those communications – they are central to the experience of the service. As De Chernatony and McDonald (2003:213) point out, consumers of service brands cannot assess those brands on the basis of tangible attributes, and so it is incumbent on everyone representing the brand who is likely to be in contact with customers to deliver the brand consistently, in every communication. Because, unlike in the case of product brands, there is little of what De Chernatony and McDonald term ‘physical evidence’ for a service, brands concentrate on ensuring that they maximise their opportunity to provide such physical evidence and to ensure its consistency (2003:231). Customer communications, verbal, electronic, and on paper, would fall into this category.

Simmons (2003) has emphasised the importance of language in creating relationships of affection with customers. He argues (2003:5):

Businesses now need to build brands that go beyond the simplistic reliance on the heavy artillery of logos and advertising, because there is a subtler campaign to be fought...brands might need to be more creative in their use of language, not in their advertising but in every area of internal and external communication.

This ‘every area’ must, in our view, include communications as apparently mundane as bills and statements. Beyond the field of branding, information designers have for some time been concerned with improving the ease of use of unglamorous but necessary communications such as forms and instructions (see for example, Waller 1984; Schriver 1996:331). However, until very recently few researchers or commentators have made the connection between the necessity for brands to create lasting relationships with consumers, and the potential of transactional communications such as letters, bills and statements for doing just that (see Waller & Delin 2003).

‘Deep branding’

The idea of ‘deep branding’ perhaps originated from an article in April 2002 posted on the internet by Freedman of www.freedthinkers.com: ‘The journey to deep branding.’ According to him, the term ‘deep branding’ means the power

of brands to ‘do well by being good’ in the sense of showing corporate social responsibility to the communities and societies that are helping the brand to grow. Elsewhere, the term ‘deep branding’ has been used to refer to the process of branding deeply ‘into the skin’ of the consumer, meaning that the brand leaves an impression that is difficult to erase (see Braunstein & Levine 2000). However, we are using the term somewhat differently here, in that we mean it to refer to the concept of brand as an organising principle and a way of thinking about communications both longitudinally – in that branding permeates communications not just at the ‘awareness’ stages dealt with by advertising, but much further into the customer relationship – and systemically, in that, for any given communication, brand is a major influence on every aspect of its form and content, and not just ‘decoration’ added after the main content of the communication has been developed.

Turning to the longitudinal view first, it has traditionally been the case that the larger portion of a company’s expenditure on communications has been devoted to attracting customers – for example, through advertising, and through marketing communications such as direct mail. Later in the relationship – once the customer has subscribed to the account or bought the product – communications such as bills, statements and letters were not seen as opportunities to express the brand or reinforce the relationship with the customer (see Figure 1).

There are several reasons for a change in attitude towards communications with existing customers. First, what is spent on marketing and advertising communications is soon wasted if the customer, once attracted, is then tempted on

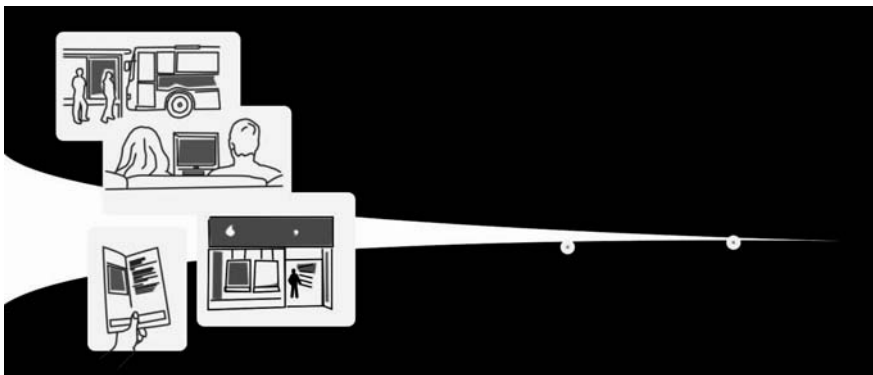


Figure 1. Traditional brand experience across the customer relationship

again after a short time to another company. This is increasingly the case in the UK service industries such as gas and electricity, mobile phone services, mortgages, and banking, where customers are increasingly aware of their options and willing to switch providers. This phenomenon of 'churn' is only revealed when companies analyse not just their market share but who those customers actually are: it may be that a significant percentage of the market share in a given month are not the same people who were subscribers in the previous month. In 2001, according to the consultants Booz-Allen and Hamilton (2001), customer churn cost the wireless broadband industry alone \$10 billion, a figure predicted to rise to \$19 billion in 2003. This was without the costs of the lost customers' subscriptions; it was simply the cost of activating and de-activating accounts.

With these kinds of figures in mind, marketing departments are increasingly turning their attention to customer *retention*. There is then a heightened realization of the importance of customer communications, as they are seen as a powerful means of reinforcing the brand in the minds of existing customers, perhaps persuading them not to switch. A second reason for directing more attention to customer communications is an increase in the use of these communications as a means of secondary marketing. Customers with an existing product – say, gas supply – may be informed about other services they can use (insurance, telephone or electricity supply, or appliance servicing, for example) through the medium of customer communications that they are already receiving. The role of branded communications is therefore developing much further into the customer relationship. We illustrate this schematically in Figure 2.

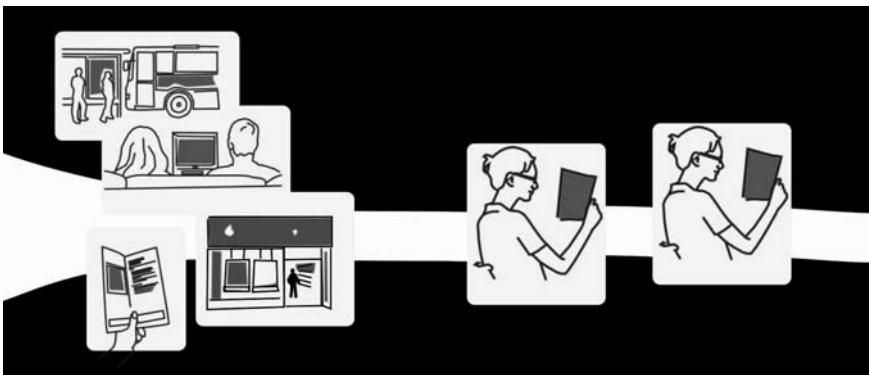


Figure 2. More 'deeply branded' communications, further into the relationship

As Bullmore (2000:7–8) points out:

In its advertising – in its planned, seductive encounters – a large British financial institution makes much of its friendliness. But a recent head office communication from the same company contained the following sentence: ‘This is a computer-generated message and therefore has no signature’... These are wasted opportunities: contacts between brand and brand user which have to happen; which are within the company’s control; but because their primary function is other than brand communication, are thought to have no brand effect.

At the time Bullmore wrote this, technology did exist that would enable companies to communicate more effectively, and there have been consultancies offering information design and simplification services for over twenty years, but few companies had the vision to use them to full effect. But the situation is beginning to shift and more companies are using their communications to propagate the brand experience further into the customer relationship.

Branding language

While much attention has been focused in the branding industry on the effects of visual ‘look and feel’, language has been largely neglected. Although advertising copywriters work hard to create strong texts that project brand values early on in the customer relationship, little effort has been expended in extending branded language into the full range of customer communications. In addition, the work of copywriters is largely intuitive, rather than focused on making linguistically explicit the features that characterize the language they are using. As is the case with visual branding, however, the situation is beginning to change, and more companies are developing explicit branded language, or ‘Tone of Voice’, with the aim of using this language throughout all their contacts with customers. As Allen and Simmons (2003: 125) suggest:

Verbal identity will for a while become a more important tool for brand expression... brand owners will increasingly look for better integration between the languages of identity and advertising.

Allen and Simmons appear to be suggesting that attention to verbal identity will be a temporary phenomenon. The popularity of developing visual identities does not seem to be waning, however, and there does not seem to be any reason why verbal identity should prove to be any less important. As Olins (2003: 171) points out:

Overall because branding is about creating and sustaining trust it means delivering on promises. The best and most successful brands are completely coherent. Every aspect of what they do and what they are reinforces everything else.

It is likely, then, that companies will continue to be interested in making sure that, at the very least, their language does not sabotage attempts made at other levels to create in customers a positive experience of the brand – and at best, we would assume that they will continue to make an effort to develop language that actively expresses the brand and helps to support it.

A language brand or Tone of Voice is developed on the basis of key brand qualities, traits, and values. These are typically lists of characteristics that reside in the ‘Brand Book’ that is created for the brand, either internally or by a branding agency, that captures the essence of what the brand is like. To give an example, one brand we recently worked with has the following values:

- passion,
- courage,
- commitment,
- innovation,
- contribution,
- high-performance coach.

The role of Tone of Voice development is to take these qualities and work out how they would be expressed linguistically: if a person were to have these qualities, what would their language be like? The resulting development of principles, sample texts, and key vocabulary is partly a creative, and partly an analytical exercise, relying on analysis of the brand’s existing language at the same time as using knowledge of language features to project a particular personality. Some brand values, in addition, do not make clear linguistic predictions: a brand that is ‘Agile’, or one that is ‘Switched on’, for example. For each brand, however, a solution must be reached that projects the brand values that are expressible linguistically. Brand values that make no language predictions are often more relevant elsewhere in the company’s activities – to the content it communicates, or to the fundamental principles upon which the business is run.

What kinds of language features are involved in the expression of a brand? Some specific examples might be (and see Delin submitted for a more detailed exposition):

Formality: whether contractions (*don’t*, *can’t*, *it’s*, *you’re*) would be used; informal vocabulary such as *kids*, *hassle*, and *sort out*; informal sentence

structure such as incomplete clauses, sentences beginning with *and* or *but*, for example.

Evaluative language: whether the personality is likely to be an intrusive one that makes subjective judgements about what is being discussed (such as that it is *great*, or that certain circumstances are *unlikely*) or whether the authorial voice is nowhere to be found.

Transitivity: how the participants (the product, the brand, individuals, customers, other people) take part in the processes expressed in clauses. For example, are customers the main 'doers' in the language, or is the brand?

Process type: what kinds of processes are given to the participants. For example, does the brand have thoughts, feelings and attitudes, or is it merely a doer of material actions?

Brand prominence: how often, and in what way, do the brand name, or concepts closely associated with it (e.g. *Orange*, *Orange TalkShare*) appear in the language?

Terms of address: Does the brand refer to itself as *I*, or *we* – if it refers to itself at all? How are customers addressed directly, or described in the third person?

There is not the space here to do full justice to the variety of features relevant to developing a language brand: a fuller description of the language branding process and the linguistic variables that are involved in achieving it is available elsewhere (see Delin submitted). A wide range of features, some of them linguistic, some of them content-related, and some related to the interaction of verbal and visual cues such as headings and page layout, will appear in the Tone of Voice guidelines for a language identity. The rules of address and sign-off, as well as the rules for formality and directness, will differ, for example, between an email and a formal letter so the Tone of Voice has to be sensitive to the type of document being produced. In many cases, Tone of Voice must also be sensitive to audience (financial experts? pensioners? company staff?) and to the function of the communication (the language of giving 'good news' about the company will not be the same as the language a government agency would use to ask for information that is required by law).

The function of Tone of Voice guidelines is to make explicit the state of the brand language for the purposes of creating and checking communications, as well as for sharing it throughout the company, training, and as a historical record. This creates the capability for the brand to be expressed linguistically beyond the awareness-raising role of advertising. In this way, the language identity is extended beyond the domain of professional advertising

copywriters, into a form where it may be disseminated and used at all levels of the organization, from marketing communications to people writing customer letters in call centres.

Methodology

The question we set out to answer in this study is how have the concepts of branding affected bills and statements? We chose these communications because these are documents in which we have a great deal of practical experience in production, and also because they are little studied in the context of branding – or, indeed, in any context. However, as established above, they constitute a potentially important means of brand expression for companies in an increasingly competitive market. In addition, it seemed clear to us that an interesting historical progression has taken place in the development of their visual design – one that reflects changes both in technology and in brand thinking in services in the UK.

Ours is an exploratory study. The examples we discuss are drawn from a sizeable collection of bills and statements, some of which were originated by designers and writers at Enterprise IG Information Design and some which were collected for reference purposes from other originators, often companies with whom we or other members of the company have accounts. We did not select the bills scientifically, nor did we perform systematic analysis. The argument for development presented here is amenable to empirical testing of a more scientifically-selected corpus spanning a specific time-frame, but we present it fairly confidently on the basis of being one of only two specialist agencies in the design and development of these communications in the relevant period. The bills we are talking about span roughly a decade from the mid-90s, with the final bill we discuss below being produced in 2003.

In our study, we were interested in looking at how bill design represented a shift in document genre. The analysis that we present here is the result of a form of multimodal genre analysis first proposed for visual documents by Waller (1987), and subsequently applied to the shift in the visual appearance of documents as they respond to changes in technology (Waller 1999). Waller (1987:290) presents the following useful summary of how graphic features relate the notion of genre to typography. According to Waller, genre cues typically operate at four levels:

1. *Typical context of use*: situations (such as industrial, domestic, educational, and bureaucratic); products (such as books, periodicals, objects, packs and containers); in the case of historical examples, date of origination.
2. *Typical format and configuration*: page (or field) size and shape, binding (where appropriate), paper or other surface material, frequency and use of colour, grid, boundary (such as line, box, column, page, book, and container).
3. *Typical treatment of verbal language*: composition system (such as letter image quality), typographic style (such as atmosphere and associations), range of signalling (such as underlining, bold, and italic), additional features (such as rules, tints, and borders).
4. *Typical treatment of visual elements*: pictorial syntax or style, proportion of visual to verbal language, how visual and verbal language are integrated.

We suggest that the genre of ‘bill’ has shifted in all these respects. As do Berkenkotter and Huckin (1995), we take the view that genres are a set of situational, visual and content cues that create expectations in the document user about how to act in relation to the document. As Schriver (1996:376) suggests, ‘readers learn to navigate complex documents by learning the rhetorical conventions of genres.’ That being so, if any of the identifying elements of the genre begin to move – and they do, as we will show below – then we would expect the behaviour of the user to change. However, as the later examples in the historical progression confirm, there are also brakes on genre shift that come into play when too many of the important genre cues change too quickly, risking breakdown of the genre and alienation of the user from the familiar purpose of the document.

We chose the approach described above because it is the only model extant that goes into any detail about visual characteristics that are relevant to documents like bills and statements. While researchers such as Kress and van Leeuwen (1995) have made useful inroads into the semiotic analysis of a wide range of visual artefacts – both two- and three-dimensional – the specifics about how to relate visual characteristics to genre effects, and in particular about how to relate the final appearance of the artefact to the practical constraints on production that have gone into it, are still under-developed.

Results

We present our analysis in two parts. The first part is a study of the changes that have taken place in UK bills and statements as a response to the dual impulses of technological change and the commercial imperatives of branding. We have selected the examples that illustrate this discussion simply by choosing those that best illustrate the steps and stages of development we perceive to have taken place. The second part is a closer study of a project undertaken by Enterprise IG Information Design, namely the application of brand principles to the development of a single bill, Virgin Homephone. The first analysis is intended to represent our own experience over years of professional work in developing bills, and shows the major shifts in bill design that we have both observed and participated in. The second study aims to show in more detail the extent to which specific brand values or 'personality traits' are reflected both visually and verbally in the final appearance and content of a bill. In this section, we present the results of the analysis.

The bill: From data to branded information

Our analysis of bills identifies four steps or phases that have taken place over time, showing the genre of bills shifting depending on technological changes, market changes, and changes in customer attitudes.

Step 1. The data-driven bill

In the early days of billing, bills were populated by whatever figures that the Information Technology (IT) department could produce. This was data, rather than information, often driven by the data the company had, rather than the information the customer needed to know. At the top of the bill was usually a set of reference numbers, bar-codes, and other identifying marks that were of more interest to the company than they were of use to the customer. Branding was usually restricted to a logo in the top right-hand corner (see Figure 3). The cable and wireless bill from up to 1996 (Figure 4) is an example.



Figure 3. The data-driven bill: branding restricted to the top right corner

Service Bill for 0161-6617285

MRS C GREEN
 84 FRANK COWAN COURT,
 SUSSEX ST
 SALFORD
 GT MANCHESTER
 M7 1QX

CABLE & WIRELESS

Cable & Wireless Communications
 All enquiries to:
Cable & Wireless
 Central Customer Services
 Tel: 0345 11 44 55
 Fax: 0161 954 6769

Customer name MRS C GREEN	Your account number 0416352127	Date of Bill 9 March 1999
-------------------------------------	------------------------------------------	-------------------------------------

THIS PERIOD	£	
Services and features	15.96	see pg. 4
Other charges and credits	9.00	see pg. 4
Call charges	11.96	see pg. 4
TOTAL BALANCE - due on receipt of this bill	£ 36.92	

Payt. Ref: 64359416352127 Includes £5.50 VAT for this period @ 17.5%

Welcome to LocalCall. Your first 100 minutes of local evening calls are free.

Girobank Trans cash
Girobank plc Boothle Merseyside GIR GAA

CABLE & WIRELESS

bank giro credit **ABC**

By transfer from Alliance & Leicester Giro account number

158 208	Customer Reference Number 0416352127	Credit account number 325 5115	Amount due (cheque acceptable) £ 36.92	
------------	-----------------------------------------	-----------------------------------	-------------------------------------------	--

Customer's Stamp and initials: Signature: _____ Date: _____

633196700416352127
 PLEASE RETURN THIS PAYMENT SLIP WITH YOUR PAYMENT
20-96-89

Please do not write or mark below this line and do not fold this payment slip

Barclays Bank Pic
 Automated Bulk Credit Clearing
Cable & Wireless Communications
 A/c No. 30999911

CASH
CHEQUE
 £

643594163521278 V7243255115 000036927 74 X


Figure 4. The Cable and Wireless (1997): example of data-driven bill



Figure 5. Schematic early territorial bill

Step 2. The territorial bill

The next stage in bill development was marked by the realization that it was possible to place customer messages on bills. Typically, though, this was restricted to a 'message box' somewhere on the bill, with the rest of the territory still controlled by the IT department. This resulted in a bill with multiple personalities, because the text accompanying the numerical data was written in one style, and the text in the message box in another. Because the message box was usually produced by the marketing department, it tended to display brand awareness – but the rest of the bill did not.



J2108932_1_80P1_721 AA0713

MR JA SMITH
14 MAIN STREET
ANYCITY
ANYSHIRE
AB1 2CD

Moving Home ?

At npower we now supply more than just gas and electricity - visit our website www.npower.com to find out more about our new range of services which could save you money in your new home.

You will also find our free move planner and lots of useful information and tools to help your move go smoothly.

For example, with **Housewarmer** you can design your own change of address cards, including a map. And when you choose npower to supply your new home we'll print and post your cards for FREE.

npower can supply you with gas and electricity no matter where you move to in the country. To take us with you, call us free on **0808 180 2000** quoting Z0230 to find out what you could save.

* Meter Reading key applies:
E = Estimated, C = Customers own and R = Removed

Your electricity statement Page 1 of 1

Customer account
4256 60218 63

If you would like to contact us
08457 145 146 8am-5pm Mon-Fri, 9am-1pm Sat
Fax Number 01793 555853

Loss of supply
08457 331 331 (24hr Service)

If you want to write to us
npower, Dorcan House, Eldene Drive, Swindon, SN3 3SH

Date of issue 17 July 2001

This is not a VAT invoice

Customers own meter reading
0800 7838281 (24 hour automated service)

Date of reading 16 July 2001

Charges for Electricity

Tariff Type D1- Standard Rate

Standing charge £5.14

Reading*	Present	Previous	Units	Amount
Units	10960	10570	390 at 6.400p	£24.98

Your Direct Debit DISCOUNT at 3.00% on £30.10 £0.91 CR
 VAT at 5.00% on £29.19 £1.45
Charges this quarter £30.64
 Credit balance brought forward £37.72 CR
 Payments made to 06/07/2001 £49.50 CR

Budget Scheme - for information only

For Information
£56.58 CR

Your Supply Number

S	01	801	001	
14	11	718	238	0003

Registered Office: Midlands Electricity plc, Whittington Hall, Whittington, Worcester, WR5 9RB. Registered in England and Wales: No. 2369928. Npower Ltd acts as an agent for Midlands Electricity in the supply of electricity.

Moving home?

If you're moving home you need to let us know. Just follow these simple steps and we'll do the rest:

1. As soon as you know you are moving, just call Customer Service on 08457 145 146
2. Give us your meter readings, your new address and a contact number
3. Tell us who's moving into your old home so we can bill them correctly

npower can now offer you some great new ways to save money, whether you move house or not.

For example, for complete peace of mind, take advantage of our free wiring check. Call 0800 1694 999 quoting Z0230 for more information.

See the enclosed *energy update* leaflet to find out more about npower's new range of services.

www.npower.com
for useful information for homemovers and everything you need to know about npower

42566021863

Figure 6. Npower bill, example of early territorial



Figure 7. Late territorial bill, with more messages, data on subsequent pages

As the territorial model developed, and awareness of customer communications as relationship and marketing tools increased, operational data became de-emphasised, often pushed onto additional pages (Figure 7). This left the front page of the bill with a much larger message area, with a brief numerical summary. The barclaycard bill in Figure 8 is an example.

Step 3: The deeply branded bill

The final stage of bill development to date is the deeply branded bill: a bill that is no longer marked by divisions between different voices and different functions (Figure 9). In this bill type – which is by no means generally adopted at the time of writing – thought has been put into how information can most usefully be presented to the customer, and the division between ‘selling’ space and ‘telling’ space has disappeared. This means that customers may not be con-

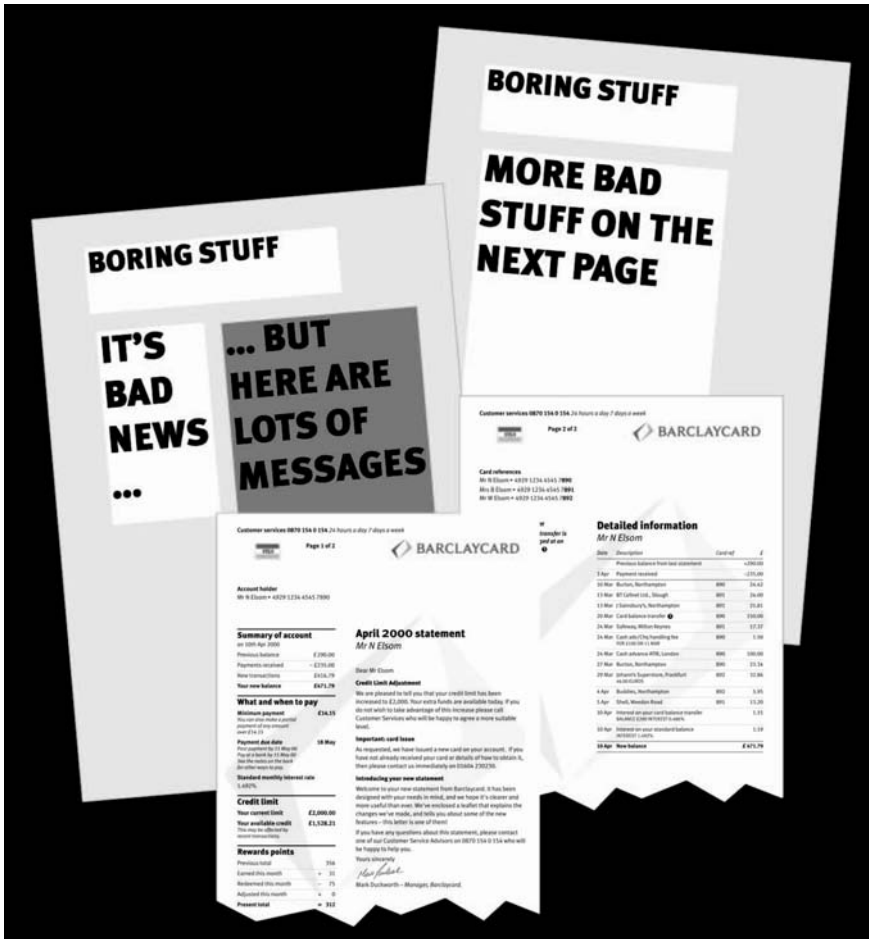


Figure 8. Barclaycard bill, example of late territorial

scious that part of the bill is advertising, and part of it is information: what is intended is that the entire bill attempts to provide a coherent overview of the customer's current situation, presented in a voice in keeping with the brand. Some information is orientated towards possible upgrades in service, others towards ways in which the customer might make savings, or find something more convenient (by doing something on-line, for example, or setting up a direct debit).



Figure 9. Schematic deeply branded bill

The example we will talk about in the next major section, the Virgin Homephone bill, is an example of a contemporary deeply branded bill (see Figure 10).

Step 4: Genre shift

The development of the deeply branded bill of course opens up a range of possibilities for the entire genre of 'bill' to shift. If branded information is present in every section of the bill, and there is no single part that solely presents numerical data, there is clearly room for more interpretation, comment, advice, and other potentially useful information that has not formerly been seen on bills at all. This means that the genre 'bill' will, logically, begin to move away from being a demand to pay. (Besides, the use of direct debit and other payment schemes have long been present, making many bills effectively statements rather than demands to pay.) But where can it move to?

Because bills are dynamic documents and are still driven by the customer data that is held by the issuing company – not just your tariff and usage of the service, but other information about you as well – there is also a great deal of scope for the personalization of the bill on the basis of that data. This has been in place for some time, even on territorial bills, where different messages are used for people in different customer segments. However, advances in both document generation software and customer data management mean that personalization is ready to go beyond the choice of canned messages in set positions.

As we noted above, people use genre cues (such as size, shape, print quality, design, layout, origin, and so on) to know how to act in relation to documents – and bills and statements are documents to be gone over, filed, or stuck to the fridge, while magazines are treated somewhat differently (Harper & Shatwell 2002; also, see Schriver 1996 for a cogent, research-based discussion about how users approach documents). One recent attempt to develop a new customer bank account statement used a magazine-style approach, embedding the statement data in a four-page glossy brochure that contained articles, advice, photographs, and other magazine-like genre features. This was intended to provide added value to 'premier' customers who were on a more expensive package than other service users, and its presentation was intended to reflect the fact that they were being offered not just a friendly relationship with the company, but a sense of someone looking out for them by finding tailored information that would interest and help them. As Zuboff and Maxmin (2002) suggest, bills, statements, letters, websites, and new media are now prominent channels for providing what they term 'deep support': the sense that compa-

nies with whom customers have relationships are looking after their interests in a focused and concerned way, rather than just corresponding with them on a routine basis. This is what the new statement tried to do.

However, the idea that a whole magazine *about you* could be produced every month was still ahead of its time, at least in terms of its projected acceptance by customers. The newly-developed 'statement' (because it hardly *was* a statement) was very much liked by the company concerned, but they decided against adopting it on the grounds that customers would not readily be able to identify its genre, and might mistakenly throw it away without realizing that it was actually personal and important information for them.

Genres that are more traditionally interpreted as marketing communications, rather than informational communications, perhaps form a more flexible locus for genre shift. For example, loyalty card statements (in the UK, Clubcard and Nectar are well known examples) do more frequently have a magazine style: the number of points collected is confined to a small area, with the rest taken up with newsletter style information. Although more research is needed to separate out the exact factors that determine the acceptability of these 'shifted' genres, one candidate would be how people feel about the information contained within them. There may be an inherent value to bank statement details, for example, that promotes conservatism in audiences (who need to know exactly what this information is, and how to treat it).

A more interesting prospect is that tolerance for genre shift is determined not by 'inherent' data value, but by personal values placed on particular types of data. When we have consulted customers about alternative statement designs, we have detected a clear distinction between information they feel they own and information that they regard the brand as owning. In particular, they have a clear sense of ownership over the part of the statement or bill that relates to their expenditure: the phone calls they have made or the financial transactions on a bank statement. Moreover, most people read their bank statement quite carefully, and a change to it would disturb a routine that is important to them. This may suggest that customers might more readily accept a radically genre-shifted loyalty card statement, but not a phone bill or bank statement, depending on their perception of the importance of the information contained in them.

A further relevant factor in the acceptance of genre shift is the character of the brand itself, and therefore the customers it attracts. A conservative brand attracts conservative people, whereas other brands self-consciously set out to innovate, actively seeking out ways to be different. Easygroup and Virgin are

examples of UK brands which would be expected by their customers to do things differently.

In any event, links between a new set of genre cues and genre-appropriate reactions to them take a while to establish. Launching a genre-shifting bill or statement is consequently hard to do, because possible mistakes may be costly to the company, the customer, or both. But if a new-style magazine bill or statement is sent monthly in the absence of anything else, customers will realize that this is all they are getting, and will accept the new genre as ‘standing in’ for the expected bill or statement. In this way, a few of the old genre cues (origin, appearing monthly or quarterly in the post) can be used as an anchor to help customers identify the genre, although almost everything else about it is different.

Virgin Homephone: A case of deep branding

So how can all these factors, from layout to language, be synthesized in documents document that are intended to express the brand? In this section, we look at an example of how a brand identity can be expressed at all these different levels in a typical customer communication: a phone bill.

The Virgin brand values that needed to be expressed in bill were *human, value, smart* and *simple*. Figure 10 shows the bill design that Enterprise IG Information Design proposed as their solution. In what follows, we will look briefly at the design and language features of the bill and how they are intended to articulate with the brand values.

Virgin Energy belongs to the London Energy group, which encompasses SWEB and Seeboard as well as its own London base. Given that all three of these regional companies can and do sell energy nationwide, and there is no financial incentive to compete with each other, each is loosely assigned a specific customer segment – SWEB, for instance, is popular with older customers who respect its West Country credentials. Virgin’s brand values are an attempt to reflect their particular segment, which is altogether younger, funkier and, to use their term, ‘savvy’.

Virgin’s intended brand position for this new service was knowing, tongue in cheek, direct, and cuts out any hint of verbiage and red tape wherever possible. Enterprise IG Information Design were tasked to design a bill for the Homephone service that would reflect these values, at the same time as preserving the bread-and-butter values of information design such as clarity, comprehensibility, and visual appeal. An image of the resulting bill appears in Figure 10.



Mr JA Smith
14 Main Street
AnyCity
Anyshire
AB1 2CD


account number
AB23 456 789 123

for calls made from
Mr JA Smith
100 Any Road
Sampletown
Anycounty
AB45 6CD

page 1 of 11

questions?

- email enquiries@virgin-homephone.co.uk
- call any time at all 0800 085 6151
- or go to www.virgin-homephone.co.uk



what have I used?

You're paying by Direct Debit, but your total this time was...

£42.98

*your calls were £3.12 cheaper than BT**

Welcome to Virgin HomePhone
Here's your first statement - it's great to have you with us!

the maths

31 December 2002

Before	
From last time 31 Oct	£22.50
Payment 23 Oct	£30.00 CR
Payment 23 Dec	£30.00 CR
Payment 23 Dec	£30.00 CR
<i>Thank you for your payments</i>	
Total from before	£67.50 CR

Now	
Cost of calls	£42.98
Call barring	£2.50
Direct Debit discount	£2.50 CR
Total this time	£42.98
<i>Inc £7.52 VAT at 17.5%</i>	
Total from before	£67.50 CR
Balance now	£24.52 CR

Next	
... we need to put your payments up to £31.00	
Your next payments will be...	
• Direct Debit 23 Jan	£31.00
• Direct Debit 23 Feb	£31.00
• Direct Debit 23 Mar	£31.00
<i>see the back for more info on how we worked out these payments, and let us know if there's a problem</i>	

your vital statistics

- which number?
01908210060
- what else do I get from Virgin Home? nothing at the moment
why not get your home energy from us too?
- what have I saved since I joined? **£83.22** so far*
that's the same as 7 hours of calls to Australia
- what's the deal?
1p, 2p, 3p for UK calls*
easy life - 1p per minute at the weekend, 2p evening and 3p daytime
- pay for what you use
no minimum call charge - and we won't round an 8-second call up to a minute either
- anything else?
call barring
next month we'll have a new service to offer. Call barring will be available from June. Please call customer services to find out more.

take a peek

- which calls cost the most? here's your top five

£3.341	▶ 01908210060	Tue 25 Nov
£2.312	▶ 01234987654	Thu 27 Nov
£2.303	▶ 0208521245	Mon 24 Nov
£2.284	▶ 01908210060	Wed 17 Nov
£1.225	▶ 079871233456	Tue 25 Nov
- what about my calls overall? here's a quick look

UK calls 78 calls	£30.31
International 6 calls	£3.20
Mobile 24 calls	£6.20
Other itemised calls 12 calls	£1.18
Calls under 10p 12 calls	£2.09
Cost of all calls	£42.98

* please see over for details of our rates and how we work out your savings

Figure 10. Virgin Homephone bill

▶ what about my calls overall?
here's a quick look

UK calls <i>78 calls</i>	£30.31
International <i>6 calls</i>	£3.20
Mobile <i>24 calls</i>	£6.20
Other itemised calls <i>12 calls</i>	£1.18
Calls under 10p <i>12 calls</i>	£2.09
Cost of all calls	£42.98

Figure 11. Virgin's 'top five'

Information on telephone bills can be presented in a large number of ways. From our market-leading landline provider, it is not uncommon for many customers to receive a one- or two-page summary plus 11 or 12 sheets of itemised calls. The no-nonsense approach of Virgin, however, required an approach to prioritising information that was relatively ruthless. The design is intended to show all necessary information on one page, enabling time-poor customers to switch off itemisation if they wish. Information is pre-sorted: for instance the top five most expensive calls are presented in a simple summary (Figure 11). The bill is self-abnegating; its use of white space and simple question based small sections proclaims 'don't worry about me – just look at the bits you care about – the rest is mere detail'. This reflects the intended target market for the service, who are not, typically, people who run through bills with a pen checking through every call, but people who just want to know how much they have spent.

A subtle detail of the design also turns the emphasis away from Virgin and onto the savvy customer, in a way that is intended to reinforce Virgin's position as smart and human. The normal convention for headings is that they are

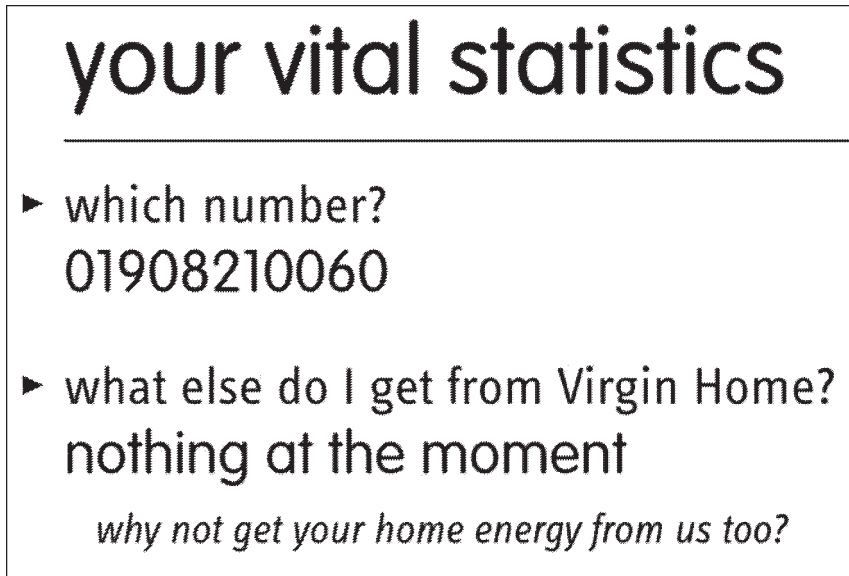


Figure 12. Virgin ‘Which number?’ feature

larger and bolder than body text. On this bill, many of the headings recede. This is because Virgin realise that customers can recognise their own phone number, and don’t need a heading saying ‘your phone number’ to tell them this. They may, on the other hand, have more than one phone line: the heading reflects this instead (Figure 12). This has the additional benefit of suggesting to customers, albeit obliquely, that it is possible to operate more than one line, and that some people do.

Virgin language borrows from a range of different registers to give the bill many reference points in the outside world. This indicates that, in the great scheme of things, both Virgin and the customer know that there are more important things to bother about. This places Virgin in a position of deprecating the job it has to do, and not wishing to impose too much on the customer to do a necessary but boring task. The subtext is: ‘Detail is for geeks: we give you the bottom line in as few pages as possible’.

A key feature of the language is irony, practically a definitive characteristic of disengaged and predominantly young people. The bill is ironic: the language used makes reference to worlds outside itself by using idioms from other fields (*your vital statistics, the maths*) that downplay the importance of the bill and the savings you can make with it: one ‘Savings’ message (for another, see Figure

15) describes a saving as *that's equivalent to two pints of lager and a packet of crisps**. The asterisk refers down to another message that mocks the convention of including marketing messages (**prawn cocktail flavour*). The format of the bill, placing everything on the front page, constructs the consumer as someone who doesn't have time to leaf through paper (and another message *too much paper?* reinforces this, referring to the bill as just 'paper' and not 'information').

The identity of Virgin as it comes across from the bill language seems to have three components:

<i>Human</i>	Comments like <i>it's great to have you with us</i> portray the brand as having relevant feelings it wants to convey to customers – so it has emotions. It's also fallible, which is shown by apology such as <i>oops!</i> and <i>sorry – this call should have appeared on an earlier bill</i> . This is in keeping with the customer model, as we can presume these customers don't really care about relatively small errors.
<i>Trust us</i>	In keeping with the view that customers don't want to be bothered with details, comments like <i>if it's not too far off, don't worry about it</i> and <i>we worked out your payments correctly</i> show Virgin as taking care of irrelevant detail.
<i>Mates</i>	The language style is one of conversation between equals, and language like <i>cheers</i> as a sign-off is evidence of a casual and easy relationship.

In what follows, we will look at how the values of the brand in general – human, value, smart, and simple – have influenced the development of the bill as a whole.

Human

The most obviously human characteristic of the bills is the Tone of Voice. The entire bill represents a conversation between the customer and Virgin. Conversational language is used in two ways. First, the structures chosen are conversational in a general sense in that they are informal and characteristic of face to face encounters between equals: *here's a quick look, call any time at all*. Second, the structures of exchange that are implied by the sequences of questions on the bills represent the questions of the reader and not the company or brand: *who for, which number, anything else, and what about...?* are terse, almost rude. The main speaker on the bill is therefore the reader, not Virgin. This is supported typographically by large size and simplicity of the answers compared to the questions (user-centred) and the small italics used for Vir-

gin's own comments. Below is an example of the conversation that the bill was designed to follow:

- Customer: What's the damage?
Virgin: £42.98.
Customer: Is that any cheaper than my previous phone company?
Virgin: It's £3.12 cheaper than BT.
Customer: What have I saved since I joined?
Virgin: £83.22 so far.
Customer: What's that in real terms?
Virgin: It's the same as 7 hours of calls to Australia.
Customer: Which calls cost the most?
Virgin: Here's your top five.
Customer: Anything else I need to know, or you want to sell me?
Virgin: There's a new call barring service...

There is also a knowingness – using the heading ‘anything else’ carries a hint that Virgin know customers’ tolerance of extra information is minimal, while anticipating the question ‘is this really worth it’ by giving a straight comparison with BT, the market-leading landline provider, also implies that Virgin are ‘levelling with you’.

That use of ‘what’s the damage’ is particularly significant (Figure 13). It reflects the language that customers use when talking about bills in focus groups; they’ll normally state that the first thing they want to know is ‘what’s the damage’. Adding this phrase so explicitly was viewed as something of a risk by Virgin themselves, but it is a key point of differentiation: this title is unique in the marketplace where the more pedestrian ‘Your phone bill’ is used by BT and other competitors. The phrase also drew on a regional dialect that was popular in the media at the time – the bill was designed when Jamie Oliver, famed for his ‘Mockney’ (i.e. mock Cockney) dialect was popular as a famous television chef, featuring in advertising campaigns for a major supermarket, selling books, and launching a restaurant. His was a ‘happening’ identity at the time, but the phrase is in any case common in very informal use in Southern British English (listed as ‘informal humorous’ by the Cambridge Advanced Learners’ Dictionary).

References to detail are also kept light, again reflecting the indifferent Virgin customer as well as a human need to avoid superfluous detail. Temporal references are vague: instead of ‘balance brought forward from 13 March’ (13 March being the date of the last bill), information is given under the headings ‘last time’ and ‘this time’. This vagueness attempts to match the reader’s de-



Figure 13. 'What's the damage?'

sire for a low level of detail, with a model of 'this bill, next bill' rather than specific dates and time periods. *This time, before, now, next* refer only to sequence, as the user doesn't care exactly when things happened. Again, there was a risk here. To use vague descriptors, Virgin needed to be confident that customers would trust their brand. Customers are only comfortable with ambiguity when they know there are hard facts underlying it. Virgin were relying on a widespread public feeling that they are a 'decent' company.

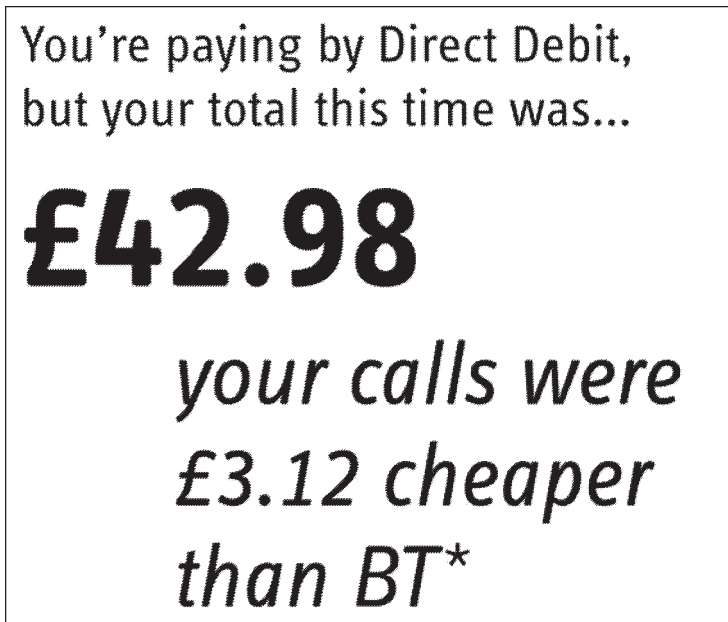
Value

To reinforce the idea that Virgin were a 'decent' company, they needed to advertise their 'decent' value proposition. The bill reinforces Virgin's value proposition in several ways. The obvious comparison to their competitor, the established British Telecom – designed to be the second most prominent figure on the front (Figure 14) – is reinforced by several other messages that comment on common BT claims. The prominent price comparison with BT:

- As savings per bill are likely to be small, a cumulative total is given ('what have I saved since I joined?'). This is then expressed in familiar terms – the

comparison with calls to Australia is an obvious one (Figure 14), but the comparator could be anything from pints of lager to packets of polo mints. The ideal would be to personalise this to the customer's particular profile.

- Adding 'what's the deal' reinforces the simple pricing structure of the phone service – the idea is that costs are transparent, which was positioned as a response to the complex tariffs used by other providers – seen by some customers as deliberate attempts to confuse.
- 'Pay for what you use' is another direct challenge to competitors such as One.tel, who round up calls to the next minute or impose a minimum charge. This is a difficult concept to express, so the slightly wry 'and we won't round an 8-second call up to a minute either' allowed us to include an example as well as, again, talking to the customer as if they are Virgin's equals.



You're paying by Direct Debit,
but your total this time was...

£42.98

*your calls were
£3.12 cheaper
than BT**

Figure 14. Price comparison with BT

▶ what have I saved since I joined?
 £83.22 so far*
that's the same as 7 hours of calls to Australia

Figure 15. 'What have I saved since I joined?'

£0.510
£0.579
£0.154 ▶ after 1 Apr, use 0123 instead
£0.223
£2.104 ▶ try www.totaljourney.co.uk instead?
£0.613
£3.422
£0.331

Figure 16. Helpful suggestions based on numbers called

Smart

The reflection of the 'smart' value in the bill design focuses on additional information that Virgin can offer based on the data on the bill. Among other bill features, the bill offers helpful suggestions about other ways the customer can get information they are obviously using the phone for – for example, visiting websites. It has also looked out for other tips, such as imminent changes in the dialling codes that the customer has been using (Figure 16).

Simple

The 'simple' value is served by the design of the bill as a whole: prominent payment details, clear layout, and the point that the user can choose itemisation options such as not being presented with the complete itemisation on many subsequent pages.

Discussion

As we hope this chapter has described, customer communications, traditionally thought of as rather mundane, present key opportunities for the expression of brand values. Brand thinking permeates a range of levels of design and language, from layout and typography to details of linguistic usage. We have moved from a position where the nature of the bill was dictated by what the IT system could produce, and are now in the position of being able to choose from a wide range of options what should be presented to readers, and how.

We also referred in the discussion to the nature of genre shift in such communications, and to some of the limits to genre shift. This is one of several areas where key research is missing, and would be useful to pursue. Some starting questions are:

1. How can we formalise the description of what, exactly, is shifting about genre?
2. Is the genre of bill or statement, in particular, more or less resistant to shift than other genres? Does this depend on inherent characteristics of the data being presented (such as is it personal, generic? Private financial details or details of consumption of a service?), or on the individual, personal values that customers place on the data?
3. What are the most powerful carriers of brand values out of the expressive resources available (from typography to content)?
4. How much do customers like language and design that is tailored 'just for them', and how far do they find this intrusive? What is the effect of sophistication of presentation on this judgement (such as are documents that are personal but with very high production values liked, tolerated, or found to be 'a bit creepy')? How much does this depend on the customer's brand expectations?

We think it is valuable to have questions such as these introduced to the research agenda. Progress in (1) has been made in the form of the genre description notation for illustrated documents developed in the GeM (Genre and Multimodality) project (see Henschel 2002; Bateman, Delin, Henschel 2004), which provides for documents to be annotated in an XML-compatible notation that captures language, layout, typography, colour, and other visual features in a way that makes it possible to compare documents formally. Copious expertise on (3) is available from branding teams who work with all the available resources for brand expression, although we are not aware of any research that is attempting to isolate the various elements and test them with participants,

or indeed of any methodology for doing so. Of course, in the case of questions (1) to (3), there is a significant problem with separating the elements that make up the 'Gestalt' of the designed document and attempting to draw conclusions about their relative influences. Finally, question (4) can be approached through sociolinguistic methodology for testing language attitudes (see, for example, Garrett, Coupland, Williams 2003 for a survey of methodologies which, although the study focuses on attitudes to English in Wales, provides a good overview of possible approaches to language attitude research in general). The final part of (4), the relation to brand expectations, is another difficult area in which participants in any research would need to be 'calibrated' with respect to their feelings about the brand in order for their judgements about the brand's language to make any sense. One area of research that is looking at measuring attitudinal response is a Japanese approach known as Kansei (feeling) testing, in which participants are asked to rate different stimuli against different descriptive adjective scales (e.g. 'elegant. . .not elegant', 'smooth. . .not smooth', 'young. . .not young'). This approach is being used increasingly in product design to help brand owners create products and packaging that 'fit' a pre-decided brand identity. For an introduction to Kansei methodology, see Nagamachi (1995).

It is to be hoped that these and related questions can be addressed in the near future, providing a fuller picture of genre shift and its influences in the increasingly important area of relationship communications.

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Job advertisements in the Dutch mental health care sector

Preferences of potential applicants

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Staff shortages mean that health care institutions need to find effective ways of recruiting new staff. The aim of the study presented in this chapter was to investigate the effectiveness of four different designs of job advertisements. The four designs were: (1) a traditional standard advertisement, (2) a 'multiple vacancy' ad, offering a number of different jobs in the same institution, (3) a testimonial in which an employee explains what she likes about her job, (4) a 'minimal' ad, containing a job title and a reference to the Internet site of the organization. Each design was evaluated by between 26 and 36 students at different nurse training colleges in a between-subjects design. Five-point scales were used to determine respondents' attitude towards the ad (first impression, intelligibility, attractiveness and informativeness) as well as motivation to respond to the ad. Results indicated that the standard ad was evaluated best for the majority of categories investigated. The testimonial advertisement scored best on attractiveness. The minimal ad was evaluated worse than the standard ad. The multiple vacancy ad was evaluated worse than both the standard ad and the employee testimonial ad.

Findings suggest that designers of job ads should take into account that employee prospects prefer ads that include substantial information about the organization and the position to be filled.

Keywords: job advertisement design, effective labor market communication, health care sector, attitude towards the ad, job-pursuit intentions

Background

Mental health care institutions in the Netherlands, like other health care organizations, are facing serious staff shortages (GGZ Nederland 2001:45; Koudijs & Van Boven 1999:28). A number of factors have contributed to these staffing problems (GGZ Nederland 1999:43–46; Koudijs & Van Boven 1999:28). The increased demand for health care due to, for instance, an aging population has led to a need for more personnel. A contributing factor is the tendency of health care staff to work part-time, which means that more people are required to fill the same number of vacancies.

Under these labor market conditions health care organizations need to compete for staff (Hospes 1998:54) and, as a result, need to find effective ways of attracting new staff. One way of recruiting new personnel is through job advertisements, which are still the most widely used means of attracting personnel, both in the Dutch Labor market in general (Salemon 2000; Van Dalen 2003:105) and in the health care sector (cf. Van Dijk 2001). Consequently, it is important how job advertisements are designed in order to appeal to suitable applicants and motivate them to apply. The aim of the present study was to investigate the effectiveness of four different designs of job advertisements.

Literature review

Previous studies on the effectiveness of American recruitment advertising have investigated a variety of physical and content features (Kaplan, Aamodt, & Wilk 1991) vacancy characteristics, location, pay, and size of the organization (Barber & Roehling 1993), job attributes and information order (Winter 1996), job attributes and pay ambiguity (Yüce & Highhouse 1998), job attributes, staffing policy and pay (Highhouse, Stierwalt, Bachchiochi, Elder, & Fisher 1999), organizational image (Belt & Paolillo 1982; Gatewood, Gowan, & Lautenschlager 1993), information on job scarcity (Highhouse, Beadle, Gallo, & Miller 1998), and positive and negative goal framing (Thorsteinson & Highhouse 2003). Only few experimental studies have specifically focused on aspects of recruitment advertising in the Netherlands, such as the influence of style, form and informativeness (De Jong 1987), the influence of ‘feminine’ versus ‘masculine’ language (Stoker & Van Gils 1994), and the effect of the use of English instead of Dutch (Renkema, Vallen, & Hoeken 2001; Van Meurs, Korzilius, & Hermans 2004).

The present study aims to extend current research into elements of recruitment ads that affect applicants' responses by looking at four different formats of job advertisements in the mental health care sector, based on recommendations in the literature on Dutch recruitment advertising.

The first type of job advertisement is the 'standard' or traditional job ad. Timmerman (1992: 130–153) and Van Dalen (2003: 112–122) list the elements that standard job advertisements should include based on the official job application code of the Dutch Association for Personnel Management and Organization Development (NVP). These elements are company information, job description, job requirements, application procedure, salary and conditions of employment. Van Dalen (2003: 107) calls this type of advertisement a 'we-ask-we-offer' ad.

The second type of job ad is a so-called 'multiple vacancy ad', in which an organization presents more than one employment offer. Timmerman (1992: 87) claims that multiple vacancy ads are more noticeable and more cost effective than ads offering a single position. Kaplan et al. (1991) found that job ads advertising more than one position generated a higher response than ads that advertised only one position.

Recruitment by means of job advertisements has evolved over the years, to include a third type of job ad, one in which corporate profiling is given greater emphasis. Since it is becoming increasingly difficult to attract candidates with standard organization and position requirements, organizations organizational culture, pleasant working atmosphere and career advancement prospects emphasize (Baas 1997: 31). These aspects are the unique selling points of the company and can make it more attractive for potential applicants to consider applying for a job.

The fourth type of ad reflects another trend in recruitment advertising: the use of new media such as the Internet (Van Dalen 2003: 52; Van Tuyl 1998: 10). A number of organizations have experimented with printed job ads that basically refer the applicant to an Internet site for further information (Salemon 2000).

Most studies into the effect of job advertisements include questions about respondents' "job-pursuit intentions" (Highhouse et al. 1998: 782) as the most important dependent variable measuring the success of a recruitment ad. Few studies have examined the potential applicants' attitude towards the job advertisement itself. (De Jong 1987; Renkema et al. 2001; Stoker & Van Gils 1994; Van Meurs et al. 2004). Research into commercial advertising has shown that readers' positive attitudes towards a particular ad lead to more positive attitudes towards the brand and increased purchase intention (Brown & Stayman

1992:46). Recruitment ads can be seen as a kind of persuasive text genre, similar to commercial ads, in that they are intended to motivate (qualified) job seekers to take action, that is apply for the job advertised (Korswagen 1986: 19). The purpose of our study was to investigate how the four types of job ad defined above influenced potential applicants' motivation to respond to the job ad as well as their attitude towards the ad itself.

Research methodology

Design

Since the purpose of the study was to measure the effect of recruitment advertising styles on potential applicants, it was decided to use a between-subjects experimental design. In the experiment, respondents were asked to evaluate one of a total of four manipulated versions of a job advertisement. The advertisements used in the experiment offered a vacancy/vacancies for nursing staff in an existing mental health care institution in the province of Gelderland (*de Gelderse Roos*). Like other health care organizations, this facility was confronted with a low response to its recruitment marketing efforts due to the previously mentioned difficulties in the health care sector labor market. The primary mode of communication with the labor market were job advertisements in both local and national newspapers (Bezemer 2002).

One of the national papers in which *de Gelderse Roos* places its job advertisements is the Saturday edition of *de Volkskrant*. This edition has a circulation of about 385,000, which reaches an average of one million readers over the age of thirteen. The Saturday edition of *de Volkskrant* is read by around 30% of higher-educated active job seekers in all sectors of the labor market including a high proportion of readers working in the medical profession (de Volkskrant 2004). On-line versions of the job ads are made available in the week following the Saturday edition on the newspaper's website (www.volkskrant.nl).

Respondents and procedure

Respondents were 117 students at different tertiary-level nurse training colleges. This particular group of respondents was selected because these training colleges are an important source of workers in the health-care sector. A questionnaire was administered in class in which respondents were asked to give

their opinion about a particular recruitment ad. Each version of the recruitment ad was evaluated by 26 to 36 respondents. The number of respondents of at least 26 per version of the ad was based on a statistical power of .93, a large effect size and an alpha of .05 (see Cohen 1992). The mean age of the respondents was 22, with a minimum age of 17 and a maximum age of 44 (SD = 5.27). Ninety percent of the respondents were female.

Materials

The four recruitment ads used in the experiment were based on actual advertisements used by health care institutions, recommendations in the literature, and on advice given by labor market communication agencies. The ads were designed in consultation with *de Gelderse Roos* and listed realistic vacancies. All four versions had the same layout characteristics, based on advertisements currently used by *de Gelderse Roos*.

The first version was a *standard advertisement*, which was comparable to ads currently in use. This advertisement included all the standard information elements recommended by Timmerman (1992:130–153) and Van Dalen (2003:112–122), that is, company information, job description, job requirements, application procedure, salary and conditions of employment.

The second version was the *'multiple-vacancy'* ad (Timmerman 1992:87–88), in which three different vacancies were offered. The ad only included information about the number of working hours for each position, contact information (and application procedure), and some limited information about the organization.

The third version was a *'corporate profiling'* ad in which the culture of the organization and the pleasant working atmosphere were stressed (Baas 1997:31) in the form of a so-called *testimonial* (recommended in Van Dijk 2001:39). This testimonial featured an 'anonymous expert' (Hoeken 1998:148), a nurse talking about her experiences working for the organization. The ad also included information about application procedure.

The fourth version was a *'minimal'* ad, which included the name of the organization, the job title and a reference to the Internet site of the organization (cf. Salemon 2000).

The four advertisements can be found in Appendix A.

Instrumentation

Five-point scales were used to measure respondents' motivation to respond to the ad and their attitude towards the ad. Internal consistency of the scales was calculated in terms of Cronbach's α qualifications of Cronbach's α were determined using the criteria described in Van Wijk (2000:217).

Motivation to respond. The first dependent variable measuring the effectiveness of the ad was motivation to respond. Motivation to respond was measured with three five-point Likert scales relating to interest in working for the organization, a desire to apply for the position, and desire to search for more information about the organization, or the vacancy itself. The reliability of the three items was adequate (motivation: $\alpha = .75$).

Attitude towards the ad. The second dependent variable measuring the effectiveness of the ad was respondents' attitude towards the ad itself. Four aspects were distinguished which were first impression, attractiveness, intelligibility, and informativeness. Respondents' *first impressions* of the ad were measured using one five-point semantic differential (good – bad). The *attractiveness* of the ad was measured using six five-point semantic differentials (based on Maes, Ummelen, & Hoeken 1996:209). A balanced scale technique with pairs of adjectives were used as follows: interesting – uninteresting, distant – appealing, uninviting – inviting, engaging – boring, personal – impersonal and monotonous – varied. The reliability of the six items was good (attractiveness: $\alpha = .91$).

The *intelligibility* of the ad was measured using six five-point semantic differentials (based on Maes et al. 1996:208). Again, a balanced scale using pairs of adjectives were used. The pairs were easy – difficult, simple – complex, unclear – clear, poorly organized – well-organized, logically structured – not logically structured and concise – wordy. The reliability of the six items was adequate (intelligibility: $\alpha = .70$).

Respondents were also asked to evaluate the *informativeness* of the ad as a whole by indicating on a five-point rating scale whether the advertisement included too little or too much information. In addition, they were asked to indicate (on a five-point scale ranging from good to bad) how they assessed the information in the ad about the following eight aspects: the organization and the department in question, the vacancy itself, requirements for the position, hierarchical level of the position in the organization, application procedure, remuneration, career advancement prospects and conditions of employment (based on Timmerman 1992:130–153). The reliability of the items was good (informativeness: $\alpha = .90$).

Composite means were calculated for all variables consisting of more than one item since the reliability of the scales in each case was at least adequate.

Statistical analysis

The effects of the four different versions of the job advertisement were statistically tested using analysis of variance (ANOVA and Kruskal-Wallis) and post-hoc tests (Bonferroni and Games-Howell). The Games-Howell procedure was used when the variances were unequal (tested with Levene's test for equality of variances). Crosstabs were used for analyzing the informativeness of the ads. Pearson and Spearman correlations were used to examine the relationships between the various constructs.

Results

Differences in the way the four ads were evaluated by respondents were statistically significant for all but one variable. Analysis of variance revealed significant differences between versions for respondents' *motivation* to respond to the ad, respondents' *first impression* of the ad, *attractiveness* of the ad, and *informativeness* of the job ad. Differences between the four ads were not statistically significant for *intelligibility* of the ad. More detailed results for each of the variables will be discussed below.

Motivation to respond to the ad

The primary aim of recruitment advertisements is to persuade potentially suitable candidates to apply for the job offered. In the questionnaire, respondents were asked to indicate to what extent they thought the job ad motivated them to respond to the ad. Table 1 presents an overview of the means and standard deviations for the dependent variable *motivation* for the four different versions of the job advertisement evaluated by the respondents. Analysis of variance was used to test whether respondents' opinions of the four versions differed. Test results showed that the respondents' motivation was not the same for all advertisements ($F(3,113) = 10.02, p < .001; \eta^2 = .21$). Post-hoc Bonferroni tests revealed significant differences between the standard ad and the minimal ad, between the standard ad and the multiple vacancy ad, but not between the standard ad and the testimonial. The difference between the testimonial and the multiple vacancy ad also turned out to be significant.

Table 1. Mean scores for motivation to respond to ad(1 = definitely; 5 = definitely not; $F(3,113) = 10.02$, $p < .001$; $\eta^2 = .21$)

Version	N	Mean	SD	Post-hoc differences
Standard ad	35	2.71	0.82	standard vs. minimal
Testimonial	26	3.01	0.87	standard vs. multiple vacancy
Minimal ad	28	3.39	0.90	testimonial vs. multiple vacancy
Multiple vacancy ad	28	3.80	0.67	
Total	117	3.20	0.91	

In all, the standard ad and the testimonial turned out to be more successful in terms of motivating potential applicants to respond. It should be noted, however, that with a mean of 3.20 on a scale from 1 to 5, respondents were relatively neutral about the motivational aspects of all four job advertisements.

Attitude towards the ad

Since it was assumed that a more favorable attitude towards the job advertisement would lead to a higher motivation to respond, the following four sub-variables were included in the questionnaire: first impression of the ad, attractiveness of the ad, intelligibility of the ad, and informativeness of the ad.

First impression

The first sub-variable was respondents' first impression of the ad. This question intended to measure respondents' overall reaction to the ad as a whole. Table 2 presents an overview of the means and standard deviations for the dependent variable *first impression* for the four different versions of the job ad.

Analysis of variance showed that respondents' first impressions of the four ads were different ($F(3,113) = 15.01$, $p < .001$; $\eta^2 = .29$). These findings were

Table 2. Mean scores for first impression of ad(1 = good; 5 = bad; $F(3,113) = 15.01$, $p < .001$; $\eta^2 = .29$)

Version	N	Mean	SD	Post-hoc differences
Standard ad	35	2.03	1.04	standard vs. minimal
Testimonial	26	2.73	1.19	standard vs. multiple vacancy
Minimal ad	28	3.36	1.25	testimonial vs. multiple vacancy
Multiple vacancy ad	28	3.82	1.02	
Total	117	2.93	1.31	

corroborated by an analysis using the non-parametric Kruskal Wallis test ($\chi^2(3) = 33.13, p < .001$). Post-hoc Games-Howell tests revealed that the standard ad made a better first impression than did both the minimal ad and the multiple vacancy ad, and also that the testimonial made a better first impression than the multiple vacancy ad. Differences between the standard ad and the testimonial were found not to be significant. As was the case for motivation, the standard ad and the testimonial turned out to be the more successful ads with the respondents.

Attractiveness

The second sub-variable measuring attitude towards the ad was *attractiveness*. Results for respondents' evaluation of attractiveness are displayed in Table 3. Analysis of variance indicated that the attractiveness of the four different advertisements was evaluated differently ($F(3,111) = 21.18, p < .001; \eta^2 = .36$).

Table 3. Mean scores for attractiveness of ad
(1 = attractive, 5 = unattractive; $F(3,111) = 21.18, p < .001; \eta^2 = .36$)

Version	N	Mean	SD	Post-hoc differences
Standard ad	34	3.07	0.76	standard vs. testimonial
Testimonial	26	2.40	0.62	standard vs. minimal
Minimal ad	28	3.80	0.95	standard vs. multiple vacancy
Multiple vacancy ad	27	3.87	0.75	testimonial vs. minimal
Total	115	3.28	0.97	testimonial vs. multiple vacancy

Post-hoc Games-Howell tests showed that the testimonial was more attractive than the other three advertisements. The standard ad was felt to be more attractive than both the minimal ad and the multiple vacancy ad. Again, the testimonial and the standard ad were the more successful advertisements. However, it should be pointed out that scores for all four advertisements were relatively neutral (overall mean = 3.28), indicating that respondents felt that none of the ads were really attractive.

Intelligibility

As was mentioned earlier, differences for intelligibility of the different advertisements were not statistically significant ($F(3,112) = 1.84, p = .14; \eta^2 = .05$).

As can be seen in Table 4, all four ads were found to be reasonably intelligible (overall mean = 2.27).

Table 4. Mean scores for intelligibility of ad(1 = intelligible, 5 = unintelligible; $F(3,112) = 1.84$, $p = .14$; $\eta^2 = .05$)

Version	N	Mean	SD
Standard ad	34	2.20	0.54
Testimonial	28	2.40	0.91
Minimal ad	28	2.06	0.70
Multiple vacancy ad	26	2.45	0.61
Total	116	2.27	0.71

Informativeness

The fourth and final sub-variable was *informativeness*. Respondents were asked to evaluate the information offered in the ad as a whole on a five-point scale ranging from too little information to too much information. The five categories were reduced to three by combining the categories 'too little' and 'little' and by combining the categories 'too much' and 'much'. An overall analysis revealed that only 3.7% of all respondents indicated that the ad included (too) much information. Crosstabs were performed for the two remaining categories and version of ad (Table 5).

The analysis showed that 78.8% of all respondents felt that all four ads included little or too little information. If we look at the different versions, it turns out that respondents evaluating the standard ad less often felt that the ad included (too) little information (48.4%) than did those respondents that evaluated the minimal ad (92.9%) or the multiple vacancy ad (96.4%). The percentage of respondents (80.8%) who thought that the testimonial included (too) little information was similar to the overall total ($\chi^2(3) = 35.71$, $p < .001$).

Table 5. Evaluation of informativeness of ad as a whole $(\chi^2(3) = 35.71, p < .001)$

Informativeness	Version	Standard	Testimonial	Minimal	Multiple vacancy	Total
Enough information	N	16	5	2	1	24
	Column %	51.6	19.2	7.1	3.6	21.2
(Too) little information	n	15	21	26	27	89
	Column %	48.4	80.8	92.9	96.4	78.8
Total	N	31	26	28	28	113
	Column %	100.0	100.0	100.0	100.0	100.0

Table 6. Mean scores for information about aspects of job and organization (1 = good; 5 = bad; $F(3,113) = 44.85$, $p < .001$; $\eta^2 = .54$)

Version	N	Mean	SD	Post-hoc differences
Standard ad	35	3.31	0.73	standard vs. testimonial
Testimonial	26	4.29	0.69	standard vs. minimal
Minimal ad	28	4.66	0.56	standard vs. multiple vacancy
Multiple vacancy ad	28	4.87	0.20	testimonial vs. multiple vacancy
Total	117	4.22	0.86	

In addition, respondents were asked to rate the information included in the ad about various aspects of the job and the organization. As can be seen in Table 6, none of the versions were evaluated very positively (overall mean = 4.22). Analysis of variance showed that the four advertisements were found to differ in informativeness ($F(3,113) = 44.85$, $p < .001$; $\eta^2 = .54$). Post-hoc Games-Howell tests revealed that the standard ad was felt to be more informative than the other three ads. The informativeness of the testimonial was rated as significantly higher than that of the multiple vacancy ad.

In summary, the standard ad and the testimonial can be considered the more effective ads in terms of first impression and attractiveness. In terms of informativeness, the standard ad can clearly be considered more successful than the other three ads.

To examine the relationships between the various constructs, correlations were calculated (Table 7). *Motivation to respond* to the ad was correlated highly significantly with three of the sub-variables constituting *attitude towards the ad*: first impression of the ad ($r = .86$, $p < .001$), attractiveness ($r = .69$, $p < .001$) and information given about aspects of the job and the organization ($r = .58$, $p < .001$). For the variable *first impression* these findings were corroborated by Spearman correlations.

Table 7. Pearson correlations for attitudes towards job ads: motivation, attractiveness, intelligibility, information about aspects of the job and the organization and first impression (n's ranging from 115 to 117)

	attractiveness	intelligibility	information aspects	first impression
motivation	.69**	.22*	.58**	.86**
attractiveness		.18	.51**	.67**
intelligibility			.14	.20*
information aspects				.60**

** $p < .01$; * $p < .05$.

The experiment showed that attitude towards the ad is an important factor determining the success of a job advertisement as it correlates strongly with an applicant's intention to respond to the ad. The standard ad and the testimonial were found to be most successful in motivating potential applicants and were also the most effective ads in terms of the positive attitude evoked in respondents.

Conclusions and discussion

The purpose of the present study was to investigate the effect of four types of recruitment ad designs on the motivation of potential applicants to apply for the vacancy advertised and on their attitude towards the ad itself.

The findings indicate that the standard ad and the testimonial were more successful in motivating applicants to react than the minimal ad and the multiple vacancy ad, although the difference between the testimonial and the minimal ad was not statistically significant. In addition, respondents' attitude towards the standard ad and the testimonial was more positive than their attitude towards the minimal ad and the multiple vacancy ad, although the difference between the testimonial and the minimal ad was only statistically significant for attractiveness.

When we compare the standard ad and the testimonial, we can conclude that the testimonial was felt to be more attractive than the standard ad, but that the standard ad was felt to be more informative than the testimonial. Findings also indicate that the multiple vacancy ad was evaluated least positively on all dimensions, although differences with the minimal ad were not statistically significant. In addition, motivation to respond to the ad was found to correlate strongly with attitude towards the ad.

Findings suggest that a standard advertisement and a testimonial might be more successful than a multiple vacancy ad and a minimal ad in achieving the most important aim of job advertisements: generating response from potentially suitable applicants.

A possible explanation for the higher motivation to respond generated by the standard ad and the testimonial is that both included more information elements than the minimal ad and the multiple vacancy ad. The standard ad, which included most information elements (as described by Timmerman 1992; Van Dalen 2003), was evaluated as the most informative ad. The preference of respondents for the standard ad and the testimonial suggests that informativeness may be an important factor in determining applicants' like-

likelihood to respond to the ad. This finding is in line with other studies, which have found that the more information elements are included in a job advertisement, the more attractive the job becomes (Barber & Roehling 1993:853; Yüce & Highhouse 1998:344).

The high scores for the testimonial on a large number of criteria, attractiveness in particular, may indicate that the personal approach, and the attention for atmosphere and culture of the working environment in corporate advertising as advocated in Baas (1997:31) and, specifically, in testimonials (Van Dijk 2001:39) does indeed pay off. The factual and impersonal approach of the other ads may have been an important factor in making them less attractive.

The minimal ad and the multiple vacancy ad were clearly less successful than the standard ad and the testimonial on all dimensions. They were felt to be less motivating than the other two ads, and respondents had a more negative attitude towards them. As for the minimal ad, our findings suggest that job ads consisting of a mere reference to an internet site (Salemon 2000) may not be enough to prompt potential applicants to pursue further contact with an organization. Although differences between scores for the minimal ad and the multiple vacancy ad were not statistically significant, the multiple vacancy ad was the least successful ad on all accounts. This finding seems to contrast with Kaplan et al.'s (1991:390) findings that more applicants responded to advertisements advertising more than one position. However, the method used by Kaplan et al. was very different from the one used in the present study. Kaplan et al.'s was an effect study that measured the actual response to a number of different ads placed by different companies. Their ads were not actually comparable in terms of the type of job that was offered, unlike the ads in the present study.

It should perhaps be noted that the multiple vacancy ad in the present study may have differed from the multiple vacancy ads in Kaplan et al.'s study in that the ad in our experiment included job titles, number of hours, contact information and limited organization information, but no job descriptions.

Limitations of the research

A possible weakness of the present study is that differences between versions of the ads were not always limited to one dimension. The multiple vacancy ad and the testimonial were similar to the minimal ad in that they contained very few of the information elements included in the standard ad. Unlike the other ads, the testimonial not only focused on the intangible aspects of the working

environment, but it was also the only ad that included a photograph and used the informal second person pronoun *je/ jij*.

Another limitation of this study is that it only examined the effect of different designs on one group of potential applicants, i.e. student nurses, but not on other potential applicants such as nurses already employed in the health care sector.

Applications of the research

Designers of recruitment ads might be well advised to use traditional standard ads or testimonials, since these ads turned out to be more successful in attracting applicants than a multiple vacancy ad and a minimal ad.

In addition, given the strong correlation found in the present study between the attitude towards the ad and motivation to respond, it might be worthwhile for designers to develop attractive and informative ads if they want to attract potentially suitable applicants.

Suggestions for further research

As was pointed out under limitations, the findings of the present study only apply to one particular group of potential applicants: student nurses. Further research could focus on the evaluations of different types of job ads in the health care sector by other target groups, such as (women) returners, but also on evaluations of different types of job ads in other public and private sector organizations. When considering the impact of job ads relying on Internet references, researchers should investigate the actual Internet use by the target group in question.

Future studies should also explore possible cross-cultural differences in preferences for types of job ad. This is particularly relevant for health-care organizations which are interested in attracting nursing staff from different ethnic communities inside the Netherlands or nursing staff from countries other than the Netherlands (cf. Highhouse et al. 1999, who studied the effects of staffing policy, work structure and compensation system on African American applicants).

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Appendix A

The four job ad designs used in the experiment

Advertisement 1. The standard ad

de Gelderse Roos  **Veluwe Vallei**

De Gelderse Roos Veluwe Vallei maakt onderdeel uit van de Gelderse Roos Geestelijke Gezondheidszorg.

Het onlangs geopende regionaal centrum voor GGZ De Riethorst in Ede is in dit organisatie-onderdeel ondergebracht. De Riethorst huisvest afdelingen voor Volwassenen, Ouderen en Doven & Slechthorenden.

De afdeling Ouderen biedt ambulante behandeling en begeleiding (inclusief psychotherapie), psychiatrische deeltijd-behandeling, klinische behandeling en intensieve psychiatrische thuiszorg. Clienten van 60 jaar en ouder, woonachtig in de gemeenten Ede, Veenendaal, Wageningen, Rhenen en Renswoude kunnen gebruik maken van deze hulpverlening.

Voor onze afdeling zijn wij op zoek naar een

verpleegkundige m/v

16 uur per week

UW TAKEN bestaan uit het begeleiden van groepen cliënten. Daarnaast kunt u samenwerken binnen een team met andere disciplines. Verder neemt u deel aan multidisciplinaire behandelbesprekingen.

WIJ ZOEKEN een collega met een afgeronde opleiding als psychiatrisch verpleegkundige/HBO-V, die zelfstandig en in teamverband kan werken. U heeft een flexibele werkhouding. Ervaring en affiniteit met hulpverlening aan ouderen is een pre.

WIJ BIEDEN een arbeidsovereenkomst voor onbepaalde tijd. Uw salaris en arbeidsvoorwaarden zijn geregeld in de CAO-GGZ.

INTERESSE? Voor meer informatie over de functie kunt u contact opnemen met de heer J. de Vries, teamleider, telefoon (0318) 43 34 14. Uw sollicitatiebrief kunt u binnen twee weken sturen naar de Gelderse Roos Veluwe Vallei, De Riethorst, mevrouw A. Maakgoed, personeelsfunctionaris, Postbus 70, 6710 BB EDE.

www.degelderseroos.nl

Advertisement 2. The multiple vacancy ad

De Gelderse Roos...waar het om mensen gaat!

de Gelderse Roos  **Veluwe Vallei**

De Gelderse Roos Veluwe Vallei maakt onderdeel uit van de Gelderse Roos Geestelijke Gezondheidszorg

Verpleegkundigen

*36 uur per week
Dhr. H.J. Janssen
Telefoon (0318) 43 34 14*

SPH-ers

*24 uur per week
Mevr. M. van den Heuvel
Telefoon (0318) 43 34 55*

HBO-IW-ers

*32 tot 36 uur per week
Dhr. M. Konings
Telefoon (0318) 43 34 67*

www.degelderseroos.nl

Advertisement 3. The testimonial



de Gelderse Roos  *Veluwe Vallei*



Rianne Schouten (25) werkt als verpleegster bij *de Gelderse Roos*. Over haar werk zegt zij:

“Het gevoel dat je krijgt als je mensen kunt helpen is onbetaalbaar”

“Werken bij *de Gelderse Roos* bevalt mij uitstekend. De geestelijke gezondheidszorg is een grote sector, maar hier gaan we heel persoonlijk met elkaar om. De open, ontspannen sfeer en de collegialiteit zorgen ervoor dat ik met plezier naar mijn werk ga.

Op de afdeling *Volwassenen* werken we in een team van 14 verplegers nauw samen om onze cliënten de beste zorg te bieden. En dat is prettig, want het gevoel dat je krijgt als je mensen kunt helpen is onbetaalbaar.”

Zou jij ook deel uit willen maken van ons team? Of wil je graag meer informatie, aarzel dan niet en e-mail naar mij: RianneSchouten@degelderseroos.nl of bel naar: (0318) 43 34 14.

Sollicitatiebrieven kun je sturen naar *de Gelderse Roos*, mevrouw S. Mol, personeelsfunctionaris, Velperweg 3, 6824 BA Ede

De Gelderse Roos...waar het om mensen gaat

www.degelderseroos.nl

Advertisement 4. The minimal ad

De Gelderse Roos...waar het om mensen gaat!

de Gelderse Roos  **Veluwe Vallei**

Verpleegkundigen m/v

Informatie over deze vacature vindt u op onze internetsite www.degelderseroos.nl

www.degelderseroos.nl

PART II

**Recent research
on functional communication**

CHAPTER 4

Distance education and the transformation of foreign language learning

Issues and challenges

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The digitalization of the foreign language classroom is expanding its horizons and improving communication in this era of globalization. The study described in this chapter examines and reviews the usability of two specific designed communication models for the acquisition of second or “foreign” languages. For the purpose of this chapter, the terms foreign language and second language are used interchangeably. The chapter focuses on four main aspects: (1) an overview of current second language (L2) methodologies, (2) a definition of distance education, (3) a discussion of some issues and challenges in using distance education in foreign language pedagogy, and (4) an examination and review of two specific models utilized in L2 instruction. The latter is discussed in light of contemporary second language pedagogy, which is characterized by a developmental focus on communicative skills. This chapter closely explores how distance education is redefining foreign language classrooms and how computer technologies can facilitate L2 instruction.

Keywords: distance learning, distance education, second language acquisition, contextualized learning, standard-oriented instruction, hybrid-online model, multisite instructional model

Background

In this new millennium, rapid development in digital communication technologies continue to transform the foreign language (FL) instructional arena. Fiber-optic cabling, the Internet and related networked information services, dynamic and delayed forms of interpersonal computer communication, virtual

reality technologies and interactive television continue to transform the foreign language (FL) instructional arena. In addition, the digitalization of the FL classroom has implications for curriculum preparation, materials design and instructional delivery with potentially far-reaching consequences. In an age where computers and technology have become indispensable tools in the FL class, teachers and instructors in second language acquisition (SLA) classrooms more than ever need training in how to use these tools. Current technological advances have given rise to a redefinition and expansion of the term *distance learning* or *distance education* in the 21st century.

This study examines and focuses on the impact of distance learning in the FL classroom of the 21st century. For the purpose of this chapter, the terms foreign language and second language are used interchangeably. The chapter focuses on four main aspects: (1) an overview of current second language (L2) methodologies, (2) a definition of distance education, (3) a discussion of some issues and challenges in using distance education in FL pedagogy, and (4) an examination of two specific models utilized in L2 instruction. The latter is discussed in light of contemporary second language pedagogy, which is characterized by a focus on the development of communicative skills. This chapter closely explores how distance education is redefining the FL classroom in this age of modern information technology. The corpus of the research attempts to answer this question: How do particular technologies presented in our two designed models facilitate the acquisition and instruction of a L2 for a standard-oriented and communicative environment?

Literature review

Overview of current L2 methodologies

The language teaching profession continues to experience substantial growth due to an abundance of creative new approaches, materials, teaching ideas, and technological innovations in recent years (Omaggio Hadley 2001). A critical examination of FL pedagogy indicates that a shift has occurred in the instructional paradigm. During the 1950s and the 1960s, language was learned by imitation and the FL instructor served as the outside source of input. FL language classes were instructor-centered and content-driven. The behaviorist approach emphasized stimulus-response conditioning with respect to how a student would learn a language. Student behavior was reinforced through practice and drill, and students were viewed as *reactive*. Learners acquired knowl-

edge *about* the language being learned. There were very few opportunities, if any, for contextualized communication and active learning with native speakers. Language was seen as a system of rules, and the task for language learners was to internalize these rules by whatever means were at their disposal. Language was considered then a unified system, and the ultimate goal of the learner was to approach the target language norms of the “native speaker.” Therefore, the priority for learners was mastery of the structures of the language (Nunan 1999).

During the 1970s, a revolutionary transformation occurred in the FL field as the emergent cognitive models of learning began to challenge the behaviorist view. With this new vision, language is *acquired* through cognitive processes that are inherent to the human mind. The learner is an *active* participant in the learning process and the instructor serves as the facilitator. In other words, a much richer conceptualization of language began to emerge. This new interpretation implied that language was seen as a system for the expression of *meaning*.

Since the 1970’s, FL instructors have constantly questioned themselves about the best techniques and approaches on how to teach grammar, how to balance listening, speaking, reading, and writing skills and how to teach culture in a multicultural world. Presently, FL educators emphasize a more pragmatic approach whereby communicative language teaching and proficiency-oriented instruction is based on a more personalized language and the acquisition of practical communication skills. As such, curriculum development and materials design now reflect the practical needs of the FL learner in a rapidly changing global society.

A close observation of L2 materials and pedagogical techniques demonstrates a constant use of authentic and context-rich material as well as a greater implementation of multimedia and technological materials. Contemporary L2 instruction is geared towards proficiency-based curriculum methodologies and the use of processes of interaction and negotiation of meaning. This latter term implies “the interactional work done by speakers and listeners to ensure they have a common understanding of the ongoing meanings of the discourse” (Nunan 1993: 122). In other words, the “input to which learners are exposed is made comprehensible as a result of interactional modifications that arise from a communication breakdown – a process known as the negotiation of meaning” (Ellis 1998: 160).

In addition, foreign language educators in the 21st century are adhering to the National Standards in Foreign Language Education, which were developed in 1996 as a collaborative project of the American Council in the Teaching of

Foreign Languages (ACTFL), the American Association of Teachers of French (AATF), the American Association of Teachers of German (AATG), and the American Association of Teachers of Spanish and Portuguese (AATSP). The resulting standards define the central role of foreign language in the learning experiences of all learners. These standards place content and skill integration as the central focus for instruction. The National Standards identify five major goal areas that are at the heart of foreign language education known as the 5 Cs: *Communication, Cultures, Connections, Comparisons, and Communities*.

Nowadays, there is an increasing integration of technology in the FL education forum. There are several ways by which technologies enhance the interaction and acquisition of a L2. Computer technologies provide and/or facilitate:

1. Exploration of authentic-dynamic language and materials created by and for native speakers.
2. Diverse contextualized rich activities with learner specific evaluation and feedback (e.g., integrated videos, realia, multimedia, and virtual tours of places of interest of the target language and culture to be studied).
3. Positive student motivation (Borrás & Lafayette 1994; Masters-Wicks, Postlewait, & Lewental 1996).
4. Students' critical-thinking skills.
5. Active learning and better language production (Pennington 1996; Beauvois 1997).
6. Diverse setting for interpersonal communication (both synchronous and asynchronous).
7. Integration of the 5 Cs into language instruction.
8. A mnemonic device for language learning.
9. Complex multimedia input to the learner.
10. Dynamic interactive learning experiences.
11. Information and tasks that can be tailored to suit learners' abilities, level of competency and proficiency as well as addressing their individual interests as such creating a non-threatening learning environment.
12. Exploration of the target language's culture.
13. Instructors and researchers with invaluable data and insight of students' SLA processes.

What is distance education?

Before a discussion of *distance education* can be undertaken, it is necessary first to clarify the term. Distance education encompasses an organized instructional program and situations in which instructors and learners are physically separated by time or by geography. Distance education involves instruction or training that is delivered to individuals who are geographically dispersed or separated by physical distance from the instructor and communicate using computer and/or telecommunication facilities (Belanger & Jordan 2000; Turlington 2000). This definition may include a course that is self-contained but includes, for example, interactive video tutorials or even *immersion* workshops where learners meet face-to-face with the instructor as a group. By this definition, an Internet course in which students interact synchronously or asynchronously with other students and the instructor via e-mail, chat lines, cafés, or discussion groups using conferencing software constitutes another form of distance learning. Keegan (1990: 44) identifies five main elements of distance education: the separation of instructor and learner; the influence of an educational organization; the use of technical media to unite the instructor and learner and to carry educational content; the provision of two-way communication so that the student may benefit from or even initiate dialogue; and the possibility of occasional meetings for both didactic and socialization purposes.

A closer examination of the venues by which *distance education* is structured and conducted includes asynchronous and synchronous forms of communication, such as computerized audio-video communications, fiber optic transmission technology, networked information services and products, the World Wide Web and the Internet, user nets and news groups, videoconferencing, and chat rooms, among other modes of computer-driven technologies. Asynchronous communication (i.e., e-mail systems, listservs, forums, discussion boards, bulletin board systems and learning content management systems (LCMS) such as Blackboard and WebCT) refers to communication that takes place at *different* times, for example, through e-mail in which a message is sent and may be read at leisure by the recipient. Synchronous communication (i.e., networked chat rooms and chat lines, instant messaging, virtual communities, NetMeeting, PalTalk, videoconferencing, computerized audio/video communications, iVisit, CUSeeme, multi-user object oriented domains [MOOs]) refers to communication that takes place at the *same* time, in *real-time* or *simultaneously* (Beatty 2003: 63). There are advantages to both modes. An asynchronous e-mail, for example, allows the writer to take time to consider and compose a message, and messages can be processed when the interlocutor is

ready- an important consideration when the communication is in different time zones.

The emergence of high speed, high quality digital transmission and telecommunication technologies facilitates a broad range of contextualized interaction in addition to communication with the outside world, the community at large, and with a vast collection of digitally stored information.

Some pros and cons of distance education

There are equally compelling arguments for and against distance education. On the positive spectrum, distance education provides the learner with an extensive range of activities and facilitates access to various remote-networked and local-networked databases of information and applications (Beatty 2003). Distance education permits dynamic interaction, authentic connection and communication, and updated exchanges of pedagogical ideas, curricula, and materials among online educators, both nationally and internationally (Toyoda & Harrison 2002; Lomicka & Lord 2003; Cziko & Park 2003). Distance education allows contextualized authentic learning of the target language to be available from home and other remote-based computer facilities. Multi-site foreign language instruction permits instruction from an instructor-site to any number of linked remote-sites. Moreover, distance education diversifies course offerings and fully completes any voids in a curriculum (Rayburn & Ramaprasad 2000). Distance education encourages learners to identify and address their own needs as students “are given the opportunity to manage their own learning, set their own pace, select course components relevant to their goals, and choose from the course menu” (Aplevich & Willment 1998:55).

Distance education is characterized by its interdisciplinary nature. It involves aspects of psychology, artificial intelligence, computational linguistics, instructional design, and human-computer interactions. Students contribute to their own learning process because they have a greater input and responsibility both in the acquisition of the target language and in technology. In addition, distance education stimulates the student to integrate his/her critical thinking skills and promotes autonomous learning. Distance education serves as a medium to prepare students for a global, digital, and interactive world.

Among the arguments supporting distance education in a general context are its cost advantages. Distance education delivers instruction “more productively at less cost or to more students for greater revenue” (Rayburn & Ramaprasad 2000:55). Computer-mediated communication (CMC) technologies allow educators to breach distances and to solve financial problems

of honorariums and travel expenses. Technological applications in language learning expose learners to languages and cultures in an “unimaginable scale” (Pasch & Norsworthy 2001:73).

Instructors who are not supportive of distance education generally direct their arguments around three important issues. First, some language educators feel that distance learning plays a major role in *dehumanizing* languages (Purcell-Robertson & Purcell 2000). They feel that learners are deprived of certain imperative paralinguistic and extralinguistic features and cues, such as gestures, lip movements, body language, facial expressions, posture, all of which aid the learner in decoding the verbal message. Yet other instructors feel that distance education completely isolates students, particularly in the field of foreign languages. They believe that students are being disconnected from the social, psychological, and physical real world (Purcell-Robertson & Purcell 2000). Moreover, some educators believe that the lack of social interaction and the psychological distance created by distance learning affects language content and style.

Another issue is that language instructors are being asked, in addition to their already full and busy agenda, to become technologically literate. Initially, distance learning demands more time from instructors since they must first familiarize themselves with the distinctive features and elements of the technology being employed, and then must carefully transcribe course content to the distance learning mode and structure (Hatasa 1999). As such, instructors must devote many more hours when developing courses for an online environment than for traditional face-to-face instruction, and they may not be compensated adequately. On the other hand, money is needed to train faculty and purchase expensive hardware and software products, computers and servers, and other supplementary equipment. Investment in technology entails investment in training, staffing, and in the long term monitoring and upgrading of technology. The challenge then is to select the delivery mode best suited for the course, the instructor, the students, and the resources of the institution, keeping in mind time, distance, and budgetary constraints.

Research methodology

Profile

This study examined and reviewed the usability of two specific designed communication models for the acquisition of L2 currently used at Hunter College

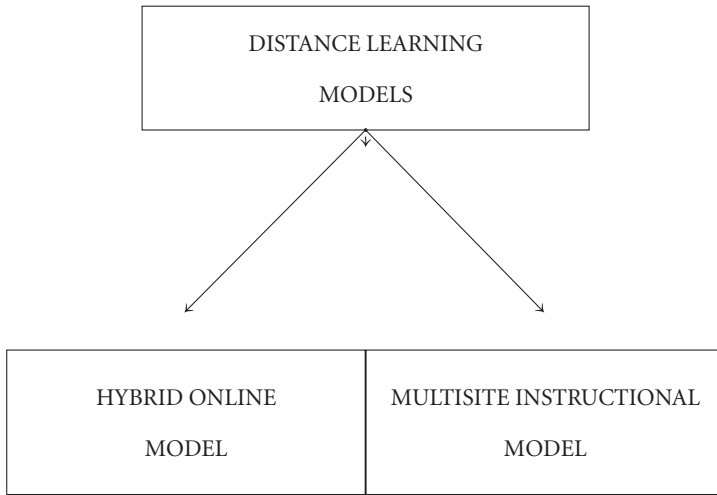


Figure 1. Two modern distance learning models for L2 acquisition

of The City University of New York. This was undertaken as a pragmatic way of illuminating some of the key issues in distance education and its relation to the realization of a standard-oriented instruction. The two models are examined in light of their technological configurations and their contribution to communicative, contextualized and interdisciplinary instruction.

Two crucial aspects of implementing instructional technologies effectively in FL education are an understanding of the capabilities of various technologies and evaluating the usefulness of the technologies in realizing curricular goals (Stepp-Greany 2002). Criteria used in selecting the two models were (a) reliability and practicality, (b) ease of use, (c) cost, and (d) pedagogical values. In addition, the two models were analyzed for conformity to different learning styles of students in the development of listening, speaking, reading, and/or writing skills. The two models are as follows: (1) the *hybrid-online model* and (2) the *multisite instructional model*.

Certain features were considered in the preparation and design of the distance learning program in L2 at Hunter College. Careful consideration was given to the technology infrastructure available on campus before any remote access resources were contemplated. In addition, instructors had to take into account the expected number of student enrollment for the L2 distance courses to determine the degree of technological sophistication needed for the program. In other words, student markets and budgetary constraints played a major role in the design of the program. Other constraining factors included:

(1) the length of the program offered, (2) the number of classroom contact hours provided per course, (3) the language components of the courses, (4) the pedagogical aims, goals and objectives of the program, and (5) the composition, language proficiency, technological skills, abilities, interests, goals, and needs of the target learners.

Because of the complexity of the process involved in the designing and planning of a distance language learning program, it was essential to foster close collaboration between the instructional designer, subject matter expert, instructors, and support staff. All parties involved brainstormed and identified what, when, and who will be responsible for the many aspects of the project development. The preparation began as early as possible and a production schedule was created, including milestones based on the project's goals. Frequent meetings and e-mails among all members of the team were arranged to discuss preparation activities, additions, revisions, and changes, and progress of the project. Moreover, preparing and designing a distance FL program required that the courses address the standards and practices of similar courses delivered in the traditional classroom format. As such, instructors had to create assessment tools that would evaluate proficiency as part of the learning process. Delivery methods that best fit the need of the instructor, the learner, and the course(s) were also determined. For example, if the purpose of the course were to establish interactions and social collaboration in a virtual community between students and native speakers of the target language, then synchronous communication would be the most appropriate delivery method.

Six courses and three instructors participated in the study. All instructors were well prepared to deal with the distance technologies. Four of the courses (one in French and three in Spanish) were given in the hybrid-online format and the other two (one French and one Spanish) in the multisite instructional mode. All courses were intermediate-level university classes. 46 students participated in the study, all were American born of diverse ethnic origins and fields of study. All courses included male and female students ranging from mid-twenties to early thirties, and class size ranged from eight to twelve. Technologies used for the study consisted of widely used, low cost, free or inexpensive synchronous and asynchronous activities. Instructors used an evaluation form to assess their students' progress in accomplishing the five major goals of FL instruction using the chosen technologies and students were ongoing evaluators of their progress as well. Several strategies were utilized for adapting the program modules and content to fit the students interests and needs. These included: administering pre-test and ongoing formative assessments to provide information on instructional activities, reliability and user friendliness of the

technologies used, and their sense of accomplishment with the target language. The learner assessments combined both Likert-scale (5 point scale, 5 = very successful, 1 = unsuccessful) short answer questions and open-ended comments. The assessments focused on learner perceptions of interaction in the distance learning environment, the medium as applied to language learning, prior experience with technology, learning styles, sense of accomplishment, progress with the acquisition of L2 compared to the traditional format, and general satisfaction with the courses. All data collected conformed to Bachman and Palmer's (1996) evaluation principles of validity, authenticity, credibility and reliability. In analyzing and processing the survey data, the returned surveys were checked for completeness, accuracy, and uniformity.

Data collection and analysis

Hybrid-online model

In this study, the researcher analyzed the instructors' evaluation forms, student assessments, and the specific technologies presented in both models. Based on the analysis and observation of the data gathered, there are two venues for the hybrid-online model (see Figure 2A). This design mainly served as a supplementary or auxiliary tool either *outside* or *inside* the perimeters of the classroom or campus. It was found that an extensive out-of-classroom program of computer-driven facilities helped support and enhance the L2 classroom-based curriculum. This design was found to be particularly helpful for those L2 courses that would significantly benefit from additional contact hours due to limited classroom contact time. In addition, these forms of out-of-classroom activities were most beneficial for highly motivated learners who were capable of applying a responsible approach to unmonitored individual learning. Since this category of students needed to be challenged and engaged more intellectually, this form of instruction proved to serve as an intellectual or alternative stimulus resource for these particular students by replacing their traditional or conventional laboratory, workbook, and textbook activities. By providing learners with access to a range of resources from various remote locations on or off campus, they were able to improve and develop their critical thinking skills. Students were able to access these networked and Internet components from home, their dormitories, or from the computer laboratories.

Even for the less motivated learner, this format of distance learning presented more exciting and valuable learning material. For example, instructors in these courses produced digital video reproductions of contextualized lessons and of authentic activities in Spanish and French using Apple Computer's

QuickTime video format. Students were able to obtain video files via the course web site and playback those lessons they either missed or wanted to review. In addition, students were also able to download audio-only versions of the lessons to portable MP3 players, which many students were already using for listening to music.

Moreover, a cooperative and collaborative learning environment was created with the use of chat rooms associated with each recording. These chat rooms allowed students to converse and communicate online in the target language with their classmates. Students were able to complete and discuss assignments in the target language, and the instructor was able to use the transcripts of these sessions as progress indicators of acquisition and proficiency of the FL. In addition, the learner was at times redirected or linked to authentic and pertinent online materials and web sites in the L2 such as newspapers, radio and television stations, dictionaries, and grammar review exercises. Students accessed L2 documents at their own pace for further reinforcement or for self-assessment with corrective feedback of the material learned. The broad spectrum of online assessment material was of particular interest to both students and instructors. These diagnostic online tools took the form of anonymous surveys or more formal, timed assessments; assessment options included multiple-choice, true/false, fill-in-the-blank, matching, ordering, or open-ended questions, all of which included graphics, audio or video clips or animations as part of the question prompt or answer selections. These vehicles of assessment provided valuable feedback to both students and instructors but above all they saved valuable class time.

The ease of access of online documents promoted self-paced learning and permitted students to work at their own levels by allowing them to focus on personal linguistic needs. This format of learning highly reduced any form of learning anxiety. It created a very low affective filter (anxiety) environment, which allowed students to notice and understand the optimal comprehensible input of the target language. Therefore, the learning environment became more productive and fulfilling as students interacted synchronously or asynchronously with other students and the instructors via e-mail, virtual chat lines, cafés, or discussion groups using conferencing software.

A suite of supplementary tools used allowed for increased communication among students, helping build a class community outside the limited hours spent in class. Students were able to upload documents and exchange files with e-mail, discussion boards, and synchronous chats. These tools served to foster student-to-student interaction and allowed for assignments that included peer editing, peer correction, collaborative writing, and other group work.

Students became active participants of their own learning process and, most importantly, the collaborative environment promoted improvements in all aspects of students' L2 acquisition. Students were able to develop personal Web pages, post learning tips and notes, and share with their fellow classmates in the creation of a collection of contextual links.

Instructors creatively included virtual guests in the form of native speakers to demonstrate authentic discourse to students. These "guests" were cast as content specialists, instructors or as experts in a particular field of study who engaged students in discussions on a specific topic. This mode of communication created a sense of community in the FL classroom by providing intercultural exchanges, cultural awareness, language socialization, and opportunities for peer sharing ideas. The possibilities were endless and were limited only by the age and linguistic level of the students, and of course by the resources available to the class. If a class was studying a unit on French food, for example, students were able to invite a virtual French chef to interact with the class and discuss French customs at the table, recipes, and cooking techniques. At the same time, students discussed with the French chef American customs at the dinner table. In this manner, both parties were able to have a better understanding of each other's culture and a much richer picture of life on both sides of the world through the intercultural exchange that was provided by the virtual community. This type of communication provided opportunities for students to engage in conversations and provide and obtain information, express feelings and emotions, and exchange opinions (Standard 1.1) as well as opportunities to understand and interpret spoken language in a variety of topics (Standard 1.2). In addition, the environment allowed learners to gain greater knowledge and understanding of other cultures and a greater sensibility of the "practices," "perspectives," and "products" of the culture studied (Standards 2.1 and 2.2). This permitted learners to acquire information and recognize the distinctive viewpoints that are only available through the target language and its cultures (Standards 3.1 and 3.2). Virtual communities were created to help learners demonstrate understanding of the concept of culture through comparisons of the culture studied and their own (Standard 4.2).

The CD-ROM proved to be ideal for inclusion in the teaching of the target languages as it is low cost, self-contained and easily accessible teaching tool. Students were able to see, hear, and interact with native speakers in their own environment as they improved their listening, speaking, reading, and writing skills. An example of this supplementary tool for French was the use of D.C. Heath's *Mais oui!* and McGraw-Hill's *Vis-à-vis*. Both served as examples of communicative and interactive language learning].

Among the most valuable web sites that both instructors and learners found was FLTEACH, the Foreign Language Teaching Forum (<http://www.cortland.edu/flteach/flteach-res.html>). This particular web site was very helpful for Spanish instruction since it served to review different grammatical structures. For example, students reviewed and practiced the present subjunctive verb forms in class with the available exercises, activities and Spanish songs, such as *Ojalá que llueva café* by the Dominican songwriter, Juan Luis Guerra. At the same time, the instructor integrated the song to teach culture and music of the Dominican Republic as the class compared and made connections with American culture. The web site offered authentic pictures of the towns and people, maps, audio recordings, mini-films, and other content that students found useful, fun, and entertaining. Glencoe.com (<http://www.glencoe.com>) allowed students to be exposed to French language and culture as they took a virtual tour of the Louvre museum in Paris. This site also provided numerous instructional games in Spanish and French that were lively and entertaining while at the same time enhanced students' critical-thinking skills. Students also participated in online interviews. Other sites instructors used were <http://univision.com> and <http://telemundo.com>. This types of activities "lead to intercultural learning and collaboration, as well as the development of social and discourse communities" (Lomicka & Lord 2003:51).

The multisite instructional model

The multisite instructional model was used as a remote access configuration technology for its heavy emphasis on communications (see Figure 2B). For the institution and instructors, the multisite configuration provided an opportunity to meet the criteria of affordable, accessible, and accountable education. This model allowed the language department to augment the number of student enrollment from a number of geographically remote sites, and to serve a growing adult student population. As Aplevich and Willment indicate, "shift work, the movement to irregular part-time jobs, contract employment, and cottage industry work, as well as heavy traffic in urban areas are making traveling to a campus for study less attractive" (1998:69).

For students, this particular model provided a flexible, convenient, and economical vehicle towards their professional goals while at the same time honoring work and family commitments. Four paraprofessionals, three business employees, two healthcare providers, three lawyers, and four instructors constituted the student population of this model. Both French and the Spanish courses were conducted in the format that was found to best suit the needs of the students.

Although the instructor in the multisite L2 program was the main source for interactive content, it was still student-centered instruction. The multisite model also promoted communicative, collaborative, contextualized, and interdisciplinary learning since the interaction occurred simultaneously between all students and instructors across all remote sites. The primary objective in teaching FL is to provide learners with opportunities to acquire and practice the target language in contextualized and meaningful communicative situations. It was extremely important for instructors to select appropriate tools to interact with students, especially with the multisite model.

Learning a language requires that students develop both comprehension and production skills. For this learning to be meaningful, it has to take place in a culturally rich environment that takes into account the individual needs and interests of the learner. With this in mind, we will briefly highlight some of the more appealing features and tools for an instructor to use with a multisite configuration model based on our student feedback and our own particular observations.

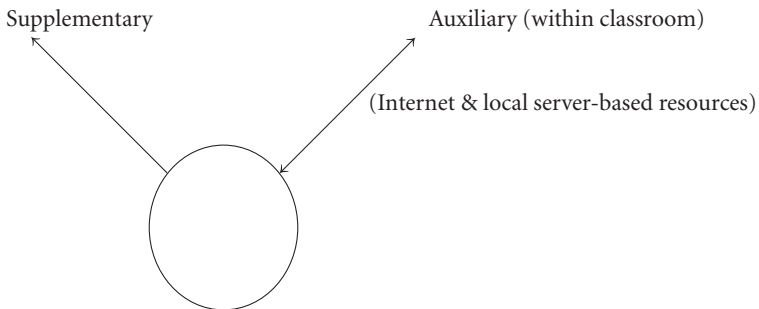
Instructors who are willing to undertake the multisite model create their own custom-developed lessons to help students develop all four-language skills in the L2. There are a number of authoring tools available today that have been developed specifically with the FL instructor in mind. Based on our experiences, some of the more practical and useful include:

1. *Libra*, developed at Southwest Texas University, is a tool designed to develop listening comprehension skills using a videodisc as the primary source material.
2. *The xMediaEngine Template Series*, developed at Middlebury College, includes several templates that focus upon the different skills required for the language acquisition process. CDictation, QTDictation, and VideoDictation are tools designed for developing dictation using audio compact discs, digital movies, and videodiscs, respectively.
3. *GALT* (Glossing Authentic Language Texts) is a tool developed at Pennsylvania State University. This tool allows instructors to link pictures, sounds, graphs, definitions, pronunciation files, and notes to specific FL texts.
4. *Foreign language writing-assistants* such as *Système-D*, *Atajo*, and *Quelle* are language specific program designed to assist FL writing skills. These programs include bilingual dictionaries, verb conjugators, basic grammar of the language searchable in English by topics, and a lexical database divided into phrases and vocabulary.

5. *QuickTime VR* is a virtual reality technology developed by Apple and available for both the MacIntosh and Intel PC architecture machines running Microsoft Windows. This program allows educators to actively interact with learners and “travel” with them to a place of interest of the L2 culture in an immersive visual environment.

Finally, two synchronous communication tools were helpful to our multisite learners: *iVisit* and *NetMeeting*. Both programs are available for free for both Windows and Macintosh platforms. The *iVisit* tool provides multiparty video along with multiparty half-or full-duplex audio, which allows for the recording and playback of communication sessions. However, the groups had to be small since the image and sound quality deteriorated rapidly with larger groups competing to be heard simultaneously. The desktop videoconferencing tool, *NetMeeting*, lends itself well to supporting oral-visual interaction in the L2 by offering features such as Whiteboard, Sharing, and File Transfer. *NetMeeting* proved to be reliable despite limited bandwidth and latency of our Internet

- A) Hybrid model (supplement to class instruction)
(Local networked materials & Internet access)



- B) Multisite model (instructor site/remote sites)

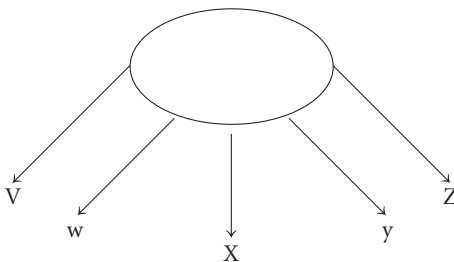


Figure 2. Campus located L2 server with access to Internet and server-based resources

connection. NetMeeting can be freely downloaded from the Internet and has little maintenance requirements, which makes it an economically viable and sustainable option. To summarize, the multisite model of L2 instruction provided faithful audio and video representations and authentic communication through the use of full motion video and full duplex audio.

Results

Based on personal observations and collected data, the two models examined unquestionably constituted two *important* vehicles for promoting a dynamic, interdisciplinary, contextualized, and standard-oriented L2 environment. For most students (39 out of 46), both models contributed to a dynamic learning experience. According to the surveys, 72% of students found that the models facilitated delivery in accessible, affordable, practical, and convenient ways. 82% percent felt that these technologies provided them with the possibility of managing their own learning at their own time, pace, and place. 65% felt that these communication modes encouraged them to identify their own needs, and take risks, and provided ways to address those needs within the context of the L2 program. Nearly all students (in both sites) felt a sense of a collaborative learning community. 86% indicated that their proficiency skills in the L2 had significantly improved with these technologies and that their sense of accomplishment was a direct result of the distance learning format. Similarly, 60% of respondents felt that the technologies addressed their particular needs and interests in an interesting, challenging, and fun manner. Most participants generally felt that the technologies used provided significant value to language learning. The vast majority of students (94% hybrid-online mode and 81% multisite mode) indicated that the distance nature of the FL program facilitated a communicative and standard-oriented instruction as well as a medium for social interaction with the target language and culture. 82% indicated that an attractive feature of the modes used was ease of use and reliability with very infrequent number of crashes. 78% of the students indicated that they would take another distance education course in FL in the future.

In general, all three instructors had positive experiences and perceptions of the outcomes and accomplishments of their students with the distance learning structure. Instructors felt that a productive, communicative, and collaborative learning environment was fostered. All instructors indicated that there had been favorable improvements in their learners' language proficiency skills. This was due to not only the appropriateness of the technologies employed,

but also due to the use of concrete objectives. Instructors also indicated that the time and attention devoted to these courses was well worth the positive results of their learners' experiences with the L2. All instructors felt that the distance nature of the courses increased the students' contact and interaction with the target language and culture, and, therefore, the 5 Cs of FL learning were better addressed with the distance format. Although the format and technologies used proved challenging at times, instructors found that the distance format better addressed and accommodated students' diverse learning styles and helped further elaborate their critical thinking skills. Instructors found these two models encouraged professional growth and provided opportunities to encourage further exploration with authentic, dynamic, contextualized L2. All three instructors felt that they needed to deepen their skills using iVisit and NetMeeting since 42% of students had voiced some form of dissatisfaction with these particular tools.

Limitations of the research

There are a number of limitations to the study. First, the study consisted of a fairly small group of students (particularly the multisite configuration group) and a limited number of instructors and produced within a relatively short-time frame. Second, the study does not address technology infrastructure hurdles such as access to high speed and high quality digital transmission. The availability of these components directly influenced the level of satisfaction and success of individual students. Third, the study deals only with two languages, mainly French and Spanish. Since all languages have their own particular intricacies, structure, and characteristics, perhaps not all activities suggested in either of the two models may apply to other languages. Finally, given the nature of the survey forms – an attempt to gauge the level of success of distance learners – it should be noted that “successful” is rather an elusive concept because it is a state of mind, and one, therefore, for which no relative measures between individuals exist. Furthermore, since a person's needs and learning style vary from individual to individual, it is difficult to objectively quantify how diverse learning styles affect the development of core L2 skills, especially in virtual environments. It is extremely challenging for any process of education, let alone one carried out at a distance, to meet the needs of all learners. In her review of the literature in distance learning, Speth (1991) states that there is no typical distance learning student – a view echoed by Charp (1997) – but rather that

tremendous variability and individuality will make meeting all learners' needs an extraordinarily difficult task.

Applications of the research

Since little research is available on distance learning in relation to the integration of the 5Cs of FL learning, this study may provide insight to universities currently implementing or contemplating the implementation of technology enhanced instruction, specifically in the distance learning format. The results of this research hopefully will illuminate some of the factors that should be considered when designing a distant-learning program for FL.

Suggestions for further research

It must be stated that the two models presented here are not the only vehicles for distance learning. Not only is technology constantly evolving, the demands and needs of students are increasingly changing. This implies that instructors will have to find ways and methods of delivering appropriate technology that not only comply with students' requirements but with objectives of the L2 instruction itself. More studies should be conducted to determine the effect of distance learning for a standard-oriented instruction in FL and how communication and interaction "lead to intercultural learning and collaboration, as well as the development of social and discourse communities" (Lomicka & Lord 2003: 51).

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Differences between Germany and the Netherlands in patient package leaflets for Ibuprofen 400 tablets and consequences for adequate drug use

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The EU has issued three directives for patient package leaflets (PPLs) for drugs distributed within the EU: 92/27/EEC, 2001/83/EEC and 2004/27/EEC. These directives were to assist in the establishment of a domestic market with free movement of goods as well as to protect consumer interests. All directives are mainly concerned with the type of information needed and the order in which it has to be presented. Only some of the directives' articles state that the leaflets have to be legible and clearly comprehensible. An additional non-mandatory guideline is concerned with the way in which the information has to be formulated, however, the detail of information to be included is left to the discretion of the manufacturer. With the goal of unification of the internal European market, cultural differences between the countries were ignored. However, these differences do exist (cf. Hofstede 2001; Schwartz 1994; Claes & Gerritsen 2002) and they were shown to have an influence on document design (cf. Hoeken, Van den Brandt, Crijns, Domínguez, Hendriks, Planken, & Starren 2003). The question is whether they also have an impact on the design of PPLs and whether the scope the EU directives leave for the design of PPLs is used differently in the Netherlands and Germany. Our study, based on five German and five Dutch PPLs for Ibuprofen shows that these differences do exist. It also shows that pregnant women in both countries appreciate the Dutch PPL more than the German one when looking at its content and language use. However, it is the German version that leads to greater compliance with the recommended use of the drug in both countries.

Keywords: patient package leaflets, culture, Germany, Netherlands, EU Directives, communicative effectiveness, appreciation, adequate drug use

Background

The EU has issued three directives for patient package leaflets (PPLs) for drugs distributed within the EU: 92/27/EEC, 2001/83/EC and 2004/27/EC. (The latter is an amendment of the 2001 directive.) These directives were to assist in the establishment of a domestic market with free movement of goods as well as protect consumer interests. Although the 2001 and 2004 directives are much more detailed than the 1992 version, all the directives are mainly concerned with the type of information needed and the order in which it is to appear. The later directives sometimes state that PPLs need to be legible and comprehensive as the below examples show.¹

- (1) “The provisions governing the information supplied to users should provide a high degree of consumers protection, in order that medicinal products may be used correctly on the basis of full and comprehensible information” (2001/83/EEC, article 40).
- (2) “The particulars (for example warnings, precautions MG, UN, FO) referred to [...] shall be legible, clearly comprehensible [...]” (2001/83/EEC, article 56).
- (3) “For the identification of the medical product: [...] (ii) The pharmacotherapeutic group or type of activity in terms easily comprehensible for the patient” (2001/83/EEC, article 59 1, a, ii).
- (4) “The package leaflet must be written in clear and understandable terms for the users and be clearly legible in the official language or languages of the member State where the medicinal product is placed on the market” (2001/83/EEC, article 63, 2).

The EU’s growing concern for the actual wording of PPL becomes clear when we look at (4) above and the amendment of this article in (5), the first line in (6) and the articles under (7) and (8):

- (5) “The package leaflet must be written and designed to be clear and understandable, enabling the users to act appropriately, when necessary with the help of health professionals” (2004/27/EC, article 48).
- (6) “As necessary the Commission shall publish guidelines concerning in particular:
 - the formulation of certain special warnings for certain categories of medicinal products,
 - the particular information needs relating to self medication,

- the legibility of particulars on the labeling and package leaflet” (2001/83/EEC, article 65a).
- (7) “In consultation with the member States and the parties concerned, the Commission shall draw up and publish detailed guidance concerning in particular [...]” (EC 2004/27/ECC, article 49).
- (8) “The package leaflet shall reflect the results of consultations with target patient groups to ensure that it is legible, clear and easy to use” (EEC 2004/27/EC, article 44, 3).

Despite the more rigid formulations, these directives still leave considerable scope for the design of PPLs. For example, if you look at article 59 of 2001/83/EEC.²

- (9) “A list of information which is necessary before taking the medicinal product.
 - contra-indication,
 - appropriate precautions for use,
 - forms of interaction with other medicinal products and other forms of interactions (e.g. alcohol, tobacco, foodstuffs) which may affect the action of the medical product,
 - special warnings.

The list must:

- take into account the particular condition of certain categories of users (e.g. children, pregnant or breastfeeding women, the elderly, persons with specific pathological conditions),
- mention, if appropriate, potential effects on the ability to drive vehicles or to operate machinery,
- detail those excipients, knowledge of which is important for the safe and effective use of the medicinal product and included in the guidelines published pursuant to Article 65”.

The directives provide information with respect to the type of information needed, but does not specify the level of detail and the way it should be represented. For example, it is sufficient to say that pregnant women should not take a particular medication or do we also have to state the reasons why; or is it acceptable to use specialist terminology or not. In 1998, a supplementary EU-guideline (*Guideline on the readability of the label and package leaflet of medicinal products for human use*) was issued. It concerns the readability of the label and patient package leaflet of medicinal products for human use. This supplementary guideline provides very detailed guidance with respect to the

typeface, graphic layout, the physical format, the style and content of PPLs. The guideline also provides a model leaflet and a method for testing readability. However, this guideline is not mandatory, which means that EU members can interpret it according to their own needs when it comes to the content, style and layout of PPLs as long as they remain within the scope of the required directives. The question is whether pharmaceutical companies take the liberty to do so, or whether-in the interest of uniformity within the EU-apply those guidelines.

Based on results of research on differences in cultural values between the EU-countries (Hofstede 2001; Schwartz 1994; Claes & Gerritsen 2002) and the impact of these differences on document design (Hoeken et al. 2003; Honold 1999; Fukuoka, Kojima, & Spyridakis 1999; Le Pair, Crijns, & Hoeken 2000) we would expect that the pharmaceutical companies in the member states make use of the scope of the directives and come up with different PPLs for use within their own borders. Growing competition among the different pharmaceutical companies would support this assumption because the PPL is an important way to meet consumers' needs and distinguish oneself from competitors. On the other hand, we would expect that with increasing globalization, pharmaceutical companies try to minimize their costs by selling a uniform product in all the countries where they operate in and save the costs for the design of several different PPL's.

In this chapter, we investigate whether differences in cultural values between member states in the EU have an impact on the design of PPLs considering the scope of directive 2001/83/EC and its supplements. Our study concentrates on the Netherlands and Germany. The starting point of our study is work by Claes and Gerritsen (2002), Hall (1976), Hofstede (2001), Hampden-Turner and Trompenaars (2000) which examine cultural differences between the two countries. Their work is discussed in Section 1. In Section 2 we look at the legal aspects of PPLs in the two countries. In Section 3, the results of a corpus analysis of German and Dutch PPLs for Ibuprofen 400 tablets is presented. The results of this analysis form the basis for our experimental research on the appreciation and communicative effectiveness of a German and Dutch version of a PPL among potential German and Dutch users of Ibuprofen tablets, which is described in Section 4.

1. Differences in cultural values between Germany and the Netherlands and their possible impact on the design of PPLs

One of the key notions in the research on cultural differences is the notion of values. Values are defined as broad tendencies to prefer a certain state of affair over others, whether, for example, one believes that it is normal to obey the rules of a society at all costs. Up to now cultural specialists distinguish about fifteen different values centered on six basic values (Kluckhohn & Strodtbeck 1961; Claes & Gerritsen 2002).

1. The character of human nature.
2. The relationship of people to other people (individualism versus collectivism, power, distance, universalism versus particularism, neutral versus emotional, achieved versus ascribed status).
3. What motivates people (masculinity versus femininity, uncertainty avoidance).
4. The relationship of people to space (personal space, territory, specific versus diffuse).
5. The relationship of people to time (monochrony versus polychrony, relationship past, present, future, short versus long term orientation).
6. The relationship of people to nature.

Those values are learned implicitly. By the age of ten most children have acquired the values of their own culture. The values of one culture or nation are never absolute, not all the people of one culture have exactly the same values, but in most cases the differences within one culture or nation are much smaller than those between different cultures or nations.

The question is in how far cultural values can have an influence on document design or specifically in our study, the design of PPLs. Following Hofstede (2001) there is no single aspect of our lives that is not influenced by culture. We would therefore expect the way in which PPLs are written is also influenced by the culture in which the leaflets are used, and that they also reflect the values of this particular culture.

The communicative function of PPLs is threefold: it needs to *inform* a patient about illnesses and symptoms and their remedies, it needs to *instruct* a patient in the proper dosage and use of the drug, and it needs to *persuade* patients that the medication is the right one for their illness or symptom, and that the patients. The use of the product is in compliance with the use intended by the pharmaceutical company. Research on persuasive and instructive texts has shown that culture plays an important role in the design of these text types (cf.

e.g. Albers-Miller & Gelb 1996; de Mooij 1998; Le Pair et al. 2000; Hoeken et al. 2003; Hoeken 1998; Jansen 1999). The two text types appeal to the values of the target group.

The cultural values of Germany and the Netherlands have been relatively well researched. There are studies on almost all of the 15 values that have been described so far (Claes & Gerritsen 2002: 168). These studies have shown that the two cultures differ considerably in three of the fifteen values, namely masculinity, individualism and uncertainty avoidance. The latter seems to be particularly interesting with respect to PPLs. In cultures with high uncertainty avoidance unpredictability is seen as a constant threat that needs to be avoided and controlled. In order to do so, people from highly uncertainty avoiding cultures try to create rigid structures and formulate everything as explicitly and precisely as possible; nothing is left to chance. On a scale of 0 (low uncertainty avoidance) to 100 (high uncertainty avoidance) the Netherlands score 53 and Germany 64 (Hofstede 2001:500). Even though this difference is not very large, we expect that the difference in uncertainty avoidance is reflected in the interpretation of the EU directives and consequently in the design of PPLs because for an important part these texts contain information on risks: contra-indication, precautions and interactions. We expect that these risks are verbalized differently in German and Dutch PPLs.

Though research on the relation between culture and communication is still in its infancy and it is difficult to directly relate culture to communication, we attempt to do so. Given that the EU directives leave scope for the culture specific design of PPLs, and the fact that Germany scores higher on uncertainty avoidance than the Netherlands, we expect to find the following.

1. **German PPLs contain more elaborate and detailed information than their Dutch equivalents.**
A lot of detailed information minimizes unpredictability.
2. **German PPLs are more structured than their Dutch equivalents.**
In order to be able to access a lot of information a text needs more structure, especially on a secondary level, than a text containing less information.
3. **German PPLs make use of specific – medical and pharmaceutical – terminology more often than their Dutch equivalents.**
Specialist terminology increases accuracy.
4. **German PPLs contain more information on risks than their Dutch equivalents.**
Naming risks reduces the unpredictability concerning one's health.

The Netherlands and Germany differ with respect to another aspect that is not related to cultural values, but is very important to communication: context. Hall (1976) argues that human beings are confronted with many perceptual stimuli and that it is impossible to pay attention to all of them at the same time. He argues that cultures differ in the extent to which they use contextual and situational information for the interpretation of a message. There is a continuum that ranges from high- to low-context cultures. In high-context cultures, for example Asian cultures, the meaning of a message cannot be deduced from the meaning of the words, but has to be deduced from the context and the situation. In low-context cultures, for example Germany, the meaning of a message can be deduced from the meaning of the words; here context and situation play only a minor role. Contexts in high-context cultures are implicit. In low-context cultures, they are explicit; every detail is mentioned and preferably put down in writing.

Hall's (1976) theory on the differences in context is based on observations rather than experimental research. He did not observe the Netherlands, but grouped it together with the Scandinavian' countries. He argues that Scandinavian cultures are less explicit than the German culture. The differences in context lead to similar expectations as those mentioned in relation to uncertainty avoidance (cf. 1–4) because cultures with a low-context prefer detailed and accurate information.

2. The impact of culture on the legislation

Before we have a look at the corpus analysis to see whether the results match our predictions formulated in 1 to 4 above, we first look at the legislation concerning PPLs in Germany and the Netherlands, the integration of EU-regulation in particular.³ Differences in national legislation could also reflect cultural differences between the two countries and consequently have an influence on the design of PPLs.

In 2004, the Netherlands ratified the European directive 92/27/EEC and incorporated it in the *Besluit etikettering en bijsluiter farmaceutische producten* (29.06.1994) [Decree labeling and patient package leaflets pharmaceutical products]. The directive as well as the supplement became part of the Dutch *Bijsluiter van farmaceutische producten* MEB 5-3.0 (22.01.2004) [Patient package leaflets for pharmaceutical products] issued by the *College ter Beoordeling van Geneesmiddelen* [Medicines Evaluation Board]. The Dutch directive also contains a translation of the model PPL provided by the European guideline

and a list of easy-to-understand terms to be used in PPLs. Any PPL not written according to this model has to be tested with respect to its readability before it can enter the market.

Germany also ratified the European directive 92/27/EEC and integrated it into the *Gesetz über den Verkehr mit Arzneimitteln* (AMG) [Law governing the manufacture and prescription of drugs] in 1994 (*Fünftes Gesetz zur Änderung des Arzneimittelgesetzes* (09.08.1994) [Fifth law to change the law governing the manufacture and prescription of drugs]. In 2002, Germany issued the *Empfehlung zur Gestaltung von Packungsbeilagen* [Recommendations for the design of patient package leaflets] which is based on the 'Guideline on the Readability of the Label and the Package Leaflet of Medicinal Products for Human Use'. In 2004 the directive 2001/83/EEC was integrated in the AMG (*Zwölftes Gesetz zur Änderung des Arzneimittelgesetzes* (30.07.2004) [Twelfth law to change the law governing the manufacture and prescription of drugs]. But unlike the Netherlands, Germany had its own directive before the European one was introduced. The later *Gesetz über den Verkehr mit Arzneimitteln* combines German and EU directives. The German authorities did not only translate the European directive, but added detailed comments. They also added a model PPL for all medicinal products available on the German market, and even specified the header and sub-header that are required to appear in the PPL. Summarizing, it can be said that the German directives leaves far less scope to the writers of PPLs and make more suggestions concerning the structure of the text than the Dutch one (expectation no. 2).⁴

3. The corpus analysis

The corpus

In order to determine the differences between Dutch and German PPLs, we collected PPLs in both countries in May 2003. Following Schuldt (1992:30) we took a convenience sample of PPLs for a tablet containing only one active substance, namely 400mg Ibuprofen. Our choice was determined by the following three factors.

1. The composition of tablets containing the active substance Ibuprofen hardly varies in the two countries which means that differences in the PPL can not be attributed to differences in the composition of the tablets.
2. The majority of tablets containing 400 mg Ibuprofen are non-prescription drugs in Germany and the Netherlands. For this type of drug PPLs are

particularly important (cf. Schuldt 1992: 51) because patients have to make a decision with respect to the use of the drug. Therefore it is important that patient package leaflets are readable and comprehensible and fit in with the patient's culture in terms of form and content. In our study we only used PPLs of non-prescription tablets containing 400mg Ibuprofen.

3. Ibuprofen is not only available as brand name drug, but also as generic drug which means that there are several different products with the same active ingredient on the market. Consequently, there are a variety of PPLs available for analysis.

For each country we were able to find five different PPLs. All PPLs were available on the Internet at the moment of collection (see references).⁵ Table 1 gives an overview of the PPLs we examined.

Table 1. PPLs from non-prescription tablets containing 400mg Ibuprofen used in the study

Name of the product	Pharmaceutical concern	Date PPL was issued
Dutch PPLs		
Advil 400	Whitehall Laboratoria B.V.	April 1998
Ibuprofen 400 Kring	Vereniging Kring-apothekers	May 2000
Ibuprofen 400 PCH	Pharmachemie B.V.	November 2001
MP Ibuprofen	Multipharma B.V.	August 2002
Ibuprofen 400 Huismerk		May 1999
German PPLs		
Advel	Hexal AG	May 2000
Aktren Forte	Bayer Vital GmbH	February 2001
Ibuhexal Akut 400	Hexal AG	July 2000
Ibu-rathiopharm 400	Ratiopharm GmbH	February 2000
Vivimed Migräne	Dr. Gerhard Mann GmbH	May 2003

Research methodology

We determine the elaborateness and the detail of the information in PPLs (expectations no. 1) by counting the total number of words used in the PPL. We assumed that the elaboration and detail of information increased with the number of words. Given the nature of the document, we did not expect patients to be presented with superfluous information. Since German and Dutch are both Germanic languages and have a similar morphology we did not expect differences to be caused by the nature of the two languages. We used the

word count option of Word 2000 to count the total number of words of all the German and the Dutch PPLs.

For expectations 2, 3 and 4, we concentrated our analysis to the section ‘list of information necessary to know before taking the medicinal product’ (cf. 9) because this part of the text offers a wider scope for culture-specific interpretation than sections such as ‘identification of the medicinal product’, or ‘therapeutic indications’. We did not look at the subsection ‘forms of interactions with other medicines and other forms of interaction’ because we expected long lists of pharmaceutical and/or medical terms.

The degree of structure (expectations no. 2) was determined by counting the number of headings and subheadings. We also looked for other means that provide structure, such as the use of bullets or separate paragraphs. We counted the numbers of specialist terms to determine the degree of specialist terminology usage (expectations no. 3). The amount of information on risks (expectations no. 4) was determined by counting the risks mentioned.

The first two authors performed the counts independently. Comparing and discussing the results led to the results as shown in Tables 2 to 5.

Results

Elaborateness and detail of information

The differences between Dutch and German PPLs for Ibuprofen become clear by simply looking at them: The German versions are much longer and their font size is much smaller than that of their Dutch equivalent. The results in Table 2 confirm this impression.

On average the German PPL for Ibuprofen is nearly twice as long as its Dutch equivalent. Though there is quite some variation among the figures for the German as well as the Dutch leaflets with differences of 601 and 289 words

Table 2. Number of words in Dutch and German PPLs

Dutch PPLs	Number of words	German PPLs	Number of words
Advil 400	761	Advel	2039
Ibuprofen 400 Kring	1050	Aktren Forte	1769
Ibuprofen 400 PCH	1019	Ibuhexal Akut 400	2350
MP Ibuprofen	972	Ibu-rathiopharm 400	2003
Ibuprofen 400 Huismerk	996	Vivimed Migräne	2370
Mean	959		1706,5

respectively, the shortest German PPL is still more than 1,5 times as long as the longest Dutch PPL.⁶

Structure

Table 3 shows that the structural differences between the PPLs of the two countries are large. In the Dutch versions, the information is mainly given in four subsections with each one heading. This is more or less the same for all Dutch PPLs. In the leaflet for MP-Ibuprofen we find the headings *Niet gebruiken* [Do not use], *Gebruik tijdens zwangerschap en borstvoeding* [Use during pregnancy and while breastfeeding], *Invloed op de rijvaardigheid en de bekwaamheid om machines te gebruiken* [Influence on the driving ability and the ability to use machines] and *Waarschuwingen en voorzorgsmaatregelen* [Warnings and precautions]. Further structuring is achieved by means of bullets or separate paragraphs, but hardly by the use subheadings.

The structure of the German PPLs is quite different and considerably more complex than that of the Dutch PPLs. The German versions make less use of headings, but use more sub-headings. Versions with two headings typically have a heading *Gegenanzeigen* [Contra-indications] and one called *Vorsichtsmaßnahmen für die Anwendung* [Precaution for use], versions with only one heading combine the two under a heading like *Was müssen vor der Einnahme von Aktren® Forte beachten?* [What do you need to keep in mind before taking Aktren® Forte], but use more sub-sections such as *Kinder* [Children], *Schwangerschaft* [Pregnancy] or *Worauf müssen Sie noch achten?* [What else do you have to keep in mind?] to provide the necessary structure. The German PPLs also make use of bullets.

Table 3. Structure of Dutch and German PPLs

Dutch PPLs	Number of headings	Number of sub-headings	German PPLs	Number of headings	Number of sub-headings
Advil 400	4	0	Advel	2	7
Ibuprofen 400 Kring	4	0	Aktren Forte	1	8
Ibuprofen 400 PCH	3	3	Ibuhexal	2	7
MP Ibuprofen	4	0	Akut 400		
Ibuprofen 400 Huismerk	3	2	Ibu-rathiopharm 400	2	8
			Vivimede	1	9
			Migrän		
Total/mean	18/3,6	5/1,0		8/1,6	39/7,8

Use of specific terminology

We distinguished two types of terminology usage: terms that were used as explanation or specification as in (10) and terms that were used as normal words as in (11).

- (10) Sie dürfen ADVEL® nicht anwenden bei
- Blutungen im Magen-Darmtrakt (gastrointestinale Blutung)
[You should not use ADVEL® in case of bleeding in the gastrointestinal tract (gastro-intestinal bleeding)]
- (11) – bei Überempfindlichkeit gegen Schmerz- und Rheumamittel aus der Gruppe der nicht-steriodalen Antiphlogistika
[in case of hypersensitivity to painkillers and medication for rheumatism from the non-steroidal anti-inflammatory group].

Table 4 shows that German PPLs make much more use of specific terminology than their Dutch equivalents.

Table 4. Use of specific terms in Dutch and German PPLs

Dutch PPLs	simple use	explanatory	German PPLs	simple use	explanatory
Advil 400	0	0	Advel	1	17
Ibuprofen 400 Kring	1	0	Aktren Forte	7	3
Ibuprofen 400 PCH	0	0	Ibuhexal Akut 400	17	2
MP Ibuprofen	1	1	Ibu-rathiofarm 400	14	2
Ibuprofen 400 Huismerk	1	1	Vivimed Migräne	7	5
Total/mean	3/0,6	2/0,4		62/12,4	12/2,4

Information on risks

In a similar way we distinguished between three different types of risks: risks that are directly mentioned as in (12), those that mentioned indirectly as in (13) and risks that appear in relation to particular circumstances and prevent you from taking Ibuprofen as in (14).

- (12) ... kann ... zur dauerhaften Nierenschädigung führen.
[... can lead to long term kidney damage]
- (13) Sollte von ärztlicher Seite eine langfristige Therapie mit ibu-vivimed®400 gegen Schmerzen für erforderlich gehalten werden, sind regelmäßig Leberwerte, die Nierenfunktion sowie das Blutbild zu kontrollieren.

[In case of medical indications for a long term treatment with ibuvivimed®400 liver – and kidney function tests and blood counts need to be taken regularly].

- (14) Sie dürfen ibuhexal ® akut 400 nicht anwenden bei ungeklärten Blutbildstörungen
[Do not take ibuhexal ® akut 400 in case of unresolved blood count disorders].

As Table 5 shows German PPLs mention all three types of risks more often than their Dutch equivalents.

To summarize, our four expectations based on differences in uncertainty avoidance and context between the Netherlands and Germany proved to be correct: German PPLs are much longer and more detailed, they are more structured, use more specific terminology and mention more risks than their Dutch equivalents. However, there is also quite a lot of variation among the different German PPLs which we did not expect given the rather rigid German directives (cf. 2).

Table 5. Number of risks mentioned in Dutch and German PPLs

Dutch PPLs	direct	indirect	circumstantial	German PPLs	direct	indirect	circumstantial
Advil 400	3	0	17	Advel	5	4	32
Ibuprofen 400 Kring	3	0	17	Aktren Forte	2	3	28
Ibuprofen 400 PCH	4	0	18	Ibuhexal Akut 400	5	2	29
MP Ibuprofen	3	0	17	Ibu-rathiopharm 400	2	2	28
Ibuprofen 400 Huismerk	3	0	18	Vivimed Migräne	4	0	29
Total/mean	16/3,2	0	87/17,4		18/3.6	11/2.2	146/29,2

4. Appreciation by Dutch and German patients

In the previous section, we were able to show that there are a number of differences between Dutch and German PPLs for the drug Ibuprofen. The question now is whether the two different PPL styles are appreciated differently

in the two countries. Based on previous research on the influence of culture on the appreciation of instructive and persuasive texts we pose the following questions.

1. Do Dutch patients appreciate the PPLs that are produced for the Dutch culture more than those produced for the German culture?
2. Do German patients appreciate the PPLs that are produced for the German culture more than those produced for the Dutch culture?
3. Do PPLs produced for the Dutch culture communicate more effectively in the Netherlands than in Germany?
4. Do PPLs produced for the German culture communicate more effectively in Germany than in the Netherlands?

Research methodology

Materials

Despite the fact that there was some variation among the different German PPLs as well as the different Dutch PPLs, the differences between Dutch and German PPLs were clear for all versions. Consequently, we randomly took one version from each country and translated them into the respective other language. In order to ensure equivalence between the Dutch and the German versions, three native (or very proficient) speakers of Dutch and German reverse-translated the PPLs back into the respective source language, discussed differences in the translations and came up with a final version of each PPL. We ended up with four versions of PPLs for a medicine that we gave the non-existing name Pharmapren 400 to avoid possible influences from experiences with a known product.

1. An original Dutch version (D/D).
2. A German translation of the Dutch version (G/D).
3. An original German version (G/G).
4. A Dutch translation of the German version (D/G).

Versions 1 and 4 were used in the Netherlands, 2 and 3 in Germany.⁷

Respondents

For this type of experiment it is important to find respondents that are really interested in such a text because the less interested respondents are in a text the less reliable are the results of the experiment. Following Pander, Maat and Lenz (1994) we decided to carry out the experiment among pregnant women.

We expected that most pregnant women are very reluctant to take medication and are consequently more interested in the information PPLs provide. With this restriction, we were also able to ask direct questions with respect to the communication function of parts of the PPL, those that concerned pregnancy and breastfeeding. This restriction allowed for a closer approximation of a real life situation where pregnant women would have to make a choice.

We had a total of 50 Dutch and 49 German respondents. The Dutch respondents were interviewed in two midwives' clinics in Nijmegen, the German respondents were interviewed in two German hospitals (in Goch and Kleve) where they either visited the midwives' surgeries or task part in an antenatal class.

Measuring instruments

The respondents were presented with one of the four versions of the PPL and had to fill in a questionnaire with questions concerning the text. After a section of more general questions concerning the PPL,⁸ they were asked to concentrate on the sections 'Therapeutic indications', 'Contra-indications', 'Use of the drug during pregnancy and while breastfeeding', 'Warnings' and 'Side effects'. Following the EU guideline on readability these are most problematic sections. Each of the target sections were indicated by way of a marker in the margin of the PPL.

Respondents had to answer questions concerning the language use and the content of these sections. We used a 7-point semantic differential scale as in (15) and (16).

- (15) The meaning of the words is
 very clear not at all clear
- (16) There is
 too much too little
 information on side effects and risks.

We controlled for order effects by varying the order of positive and negative answers. We carried out a reliability test over all the German and Dutch data. The results are presented in Table 6: they allowed us to aggregate some of the data concerning questions on language use and content. In the following we only discuss the aggregated data.

In the following part of the questionnaire we tried to determine the effectiveness of the different PPLs. The communicative function of the respective text passage is to enable the patient to find an adequate answer to the ques-

Table 6. Reliability analysis scores on language use and content

	Crombach's α for positive and recoded questions
Language use	.74
Content	.75

tion of whether she could take the medicine product or not. Respondents were asked to concentrate on the section on pregnancy and breastfeeding and decide on the basis of these text passage whether they would take the drug during their pregnancy. In a second question they were asked whether they would take the drug while breastfeeding. In their answers they had to use one of the following five categories: 'yes, surely', 'yes', 'yes, but only on practitioner's advise', 'no', 'not at all'.

We asked these questions to find out whether the information provided in the texts enables the patient to make an adequate decision about taking the drug. PPLs should present information in a way that patients can evaluate them properly without overestimating them. The latter would be an instance of miscommunication. The drug used in this experiment should not be taken during pregnancy or while breastfeeding except on the advise of a practitioner, therefore this information should be evident to the respondents.

In the last part of the questionnaire respondents were asked to make a comparison for the sections 'Therapeutic indications', 'Contra-indications', 'Use of the drug during pregnancy and while breastfeeding', 'Warnings' and 'Side effects' between the PPL she answered questions about (for example D/D (see 4 under *Materials* in the Netherlands) and the respective other PPL (for example D/G in the Netherlands). In this part, respondents only had to indicate a preference for one of the PPLs.

Design

For the first part of the questionnaire we chose a between group design. Half of the Dutch respondents were presented with the original Dutch version the other half with Dutch translation of the German PPL. About half of the German respondents read the original German version and the other half the German translation of the Dutch PPL.

For the second part of the questionnaire, where respondents had to compare two different version of the PPL, we chose a within group design.

Procedure

Respondents were interviewed in a face-to-face situation. They were asked to imagine the following situation: Imagine that you need a painkiller during your pregnancy because you suffer from a severe headache. You would like to know whether you could take a particular painkiller and therefore read the PPL. The respondents were then asked to read the PPL to get that information.

Processing the data

The data were coded in SPSS 11. In order to determine differences between groups chi-square tests and variance analysis were carried out.

Results

We first discuss the results of that part of the experiment with a within group design. Respondents had to express a preference for one of the two PPLs.

Table 7 shows that respondents from both countries have a clear preference for the Dutch PPL. 89% off all respondents prefer the Dutch version to the German one. However, there is a significant differences between Dutch and German respondents ($\chi^2 = 4,04$, $df = 1$, $p = .044$), there are more Dutch respondents (87%), who prefer the Dutch PPL than German respondents (71%). This difference seems to support research questions 1 and 2, but not very convincingly given that 71% of the German respondents express a preference for the Dutch PPL.

Tables 8 and 9 show the results for the second part of the experiment (between group design), where respondents evaluated language usage and the content of the PPLs respectively.

The Dutch respondents evaluated both language usage and content of the Dutch PPL significantly better than the German PPL. Generally, Dutch respondents found that the German version lacked clarity, comprehensibility and contained too much specialist terminology and information.

In sum, when comparing the two versions of the PPL the Dutch respondents have a strong preference for the Dutch PPL which confirms research

Table 7. Preference for either the Dutch or the German version

Country	Preference for Dutch version	Preference for German version
Netherlands	42 (87%)	6 (12%)
Germany	34 (71%)	14 (28 %)
Total	76 (89%)	20 (20%)

Table 8. Significant differences in the appreciation of the language use
(1 = positive, 7 = negative)

	Dutch version M (SD)	German version M (SD)	Significant differences
The Netherlands	2.63 (.63)	3.44 (.70)	F = 18,658, df = 1, p = .001
Germany	3.42 (1.06)	3.56 (1.13)	Not significant

Table 9. Significant differences in the appreciation of the content
(1 = positive, 7 = negative)

	Dutch version M (SD)	German version M (SD)	Significant differences
The Netherlands	3.43 (.73)	3.86 (.62)	F = 4.935, df = 1, P = .031
Germany	3.41 (1.04)	3.52 (.87)	Not significant

question 1. However we could not find any significant differences in the judgment of the two versions of the PPLs by German respondents, which does not corroborate with research question 2.

We not only analyzed the appreciation of the two versions of the PPL, but also the effectiveness of the two versions to communicate needed information. We asked respondents to concentrate on those aspects of the PPL that deal with pregnancy and breastfeeding, and imagine that they had a severe headache. We then asked them whether they would take the drug referred to in the PPL during pregnancy and while breastfeeding. Tables 10 and 11 show the results of these two questions. The categories ‘yes, surely’ did not occur; the categories ‘no’ and ‘not at all’ were combined.

Tables 10 and 11 show that the intention to use the drug is similar for both situations (pregnancy and breastfeeding).

The intention to use the tablets without consulting a doctor first (answer “yes”) was expressed occasionally by both groups of respondents for both the Dutch and the German content. That some respondents express this intention is a cause for concern since the product may not be used without consulting a doctor in either situation. For the statistical analysis we did not look at “yes”-answers because of their low frequency.

The Dutch version of the PPL leads to significant lower drug use than the German version (during pregnancy $\chi^2 = 8.92$, $df = 1$, $p = .003$, while breastfeeding $\chi^2 = 7.21$, $df = 1$, $p = .007$). This would mean that the German version of the PPL leads to a more adequate drug use⁹ because the drug may be used on a physicians’ advice in these situations. The patient does not need to suffer

Table 10. Intention to take the drug during pregnancy (see *Materials* for abbreviation G/D and so on)

Intention to use drug	G/D	D/D	Total Dutch content	G/G	D/G	Total German content
Yes	0	1	1	0	0	0
Only on physicians advice	2	3	5 (10%)	8	10	18 (36%)
No	22	21	43	17	15	32
Total	24	5	49	25	25	50

Table 11. Intention to take the drug while breastfeeding (see paragraph *Materials* for abbreviation G/D and so on)

Intention to use drug	G/D	D/D	Total Dutch content	G/G	D/G	Total German content
Yes	0	1	1	1	1	2
Only on physicians advice	0	2	2 (4%)	6	5	11 (22%)
No	24	22	46	19	18	37
Total	24	25	49	26	24	50

unnecessary pain. However the German PPL is hardly more effective since a majority of the respondents say that they would not use the tablet at all.

Our expectation that the Dutch PPL would lead to greater compliance in the Netherlands was not borne out. On the contrary, the German PPL would result in more acceptable drug use than the Dutch one during pregnancy and while breastfeeding. However, our expectation that the German version of the PPL should lead to correct drug use in Germany was borne out in both situations.

Conclusion and discussion

In this study, we addressed the question whether culture has an influence on the design of PPLs and whether cultural differences in their design have an influence on their appreciation and communicative function.

We have shown that there are a number of differences between Dutch and German PPLs for tablets containing 400 mg Ibuprofen and that those differences are in line with what we predicted on the basis of differences between Dutch and German culture.

The experimental part of this study revealed that Dutch as well as German respondents prefer the Dutch version of the PPL (see Table 7). In terms of content and language use the Dutch appreciated the Dutch version more than the German version (see Tables 8 and 9). The German respondents did not appreciate language usage and the content of the German version more than that of the Dutch version. One of the conclusions that could be drawn from these results concerning the evaluation of the language use and the content of the PPLs is that if we had to choose just one PPL for the two countries it would probably be the Dutch one.

However, appreciation by patients is not the only aspect important to PPLs, it is also important that they lead to correct use of the drug (cf. Maes, Umme- len, & Hoeken 1996:148). Our research shows that the German PPLs lead to correct drug use more than the Dutch one by both the German and the Dutch respondents (Tables 10 and 11). On the other hand, we are cognizant that we only asked for respondent's *intention* to use the tables and not whether they actually use it, which could lead to different results.

If we had to choose just one PPL for the two countries we would have to decide whether to use the one with the higher appreciation for language use and content or the one which leads to safer drug use. We would choose the latter.

One problem of our research is that we did not test whether the German respondents do indeed have higher uncertainty avoidance and lower context than our Dutch respondents, as suggested in the literature. Given the fact that individual differences within one culture may occur, this might not be the case. In addition, respondents of both groups were from a region close to the border of the respective other country. It could be that cultural differences in border regions are less distinct. Future research will have to take these two aspects into account.

In order to decide whether one version of a PPL for a particular drug within the EU is sufficient, further research will have to be done in other EU countries with cultures that are more distinct than the Dutch and the German. Following our results, the German version of the PPL should be the one used in the Netherlands and Germany.

Notes

1. All citations are from the English language versions of the respective directives.
2. The 2004 amendment (2004/83/EEC) hardly made any changes to this article: *is taken* is replaced by *taking*, bullets are replaced by numbers, and what is mentioned under *this list must* now appears in a separate paragraph in article 2. There are no changes with respect to the content of this article.
3. For a more detailed history of PPL up to 1990 in the two countries see Joossens, 1990.
4. Note, however, that registration of medicinal products is not restricted to the national level. Since 1995 it is also possible to register them at the European Medicine Agency (EMA). EMA registrations are based on English documentation and patient package leaflets following the European directives.
5. PPLs used in this study can be obtained from the first two authors on request.
6. There is a slight difference between Dutch and German with respect to the compound nouns. German compound nouns tend to be longer and slightly more frequent than Dutch compounds (cf. Altman & Best 1996 for German and Rheinländer 2001 for Dutch) so in terms of the number of words of a text we would expect the German text to be shorter than the Dutch one. However, the differences between Dutch and German in our word count are so evident that this difference can be ignored here.
7. The original version and the translations used in the experiments can be obtained from the first two authors on request.
8. These questions were concerned with whether the length and the layout of the PPL differed from what respondents are used to. This was not the case for either of the versions: respondents did not signal any differences with PPLs they are used to read.
9. Since the PPLs we used in this study are PPLs for over-the-counter painkillers, we are only concerned with adequate drug use in terms of whether you are allowed to take the drug or not and the dosage, so we do not look at adequate drug use in terms of compliance, concordance, adherence and persistence.

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Dutch PPLs

- <http://www.advil.nl/images/advil-400.pdf>
http://www.kring-apotheek.nl/Geneesmiddelen/r_Pijn.asp
<http://www.multipharma.nl/http://212.204.198.96/index.jsp>
http://www.centrafarm.nl/apothekers_home.cfm
<http://www.cbq-meb.nl/Bijsluiters/09589-09590.pdf>

German PPLs

- <http://www.hexal.de/gi/advel.pdf>
http://www.bayervital.de/pages/produkte/pdf/beipackzettel/aktren_forte
http://www.hexal.de/gi/ibu_akut_400
http://www2.ratiopharm.com/apps/c25_teratioproduct/de/display_v2/index.cfm?fuseaction=getbeilage&pID=1441&lID=2
http://www.mannpharma.de/kopfschmerzen/vivimed_family/ibu_vivimed_gebrauchsinfo.htm

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The scarier, the better?

Effects of adding images to verbal warnings on cigarette packages

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An experiment with 214 participants compared the effects of existing verbal anti-smoking warnings with new photo warnings on tobacco packaging as proposed by the EU. A distinction was made between photos showing the harmful effects of smoking on the body in highly explicit fashion and photos doing so indirectly and metaphorically. In smokers, the new warnings did not increase their expectation that they would change their smoking behavior, but smokers indicated that they would shield themselves more actively from the warnings when these incorporate fear-evoking photos. In non-smokers, the new warnings did increase their expectation that they would not start smoking, but they too show an even stronger tendency to display conscious defensive behavior against the EU-proposed visual warnings. These effects are mainly due to confrontation with visual warning versions that explicitly depict smoking-induced damage to the body.

Keywords: images, tobacco packages, warnings, fear appeals

Background

On 22 October 2004, David Byrne, the European Commissioner for Health and Consumer Protection, held a press conference to launch his plans for enhancing the effectiveness of health warnings on cigarette packages and other tobacco products. It was his intention, he explained, to add images that underscore the severity of the risks involved in smoking to the warning labels that have been mandatory on tobacco product packaging for several years now in as many EU countries as possible. The pictures the European Union intends

to have printed on cigarette packages are highly graphic. To quote Byrne's own words at the press conference:

People need to be shocked out of their complacency about tobacco. I make no apology for the pictures we are using. The true face of smoking is disease, death and horror – not the glamour and sophistication the pushers in the tobacco industry try to portray. The EU must hammer home this message to young people in its media campaign and to smokers via their cigarette packs. (press release distributed throughout the European Union on 22 October 2004)

To illustrate the sort of images and labels he was alluding to, Byrne referred to a database with concrete proposals available on the Internet.¹ The proposed new health warnings have been made available in all official languages spoken in Europe. What is especially striking on this web site, however, is that the images fall into two specific categories. On the one hand, there are highly explicit pictures of the physical damage incurred by smoking, such as a photograph of a tumor-infested throat. On the other, there are pictures that point to the hazards involved in smoking indirectly and metaphorically, such as a photograph of a young woman with an empty baby carriage.

The information supplied by Brussels so far has failed to make clear what kind of research has preceded the launch of this new approach to health warnings on cigarette packages. The press release states that “the Commission's database has been created by a communications agency and the images in it pre-tested in focus groups across the 25 EU Member States” but fails to elucidate how these tests were designed and implemented, on what theoretical model they were based, and what their outcomes were. There is just a brief reference – without acknowledging its source – to Canada, where “experience [with] picture warnings [that] have been used for several years suggests that they can help reduce smoking.”

Literature review

This would seem to be an insubstantial foundation for a measure that is to be implemented on such a wide scale, all the more so if we take into consideration the observations health psychology researchers have been making for years now on the matter of intensifying health warnings on cigarette packages. For instance, Kok and Ruiter – both from Maastricht University – wrote in the 12 December 2002 edition of the Dutch newspaper *NRC Handelsblad* that em-

phasizing the negative consequences of smoking is the worst possible way of inducing people to quit smoking and that mentioning quitlines and web sites supporting those who choose to stop smoking is much more effective. Kok and Ruiter, therefore, advised policymakers “to discontinue displaying those scary labels [...]” Das and Fennis (2004) recently offered empirical support for Kok and Ruiter’s proposition that, for health warnings on cigarette packages to be successful, receivers of the information should not just be frightened but should be presented with explicit on-pack behavioral guidelines that might be effective from the receivers’ point of view.

The theoretical framework used by Das and Fennis in their research is that of fear appeal models. These do indeed offer the kind of hold needed to grasp possibly relevant variables in the processing and the ultimate effect of fear-evoking health warnings, like those on cigarette packages. Das and Fennis have actually done something remarkable, for, curiously enough, international research into the effects of anti-smoking warnings on cigarette packages is not always founded on explicit theoretical models. After presenting an extensive literature survey of empirical studies on the effects of warning labels on cigarette packages, Strahan, White, Fong, Fabrigar, Zanna, and Cameron (2002) arrive at the following somewhat disconcerting conclusion: “We did not find any articles that cast their findings in terms of [...] social psychological principles.” Nevertheless, social psychological research does provide, as Strahan et al. (2002) show, such principles and underlying theories and models. Drawing on research into fear appeal messages would then be the most obvious course to take here.

An influential fear appeal model is Witte’s Extended Parallel Process Model (EPPM) (see, for example, Witte 1998; Witte & Allen 2000; Murray-Johnson, Witte, Liu, Hubbell, & Morrison 2001). According to the EPPM, fear appeal messages increase the likelihood of receivers displaying the recommended behavior if several preconditions have been met. Firstly, receivers should experience true fear. They will do so if both the perceived severity of the threat and their perceived susceptibility to this threat are great enough. If the receivers are not frightened enough, fear appeal messages have no effect according to the EPPM. Receivers will then disregard the message and fail to take the proposed measure into consideration. If the receivers are frightened enough, there are two possibilities. If the perceived effectiveness of the proposed measure (perceived response efficacy) and their perceived self-efficacy are great enough, the frightened receivers will start making attempts to avert the threatening danger (danger control mode), which is exactly what the sender of the fear appeal message was hoping to achieve. However, if the perceived self-efficacy and the

perceived response efficacy are inadequate, the frightened receivers will attempt to subdue their feelings of fear without fighting the danger (fear control mode). In this case, they will not start defending themselves against the danger but against the feelings of fear that have been aroused, and they will make a conscious and active effort to shield themselves from the communication that brought about these feelings of fear (defensive avoidance).

To our knowledge, there is only one study comparing the effect of visual warnings on cigarette packages with the effect of verbal warnings: Searle, Hoek, and Maubach (2004).² Searle et al. (2004) presented 300 participants from New Zealand between ages 18–23 (150 smokers and 150 non-smokers) each two out of six cigarette packages with different warnings, deriving from anti-smoking campaigns in the US and Canada. In five cases, these were combined photo and label warnings, such as a badly stained set of teeth with the question “Fancy kissing this?” or a limp cigarette with the statement “Hard men don’t smoke.” The sixth case presented a label-only warning (“Smoking kills”), which, incidentally, had not been used in any of the other five warnings.

As the statistical analysis in Searle et al. (2004) is not advanced and because they did not use a theoretical model allowing appropriate interpretation of the data, this study barely allows us to draw firm conclusions on differences in efficacy among the six warnings. The fact that the text of the only purely verbal warning was not also used in conjunction with an image makes it even harder to assess the added value of images on the basis of this study. However, the mean scores on the five-point scales that were used for participants to indicate how frightening they found the warnings and – especially for the smokers – how encouraged they felt to quit, suggest that the warning with the picture of the badly stained teeth showed the best results (on the frightening scale, rated 3.7 and on the encouraging to quit scale, rated: 3.2). The purely verbal warning scored considerably lower³ (frightening: 2.35; encouraging to quit: 2.20). The limp cigarette, which was only presented to male participants, was even less successful (frightening: 1.95; encouraging to quit: 2.0). In their conclusions, Searle et al. (2004) state that “not all images functioned as hypothesised” and that “further research is required to clarify smokers’ perception of these images.” In the experiment described below, we tried to answer this call.

Research questions

The aim of our study was to gain a better understanding of the effects of combining the purely verbal warnings on cigarette packages with images, as

proposed by the European Union. More particularly, we were interested in their effects on a number of variables which, according to the Extended Parallel Process Model, are relevant in determining behavior and which might be influenced by adding images that address the following: perceived severity, perceived susceptibility, and fear, and the behavioral intentions in danger control mode and in fear control mode. We distinguished between two types of warnings: warnings in which the images show the harmful effects of smoking on the body in a highly explicit fashion, as in the badly stained teeth (in line with the EU proposal); and warnings in which the images refer to the harmful effects of smoking in an indirect, metaphorical way, as in the limp cigarette as a metaphor for impending impotence. Our research questions were the following:





1. Are there any differences in effect between purely verbal anti-smoking warnings and the same anti-smoking warnings combined with images, as proposed by the EU, with regard to perceived severity, perceived susceptibility, fear, in danger control mode, and in fear control mode?
2. Do any possible differences in effect occur both when explicit images are combined with verbal anti-smoking warnings and when metaphorical images are combined with these warnings?

Method

Materials

The EU database with anti-smoking warnings (see Note 1) comprises 42 proposed designs, all verbal warnings in current use, now illustrated with photographs. We selected four proposed designs from this database. Two of these represented explicit images: a tumor-infested throat (warning 1) and a badly stained set of teeth (warning 2). The other two images were metaphorical: a female with an empty baby carriage (warning 3) and a limp cigarette (warning 4). We prepared two same-size (8 cm wide and 6.5 cm high) versions of each of these four warnings: a verbal version, conforming to current practice on cigarette packages in content and style, including the standard black frame; and a visual version, comprising the color photograph as found on the Web site, including the label from the words version of the warning. See Table 1.

Table 1. The anti-smoking warnings investigated in this study

		Verbal version	Visual version
Visual Version Explicit	Warning 1: Tumor- infested throat	Smoking can cause a slow and painful death	
	Warning 2: Badly stained set of teeth	Smoke contains benzene, nitrosamines, formaldehyde and hydrogen cyanide	
Visual Version Metaphorical	Warning 3: Woman with empty baby carriage	Smoking can damage the sperm and decreases fertility	
	Warning 4: Limp cigarette	Smoking may reduce the blood flow and causes impotence	

Design and participants

Each participant was presented either with the verbal versions of the four warnings only or with the visual versions of the same warnings only. Versions were randomly distributed over the participants (verbal: N = 102; visual: N = 112). The sequence in which participants were confronted with the four warnings was systematically alternated to avoid sequencing effects. There were 214 par-

participants: 93 men and 120 women (missing value: 1); 97 participants were from the Netherlands, 111 were from Flanders, and 2 from elsewhere (missing values: 4); 64 smokers and 149 non-smokers (missing value: 1). Participants' mean age was 21.3 years ($SD = 6.5$). Most participants were students from Nijmegen (92) or from Antwerp (111). Occupations of the remaining participants (11) ranged from secondary education to retirement.

Questionnaire

The first four pages of the questionnaire consisted of a warning (text always in Dutch), followed by eleven questions, also in Dutch, that were the same for all warnings. The first five questions required responses on a five-point semantic differential scale, and the remaining six questions were to be answered on a five-point Likert scale.

The first three questions concerned the perceived severity of the health warnings: "I find the health warning above serious – not serious, scary – not scary, frightening – not frightening." For all warnings collectively, Cronbach's α was .86, and for the separate warnings: warning 1 $\alpha = .79$; warning 2 $\alpha = .90$; warning 3 $\alpha = .86$; warning 4 $\alpha = .97$.

The next two questions concerned the fear variables: "This health warning makes me anxious – not anxious, frightened – not frightened." For all warnings collectively Cronbach's α was .95 here, and for the separate warnings: warning 1 $\alpha = .89$; warning 2 $\alpha = .96$; warning 3 $\alpha = .95$; warning 4 $\alpha = .93$.

This was followed by a question on perceived susceptibility: "There is a considerable likelihood that what I'm being warned against here will happen to me. Strongly agree – Strongly disagree." Two subsequent questions then verified whether the participant expected to get into danger control mode in consequence of the warnings concerned: "Due to this warning, I would cut down / not start smoking. Strongly agree – Strongly disagree" and "My smoking behavior will be influenced by this health warning. Strongly agree – Strongly disagree." For all health warnings collectively, Cronbach's α was .85 here, and for the separate warnings: warning 1 $\alpha = .81$; warning 2 $\alpha = .76$; warning 3 $\alpha = .76$; warning 4 $\alpha = .77$.

Finally, three questions verified whether the participant expected to get into fear control mode in consequence of the health warning concerned: "I prefer to buy cigarette packages without this health warning. Strongly agree – Strongly disagree"; "I would prefer to put this cigarette package in a package cover. Strongly agree – Strongly disagree"; and "I would be ashamed to be carrying this package around. Strongly agree – Strongly disagree." For all health

warnings collectively, Cronbach's α was .81 here, and for the separate warnings: warning 1 α = .80; warning 2 α = .83; warning 3 α = .80; warning 4 α = .76.

For the sake of the accessibility of the results section, all answer scales were renumbered: not serious, not scary, strongly disagree were consistently given the lowest value, and serious, scary, strongly agree were consistently given the highest value. The questionnaire concluded⁴ with some questions about demographics, such as age, sex, nationality, and native language. Participants were also asked about their smoking behavior.

Procedure

Most participants (201) viewed the warnings and completed the questionnaire during a lecture at the University of Antwerp or at the Radboud University Nijmegen. The remaining participants (11) did so in their home environments. Participants were informed that this was a research project of the Professional Communication program at the Radboud University Nijmegen, dealing with health warnings on cigarette packages. Participants were requested to answer questions for themselves only and page by page. They were not offered any prospective rewards.

Results

To answer the research questions, a series of univariate analyses of variance were performed, each time using warning version and smoking behavior as independent variables, and perceived severity, fear, perceived susceptibility, danger control mode, and fear control mode as dependent variables. Analyses of variance were first performed for the four warnings collectively, and then for the explicit and metaphorical warnings separately. The statistical power of the F tests was consistently .74 at medium effect size ($f = .25$) and $>.99$ at large effect size ($f = .40$) at $\alpha = .05$ (Cohen 1977:312).

Table 2 shows that in all four warnings collectively, presentation of the various versions (visual versus verbal) resulted in a number of statistically significant main effects. Presentation of the visual warnings led to an increased perception that these concerned a serious danger (perceived severity), to a decreased perception that participants were susceptible to this danger (perceived susceptibility), to a stronger tendency to let their smoking behavior be influenced in the desired direction (danger control mode), and also to a stronger tendency to make a conscious effort to shield themselves from the

Table 2. Main and interaction effects of warning versions and smoking behavior: all warnings

	main effect version: visual (N = 112) versus verbal (N = 101)	main effect smoking behavior: smokers (N = 64) versus non-smokers (N = 149)	interaction effect: version × smoking behavior
<i>perceived severity</i>	visual: M = 3.60, SD = .78 verbal: M = 3.31, SD = .70 F(1,212) = 5.44 p = .021; $\eta^2 = .02$	smokers: M = 3.23, SD = .77 non-smokers: M = 3.56, SD = .73 F(1,209) = 10.24 p = .002; $\eta^2 = .047$	F(1,209) = 1.63 n.s.
<i>perceived susceptibility</i>	visual: M = 2.14, SD = 1.02 verbal: M = 2.39, SD = 1.15 F(1,209) = 4.33 p = .039; $\eta^2 = .02$	smokers: M = 2.80, SD = .98 non-smokers: M = 2.02, SD = 1.05 F(1,209) = 28.17 p < .001; $\eta^2 = .12$	F(1,209) = .073 n.s.
<i>fear</i>	visual: M = 2.68, SD = .94 verbal: M = 2.59, SD = .87 F(1,209) = .20 n.s.	smokers: M = 2.45, SD = .84 non-smokers: M = 2.72, SD = .92 F(1,209) = 3.61 n.s.	F(1,209) = .79 n.s.
<i>danger control mode</i>	visual: M = 2.97, SD = 1.08 verbal: M = 2.62, SD = .96 F(1,209) = 6.61 p = .011; $\eta^2 = .03$	smokers: M = 2.39, SD = 1.01 non-smokers: M = 2.98, SD = 1.00 F(1,209) = 17.81 p < .001; $\eta^2 = .08$	F(1,209) = .35 n.s.
<i>fear control mode</i>	visual: M = 2.86, SD = .99 verbal: M = 2.25, SD = .88 F(1,209) = 20.50 p < .001; $\eta^2 = .09$	smokers: M = 2.38, SD = .99 non-smokers: M = 2.65, SD = .98 F(1,209) = 5.88 p = .016; $\eta^2 = .03$	F(1,209) = .02 n.s.

n.s. not significant ($\alpha = .05$)

anti-smoking warnings (fear control mode). No significant main effect, however, of warning on fear arousal was found. See Table 2.

As is shown in Table 3, similar main effects of warning version as presented in Table 2 were manifest when the analysis was restricted to just those two warnings that explicitly showed the damage smoking can do to the body (the tumor-infested throat and the badly stained set of teeth). In this case, there was also a significant main effect of the variable fear in the desired direction: the explicit visual warnings turned out to arouse more fear than their verbal counterparts.

When the analysis was restricted to just those two warnings whose images represented the harmful effects of smoking in an indirect, metaphorical way (the woman with the empty baby carriage and the limp cigarette), only two main effects remained, which, strikingly enough, were both in the direction not desired by the champions of visual versions. The metaphorical visual warnings turned out to lead to a decreased perception that these concerned a serious danger and to less fear than the verbal versions of the same warnings. See Table 4.

As shown in Tables 2, 3 and 4, the influence of smoking behavior proved to be consistent. Compared to the non-smokers, the smokers rated the threatening dangers as less serious, considered themselves more susceptible, were less frightened in the case of the explicit warnings, were less inclined to let their smoking behavior be influenced in the desired direction, and were less disposed to make a conscious effort to shield themselves from the anti-smoking warnings on the cigarette packages. In none of the analyses, interaction effects of warning version and smoking behavior were found.

To get a more accurate grasp of the differences in behavioral intentions induced by the visual and verbal versions, *t*-tests (two-tailed; $\alpha = .05$) were performed for the smokers and non-smokers groups separately with warning version as independent variable, for those cases in which the analyses of variance had shown significant effects for the dependent variables danger control mode and fear control mode. In smoker comparisons, the statistical power of the *t*-tests was .78 at medium to large effect size ($d = .70$) and .88 at large effect size ($d = .80$). In non-smoker comparisons, the statistical power was .85 at medium effect size ($d = .50$) and $>.99$ at large effect size ($d = .80$) (Cohen 1977:36–37). The results of the *t*-tests are presented in Table 5.

The dependent variables in Table 5 are those variables that are most relevant for the purposes of a health campaign: the degree to which smokers and non-smokers expected that their future smoking behavior would be influenced in the desired direction by the warnings (or: get into danger control mode) and

Table 3. Main and interaction effects of warning versions and smoking behavior: warnings 1 and 2 (explicit visual versions)

	main effect version: visual (N = 112) versus verbal (N = 101)	main effect smoking behavior: smokers (N = 64) versus non-smokers (N = 149)	interaction effect: version × smoking behavior
<i>perceived severity</i>	visual: M = 4.27, SD = .78 verbal: M = 3.06, SD = .76 F(1,209) = 104.18 p < .001; $\eta^2 = .33$	smokers: M = 3.56, SD = 1.01 non-smokers: M = 3.75, SD = .96 F(1,209) = 7.31; p = .007; $\eta^2 = .03$	F(1,209) = 2.30 n.s.
<i>perceived susceptibility</i>	visual: M = 2.15, SD = 1.20 verbal: M = 2.44, SD = 1.21 F(1,209) = 4.59 p = .033; $\eta^2 = .02$	smokers: M = 2.80, SD = 1.04 non-smokers: M = 2.06, SD = 1.21 F(1,209) = 20.04 p < .001; $\eta^2 = .09$	F(1,209) = .003 n.s.
<i>fear</i>	visual: M = 3.09, SD = 1.20 verbal: M = 2.42, SD = 0.92 F(1,209) = 14.14 p < .001; $\eta^2 = .06$	smokers: M = 2.55, SD = 1.03 non-smokers: M = 2.87 SD = 1.15 F(1,209) = 5.03 p = .026; $\eta^2 = .02$	F(1,209) = 2.48 n.s.
<i>danger control mode</i>	visual: M = 3.18, SD = 1.25 verbal: M = 2.45, SD = .95 F(1,209) = 18.02 p < .001; $\eta^2 = .08$	smokers: M = 2.42, SD = 1.10 non-smokers: M = 3.02, SD = 1.16 F(1,209) = 15.98 p < .001; $\eta^2 = .07$	F(1,209) = 2.59 n.s.
<i>fear control mode</i>	visual: M = 3.25, SD = 1.13 verbal: M = 2.15, SD = .88 F(1,209) = 49.24 p < .001; $\eta^2 = .19$	smokers: M = 2.62, SD = 1.15 non-smokers: M = 2.78, SD = 1.17 F(1,209) = 3.09 n.s.	F(1,209) = .59 n.s.

n.s. not significant ($\alpha = .05$)

Table 4. Main and interaction effects of warning versions and smoking behavior: warnings 3 and 4 (metaphorical visual versions)

	main effect version: visual (N = 112) versus verbal (N = 101)	main effect smoking behavior: smokers (N = 64) versus non-smokers (N = 149)	<i>interaction effect: version × smoking behavior</i>
<i>perceived severity</i>	visual: M = 2.92, SD = 1.05 verbal: M = 3.58, SD = .87 F(1,209) = 20.54 p < .001; $\eta^2 = .09$	smokers: M = 2.89, SD = 1.01 non-smokers: M = 3.38, SD = .99 F(1,209) = 7.52 P = .007; $\eta^2 = .03$	F(1,209) = .56 n.s.
<i>perceived susceptibility</i>	visual: M = 2.12, SD = 1.05 verbal: M = 2.34, SD = 1.29 F(1,209) = 2.58 n.s.	smokers: M = 2.81, SD = 1.12 non-smokers: M = 1.97, SD = 1.10 F(1,209) = 26.33 p < .001; $\eta^2 = .11$	F(1,209) = .31 n.s.
<i>fear</i>	visual: M = 2.26, SD = .92 verbal: M = 2.77, SD = 1.05 F(1,209) = 10.49 P = .001; $\eta^2 = .05$	smokers: M = 2.35, SD = 1.01 non-smokers: M = 2.57, SD = 1.01 F(1,209) = 1.13 n.s.	F(1,209) = .005 n.s.
<i>danger control mode</i>	visual: M = 2.77, SD = 1.11 verbal: M = 2.78, SD = 1.16 F(1,209) = .21 n.s.	smokers: M = 2.36, SD = 1.11 non-smokers: M = 2.95, SD = 1.12 F(1,209) = 12.89 p < .001; $\eta^2 = .06$	F(1,209) = .25 n.s.
<i>fear control mode</i>	visual: M = 2.47, SD = 1.09 verbal: M = 2.35, SD = 1.01 F(1,209) = 1.50 n.s.	smokers: M = 2.15, SD = 1.01 non-smokers: M = 2.53, SD = 1.05 F(1,209) = 6.84 P = .010; $\eta^2 = .03$	F(1,209) = .27 n.s.

n.s. not significant ($\alpha = .05$)

Table 5. Mean scores (on five-point scales) for effects of warning variety (visual versus verbal) on behavioral intentions of smokers and non-smokers

	all warnings		visual versions explicit	
	smokers	non-smokers	smokers	non-smokers
<i>danger control mode</i>	visual: M = 2.51, SD = 1.06	visual: M = 3.23, SD = 1.01	visual: M = 2.59, SD = 1.23	visual: M = 3.50, SD = 1.15
	verbal: M = 2.21, SD = 0.91 t(62) = 1.15 n.s.	verbal: M = 2.75, SD = 0.94 t(147) = 2.96 p = .004; $\eta^2 = .06$	verbal: M = 2.16, SD = 0.79 t(62) = 1.70 n.s.	verbal: M = 2.55, SD = 0.98 t(147) = 5.45 p < .001; $\eta^2 = .17$
<i>fear control mode</i>	visual: M = 2.63, SD = 0.99	visual: M = 2.99, SD = 0.97	visual: M = 3.00, SD = 1.13	visual: M = 3.39, SD = 1.12
	verbal: M = 2.01, SD = 0.88 t(62) = 2.57 p = .013; $\eta^2 = .10$	verbal: M = 2.33, SD = 0.87 t(147) = 4.35 p < .001; $\eta^2 = .11$	verbal: M = 2.03, SD = 0.92 t(62) = 3.590; p = .001; $\eta^2 = .13$	verbal: M = 2.19, SD = 0.87 t(147) = 7.33 p < .001; $\eta^2 = .27$

n.s. not significant ($\alpha = .05$)

the degree to which, after seeing the warnings, they expected they would make a conscious effort to shield themselves from such warnings in the future (or: get into fear control mode).

For the smokers, there appeared to be no significant effects of adding visual to verbal warnings on cigarette packages, as intended by the EU. Only the non-smokers would be significantly more influenced by the visual than by the verbal versions in the direction desired by the EU, though this effect was not found when metaphorical images were used in these visual versions (see Table 4).

Both for smokers and non-smokers, Table 5 shows significant effects on their expectation that they would henceforth make a conscious effort to shield themselves from the warnings. The non-smokers' defensive responses to the added images were more negative here than those of the smokers. This increase in non-smokers' defensive responses is also more pronounced than the increase in positive effects in consequence of adding the images. Once again, no significant effects at all were found when metaphorical images were used in these visual versions.

The data presented so far do not provide any indication of the degree to which the two metaphorical warnings with the empty baby carriage, which mainly targets women, and the limp cigarette, which mainly targets were suc-

Table 6. Main and interaction effects of warning version and smoking behavior for warning 3, for women only

warning 3 (woman with empty baby carriage); female participants only			
	main effect version: visual (N = 60) versus verbal (N = 60)	main effect smoking behavior: smokers (N = 37) versus non-smokers (N = 83)	interaction effect
<i>danger control mode</i>	n.s.	n.s.	n.s.
<i>fear control mode</i>	visual: M = 2.72, SD = 1.11 verbal: M = 2.32, SD = 1.09 F(1,116) = 5.255; P = .024; $\eta^2 = .028$	n.s.	n.s.

n.s. not significant ($\alpha = .05$)

cessful with these target groups separately. For either of the metaphorical warnings, therefore, analyses of variance were carried out for the most relevant target group only: for female participants exclusively (N = 120) in version 3 (woman with empty baby carriage), and for male participants exclusively (N = 93) in warning 4 (limp cigarette). The statistical power of the F-tests was now .87 (warning 3) and .77 (warning 4) at a large effect size ($f = .40$) and $\alpha = .05$ (Cohen 1977: 311). For the male participants no statistically significant effects were found of the version of the limp cigarette warning they were presented. For the female respondents, however, presentation of the visual version of the empty baby carriage warning did lead to an increased tendency to shield themselves from confrontation with this warning. However, the intended smoking behavior of women was not significantly influenced by the warning version they were presented. See Table 6.

The results presented in Table 6 justify the expectation that adding the picture of a woman with an empty baby carriage to the warning “Smoking can damage the sperm and decreases fertility” will only cause women to show a stronger tendency to shield themselves from this kind of health communication.

Discussion and conclusions

The aim of this study was to gain a better understanding of the effects of adding images to warnings on cigarette packages, as was proposed by the European Union late 2004. We distinguished between warnings in which the images show the harmful effects of smoking on the body in a highly explicit fashion and warnings in which the images refer to the harmful effects of smoking in an indirect, metaphorical way.

The results show that, with the exception of the variable of fear, adding pictures leads to significant effects on the dependent variables: increased perceived severity, increased danger control mode, and increased fear control mode, but also decreased perceived susceptibility. Further analysis demonstrates that the principal intended effect, that is, the effect on the behavioral intention of danger control mode, is found for the non-smokers only. They are the only ones to be significantly more influenced by the visual versions than by the verbal versions in the direction desired by the EU. Furthermore, adding the EU-advocated images proves to increase the behavioral intention of fear control mode in both smokers and non-smokers. In the non-smokers, this effect is distinctly stronger than the effect on danger control mode.

To put this in a nutshell: confronting smokers with the new warnings does not increase their willingness to cut down smoking, but they do expect they will more actively shield themselves from the warnings. For instance, people might slip the packages into pack covers more often. In the non-smokers, the new warnings do actually produce an increased expectation that they will not start smoking, but they also show a more pronounced tendency to display conscious defensive behaviors against this kind of communication.

The results also show that the differences in effectiveness we found only occurs if the anti-smoking warnings are combined with images that explicitly show the physical damage that may be incurred by smoking, such as a tumor-infested throat or badly stained teeth. In these types of warnings, the visual versions also prove to arouse more fear than their verbal counterparts.

However, if the current anti-smoking warnings are combined with images of a metaphorical nature, such as a woman with an empty baby carriage or a limp cigarette, they are only likely to produce an effect that is not desired by the EU. The metaphorical visual warnings lead to a decreased perception that they represent a serious danger. They also arouse less fear than the verbal versions of the same warnings. When the warning label "Smoking can damage the sperm and decreases fertility" is combined with the photograph of a woman with an empty baby carriage, this addition also causes women to

show a clearly increased tendency to shield themselves from this kind of health communication. However, this image has no effect on the intended smoking behavior of women.

On the basis of these findings, our advice to those national governments that will be making decisions based on European commissioner Byrne's proposals is that anti-smoking warnings on cigarette packages should not be combined with metaphorical images. If these kinds of visual warnings produce any intended behavioral change at all, they will not affect smoking behavior itself but merely cause increased defensive behaviors against the health communication concerned. Adding explicit images to the current label warnings on cigarette packages, however, is a viable option worth consideration. More attention, however, should be paid to susceptibility. Pretests should be carried out to find pictures that are not only perceived as a severe danger, but that also make people feel that what is depicted could happen to them when they start, or do not stop smoking.⁵

It may be rather disappointing for the advocates of the new warnings that the explicit warnings predominantly have a positive effect on the intended behavior of non-smokers and that no significant effects were found for smokers. For, as European commissioner Byrne declared, "the EU must hammer home this message [...] to smokers via their cigarette packs."

Another qualifying comment is warranted here: measures must be taken to prevent receivers from chiefly attempting to shield themselves from such warnings.⁶ Fear appeal theory, and the EPPM in particular, shows how this can be done. A practical measure should be proposed that is actually effective and practicable from the receivers' point of view (see also Das & Fennis 2004). Strahan et al. (2002) point to the advantages of the approach taken in Canada, where, in addition to fear-evoking warnings on the outside of cigarette packages, the inside also presents information on practical measures smokers can take to shed their addiction and avert the threatening dangers they have just been confronted with on the outside. These may be general messages aiming to improve perceived self-efficacy (of the type "You can quit smoking and reduce your risk of lung cancer") or messages encouraging smokers not to lose heart ("Smokers who quit tended to try a number of times before they succeeded, so keep trying!"). According to Strahan et al. (2002), however, it is also vital to include specific information that helps to enhance perceived response efficacy: advice for smokers who want to quit and references to quitlines and web sites offering practical support.

Adequate provisions should also be made to forestall wearout, the phenomenon well-known in advertising⁷ whereby overexposure to the same com-

municative message is characterized by a brief period of mounting impact of the message, followed by plummeting attention levels. In this context, one may think of printing varying, and frequently renewed visual warnings – both in terms of substance and style – on the exteriors of packages. The advisory messages on the interiors also require regular alternation and renewal. What other measures may help to prevent wearout of anti-smoking warnings deserves further investigation (see also Strahan et al. 2002). It is to be hoped that EU and the national governments will be undertaking such initiatives with due dispatch. The seriousness of the communication issues and, even more so, the health issues involved would warrant such expedition.

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Notes

1. See <http://europa.eu.int/comm/mediatheque/photo/select/tabac> and http://europa.eu.int/comm/health/ph_determinants/life_style/Tobacco/ev_20041022_en.htm
2. The effects of verbal warnings have been the subject of several studies (for an overview, see Mitchell 1999). There has also been a study into the effects of just the new warnings as these are currently being used in Canada (Hammond, Fong, McDonald, Cameron, Brown 2003). An experiment comparing the effects of warnings with and without images, however, has only been reported in Searle et al. (2004).
3. It remains unclear if this difference is statistically significant. No statistical tests are reported pertaining to the differences found between the responses to the six warnings.
4. Between the question pertaining to the four warnings and those about personal particulars, we inserted another question with 27 sub-items, a subset of Schwartz's (1992) value list, translated into Dutch. Its aim was to collect information on differences in value hierarchies in order for us to be able to establish relations between those value hierarchies and the participants' nationalities. In the present paper, this subject has been left out of consideration.

5. When deciding which pictures should be used, benefit may be gained from studies into the effects of various types of anti-smoking warnings, not on cigarette packs but in other media. Smith & Stutts (2003), for instance, exposed high school children to anti-smoking advertisements (television commercials, print advertisements and internet banner advertisements), over a five-month period. The effectiveness was tested of short term cosmetic versus long-term health fear appeals in preventing or reducing smoking. Short term cosmetic fear appeals (yellow teeth, for instance) turned out to be more effective for males, while long-term health fear appeals (lung cancer, for instance) proved to be more effective for females. As a possible explanation for the finding that females are more impressed by the long-term fear appeals, Smith and Stutts suggest that females are traditionally seen as the 'caregivers' in relationships and hence may be more influenced by health-related appeals. The outcome that males are more impressed by short term cosmetic appeals is explained by "some degree of role reversal among today's adolescents", making boys more afraid to be rejected based on their on their physical attractiveness (p. 172).
6. In November 2004, the Belgian Minister for Public Health Rudy Demotte announced that, in his country, the sale of fun boxes that hide on-pack warnings will be banned at the same time that the new photo warnings will be introduced (www.gezondheid.be, Federaal plan ter bestrijding van het tabaksgebruik). The effectiveness of this measure may be questioned, not only because in the EU it is easy to import all kinds of articles that are forbidden from other European countries where they are allowed, but even more because a more fruitful approach would be to change the warnings in such a way that the receivers of the messages go into *danger control mode* and not into *fear control mode* that urges them to hide the message on the tobacco package.
7. See Pechmann and Stewart (1988) and Stewart (1999).

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Reading and expertise

The impact of connectives on text comprehension in the financial field

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Prior knowledge seems to have contrary effects on learning from expository texts, depending on text coherence. Some studies have indeed shown that high-knowledge readers learn more from low-coherence than high-coherence texts (McNamara, Kintsch, Songer, & Kintsch 1996; McNamara & Kintsch 1996; McNamara, 2001), whereas low-knowledge readers always benefit from high-coherence texts. Such results are of great relevance for the field of text design: they imply that text coherence improvement could have a negative effect on comprehension. However in these studies high-knowledge readers were never specialists in the topics of the texts, and text coherence was altered on very many levels. In order to progress, we conducted an experiment quite similar to McNamara's, but with real experts, in which text coherence was manipulated in a targeted way, only at the level of presence or absence of backward causal connectives. Tasks consisted in reading texts with or without connectives, in the expertise domain of the participant or not, and in answering comprehension questions. Results showed that high expertise level readers always performed better than low expertise level readers. More importantly, low expertise level readers as well as high expertise level readers learned more from coherent texts (with connectives) than less coherent (without connectives).

Keywords: text coherence, causal connectives, domain knowledge, expertise

Background

One of the most classical, most obvious, but also most useful results in text improvement is that making text coherence more explicit leads to better comprehension (e.g., Spyridakis & Standal 1987; Britton & Gülgöz 1991; Beck, McKeown, Sinatra, & Loxterman 1991; Mckeown, Beck, Sinatra, & Loxterman 1992; Moravcsik & Kintsch 1993; Britton 1996; etc.). As a prototypical instance, Britton and Gülgöz (1991), following Kintsch and van Dijk's model of text comprehension (1978), revised a thousand word expository text on the US Air Force's role in an action during the Vietnam war. Rewriting was carried out to improve textual coherence according to three principles. The first was the principle of repetition of linking words from the previous sentence in the next. This is referred to as argument overlap in van Dijk and Kintsch's model. The second principle was to fit information so that the reader encounters given information in the sentence before new information (Haviland & Clark 1974; Miller & Kintsch 1980). The third principle was to make explicit information that had to be inferred by the readers. Britton & Gülgöz (1991) observed a better comprehension of the revised version of the text than of the original version.

This kind of (hardly surprising) result had important practical implications – and still does today – since it is at the root of many approaches aimed at making texts more comprehensible (Vidal-Abarca, Martínez, & Gilabert 2000; Degand & Bestgen 2002). For instance, we demonstrated that readers with no particular prior knowledge understood better expository texts when causal relations were made explicit by presence of backward causal connectives (Roebben, Degand, & Bestgen 2001; Roebben 2004). However, recent work has suggested that improving textual coherence does not always lead to improved comprehension (McNamara, Kintsch, Songer, & Kintsch 1996; McNamara & Kintsch 1996; McNamara 2001). In several studies based on Britton & Gülgöz's methodology (1991), McNamara and her collaborators have indeed shown that high-knowledge readers benefit more from low-coherence than from high-coherence texts. Textual coherence could thus have a negative effect on comprehension, depending on the level of knowledge of the reader.

In order to test effects of backward causal connectives on comprehension of readers with a high level of knowledge, we conducted an experiment quite similar to McNamara's. Our central hypothesis was that presence of backward connectives improves comprehension, even with expert participants.

Literature review

In all of the experiments of McNamara and her collaborators, high-knowledge and low-knowledge participants read high-coherence and low-coherence versions of expository texts. Afterwards, their *memory* of the texts was tested with questions about information stated in the texts; they were also tested on *learning* from the texts with inference questions for which the answers were not explicitly provided in the texts. Results for low-knowledge readers replicated Britton and Gülgöz's (1991) observations: low-knowledge readers always benefited from high-coherence texts, showing better memory and learning for these versions. However, results for high-knowledge readers were very different: memory for high- and low-coherence texts was about equal and, still more surprisingly, *learning from low-coherence texts was better than from high-coherence texts*.

The authors' explanation of this paradoxical result for the document design field is based on Kintsch's comprehension model (1988, 1994, 1998). Any text can be understood on at least two levels: the text-base (propositional representation of literal text contents) and the situational model (a representation of what the text is about, enriched by the reader's relevant knowledge) (Glenberg, Meyer, & Linden 1987). A good text-base representation allows the readers to remember the text, but only the situational model provides to the readers a full conceptual understanding. To build the situational model efficiently, readers must actively connect text contents with their background knowledge. This implies not only that readers need relevant background knowledge, but that they also have to establish these links actively. If the text is very coherent, no active process is necessary. This explains why, for McNamara et al. (see, e.g., McNamara 2001:52), only low-coherence texts force high-knowledge readers to initiate an active processing and to use their prior knowledge to fill in the conceptual gaps.

However, some methodological problems in their study weaken the conclusion of McNamara et al. First, as stressed by McNamara et al. (1996) themselves, it is important that the reader have adequate knowledge of what she/he is reading. Nevertheless, in none of the McNamara et al. experiments was the level or the type of prior knowledge effectively controlled. In their studies, high-knowledge readers were never specialists in the text topics. Participants were either students with more or less knowledge about the text (the level of knowledge was measured by a simple questionnaire) or pre-trained students that had been provided with some background knowledge before the experiment. Some of the effects observed by McNamara et al. (1996), McNamara and

Kintsch (1996) and McNamara (2001) could be due to the way they made sure of the knowledge levels of their participants. More precisely, one may wonder if similar results would be gathered using professional experts, a domain of application much more important for the field of document design.

Other methodological problems are related to the way coherence was manipulated in the experiments. High-knowledge readers' passivity could find its origin in the differences in length between the different versions of the texts. It appears, for example, that the text of McNamara et al. (1996, Experiment 1) included 590 words in its original version against 1167 words in its revised version, the text of McNamara and Kintsch (1996, Experiment 1) 1030 against 1332 words, and the text of McNamara (2001) 650 against 900 words. It may be that high-knowledge readers felt a certain tiredness in front of a much longer text in its coherent version, and that these readers eventually processed it in a more superficial way, especially since they possessed knowledge about the topic of the text.

Another problem concerns the type of textual coherence improvement that was introduced in the revised versions. In McNamara et al. (1996) and in McNamara (2001), text coherence was altered on very many levels. At a local level, authors checked that every sentence was explicitly connected with the previous sentence: descriptive elaborations were added to link unfamiliar concepts with familiar ones; coherence relations were signaled by connectives; and words were replaced or inserted to increase argument overlap between sentences. At a more global level, revised texts contained topic headers and new sentences that linked each paragraph to the rest of the text and to the overall topic. In McNamara and Kintsch (1996), text coherence was manipulated in the same way, but at the local level only. It is difficult to say if any coherence improvement is harmful to high-knowledge reader comprehension, or even whether this could be beneficial.

Research methodology

In the field of document design, it is important to verify whether a more targeted manipulation of textual coherence would support or mitigate the conclusions of McNamara and her collaborators. It is thus essential to undertake research that takes into account these methodological problems. With this aim, an experiment similar to McNamara's studies was conducted, but with high-knowledge participants who were professional experts. Textual coherence was manipulated only by inserting or omitting causal connectives in the text. This

manipulation was selected because it has a very small effect on text length, and because causal relations are frequent and very important for comprehension (Schiffrin 1985; Noordman, Vonk, & Kempff 1992; Noordman & Vonk 1998; Oberlander & Moore 2001; Pander Maat & Degand 2001; Degand & Pander Maat 2003; Wiley & Myers 2003). Furthermore, several studies showed that signaling causal coherence relations by connectives improves comprehension (Millis & Just 1994; Degand, Lefèvre, & Bestgen 1999; Roebben, Degand, & Bestgen 2001; Sanders & Noordman 2000; Singer & O'Connell 2003; Roebben 2004, etc.).

Experiment

Method

Participants

Two groups of experts took part in the experiment: ten investment experts and six bank credit experts. All the participants worked for a big Dutch company (Fortisbank). The function of the experts in the two groups was the same: they were 'personal bankers.' Only their field of expertise and the type of products they sold were different. It is noteworthy that credit experts as well as investment experts had knowledge about the basic products of the other field, so they were not totally inexperienced. The average age of the participants ($N = 16$) was 47 years (s.d.: 7.62; minimum age: 35 years; maximum age: 57 years).

Materials

The experimental materials consisted of four expository texts: two texts related to credit bank products and two to placement products. Two extracts from a text about an investment product are provided in the appendix. These texts were adapted from company documents with the help of an expert in investment. In each text, six pairs of sentences were manipulated to produce two versions. In each pair, the sentences were causally related, the first sentence expressing a consequence of the (causal) second sentence. In the 'with connectives' version, a backward causal connective ('because:' *parce que* or *car* in French) was inserted between the consequence and the cause sentences of each of the six pairs, so the causal relation was signaled explicitly. In the 'without connective' version, the two sentences of each pair were simply juxtaposed, separated by a full stop. After this manipulation, texts in the 'with connectives'

version were 708 or 709 words long. They were 702 or 703 words long in the 'without connective' version.

Version 1: *with connectives*

The payment is guaranteed for the recipient *because* the commitment cannot be modified without agreement of all the parts concerned.

Version 2: *without connective*

The payment is guaranteed for the recipient. The commitment cannot be modified without agreement of all the parts concerned.

Tasks

Pre-test

To check their level of expertise in each field, participants answered a pre-test consisting of four texts. Each text had a connection with the topic of one of the experimental texts, but, to avoid as much as possible any impact of this pre-test on the subsequent tasks, they covered different financial products. In each text, eight words expressing an important concept were removed and the participants' task was to fill in the gaps. The four texts were roughly 220 words long ($M = 219.25$; $s.d. = 1.71$).

Test

After reading each text, participants answered three types of comprehension questions designed to test our specific hypotheses. Examples of these questions are given in the appendix.

- 'Causal relations' questions
Four questions tapped the connectives manipulation; that is, the causal relation of four of the six sentences pairs. They permitted study of the local impact of the presence or absence of a connective on comprehension by high and low expertise level readers.
- 'Memory' questions
Four questions covered other non-manipulated parts of the text: two on specific details such as a percentage, and the other two covering more general information. These questions were designed to evaluate the impact of connectives and expertise level on memory regarding information explicitly provided in the texts.

– ‘Learning’ questions

The answers to the last two questions were not given explicitly in the texts, but had to be inferred by the reader. By means of these two inference questions, we sought to measure the impact of connectives and of expertise on deep understanding; that is, not on memory of the text, but on real learning from it. It is noteworthy that information required to infer the answers to these questions was not provided in any of the six manipulated pairs of sentences.

All the comprehension questions were composed in close cooperation with a financial expert who did not participate in the experiment. For each text, the questions were ordered in a semi-random way. We took care only that two questions of the same type were not ordered with one following the other.

Design

A mixed design with one between-subject factor and three within-subject factors was employed. The between-subject independent variable was the ‘financial field’ (‘credit specialists’ vs. ‘placement specialists’). The three within-subject variables were ‘connectives’ (‘presence of connectives’ vs. ‘absence of connective’), ‘question types’ (‘causal relations’, ‘memory’ questions and ‘learning’ questions), and ‘expertise level’ (‘low’ vs. ‘high’). The expertise level was manipulated by presenting to the participants two texts within or outside of their field of expertise. More precisely, all the participants read the four experimental texts. The two texts corresponding to their field of expertise allowed us to measure their performance in the high level of expertise condition, while the two texts covering the other field were used to measure their performance in the low level of expertise condition. The connective factor was crossed with this expertise level factor in the following way: Each participant read two texts ‘with connectives’ – one for which he had a ‘high expertise level’, the other for which he had a ‘low expertise level’ – and two texts ‘without connective’ – one in his field of expertise and the other not. Each of the four texts was read in its two versions. Four experimental booklets were created containing the four texts, in which text types (‘investment’ vs. ‘credit’) and text versions (‘with connectives’ vs. ‘without connective’) were alternated. After each text, participants answered the three types of questions. Booklets were randomly distributed to the participants.

Procedure

First, the experimenter explained to the participant all the steps of the experiment and answered any questions. Every text was preceded, in the booklets, by the corresponding pre-test and followed by the 10 comprehension questions. The participants had 150 seconds maximum to carry out the pre-test, and 390 seconds maximum to read the text once. No limit of time was imposed to answer the comprehension questions. Participants were allowed to take a break between two sets of tasks, but nobody took advantage of it.

Results

All the data obtained in this study were analyzed by means of analyses of variance (ANOVA). In these analyses, 'expert groups' was a between-subject factor, while 'connectives', 'expertise level' and 'question types' were within-subject factors.

Pre-test

Participants obtained a better score for texts corresponding to their expertise field, and a rather weak score when the text was not in their domain, $F(1,14) = 33.80$, $p < .0001$, $MSE = 0.822$ (see Figure 1). There was no effect of the 'financial field' factor, $F(1,14) = 0.71$, $p < .4136$, $MSE = 2.383$, nor of interaction between this factor and the 'expertise level' factor, $F(1,14) = 1.65$, $p < .2022$, $MSE = 0.822$.

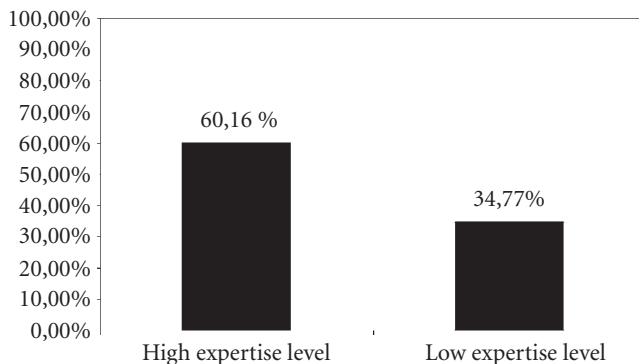


Figure 1. Scores in the pretest (percentages)

Test

Answers to comprehension questions were scored on a 3-level scale by two independent judges, with a third judge – an expert in the financial field – intervening in case of disagreement. The maximum score for a correct answer was 1 point; an intermediate score of 0.5 was attributed to correct but incomplete answers; a score of 0 to erroneous answers or in the absence of an answer. Interjudge reliability for the scoring of these questions by the two independent judges was high (Cronbach's alpha = 0.88). For every participant of each financial field, an average score was calculated for each of $2 \times 2 \times 3$ levels of three within-subject experimental factors: 'connectives', 'expertise level' and 'question type'.

The first analyses focused on the between-subject 'financial field' factors to determine whether they interacted with any other factors. The ANOVA did not reveal any significant difference between the groups of participants ($F(1,14) = 0.13$, $p = .7190$, $MSE = 0.379$), nor any interaction between this factor and one of three within-subjects factors: 'expertise level', ($F(1,14) = 3.10$, $p = .0999$, $MSE = 0.047$), 'connectives' ($F(1,14) = 1.62$, $p = .2234$, $MSE = 0.095$), and 'question types' ($F(2,28) = 0.84$, $p = .4428$, $MSE = 0.091$). Furthermore, all other interactions were also not significant. Since the financial field of the participants did not affect the comprehension and did not interact with any other factors, we removed this factor from subsequent analyses.

The 'question types' factor was not significant ($F(2,28) = 0.06$, $p = .9390$, $MSE = 0.091$), but it interacted significantly with the 'expertise level' factor ($F(2,28) = 4.04$, $p = .0286$, $MSE = 0.023$), and with the 'connective' factor ($F(2,28) = 4.62$, $p = .0184$, $MSE = 0.034$). These two interactions indicate that the effects of connectives and of level of expertise on question answers were different according to the type of question. We thus analyzed separately the results for the three types of questions, especially since we had formulated specific hypotheses for each of these. Means and standard deviations for the three types of question are provided in Table 1.

'Causal relations' questions

A highly significant effect of the 'expertise level' factor was observed, $F(1,14) = 19.14$, $p = .0006$, $MSE = 0.030$. The effect of the 'connectives' factor was only marginal, $F(1,14) = 3.59$, $p = .0791$, $MSE = 0.061$. More importantly, there was a significant interaction between the 'connectives' and the 'expertise level' factors, showing that connectives strongly improved comprehension when participants processed texts outside their domain of expertise ($F(1,14) = 7.74$,

Table 1. Means (proportions) and Standard Deviations for the three types of question, according to 'connectives' and 'expertise level' factors

'Causal relations' questions				
	Connectives texts		No-connective texts	
	Means	D. S.	Means	D. S.
High expertise level	0.53906	0.33141	0.57812	0.28459
Low expertise level	0.50000	0.27003	0.27344	0.28217
'Memory' questions				
	Connectives texts		No-connective texts	
	Means	D. S.	Means	D. S.
High expertise level	0.51562	0.21349	0.53906	0.17511
Low expertise level	0.41406	0.24460	0.50781	0.24778
'Learning' questions				
	Connectives texts		No-connective texts	
	Means	D. S.	Means	D. S.
High expertise level	0.71875	0.31458	0.56250	0.47871
Low expertise level	0.46875	0.42696	0.28125	0.40697

$p = .0147$, $MSE = 0,033$), whereas they did not improve comprehension for texts belonging to the readers' expertise domain (see Figure 2).

'Memory' questions

As shown in Figure 3, the mean score for the low expertise level readers was higher in the 'without connective' condition than in the 'with connectives' condition. If the 'expertise level' factor was significant ($F(1,14) = 5.26$, $p = .0378$, $MSE = 0.027$), it was also the case for the 'connectives' factor ($F(1,14) = 0.29$, $p = .5960$, $MSE = 0.053$). The interaction between these two factors was also not significant ($F(1,14) = 0.36$, $p = .5572$, $MSE = 0.028$).

'Learning' questions

As for the two other types of questions, there was a very significant effect of the 'expertise level' factor ($F(1,14) = 25.74$, $p = .0002$, $MSE = 0.038$) in the performance for the inference questions. There was also a main effect of the presence of connectives ($F(1,14) = 7.99$, $p = .0134$, $MSE = 0.050$), but no interaction between these two factors ($F(1,14) = 0.02$, $p = .8937$, $MSE = 0.352$). As shown in Figure 4, below, performances in inference questions about texts within the readers' domain of expertise as well as outside their domain of expertise were significantly improved by the presence of connectives.

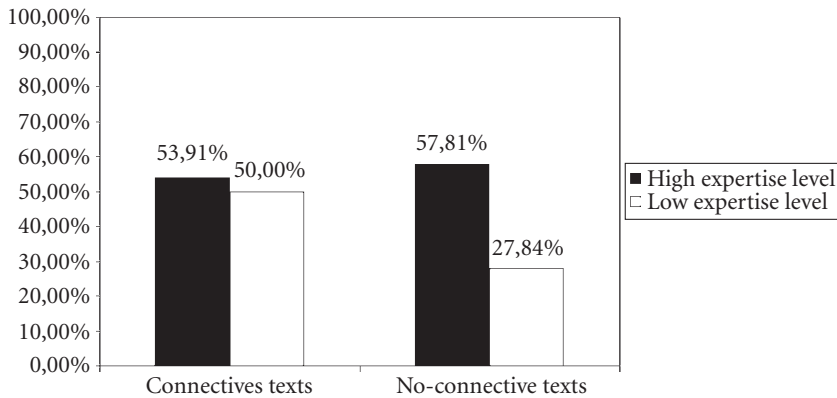


Figure 2. Scores for the 'Causal relations' questions, according to 'connectives' and 'expertise level' factors (percentages)

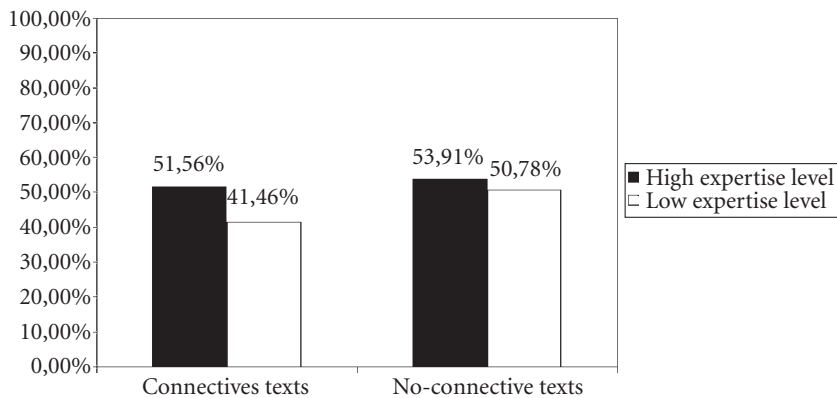


Figure 3. Scores for the 'Memory' questions, according to 'connectives' and 'expertise level' factors (percentages)

Limitations of the research

The most remarkable result obtained in this experiment is the one that revealed the positive effect of backward causal connectives on inference processes. This was true both for the high expertise level readers and the low expertise level readers. So, even if experts organize their knowledge in a more teleological (directed to a purpose) than causal way (Schmidt & Boshuizen 1992; Caillies & Tapiero 1997; Caillies, Denhière, & Jhean-Larose 1999), they benefit from the underlining of the causal structure. Contrary to McNamara and

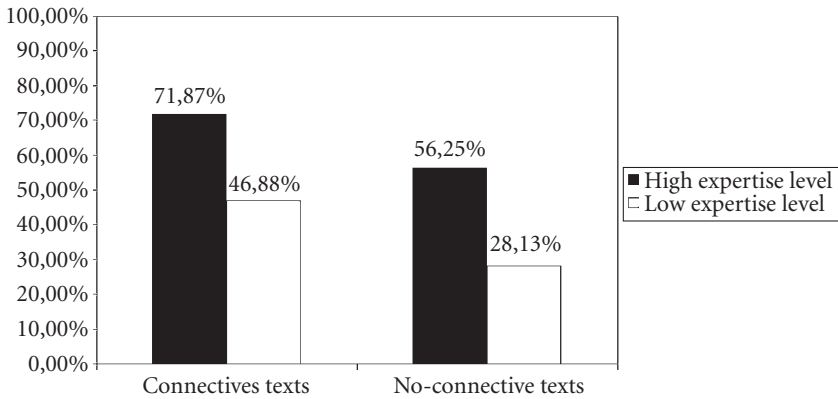


Figure 4. Scores for the ‘Learning’ questions, according to ‘connectives’ and ‘expertise level’ factors (percentages)

her colleagues, we did not observe any passivity effect at this deepest level of comprehension. Because there are several methodological differences between McNamara’s studies and the present one, it is impossible to point out the factor that caused these contradictory results, if ever one factor alone could be enough. In minima, we can notice that the problems connected to knowledge and motivation seem strongly reduced when participants are true experts.

The impact of connectives on comprehension of the manipulated causal relations is marginal, but positive. The interaction indicates that the signaling of causal coherence relations is necessary for the low expertise level participants only. This result is relatively similar to those gathered by McNamara and her collaborators. However, in the case of this research, this effect was restricted to a single type of question, the ‘causal relations’ questions, while in McNamara’s studies it was far more general. We think that differences in the way coherence relations were manipulated could explain this divergence. It should be noted that in this study, causal relations questions tapped only parts of the text that had been manipulated to improve coherence. In McNamara’s studies, texts underwent multiple coherence modifications in their revised versions. It is thus possible that much more of their questions were asked about manipulated parts of the texts.

The less marked effect of expertise on the answers to ‘memory’ questions than on the other question types shows that the role of prior knowledge is less important at the text-base level of the representation than at the level of the situational model. This observation replicated Tardieu, Ehrlich and Gyselinck’s

findings (1992). There is no need for deep understanding in order to answer questions on explicit details or general ideas of texts.

One weakness of this study must be stressed. The fact that the sample of texts and the number of participants were both relatively low obviously limits the generalizability of our conclusions. However, it should be noticed that most studies on this topic did not use more than two different texts, whereas our materials were made up of four texts. Concerning the number of participants, the sample is actually small, but as all the participants were professional experts, we were able to study a much more ecological situation than when randomly selected students had been provided with some background knowledge just before the experiment.

Applications of the research

In general, our experiment showed that the problem of textual coherence and prior knowledge must be studied in a very targeted way; by means of experimental tasks adapted to the high levels of participants' knowledge. When these conditions are fulfilled, it appears that causal coherence improvement of expository texts is of great benefit to non-experts and experts. It appears that both achieve a deeper understanding. This is of great relevance in the field of corporate texts writing. It stresses the importance for authors to build a clear causal structure, of which relations between effects and causes are highlighted. Connectives are an effective means to achieve this goal.

Suggestions for further research

From an experimental point of view, a first stage would be to confirm the results obtained by increasing the number of texts and participants. In order to try to better define what is at the origin of the high-knowledge readers' passivity noted by McNamara and her colleagues (cf. 3. *Literature review*), we could vary the length of texts. In addition, a complementary research approach would be to study, through similar experiments, the impact on comprehension of other types of connectives (additive, adversative, etc.).

From a more theoretical point of view, the problem of the knowledge representation of experts is a very challenging one. The better we understand how this representation is built, the better we will be able to determine in a text what is essential for expert comprehension. In this process, the improvement of ex-

perimental procedures that allow to bring out structures of expert knowledge representation and expert mental representation of texts is an essential point (Ericsson & Smith 1991; Olson & Biolsi 1991; Royer, Cisero, & Carlo 1993; Hoffman, Shaboldt, Burton, & Klein 1995; Kintsch, Patel, & Ericsson 1999; Roebben 2004; Kamalski 2004).

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Appendix

A warrant gives the right, but not the obligation, to the investor to buy (*call*) or to sell (*put*) a definite quantity of an asset (the *underlying*) at an exercise price determined to the broadcast (the *strike*) and until date term (called the *maturity*) defined in advance. He is going to exercise this right if it gives him an advantage. The warrants of the European type are applied only in the daytime of the term. The warrants of the American type can be exercised at any time. The parity represents the number of warrants which must be exercised to buy or sell an entity of the underlying. If, for example, the parity of a warrant *call* on an action is 5, it is necessary to obtain 5 warrants to buy 1 action. This mechanism is foreseen so that the value of warrants remains little raised and so that the small carrier can invest in this type of instrument. [...]

The volatility of a warrant reflects the anticipation on the movements to come from the underlying. The more marked the volatility becomes, the more the value of the warrant increases, because the probability of an important movement of the underlying is raised. The volatility can undergo large variations according to the anticipations of the market. The véga of the warrant measures the sensibility of the warrant price for a variation of implicit volatility of 1%. [...]

Examples to illustrate the three types of comprehension questions put to the participants:

1. 'Causal relations' question
Why does the value of a warrant appreciate when volatility is accentuated?
Answer: The probability of having an important movement of the underlying is higher.
2. 'Memory' questions
'Details' question
Which is the percentage of the variation of volatility implicated in entering the calculation of the véga of the warrant?
Answer: 1%.
'General' question
What represents the parity?
Answer: The number of warrants having to be exercised to buy or sell an entity of the underlying one.
3. 'Learning' question
Excepting a speculation on the warrant *put*, what can be the utility of this one for the holder of a wallet of actions?
Answer: He protects himself from a possible decline of the underlying one held in his wallet.

Note: this last question, being an inference question, does not relate *a priori* to any specific part of the text.

PART III

Recent research on online communication

Developing an e-mail analysis tool for writing research

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Information design processes rely on multi-disciplinary team working. The research methodology described here studies and compares networked team writing projects in a standard non-intrusive way, to allow cross context comparison and define a causal model for broader applicability than the contexts of research. E-mail analysis provides quantitative data describing functional and social dimensions, which together with qualitative data elicited from team members, contributes to profile and compare networked team writing processes. These data, together with project performance and document quality measures, help to model the process and identify performance predictors to inform on project management and effective document design.

Keywords: e-mail analysis, communication behavior, writing research

Background

Though it is difficult to find a single unifying definition of information design, key proponents agree on the importance of the process of information design and on the multidisciplinary nature of this discipline. Though information design practitioners are not unique in their use of Internet-based communication to complete projects, studying its characteristics can reinforce both the process of creating information products and shed light on the challenges arising from working within multidisciplinary teams, sometimes geographically dispersed.

‘Design’ means putting emphasis on process – not on information products and their characteristics. Though the information design process may be mapped somewhat differently (Boag Associates 2003; MacDonald-Ross &

Waller 2000; Pettersson 2002; Redish 2000; Sless 2000), it is usually seen as a creative iterative effort, which is problem- and user-centered. It starts with a careful analysis of the communication problem before a solution is identified and implemented; evaluation (or testing) is seen as key to the success of the process. The quality of the process is a key consideration: "because many information designers write and design together, the resulting product is far more focused on a vision of what will work with particular users" (Walker and Barratt).

The information design process relies on individuals from different disciplines working together. There is quasi-unanimity about the principle of multi-disciplinarity in information design (Carliner 2000; Easterby & Zwaga 1984; Jacobson 1999; MacDonald-Ross & Waller 2000; Sless 1994). As Nijhuis and Boersema note, "effective solutions to complex problems can only be reached when information from various disciplines is adequately integrated. This integration depends on successful cooperation of specialists" (Nijhuis & Boersema 1999:21). The range of specialists may be very wide, including for example "visual designers, writers, human factors professionals, linguistic scientists, psychologists, business process analysts, software developers, amongst others" (Text Matters). Writers may only represent a small component of the information design team, but their skills are of special importance: according to MacDonald-Ross and Waller.

No transformer can hope to succeed unless he or she is a skilled word-smith . . . different target audiences have different levels of reading competence, and it is the job of the transformer to know their audience to make sure that the language is tailor-made to their requirements (MacDonald-Ross & Waller 2000: 181).

This study focuses on the role of writers working in multidisciplinary networked teams. In this article we explain the overall research framework to explore whether communication behavior during networked team writing can predict performance and quality of the document produced. Activities during the process, influences on writing and representations of sociability and solidarity are studied during the project and are contrasted against measures of the project outcome, such as team performance and document quality.

The research adopts the epistemological stance that some knowledge is a single truth (exogenic), some is in our minds (endogenic) and some exists as a combination of the observed, the observer and the method of observation, a newly emerging world view on knowledge. With this assumption, the overall design of the research includes qualitative interpretive and quantitative positivist data collection and analysis, and seeks to reinforce findings from both

techniques. There are several sociological implications for information design in identifying whether communication behaviors in networked team writing mirror the communication quality of the resulting documentation. Firstly, developing a causal model will allow predictors to be identified, which will inform on management of group writing to optimize the quality of the results. Secondly, by profiling the functional activities on projects, it may be possible to anticipate pitfalls such as lack of resources at particular phases of projects. Thirdly, by applying the standard methodology to analyze projects from different contexts, it may be possible to identify the balance between activities directed towards goal achievement and group maintenance (task vs. social) which optimizes results. Finally, monitoring of communication behavior during projects may provide optimal guidance for recruitment of future teams.

In the *Literature review* we explain the rationale for researching networked team writing, the choice of methodology and methods used in the research. In the *Research Methodology* section, we first explain the entire research framework, followed by explanations of the primary and secondary analyses already completed on data collected through action research from a software documentation project in a professional writing context. The first phase addressed the functional activities of the group work, and the second phase, the social or group maintenance dimension. These separate phases of the research and their respective findings have been reported in detail elsewhere (Edwards 2001; Edwards, Williams, Dujardin, & Spaepen 2005). They are reviewed here as part of the overall methodology, to help explain how this is being developed further and how this might inform on document design, by answering the research question 'Can e-mail communications inform on social and functional competencies in networked team writing?'

Literature review

In this literature review we argue the case for developing a standard methodology to study networked team writing. We first describe how writing research has evolved to encompass the process as a socio-cognitive, social-interactive and collaborative act and the need to include all these perspectives in writing research. We then discuss the functional and maintenance goals of groups. Finally we discuss the need for research into current day practice in networked team writing and argue the case for using e-mail records to operationalize variables to profile functional and group maintenance dimensions and search for performance predictors in networked team writing.

Writing research has evolved from being focused primarily on the text in early models into gradually incorporating increasingly complex perspectives, with the writing process recognized as a social and communicative act. Partly, the concern in modeling writing appears to be identifying the influences on the process and partly, identifying the process itself. Flower and Hayes (1980a & 1980b, 1981) focused on cognitive processes happening in a social context. Fundamental to their contribution was the finding that the process was not linear, but recursive. Nystrand (1986, 1989) contributes significantly in extending the paradigm to the reader and the meeting of reader/writer minds through the meaning of text. Sharples (Sharples 1993, 1996, 1999; Sharples, Goodlet, Beck, Wood, Easterbrook, & Plowman 1992; Sharples & Pemberton 1998) synthesizes a cyclic version of the Hayes and Flower model, bridges the cognitive and social with practical representation, and introduces group, communication and coordination issues as influences in collaborative writing. The knowledge contributed by researchers towards an understanding of writing processes has progressively built on previous findings adding to and reinforcing earlier interpretations rather than challenging them.

Fitzgerald (1992:1–97) shows how characteristics in progressive writing models have reflected the characteristics of the three world views on knowledge, exogenic, endogenic and the newly emerging view, in the same way that Faigley (1985) argues that writing research has different perspectives, textual, individual and social. Fitzgerald believes that knowledge has multiple realities: that some knowledge is out there in the text, some is in the mind of the author and the reader, and some is created between and among author, reader and text. She argues that the theories of knowledge are not totally exclusive, but can be combined appropriately, just as Faigley argues that we should combine social perspectives to what we know of textual and individual perspectives of writing research.

Writing is a complex social (Faigley 1985) phenomena and therefore difficult to capture in reality (Strauss 1987:1–39). Singular textual, cognitive or social perspectives on research cannot represent real life practice. Results from differing methodologies cannot be compared or applied widely. Despite the wealth of research into different perspectives or from different epistemological stances, writing research is difficult to draw generalizations from due to the varied methodologies and diverse contexts, as argued by researchers elsewhere (Carliner 2004b; Edwards et al. 2005; Van der Geest 1996). We need to develop a methodology which can be used across different contexts in a standard and non-intrusive way, to allow valid comparisons of different writing contexts to develop a comprehensive model of the process.

Our argument for researching team writing is premised on the increase in team writing both before the pervasive uptake of the Internet (Anderson 1985; Beck 1993; Lunsford & Ede 1990) and since, on changing writing practices to which research findings from traditional writing may not apply (Carliner 2004a), and on the potential for improvement in the practice (Edwards 2001; Sharples 1999). Changing writing practices due to advances in technology and communications question the applicability of earlier research on more traditional writing practices, and even the definition of the writing context. Earlier survey research (Edwards 2001) confirmed that although collaborative writing was perceived to be beneficial (60% respondents) in terms of time saved and the combination of skills, 60% of the experiences reported were negative. Negative experiences in collaborative writing are also reported in the literature, examples of which are competition between authors, anxiety over reviews and loss of document ownership (Sharples 1993, 1999). Thus although there are strong indications that team writing is a good thing, the process appears to have difficulties. Additionally, the causal effect of combined individual, group and social influences on real-life writing practices is lacking in research to date. An understanding of the effect of combined variables on the process and results will identify predictors for optimizing group writing practices.

Writing researchers (for example, Diaper 1993; MacNealy 1999; Odell 1985) recognize the need for 'hands-on' research into professional writing practices to identify competencies needed in the profession and to design appropriate curricula and training. Researching writing in real time and contexts, however, may introduce artifacts detracting from what the true scenario would have been without researcher intervention. Awareness of the focus of the research, researcher presence, or data collection techniques such as filming may all cause people to alter their behavior. The data collection technique may even interrupt the normal activity, influencing and affecting the outcome, for example as with talk-aloud protocols where subjects vocalize their thought processes. This introduces an additional task, between the thought generation and translation to text, of communicating the process, and indeed, researchers such as Russo et al. (Janssen 1996) have shown experimentally that this may well influence the outcome. Conflicts between data collection and goals or restrictions in the context (short deadlines and limited resources) may also restrict the quality and quantity of data that it's possible to collect. Research methods therefore tend to be small-scale and qualitative in nature, and findings have only limited application to the profession. These problems of hands-on research need to be resolved to collect extensive and quantifiable data, which result in findings more broadly applicable to the profession.

In the literature, group, communications and writing research indicate that activities fall into two categories: task-oriented and group maintenance-oriented tasks (Argyle 1994: 167–198; Beck 1993; Dillon 1993; Hartley 1997: 34, 61, 95–98; Mitchell 1996: 12; Sharples 1993). The performance of the group may be equally dependent on the skills relevant to the task (knowledge of subject matter and writing) as the skills relevant to group maintenance, (such as level of sociability, likeability and emotional stability). Team performance increases to an optimum with group cohesion and then decreases (Wilson 1986: 242–245), suggesting that factors increasing group cohesion, such as likeability of group members and interpersonal (soft) skills, are of equal relevance to performance as professional, functional skills relating to subject matter expertise and experience. Soft skills may also impact the project outcome, the quality of the final document, if we adopt Nystrand's model of writing.

In Nystrand's model of writing, the text is not autonomous, but a communicative event with a context of production and reception (Nystrand 1989: 76). The text is the negotiation of meaning between writer and reader. "We conceptualize text meaning, not in terms of the writer alone, but in terms of interaction between writer and reader purpose" (Nystrand 1989). Nystrand describes the restraints writers experience trying to meet readers' purposes and expectations, as where social and cognitive factors interact in composing. He describes a "reciprocity based grammar" of written text, providing principles leading to the "flow of discourse between writer and reader" (Nystrand 1989). These rules (which can be found in both Nystrand 1986: 71–80, 1989) outline the theory of reciprocity, the choices writers identify when reciprocity is threatened and the different types of elaboration the writer can use to redress the balance for convergence of reader and writer goals. Writers revise areas in their text where they feel reciprocity is threatened, i.e. where convergence with readers may fail, and the choices made involve either including or expanding on elaborations, perhaps with examples.

Accepting Nystrand's social-interactive model of writing, and writing as a communicative event raises the question of whether communication competencies during the process of team writing, aiming to maintain the group (i.e. communication and coordination activities throughout the process) might not reflect the communication competencies required in the team writing of the document. Interpersonal skills required to maintain the group are reflected through the team members' abilities to achieve shared understanding in their team communications, which in networked teams, are often mediated through e-mails.

E-mail records offer useful data on the progress of documentation projects, without incurring additional effort for the subjects under study, and without researcher intervention during the project. Data collection for research happens in real time in parallel with collaborative projects in a transparent way for the subjects. This transparent and accurate recording of communications on writing has often enabled particular kinds of writing research (Diaper 1993; Honeycutt 2001; Pendharkar & Young 2004; Te'eni, Sagie, Schwartz, Zaidman, & Amichai-Hamburger 2001; Vaes, Paladinao, & Leyens 2002; Van der Meij, de Vries, Boersma, Pieters, & Wegerif 2005).

E-mail frequency data can provide descriptive profiles of activities during a project and content and dynamics data can be used to interpret social influences and the nature of group evolution and member interaction in teamwork. Research on reader perceptions of writers and response behavior to types of emotion communicated in e-mails has shown that using more 'human' emotional content provokes positive or pro-social responses (Vaes et al. 2002). Contextualization (setting the scene) in the message has been shown to be associated with higher message organization, and involvement to be associated with lower formality between correspondents (Te'eni et al. 2001). Such social interpretations from e-mail analysis can be used to identify factors such as organizational and functional discourse norms and hierarchies of norms which influence the writing process (Adler 2000).

Use of personal pronouns in discourse is an indicator of formality (Eggins & Martin 1997; Te'eni et al. 2001) and of solidarity in e-mail communications (Vaes et al. 2002). Quantifying variables in communications, such as use of personal pronouns, which represent solidarity and pro-social behavior, provides a basis with which to explore interpretations qualitatively with team members post-analysis. Variations in communication behaviors in relation to organizational hierarchies are also quantifiable and interpretations can be member-checked with participants post-analysis, to confirm whether e-mails addressed to individuals of the same organizational level have the same level of formality. Quantifying communication behavior related to socialization phases may show how well integrated team members are and profile group cohesion dynamics. These findings can be explored qualitatively and also related to the quality of the resulting document, which may help to identify outcome predictors.

E-mail analysis provides a standard methodology to allow comparison of data from different writing contexts and minimize interference with the subjects and process during in-context data collection. This paper describes the development of a simple e-mail analysis tool to evaluate task and social dimensions of networked writing projects and discusses further plans to develop the

tool. This research aims to answer the question ‘Can e-mail communications predict social and functional competencies in networked team writing?’ Data related to functional and social dimensions of networked team writing can be collected and related to process and outcome measures to identify predictors. Knowledge of the nature of influences on performance collected from different contexts using a standard methodology will thus provide predictors to help optimize networked team writing.

The following section explains our methodology and describes briefly the type of information which has been delivered from the first two phases, which have focused on the functional and social dimensions. The potential of these findings and further development of the tool are discussed in the section *Suggestions for further research*.

Research methodology

Overview

The research adopts the epistemological stance that some knowledge is a single truth (exogenic), some is in our minds (endogenic), and some exists as a combination of the observed, the observer and the method of observation. With this multiple realities assumption, the overall design of the research includes both qualitative interpretive and quantitative positivist data collection and analysis techniques, and seeks to reinforce findings from both methods.

The overall aim is to study the functional (or task) and social dimensions of group activities and behavior in networked team writing, to search for performance predictors and the optimal balance between group cohesion (maintenance or sociability) and task activities. Performance predictors are expected to exist in both the functional and social dimensions. This program of research is divided into separate phases. Firstly, using e-mail frequency on a writing project, the relative activities by task (purpose) and role were profiled throughout the project. Secondly, we operationalized indicators from the e-mail content to represent known writing influences and characteristics of the group maintenance (social) dimension and we searched for dependencies between these. In the *Results* section, we explore the potential of findings from the methods in the first two phases, and in the *Limitations* and *Suggestions for future research* sections, we discuss how the methods can be improved, and describe the final qualitative and performance evaluation phases of the

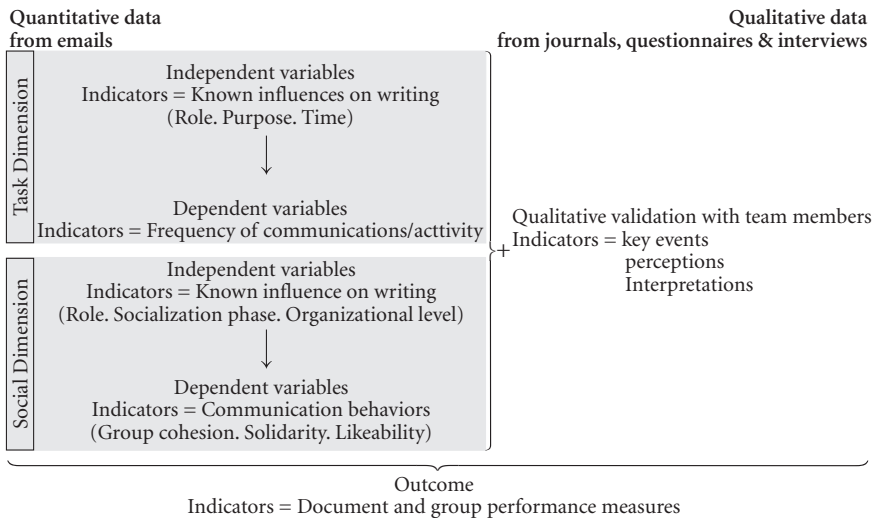


Figure 1. Research framework to answer the question ‘Can e-mail communications inform on social and functional competencies in networked team writing?’

methodology. Figure 1 shows the overall research framework, to help explain the separate phases as described below.

Task dimension

This section describes the method used to study the task or functional dimension of a networked team writing project and is depicted in Figure 1 in the top shaded area labeled ‘Task dimension’. We present some of the results to help explain what the methodology can deliver. The research and results are reported fully in Edwards (2001).

The study researched the collaborative writing of a software user manual during product development, in a medium sized multinational software company. The collaborating participants were all located at separate offices. E-mail communications therefore provided a history of the evolution of the document. The main researcher on the project was the sole technical author, and she saved all incoming and outgoing e-mails related to the documentation project.

Each e-mail was numbered and listed in an Excel spreadsheet, detailing the date, the purpose of the e-mail and the functional role of the originator, e.g. Marketing Director. Categories of purpose were derived from reading each of

the e-mails and matching those with similar purposes. Ten categories emerged, examples of which are *review discussions* and *product queries*.

The number of e-mails sent per participant was used as an indicator of the participant's relative involvement in the process, as face-to-face and telephone communications were negligible compared with the e-mail activity. The number of e-mail communications in each category of purpose was used as an indicator of the relative activities by task. Bar charts created in Excel from the data thus portrayed the key 'gate-keeper' or coordinator of the team writing project and the key actors, their relative involvement, and the relative number of e-mail communications for different purposes throughout the project.

A table was drawn up to list which roles communicated for which purposes in each of the seven months of the project and used to create 3D charts showing participant involvement and task evolutions over the seven months.

Social dimension

This section describes the method used to study the social or group maintenance dimension of the same networked team writing project. The purpose of this phase was to explore e-mail content and dynamics to operationalize indicators which represent known social influences on writing and communication behavior in e-mails, and to search for dependencies between these variables. We explain the method and present some of the results as background to an evaluation of the overall methodology. The research is reported in full in Edwards et al. (2005) and is represented in the lower shaded area labeled 'Social dimension' in Figure 1.

Two types of variables were operationalized from the e-mail content and dynamics: independent variables representing factors known to influence writing and dependent variables representing communication behaviors as indicators of solidarity and attitudes (effort and value assigned to communications). Writing influences included:

- sender and receiver functional roles,
- sender and receiver organizational levels,
- e-mail transmission direction in the organizational hierarchy,
- e-mail transmission distance in the organizational hierarchy,
- task oriented purpose of e-mail,
- socialization phase of the team.

Communication behaviors operationalized were word counts (representing elaboration as an indicator of effort and value attitudes), greeting level as a

percentage of word counts, and percentage word counts of first person singular and plural pronouns and adjectives.

All dependent variables were modeled separately against the independent variables using SAS General Linear Modeling (proc glm) ANOVA analyses (appropriate for multiple categorical independent variables: Sharma 1996: 5–9 & 342–371). Independent variables for which the F statistics were significant with all the variables taken into account in the model were further investigated using Tukey's tests, to identify significant variation in means between categories.

Results

Task dimension: Results and potential interpretations

This part of the research delivered descriptive data on the relative activity and type of activities of team members throughout the project. The full results are reported in Edwards (2001), and example findings are illustrated here.

Figure 2 shows relative activity with time for three sample roles and peaks in activity which, when triangulated with qualitative data, provided a picture of how external factors influenced the process. An example of interpretation possible from Figure 2 in combination with journal records was that peaks in communication activity for the Technical Author, Development Director

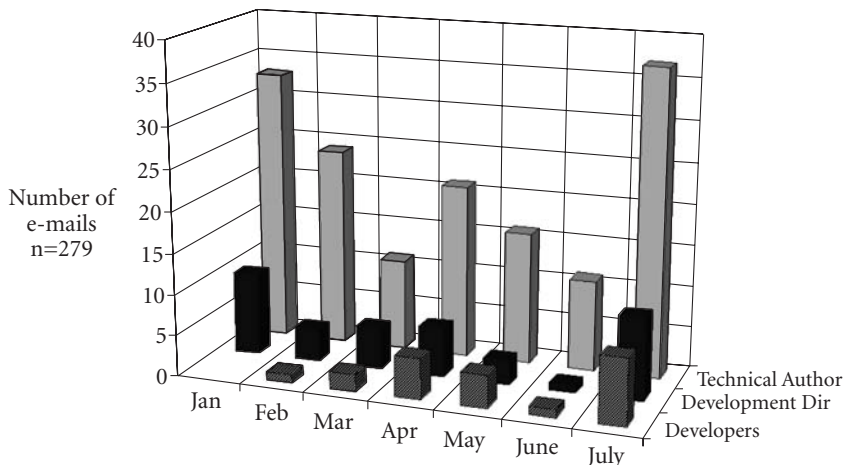


Figure 2. Participation shown in number of e-mails for three main contributors between January and July 2001, $n = 279$

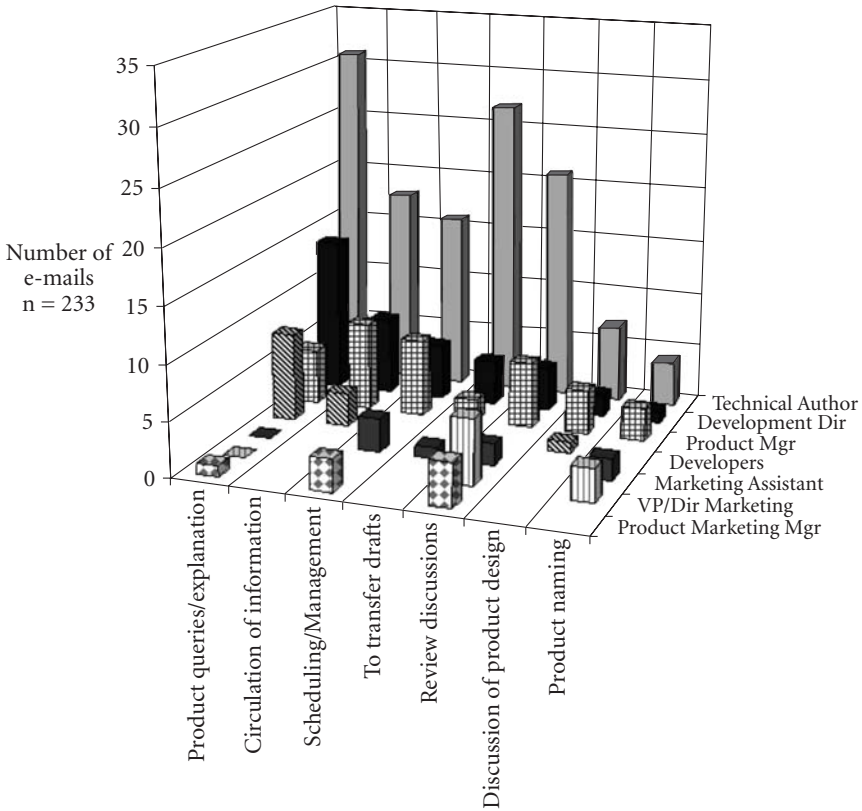


Figure 3. Participation shown in total number of e-mails from the seven major contributors for the seven major categories of purpose between January and July 2001, n = 233

and Developers coincided with dates for product version release and the final release of the product.

A 3D chart was drawn up to show the total e-mails for the seven months, by role and by purpose, to illustrate the nature of contributions by participant for the whole project (see Figure 3). Examples of interpretations possible from this chart were:

- The Technical Author, Development Director, and Product Manager all contributed to all seven major purposes, and were the only originators of new drafts, which identifies them as the key players in the documentation creation process.

- The Technical Author was most active in *Draft Transfer* identifying her as the main coordinator of the process.
- *Product Design* communications and *Circulation of Information* were only originated from the development team and Technical Author.

Social dimension: Results and potential interpretations

The full results of this study are reported in Edwards et al. (2005). Example findings are described here to help build up a picture of what this methodology can deliver. As a small-scale qualitative study of a single project, the results cannot deliver significant findings. The study simply piloted the potential of operationalizing from the e-mail data both independent variables, which are known to influence writing, and dependent variables representing communication behavior and acting as indicators of social constructs, such as attitudes and group cohesion or solidarity. Explanations of the data suggested here cannot be validated within the scope of this research. This is discussed further in the section *Suggestions for further research*. Three dependencies identified from the analyses are given as examples here.

The effect of purpose was significant on word count ($F = 6.35$; $p = <0.0001$), % greeting ($F = 2.08$; $p = .0317$) and % first person singular pronouns and adjectives ($F = 2.13$; $p = .0279$). This suggests that participants wrote different length e-mails, different lengths of greetings, represented themselves and feelings of solidarity with communicating partners differently in the text, according to the purpose of the e-mail.

The socialization phase category had a significant effect on word count and representation of the writer through use of first person singular pronouns (% First Sing). Thus participants changed their communication behavior, or the way they wrote according to the socialization phase of the project. However, for the six phases, there were only significant differences between phases four and six in terms of word count, and between phases one and three in terms of % First Sing. A possible interpretation is that communication behavior varied between the first and second half of the project or reached a 'norm' around phase three or four.

The direction of e-mail transmission (up, down or same level) influenced word count, suggesting that writers may elaborate more or less in their e-mails depending on their relation in the organizational hierarchy to the recipient. Here, means for word count varied for the up and down categories and between the same level and up categories, but not between the same level and down categories. This might be explained by one communication behavior be-

ing applied to same level and ‘downwards’ communication and another for ‘upwards’ communication.

Explanations for the interpretations possible from all three example findings above can be explored with further qualitative research, either by interview or questionnaire with the team members post analysis, and this is discussed further in the section *Suggestions for further research*. Although these results may not be transferable to other writing contexts, they indicate that communication behavior in e-mails appears to be predictable by certain variables which are known to influence the writing process and that this can be shown quantitatively.

Limitations of the research

E-mails provide an accurate electronic record of communication without the possibility of human error. However, there is some scope for error in the collection and manipulation of such data. From the original 295 e-mail records in the project under study, it was not possible to extract all the variables from two e-mails. This represents an error margin of < 1%. 10% Of the variable records were rechecked to test accuracy of counts, which showed an error rate 3 %. No intercoder testing for interpretive data was possible within the scope of this research, nor considered practical during piloting to operationalize variables. Validation of representative credibility of variables is discussed later.

The e-mail records are only those from the main coordinator of the project. Communications between third parties which did not include the coordinator in ‘cc’ are therefore excluded. However, triangulation of qualitative and quantitative data in the first phase (task dimension) confirmed identity of the main coordinator, so we may safely assume that the majority of communications relating to the writing project were included. The applicability of this methodology depends on sufficient e-mail records being available to profile the task and group maintenance activities. Some qualitative estimate of how representative the data analyzed can be of the whole project therefore needs to be integrated into the design.

In this study, usually only one person represented each role type, except where team membership changed, which means that the influence of roles could be interpreted as the influence of individuals. Contrasting cross project data may throw more light on this aspect.

One of the major weaknesses of the task dimension phase of the research was the representation of activity by e-mail frequency. Different (interpreta-

tively coded) purposes may have required varying levels of activity or contributed different values towards achieving the goal of writing the final document. Further, as the qualitative part of the research was not completed for the social dimension phase of the research (see Figure 1), it's not possible to draw any concrete conclusions from data values and relationships interpreted. Nor can the influence of social and task dimensions (or their balance) on outcome be interpreted, as the team performance or quality of the resulting document were not measured in this study. Further development to address these issues is discussed under the section *Suggestions for further research*.

Applications of the research

To add value to writing research, the results need to be applicable well beyond the narrow context of the data collection. The approach described in this paper enables such applicability for a number of reasons.

The methodology allows non-intrusive study of 'hands on' networked writing in practice. Using a standard method to apply in context weighting of activities and measurement of performance and document quality allows meaningful cross project comparisons. Thus differences between contexts are interpreted through the data and taken into account in analyses, rather than serving to invalidate comparison between the data of two contexts. The approach can be used non-intrusively to collect data from many contexts and over long-term projects. Analyzing quantitative and qualitative data describing processes and outcomes from a large number of projects from different contexts and discourse communities will provide a platform for interpretation of a causal model and predictors of outcome, which may be more generally applicable to the practice of collaborative writing.

Additionally, the significance of profiling functional activities in projects may inform on resource scheduling for project management, to avoid project pitfalls such as activities peaking at inappropriate times during projects when resources might be scarce, or insufficient representation of certain roles which are more active than others during the project. On the social or group maintenance dimension there may be lessons to be learnt regarding the optimal balance of functional and interpersonal competencies required for team writing, with equal benefits to the team writing process and quality of documentation.

Finally, Nystrand's model of writing as a social-interactive communicative event suggests that measures of communication behavior elicited during a writing project may predict quality of the resulting document, as both are

influenced by communication skills. In this case, ongoing monitoring of communication behaviors may provide guidance towards optimal recruitment for future teams.

Suggestions for further research

Overview

Here we discuss further development of the e-mail analysis tool, to support management of networked team writing and predict document quality. Under the section *Limitations of the research* three areas were highlighted for development: accurate representation of activities by e-mail frequency data, reinforcement with qualitative data and identifying a causal model, to identify outcome predictors.

Weighting e-mail frequencies to represent relative activities accurately

In the first (task dimension) phase of the research, the interpretation of results was based on the assumption that relative frequencies in e-mail communication, either by purpose or collaborator, represented relative collaborative activity. However, no weighting was applied to compensate, for example, for the fact that *courtesy* e-mails may only take a minute to write, whereas more time and expertise are required for a *product discussion* or *review* e-mail. To weight e-mail frequencies appropriately, we either need to measure a participant's contribution in terms of the resources required or attribute a value for achievement towards the group goal.

A simple and practical way to calibrate activities is for participants to record the time they spend on any work, together with a description of the type and quantity of work. This is easily accomplished with on-line calendars, such as in Microsoft® Outlook®. Data collected from such calibrations for short periods of time could serve as a weighting scale for the e-mail analysis tool, in the same writing context, over extended projects. Data collection for calibration would be required in any new writing context under study, due to variations in factors that might influence time taken to complete tasks, such as different discourse communities and differences in supporting technology etc. The calibration technique remains consistent between data collection contexts, allowing comparison of results from different writing contexts, thus adding value to the research tool for broader writing research.

An alternative subjective ‘member-checking’ strategy is to ask team members post analysis to judge the relative resource loads that different tasks use and to rate the values of tasks towards achieving the goal. Values averaged from team members can then be used to weight or ‘correct’ the communication frequencies appropriately to represent relative activities. Such a scale combines a resource perspective (time and expertise) with an achievement measure (value towards goal), providing a more meaningful weighting of e-mails. Although based on team member perceptions, this technique provides a less intrusive method of deriving a weighting scale, which doesn’t impact on the subjects in their normal working activities.

Qualifying interpretations through triangulation

The value of searching for dependencies in the social dimension can only be realized through triangulation with qualitative data collected from interviews or questionnaires. For example, one of the greeting variables in this research (*% Greeting*) indicated that writers varied their greeting behavior according to the *Recipient Role*. As role was virtually equivalent to an individual in this data, we might interpret that participants adjusted their greeting length according to who they were writing to and their likeability for the recipient. A questionnaire, such as Moreno’s Likeability rating, (Miller 1991: 376–377) asking respondents to rate likeability of other team members may corroborate this. Group cohesion scores, such as Seashore’s group cohesion index (Miller 1991: 375–376), elicited in the same way may corroborate the indicators of solidarity represented by use of first person pronouns and adjectives. To further validate this part of the research, we need to

- identify further indicators. Multiple indicators representing the same writing influence or social construct will reinforce the credibility of interpretations;
- qualify representations with qualitative data;
- repeat the searches for dependencies in multiple contexts. Corroborating interpretations from different projects and contexts will build more convincing evidence of validity.

Relating behavior and activities to outcome: Identifying predictors

While relating characteristics of the process to success of a project requires extensive research, there is little to be gained from understanding the process of

collaborative writing, if performance cannot be measured. Correlating variables in the process to performance adds value in the application of writing research findings to professional writing contexts.

Process performance can be interpreted from the organizational viewpoint, e.g. how well the project met budgets and deadlines and also from perceptions of the collaborators. Measuring the quality of documents created in collaborative writing projects can also be accomplished through documentation usability methods, of which many are available, such as expert heuristic evaluations and focus groups (Preston 2004).

By linking the profiles of task and group maintenance activities to measures of outcome, we can define a causal model and identify the profiles which result in more successful projects and more effective documents.

Conclusions

To inform on information design and writing processes from both social and functional perspectives in a meaningful way, we need to research current practices consistently in multiple contexts without disrupting normal work. Quantitative data derived from e-mail communications during networked projects, together with qualitative data elicited from participants and measures of team performance and document quality in multiple contexts will contribute towards a causal model of team working. Communication behavior in e-mails appears to be predictable by certain variables which are known to influence the writing process, and this can be shown quantitatively. Results from a small scale study suggest that functional profiling can inform on within context project management and that ongoing monitoring of communication behaviors and the balance between social and functional dimensions during the process may inform on recruitment strategies. The method is being further developed to weight the purpose of an e-mail to improve the accuracy of representation of activities on projects. Due to its non-intrusive applicability, the methodology can be used to study multiple contexts to develop a causal model and identify performance predictors to inform on project management more generally.

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Explicitness in interactive e-commerce communication

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This chapter aims to analyze the language used for instructing users on e-commerce websites. The discussion is based on the analysis of empirical data gathered from English-language electronic stores representing business-to-consumer trade. The primary distinction is made between interactive texts that are found in clickable areas of web pages and other linguistic content that makes up the co-text of interactive texts. The explicit content of interactive texts and their co-texts may refer to concrete user action, virtual interactive operation or target page content. The explicit content is related to the type and significance of the corresponding interactive operation and the directive illocutionary force carried by the textual items.

Keywords: electronic commerce, explicitness, relevance, web communication

Background

The purpose of this chapter is to construe the language of the World Wide Web with respect to the interactive nature of the medium. The analysis of web language proposed here is based on the examination of electronic commerce websites conducted in my research into the language of interaction in online shopping (Laine 2004). The study is bound to written language, which at the moment is the primary form of communication on the World Wide Web.

The basic perceptual unit in the framework of which WWW language is encountered is a *screenful* of text. A *web page* refers to a part of a WWW document that the user can view from a server and which can be read by means of a scrollbar. Web pages are the constituent elements of a *website*, which is a practice-oriented term for a collection of hyperlinked pages of a commercial enterprise, other type of organization or a private person. Websites that

are accessible on the Internet via a browser constitute the *World Wide Web*. This networked structure is enabled by *hypertext* in which text elements can be interconnected by means of electronic links. Although the focus of the subsequent discussion is on language elements that are components of a web page, this overall construction of information networks has great consequences for the formation of linguistic structure on a web page.

A basic division of linguistically encoded material on e-store websites can be drawn between language in prominent clickable items on the one hand and other strings of text on web pages on the other. On web pages, strings of text, whether they are single words, phrases, clauses or even longer units, may be contained in interactive elements, such as *hyperlinks* that allow user navigation, *buttons* that offer the user an opportunity to search for, select or submit information or *menus* that are instruments for user selections. I define all these clickable stretches of language as *interactive texts* or *i-texts*.

Active elements labeled with i-texts provide the website with a certain structure. They link the different pages that constitute a website into a hypertextual network. Hyperlinks (and menus as auxiliary elements) are navigation tools whereas buttons allow the users to perform actions where the main emphasis is on the completion of the action, not the target. However, hyperlink and button functions are often combined. For example, when a customer of an electronic store adds a product to the shopping cart by clicking a button, he/she is often taken to a new page showing the contents of the cart. In the empirical material of the study, 92.9 % of the i-texts occur in connection with active elements that lead the user to a new web page.

To sum up, i-texts can be awarded a special status in the linguistic content of a web page on the basis of their functions that allow the user to interact with the website and perceive its hypertextual structure and the consequent external features that make them stand out against their background. However, i-texts do not appear in isolation but are accompanied by linguistic and non-linguistic context on a web page.

If the user cannot find the necessary information in the i-text to continue interacting, he/she starts looking for it in the immediate co-text of the i-text. Connection on a web page can be established by placing one item near another. Bernstein (2003:122) states that this juxtaposition of items, which is known as *collage*, can create, express and qualify meanings. *Link titles* which pop up when the cursor hits an active area are closely connected with i-texts. Similarly the *embedding sentences* of link labels that are incorporated in web page text are closely associated with the interpretation of i-texts. *Instruction texts* that accompany i-texts may also be closely attached to them. These include texts

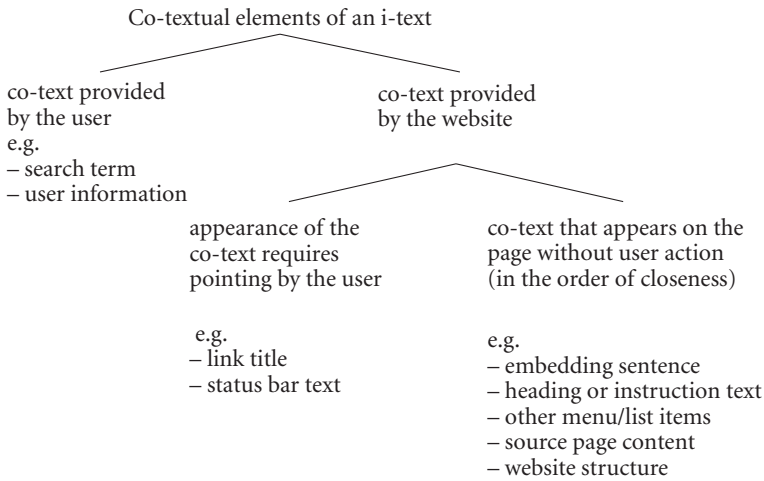


Figure 1. Co-textual elements of i-texts

that instruct the user in the operation of a button and headings that precede menus or lists of items showing navigation options. The content of the *status bar* is also contained in the i-text collage but it appears in its own window on the screen and is not as intimately connected with the i-text as the items mentioned above.

Another main type of co-text consists of items that are created by the user. To interact with a website the user may have to produce input. For example, in connection with the operation of a search engine, the user needs to enter a keyword or a combination of keywords. User input is also required at the checkout phase when the name, address and credit card information is required for the completion of the order. Figure 1 summarizes the co-textual elements of i-texts that have been introduced above.

Additionally, there are links that are not connected with the content of the web page. They are used for website navigation either within a page (e.g. 'Top of page' at the bottom of the page) or within a site (e.g. 'Homepage' on the other pages of the site).

The study aims to find out how the elements described in this chapter build up the communicative structure of interaction between e-store and user. More specifically, the focus is on the construction of explicitly coded communication in interactive labels and their co-texts on e-commerce websites and on its capability of guiding users in the intended way during their shopping process. This leads to the questions: what information are users given for shopping interac-

tion and how are they persuaded to go on interacting after they have arrived at a website?

Literature review

The division into clickable i-texts and other textual material on a web page is based on the figure/ground -contrast familiar from cognitive psychology (Langacker 1987: 120; Ungerer & Schmid 1996: 157). Some aspects of a visual scene, in this case a web page, stand out against their background. Figure/ground-segregation is closely connected with attention, because the user's attention is naturally drawn to the figure, the salient i-texts (Taylor 2002: 10). The salience of i-texts is based on non-linguistic features that are either visible on the page without any user interaction or are produced by pointing on particular areas on the screen by means of mouse or other pointing device. It must be noted that all visually conspicuous texts are not necessarily i-texts in active areas, but such features as large fonts, striking colors, underlinings etc. may be used elsewhere on the page too. Visual signals like this act as means of ostension. Ostension refers to behavior which makes manifest an intention to make something manifest (Sperber & Wilson 1986/1995: 49). Change in the cursor shape from an arrow into a pointing hand is an obvious expression of ostension. To put it plainly, ostensive features inform the user that this particular item has something important to tell the user.

Besides acting as ostensive features, a combination of non-linguistic signals and linguistic code can be seen to carry illocutionary force which urges the user to interact. I-texts can be seen as utterances, which are defined as concrete instances of language created by speaking or writing a piece of language (Saeed 1997: 13). They are strings of language that are used in a particular context to guide users in their interaction with the website. Pragmatically, they can be seen as manifestations of directive speech acts (cf. Austin 1962; Searle 1969). The illocutionary force may be contained either in the i-text, in its immediate co-text or in non-linguistic contextual features.

Ostensive communication creates an expectation of relevance. If the recipient's attention is drawn to an utterance, it can be supposed to have something worthwhile to communicate. Sperber and Wilson, the initiators of relevance theory, propose that the hearer should have the right to interpret every utterance with the assumption that it is optimally relevant. Optimal relevance means that adequate effect is effected with minimal necessary effort (Sperber & Wilson 1986/1995: 158). In her paper dealing with the pragmatics of links,

Tosca (2000) asserts that the notion of relevance in the form it is used in the framework of relevance theory can be seen to have explanatory force in the context of web communication and hypertext. According to Tosca's modified principle of link relevance, every link communicates a presumption of its own optimal relevance. What she means is that a highlighted word or picture makes the reader understand that the link points to a relevant development of the text and is worth following. The principle can be extended to cover all types of clickable i-texts. The explicitly coded communication in the i-text has a primary role in the guidance of the user's interpretation process.

The organization of linguistically encoded information on a website is determined by the hypertextual structure of each site and the navigational processes that are typically conducted. Rosenberg (1996:22) has coined the term *acteme* for the lowest level of hypertext activity. Following a link is the most familiar form of actemes. Rosenberg's investigation of hypertext structure is based on the activities provided by the hypertext for the user. Multiple actemes are combined into an *episode*, which according to Rosenberg is simply whatever group of actemes cohere in the reader's mind as a tangible entity. Episodes constitute the highest-level unit called a *session*. Rosenberg has applied this three-layer analysis to narrative hypertexts, and focuses his attention on episodes, but the acteme-episode-session model is also applicable to utilitarian website structures.

An electronic commerce procedure or session follows a fairly established structure that has been called a *frame*, *schema*, *scenario* or *script*. Frames can be described as global patterns that contain commonsense knowledge about some central concept (de Beaugrande & Dressler 1981:90). In fact, a frame can be seen as a system of concepts, which are related in a way that to understand one concept you need to understand the whole system (Petrucci 1996:1). To be able to perceive an online shopping procedure as a coherent whole, the user needs knowledge of a shopping situation in general and an adequate level of computer-literacy. In other words, the e-shopping frame is based on the frames construing shopping procedures and computer sessions.

A frame can be called a script especially if it is given a sequential structure. A script is a knowledge structure designed for frequently recurring event structures (Ungerer & Schmid 1996:213–214). Scripts have a pre-established routine (de Beaugrande & Dressler 1981:91) and they are seen as more dynamic than frames in structure (Taylor 1995:87). Schank and Abelson (1977:38) refer to scripts as mechanisms that people have developed to deal with sequences of events that frequently occur in a specific order. The importance of frames and scripts lies in the fact that they provide an inferential base for the un-

derstanding of the utterance. By means of a contextual frame, the hearer in a communicative situation, for example a web user, is able to infer information that has not been explicitly communicated.

A useful concept for analyzing intentional communication is *explicature*. Sperber and Wilson (1986/1995: 182) use this term to represent a development of the coded or linguistic meaning to a fully propositional form. The content of explicatures comes from two sources, linguistic expressions used and the context, and is derived by linguistic decoding and pragmatic inference respectively (Carston 2002: 117). Explicitness is a comparative feature. The utterances expressed in i-texts ‘Go’, ‘Go to check-out’ and ‘Click the link to go to the check-out’ may have the same explicatures, but they represent different degrees of explicitness (cf. Carston 2002: 117). A web user’s ability to interpret the intended meaning depends on the awareness of the e-shopping frame formed in his/her cognition.

Research methodology

The methodology of the study is based on content analysis, in which language is approached by means of categories (cf. Titscher, Meyer, Wodak, & Vetter 2000: 55). I-texts and co-textual elements are analyzed with respect to a number of categories that help us understand their role in user – website communication. Each i-text is allocated to categories that represent variables derived both from the communicative environment of electronic commerce, and from linguistic-pragmatic theories. The former group of categories pertains to the construction of electronic stores and user interfaces. The latter set of categories is drawn from the syntactic, semantic and pragmatic description of the interactive labels and their co-text. However, linguistic categorizations tend to be fuzzy; some instances are more prototypical members of a category than others.

In the purest form of content analysis, the categories are quantifiable and they should be defined before coding is undertaken (Titscher et al. 2000: 58). In the current study the definition of concepts and categories was influenced by the empirical findings and some categories were formed in the course of data-based examination. In the analysis of the data, qualitative and quantitative methods were used to complement each other in accordance with the idea of complementary explorative data analysis presented in the Internet research model by Sudweeks and Simoff (1999: 39). The quantitative categorization of the research material generalizes and simplifies the richness of communication

and makes it easier to find certain tendencies in the great variety. The qualitative discussion prevents us from overlooking the interesting exceptional cases. The explorative stage of the study is characterized by qualitative analysis, which is followed by coding and categorization based on the principles of quantitative content analysis. The examination of the findings takes place as a combination of a quantitative analysis based on frequencies and a qualitative assessment of the results.

The data was gathered from 22 English-language e-commerce websites, which represent business-to-consumer trade of gift items and home accessories. The search for e-commerce websites was started at randomly selected web portals. The electronic stores found were examined one by one, and the ones meeting pre-established criteria were selected as target stores. The i-texts constituting the corpus were collected from the pages that represent the purchase process from beginning to end. All i-texts on the pages along the route representing the shopping procedure of a random product were included.

The corpus of the study is a convenience sample. Convenience sampling as a data gathering method does not guarantee the validity of the sample representing the population as a whole. However, the aim of the current study is not to produce a comprehensive overview of e-commerce websites but to ascertain tendencies in their communicative structure. The number of selected e-stores can be regarded as adequate because a level of saturation with regard to central categories was attained when about half of the stores in the corpus had been examined. As far as the individual i-texts are concerned, the sampling method reflects the composition of websites as series of sequential web pages. The proportions of different types of i-texts in the corpus correspond to their frequencies on e-commerce websites. Whenever the categorization was refined during the research process, all material was re-categorized and recoded. Print-outs of the target websites secured checking and evaluation because of the transient nature of the WWW.

Results

On the basis of the analysis of the empirical material it is possible to discern the communicative structure of online shopping. For another thing, the occurrence of different levels of explicit information in i-texts and their co-texts is examined and put in relation to interactive operations representing various degrees of significance. In addition, explicitness is discussed with regard to the linguistic means of expressing requests and directions.

Communicative structure of e-stores

The empirical analysis revealed a consistent construction of e-commerce communication, which is determined by the website structure. All target stores provided confirmation that they share a similar minimum structure, which may be complemented by additions and alternative routes on the more developed websites. The shopping procedure can be divided into two main phases: product search and product selection & checkout. These can be referred to as the episodes of a shopping session in accordance with Rosenberg's terminology. They form independent stages in the process. A web user may only want to find information about a product. Having found this information, he/she finishes the session, which consists of this product selection episode only. If the user makes a decision to buy a product by clicking a button that is often labeled 'Add to cart', a new episode starts. In fact, this latter phase could be divided into two sub-episodes: product selection or shopping cart manipulation phase and checkout phase. As was noted above, the customer makes a new decision to pay for the product after he/she has selected it. At each of these phases there is a possibility for the user to discontinue the shopping procedure.

The script of an electronic shopping session is formed on the basis of the model of traditional shopping. As was stated above, the main phases of the electronic shopping process are product search, product selection and order entry. On the basis of the analysis of the target e-commerce websites, I have adopted a more detailed division of the process into the phases shown in Table 1.

The shopping procedure described above constitutes the core process in user-website interaction in online shopping. The user proceeds from one phase to another by reading i-texts and clicking on active elements. Ancillary processes such as contacting customer information, finding a store or submitting customer registration also occur. The function of an interactive element and the corresponding i-text is to confirm or complete the current stage and show the way to the next step in the procedure. To proceed from one stage to another in the shopping procedure, the user must operate interactive elements that represent increasing significance and involvement. I categorized the i-texts embedded in interactive elements representing four levels of significance: (1) going from one page to another (navigation), (2) producing search results on the basis of user-defined keywords, (3) making a selection between given options and (4) submitting information that is transaction-related or user-related. In most cases the more powerful operations (categories 2, 3 and 4 in the above classification) are accompanied by progression to a new page (category 1).

Table 1. Phases of e-shopping procedure

Episode	Phase	Description
Product search	1. entering the shop on the home page	The home page usually contains an overall categorization of the product range. The home page may also provide a search facility for finding a product.
Product selection	2. product categorization	Sub-categorizations or lists of products are shown to the user to refine the search
	3. product selection	The user can select the product he/she wants and modify his/her selection.
	4. shopping cart manipulation	The user can re-examine his/her selections. Having checked the selections the user has an opportunity to start the checkout procedure.
Order entry	5. buyer information entry	The user submits his/her contact information and information concerning delivery.
	6. credit card information entry	The user submits information concerning payment.
	7. order confirmation	The user confirms the information he/she has submitted and completes the order.

Levels of explicit information

The encoded content of the i-text may represent information at three levels: (1) the actual (physical) user action (e.g. 'Click here'), (2) the virtual interactive operation (e.g. 'Submit your credit card number') and (3) the target of the function (e.g. 'Towels'). Even if only one or two of these levels are found in the linguistically encoded form, the explicature of link labels can be seen to consist of all three levels. For example, in the link label 'Shoes' in a product categorization menu, only the target level is coded, while the other two levels must be contextually inferred. The explicature can be phrased as follows: 'The link is requesting the user to click the link to go to a page containing information about shoes'. In the case of button labels, the first two levels at least are included in the explicature. For example, the label 'Submit' on an order entry page can be explicatured as: 'Click this button to submit your order', where the actual clicking and reference to the current page content must be contextually inferred. The occurrence of the different levels of information in the coded communication

is summarized in Table 2 in relation to the significance of the corresponding interactive operation.

Table 2. Explicit i-text content according to interactive operation

Interactive operation	Levels of explicit information							Total
	1	1+2	1+2+3	1+3	2	2+3	3	
going to a new page	29	0	3	11	13	52	1093	1201
showing search results	0	0	0	0	25	2	0	27
selecting between given options	0	2	0	1	81	29	17	130
submitting information	0	0	0	0	75	0	9	84
Total	29	2	3	12	194	83	1119	1442

The figures in Table 2 show that instances in which all three levels are explicitly encoded in the i-text are rare, e.g. ‘Click here to return to previous screen’ (The gift delivery co). In fact, the explicit encoding of clicking is not very frequent. Web users are instructed to click by means of non-linguistic signals, such as change in the cursor shape, underlining or the use of color or font that differs from the surrounding text material. In connection with movement to a new page, the explicitly coded information about the target page content is by far the most common. On the other hand, most indications of concrete user action are also connected with navigation encouraging the user to find out more and to become involved in the shopping procedure. From the viewpoint of relevance, the inclusion of a reference to clicking in the coded i-text does not contribute greatly to the contextual effects of the i-text. It explicates and duplicates the non-linguistic signals of an active element. The communicative intention is not to inform users of the target of the link but to make them interact. What comes to indications of virtual interactive operations, they can vary a lot in schematicity. Instead of i-texts ‘Submit’ or the very schematic ‘Continue’, an electronic store may request the user more specifically to ‘Complete checkout’ or ‘Confirm order’. The use of schematic representations of interactive operations presupposes a well established cognitive frame of the shopping procedure.

Frequently, one of the levels is encoded in the i-text while the other two levels or one of them can be found in the co-text. The corpus of the study was found to contain 311 i-texts which were complemented with a pop-up link title. In most cases (262 instances) the link title only repeats the i-text wording.

References to concrete user action in the link titles seem to be infrequent. On the homepage of The gift delivery co., the i-texts constituting the main categorization of the products such as 'Hampers' or 'Wedding gifts' are accompanied by link titles of the type 'Click here for Hampers', 'Click here for Wedding gifts'. In other words, the i-text refers to the target while the link title also indicates concrete user action. As far as virtual interactive operations are concerned, the link title may offer a synonym of the i-text, for example 'Remove item' is accompanied by the link title 'Delete item' (Littlewoods) and 'Login' by 'Register' (Presentco).

Apart from link titles, 511 i-texts out of 1442 in the corpus were found to be accompanied by closely connected co-textual elements such as embedding sentences in connection with embedded links, instruction texts in connection with buttons, and headings in connection with menus and collections of links. Typical instances of co-textual items that refer to the content of the target page are headings of product categorization links, for example *Occasions* followed by 'Easter', 'Wedding', 'Housewarming', etc. or 'Interests' followed by 'Cooking', 'Gardening', 'Travel', etc. (Target). A co-textual element may also indicate the virtual function, for example the instruction text 'To start shopping, choose from the departments above' in connection with i-texts 'Ladies', 'Mens', 'Kids' (Littlewoods), or the actual user action, for example 'Please enter your payment information and click the 'Proceed' button' in connection with the button label 'Proceed' (Wedgwood).

The explicitly coded information in interactive labels and their immediate co-text varies according to the phase in the e-shopping procedure. The proportions of the different levels of explicit information are shown in Table 3. The percentages that describe the content of co-textual items include the occurrences of both pop-up link titles and the types of co-text available on the screen without further user interaction. The summed frequencies at each stage may exceed 100 % because an i-text may contain elements representing more than one level.

References to target page content in the i-texts are most frequent at the initial stages of the process, whereas indications of virtual interactive operations become more common towards the end of the shopping session. This reflects the fact that at the beginning of the process, the active elements are typically hyperlinks that only take the user to a new web page or another position on the current page. At further stages of the procedure, the active elements are more empowering and allow the user to make selections and submit information. However, this more powerful operation may or may not be accompanied by movement to a new page location.

Table 3. Linguistically coded information in i-texts and their co-texts according to the phase of the shopping procedure

Phase in the shopping procedure	Linguistically coded information, % out of the total number of occurrences						Number of occurrences
	in i-texts			in co-texts			
	actual user action	virtual interactive operation	target page content	actual user action	virtual interactive operation	target page content	
1 home page	2.1	5.3	94.7	2.1	5.3	47.8	619
2 product categorization	1.6	4.0	95.7	0.8	3.8	66.6	371
3 product selection	2.9	57.8	86.3	4.9	26.5	33.3	102
4 shopping cart manipulation	3.8	49.6	60.1	1.5	33.8	33.1	133
5 buyer information entry	6.7	38.5	52.6	3.0	26.7	25.9	135
6 credit card information entry	8.3	55.0	46.7	6.7	33.3	25.0	60
7 order confirmation	0.0	63.6	40.9	9.1	40.9	22.7	22
Total	2.8	18.9	84.4	2.3	12.8	46.9	1442

In their web writing guide, Price and Price (2002:70) state that on the WWW, a chunk of text acts as both content and interface. This is particularly true about i-texts because they constitute points of contact between user and website. Content refers to what people are looking for, while interface is what people use in order to find the content, navigate it or take action. From the viewpoint of interaction between website and user, aspects connected with both interface and content are important. A system that manifests a high level of interactivity not only allows the user to control the system and receive feedback, but also provides him/her with the desired content. In user–website interaction, i-texts have a double function: they inform the user about the operation of the interactive element and its consequences, while they contain reference to page content. To put it plainly, the i-text may tell the user firstly what to do and secondly what he/she can access. In the world of information networks, the first function must be divided into the concrete and virtual levels. It corresponds to levels 1 and 2 (actual user action and virtual interactive operation) in the above categorization, whereas level 3 is connected with the content. The relevance of either function varies in the course of the electronic shopping procedure. As was stated above, an explicature is a combination of linguistically

encoded and contextually inferred conceptual features. The larger the proportion of the encoded features, the more explicit the explicature is (Sperber & Wilson 1986/1995:182). Consequently, when the interface aspects of the communicated message manifested in an *i-text* have been encoded, the web user has reason to assume that the communicator, in this case the website, wants to make sure that the intended interpretation of these aspects of the information conveyed does not hinge on the inferencing of the user in the recovery of the explicature.

Explicit information and illocutionary force

From the viewpoint of the e-store, *i-texts* are directions which should be equipped with sufficient illocutionary force, which refers to the speaker's communicative intention. The directive illocutionary force is typically manifested in the imperative form of a verb, in which case the grammatical form and the pragmatic form are congruent. The imperative can be connected with any of the three levels of explicit information mentioned above. It can refer to the concrete user action as in 'Click here' or 'Enter your credit card number', to the virtual interactive operation as in 'Go', 'Search', 'Select' or 'Submit' or to the form of interaction that the user may be involved in on the target page as in 'Send an email' or 'Refine your search'. On the other hand, the directive force may be embodied in the *i-text* or its co-textual elements. Instances of indirect speech acts, in which the directive force is manifested in a declarative or interrogative clause, seem to be rare. However, a link may be embedded in a question, for example 'Would you like to take advantage of *delayed billing*?' (Furniture 123) or in a declarative clause 'Your *basket* contains' (John Lewis).

A number of different combinations of the level of explicitly coded information in *i-texts* and their co-texts with relation to indication of directive illocutionary force can be found on e-commerce websites. The link label 'Go' accompanied by an instruction text 'Swap recipes and tips with members' on the website of Martha Stewart manifests double illocutionary force; both the *i-text* and one of the co-textual elements contain an imperative verb form. Triple illocutionary force in the form of direct speech acts can be found in the button label 'Enter' reinforced by the instruction 'Sort the search results' and the link title 'Go' (Ross-Simons). More variation can be found in instances where the *i-text* is a noun and the user is directly addressed in a co-textual element. On the website of Domestications, for example, nominal link anchor texts in the main categorization of the type 'Bath', 'Bedroom' and 'Home Décor' are preceded by an instruction text 'Shop by department'. Similarly, the Eddie Bauer

website has furnished the hyperlink ‘Wishlist’ with a pop-up link title ‘Add to wishlist’.

To sum up, there is variation in the manifestation of explicit information and illocutionary force along three dimensions. Firstly, the explicitly encoded information may refer to concrete user function, virtual interactive operation or target page content. Secondly, this coding may manifest in the i-text, embedding sentence, accompanying instruction text, link title or other co-textual element. Thirdly, illocutionary force may be linguistically expressed in the i-text or co-textual items in one item at a time or in several items simultaneously.

Limitations and applications of the research

The material of the study was gathered from the websites of business-to-consumer electronic stores selling gifts and home accessories. Because the structure of electronic stores seems to be fairly established, the results of the analysis can be assumed to be broadly applicable to other product ranges and forms of electronic stores. Whether the study yielded results that can be generalized to WWW communication outside the scope of electronic commerce cannot be taken for granted. However, it can be noted that several types of utilitarian websites have structures similar to electronic stores. The websites of cities, universities, libraries and other non-profit organizations share several features with electronic stores. Therefore, interactive operations and corresponding linguistic forms are comparable, although the typical scripts vary depending on the type of the organization and user task. The empirical material of the study is too small to allow far-reaching global generalizations concerning utilitarian WWW communication, but it is large enough for discovering certain trends in the use of language in user–website interaction. It also makes it possible to use some quantification and quantitative methods alongside with qualitative examination.

A web writer or designer who wishes to use the salient interactive texts in the hot areas of the screen in an optimal way should give a second thought before making ‘Click (here)’ into an interactive label. It does activate and involve the user, but does not provide any basis for the correct interpretation of the virtual function or target of the operation for users. In many cases the imperative form offers a compact linguistic expression that combines the virtual function performed by the user and directive illocutionary force. It is also useful for indicating what the user can do on the target page of current interaction. ‘Register as a customer’ and ‘Customer registration’ give users the same amount of

information about the target of the link, but the former involves them more than the latter.

E-commerce websites do not seem to make full use of the opportunities of the hypertextual structure and technological environment. The communicative effectiveness of the websites would be enhanced by considering the roles of i-texts, co-texts and other web page content. The most essential information required for interaction could be contained in i-texts, and the co-textual elements could be utilized, for example, for guiding less experienced users. The use of pop-up link titles in particular could be made more effective. Instead of just repeating the i-text wording, they could encourage the user by adding illocutionary force or give useful additional information about the interactive operation or its target.

Suggestions for further research

The current analysis could be specified and extended on the part of references to target page content. The explicitly coded communication in i-texts can be expected to anticipate the type and significance of interaction the user will be faced with on the target page, and the focus could be on the sequence of user–website interaction in interactive labels and their co-texts. As Internet use is becoming a more essential part of everyday life and gaining ground in personal shopping, it would be interesting to examine how the design of electronic stores responds to increasing computer and Internet literacy. Research based on user observation and user questionnaires would be needed to test the influence of different contents and compositions of coded information on users' interaction behavior. The concept of relevance would provide a useful theoretic framework for this kind of analysis. Other aspects worth exploring are the characteristics of the product range and the primary target group with regard to communication on e-store websites. There is also a demand for the cross-linguistic study of e-commerce communication as multilingual websites proliferate on the WWW and provide access to the global market also for small companies.

According to the relevance theoretic framework, the user is supposed to interpret i-texts and their co-texts so that they form a relevant continuation of the shopping session. At the same time, the user's processing effort should be kept to the minimum, which implies using the shortest texts possible. Different combinations of explicitness and expressions of illocutionary force allow the website designer to adjust the informative and interactive effects of language.

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Päivö Laine (PhD) received his B. Sc. in business economics from the University of Tampere in 1976 and completed a master's degree in English at the same university in 1980. Having worked as a language teacher at Seinäjoki Business School, he completed a postgraduate degree (licentiate) at the University of Vaasa in 1997 and defended his doctoral thesis in February 2004. His research topic is the language of interaction in electronic commerce. At the moment, he is head of the degree programme of Business Management at Seinäjoki Polytechnic, Business School.

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Appendix

Internet sources for empirical material

Company name	Date of citation	URL	Reference abbreviation
J. C. Penney	4 Dec. 2001	http://www.jcpenney.com	JCPenney
John Lewis	12 Mar. 2002	http://www.johnlewis.com	John Lewis
Domestications	17 Jan. 2002	http://www.domestications.com	Domestications
Littlewoods extra	11. Jan. 2002	http://www.littlewoodsextra.com	Littlewoods
Furniture123.uk	7 Mar. 2002	http://www.furniture123.co.uk	Furniture123
Target	7 Mar. 2002	http://www.target.com	Target
Eddie Bauer	10 Jan. 2002	http://www.eddiebauer.com	Eddie Bauer
Spiegel	10 Jan. 2002	http://www.spiegel.com	Spiegel
Sundance Catalog Company	22 Feb. 2002	http://www.sundancecatalog.com	002 Sundance
QVC	15 Jan. 2002	http://www.qvc.com	QVC
McCord	15 Jan. 2002	http://www.emccord.co.uk	McCord
Wedgwood	11 Mar. 2002	http://www.wedgwood.com	Wedgwood
Presentco	19 Mar. 2002	http://www.presentco.co.uk	Presentco
Allders	18 Feb. 2002	http://www.allders.com	Allders
Maelstrom	18 Feb. 2002	http://www.maelstrom.co.uk	Maelstrom
The gift delivery co.	18 Feb. 2002	http://www.giftdeliveryco.com	Gift delivery
Marks & Spencer	18 Feb. 2002	http://www.marksandspencer.com	Marks & Spencer
Gifts.com	19 Feb. 2002	http://www.gifts.com	Gifts
Ross-Simons	22 Feb. 2002	http://www.ross-simons.com	Ross-Simons
Eziba	19 Feb. 2002	http://www.eziba.com	Eziba
Needapresent.co.uk	13 Mar. 2002	http://www.needapresent.co.uk	Needapresent
Martha Stewart	13 Mar. 2002	http://www.marthastewart.com	Martha Stewart

Definition in natural language between cognitive interactionism and conceptual integration

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This chapter sketches the interaction between hierarchic discourse structure, enunciative positions (Roulet, Filliettaz, & Grobet 2001) and conceptual integration (Fauconnier & Turner 2002). The chapter describes the analysis of a Dutch text about the conceptualization of *Internet*. The approach aims at an understanding of linguistic creativity in discourse. This material might be of relevance to professional text writers, experts in software ontologies and terminologists involved in the popularization of science.

Keywords: blending theory, conceptual integration, cognitive interactionism, discourse, definition, Internet

Background

This chapter examines the interaction between discourse and cognition in media definitions of new technology. More specifically, the focus is on the *Internet* concept, as it is defined in the Belgian media. New concepts are explained to the general public in terms of several generally-accepted concepts.

Our research question runs as follows: how can the analogy between the old and the new be explained as a phenomenon of conceptual integration in discourse? Natural definition in discourse will be shown to be the locus of cognitive megablends. We will examine conceptualization in terms of an enunciative hierarchy. Our theoretical discussion is illustrated by a detailed text analysis.

Literature review

This chapter combines two compatible yet heterogeneous frameworks: cognitive interactionism and blending theory.

Blending theory (BT) (Fauconnier & Turner 2002) or conceptual integration theory is a recent spin-off of mental space theory (Fauconnier 1994 and 1997) and part of a broader research field called cognitive linguistics. According to cognitive linguistics, grammar consists of the conventional symbolization of semantic structure (Langacker 1987:76). Mental spaces are a specific form of symbolic structure: they provide a cognitive substrate for reasoning and for interacting with the world (Fauconnier 1994:34). A blend is a specific constellation of mental spaces. Blends selectively combine elements of more than one mental space, called input spaces (IS). In the blended space, the combination of elements which initially belong to different inputs, with their own topology and, eventually, their own organizing frames, produces emergent structure. Emergent structure is a mechanism of conceptual creativity. It produces conceptual structure which is not in the original IS (Fauconnier & Turner 2002: 42–48 and 133–135). Blending theory considers language as a central part of cognition. Linguistic form is underdetermined with respect to the richness of human meaning.

The second framework is cognitive interactionism (CI) developed in Geneva by Eddy Roulet and his team since 1980. CI aims at the representation and description of the complexity of discourse organization at the interface between linguistic, textual and situational factors. This multimodular model claims that all discourse types can be represented as arborescent discourse hierarchies. The minimal unit of the hierarchy is the discursive act, defined as the smallest unit delimited by a cognitive recording in discursive memory (Roulet et al. 2001:65). Acts are organized in interventions (I) or exchanges (E). Whereas exchanges are composed of interventions, every intervention is composed of at least one principal act (A) and one or more subordinate acts (a), which can be pro- (+) or counterargumentative (–) (Roulet et al. 2001:54–55).

BT and CI are complementary in many respects. The American usage-based tradition has only recently shown an interest in the conceptual analysis of discourse (Langacker 2001). Since conceptualization is built up throughout discourse, the linguistic reflection of a conceptualizing viewing frame delimits the “locus of attention” (Langacker 2001:146). Any aspect within discourse can be regarded as a conventional linguistic unit. The compositional construal of conceptual entities into a large discursive sequence with variable degrees of salience (Langacker 2001:158) is still very much in line with the traditional

idea of linear scanning. No reference is made to the hierarchic nature of the discursive sequence, very much stressed by the Geneva model. As for the Geneva model itself, it presupposes conceptual structure, whereas its elaboration at the clause level remains largely implicit (Roulet et al. 2001: 378). The cognitive and discursive models are complementary: although BT does not contain an explicit text model for cognitive operations, it explicitly stresses the unfolding of conceptual entities through discourse, whereas the basic unit of the Geneva model is based on the idea of conceptual scanning very similar to Langacker's viewing frame.

Research methodology

The frameworks used in our analysis belong to different traditions in linguistic research. Since they have not been combined before now, this paper has a methodological bias: it provides a method for combining BT and CI.

Selection of communication products

The corpus of our research consists of ten Belgian (Dutch and French) weekly newspapers containing the first concordances of the Internet, reaching from general actuality and financial press to investment news (1991–1994). This paper will focus on one Dutch text entitled *Kommunikatie: Surfen op de snelweg* [Communication: Surfing on the highway] (In *Knack*, 23 November 1994). The central text theme is the evolution of information networks. The text provides 59 references to the *Internet*, circa 5% of the global corpus, and is the longest text of our corpus. Both its length and complexity have determined the selection of this communication product. The text is composed of 254 discursive acts. For lack of space, we do not reproduce the original text. We provide a concise description of its content in the course of our analysis.

Analysis

Our analysis reflects the progressive combination of the CI and BT frameworks. First, we provide a text hierarchy. We then describe the different blends. We will analyze one of them in detail. Finally, we will connect the idea of blend and hierarchy. The combination of these two frameworks is new.

From explicit definition to CI hierarchy

A first step in the analysis is the definition and subsequent detection of explicit definitions of the Internet concept. The Internet is defined and characterized at different stages in the discourse. We take the word *Internet* as a definiendum pivot for the analysis. In an explicit definition, a definiendum is linked to a definiens by means of an equivalence relation, as in *Internet is a network*. The three parts in the definition of a concept can be technically described in terms of Langacker's cognitive grammar: both definiendum and definiens are things each of which are part of a nominal predication (Langacker 1987: Chapter 5; Langacker 1991), whereas the equivalence relation is a process or atemporal relation. The definiendum is the primary figure or trajector; the definiens is landmark or secondary salient conceptual entity (cf. Langacker 1987, for the basic classification of conceptual entities).

The collected set of explicit definitions in a text corresponds to the sum of the concordances containing the Internet pivot and the transphrastic occurrences of the *Internet* linked to the definiendum by pronominal, inferential or demonstrative coreference. The following table shows the Dutch definiens

Table 1. Series of Dutch definiens with English translation in order of appearance

act	Dutch definiens	English translation
2	snelweg	highway
3	voorloper van de drukbesproken information snelweg	precursor of the much discussed information highway
4	computernetwerk	computer network
4	subkultuur (sic)	subculture
15	elektronische snelweg met vijfhonderd televisiekanalen	electronic highway with 500 TV channels
16	voorloper van die elektronische informatiesnelweg	precursor of the electronic information highway
60	wereldwijd vertakte computernetwerk	computer network ramified all over the world
65	werelddorp	world village
70	fundamenten van de Infobahn	foundations of the Infobahn
70	rechtstreekse afstammelingen van het westerse militair-industrieel complex	direct descendants of the Western military-industrial complex
85	Internetting Project	Internetting Project
86	project	project
87	internetwerken	internetworking
88	het koppelen van netwerken	the linking of networks
103	uit de hand gelopen militair netwerk	military network which got out of hand
110	internetting-projecten	Internetting Projects
115	netwerk van netwerken	network of networks

side of the explicit definitions, together with their English translation; the first column refers to the textual order of each discursive act.

This approach challenges traditional ideas about definitions. First, concepts are not defined unequivocally, contrary to the popular idea that definitions ought to provide a clear-cut and concise characterization of a word. Second, every definition forms part of a specific (thematic) discourse portion of variable size. Traditional accounts of definitions, which exclusively focus on the veridical or predicate logic of the definition from a post-Aristotelian point of view, limit definitions to a non-contextual, clausal setting. They do not take in consideration the variation of definitions of a concept in discourse and their position in a general discursive architecture. This is specifically what we propose in the following lines.

In Figures 1 and 2, we provide a global discursive hierarchy for the text analyzed, in line with CI. The squared boxes in Figure 1 refer to interventions, with the numbers of their acts (hence A). Black boxes refer to the position and act number of the definiens. The vertical up-down dimension of the figure displays a decrease in hierarchic order. Figure 2 represents the same idea, but the thematic structure is now represented as a conventional CI arborescent structure. Due to lack of space, we do not provide a description of each individual act, but only the hierarchically superior level of the discourse sequence in A1-216. Some irrelevant sequences have been omitted.

We briefly sketch this discursive hierarchy. Internet is the precursor of an information highway. At the highest level of the hierarchy, we see an exchange. A first intervention describes the Internet as a precursor of the information highway (A3). A second intervention answers that it is more a subculture than a network (A4). The latter intervention is divided into two fundamental interventions. The first one deals with the distinction between Internet literate and illiterate (A66–68); the second one with the success of Internet, which may also cause its decay (A166). The long sequence A6–253 deals with different aspects:

- After a short intro on how the media and politics discovered the topic (A6–24bis),
- an intervention explains that Internet advocates must find points of comparison (A32) with other media: television (A33–35), highways (A36–58), and counts the number of users (A59–65).
- We get a subordinate exchange A70-116. The Net as a military network got out of hand (A69–103): it evolved from Arpa to Internet – as a spin-off from internetworking (A89–94) and invented TCP/IP between 1972 and

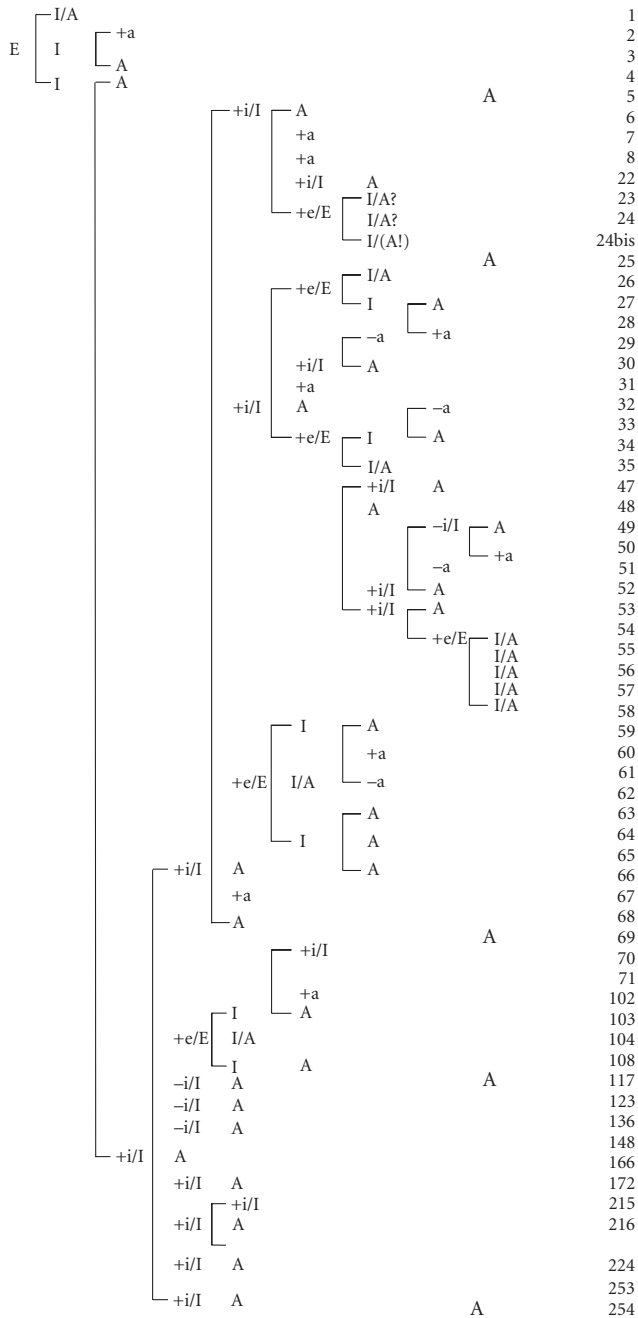


Figure 2. Global arborescent structure

1983. Apart from this military heritage, the American National Science Foundation (NSF) served as a skeleton (A108) to the Internet.
- Then follows another series of coordinate interventions about Internet ownership (A118–132), the elite of Internet users (A146–165), problems like traffic jams (A167–181) and costs (A183–223). The following two interventions discuss free access and hackers (A224–227) and the European Infobahn independent from the American network of networks (A228–253).

Blends

Explicit definitions refer to different input spaces. A graphic representation can clarify this idea (Figure 3): on the left, we put the definiens; on the right, we put several root concepts. As we connect both sides, we conclude three things. The Internet is conceptualized in terms of different input spaces, which belong to different semantic domains. These inputs, in a decreasing order are: the Internet as network (41%), highway (29%), defense project (29%), an entity with a specific evolution (24%), a subculture (18%), the global geographic dimension of the net (12%), or a building (6%). A majority of definitions (59% on total) provide a mixture of root concepts in one definiens. If different roots appear in one definition, the two roots are mostly combined (80% of combinations). Conversely, a vast majority of roots (6/7 or 86%) refer to different definiens.

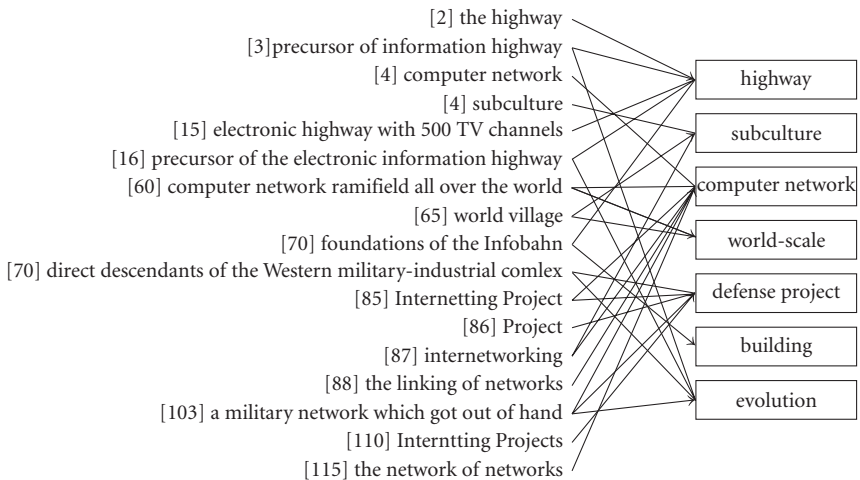


Figure 3. Definiens and root concepts

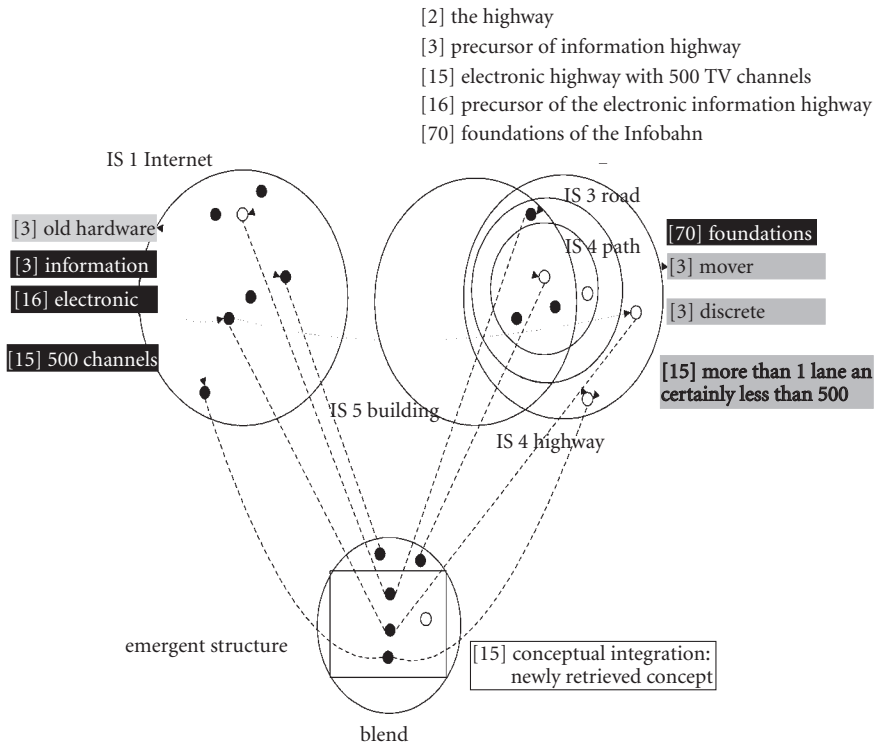


Figure 4. Conceptual integration in Internet as highway and building

The characterization of Internet by one or more other concepts can be represented as a double-scope blend. We will provide a description for the Internet as a highway and a building. This description will lead to some innovative theoretical observations about blending. Conventionally, a blend is represented as a four-space model: two different input spaces share a common superordinate generic space and merge in the blend space. The definiendum Internet provides the IS on the left: Internet. As we saw, the definiens sets up the right-side IS. In Figure 4, we show an abstraction of the generic space.

Contrary to BT, which is interested essentially in the process of human conceptualization, we draw a distinction between linguistic and conceptual information in blends. In Figure 4, we put the worded features in black sections. Next to these sections we put the act number they are part of. The traditional theory of conceptual metaphor would assume that conceptual mappings always occur from the source to the target domain. Note that in our corpus, the definiens do not exclusively refer to the source (right side IS of the blend

schema), but also to the target domain (left side IS); this idea of cross-space mapping is in line with BT. Starting from the linguistic information, a cross-space inferential feature is then set up (gray shaded sections). Although blending assumes that all kinds of additional information are non-linguistic, i.e. inferential information can be injected into the inputs, we claim that inferential information is triggered left-to-right by the linguistic (lexical) information: every definiens maximally quotes the IS itself (e.g. highway), or minimally injects a feature on the right side. For example, definition [2], [3], [15] and [16] explicitly mention the highway IS; [70] indirectly refers to it by the German root *Bahn*. But the linguistic information completes the reference to the target domain of the Internet IS. The complements provided (information, electronic, 500 channels, foundations) then trigger inferences left-to-right. Internet information corresponds to moving cars on the highway. Electronic waves are compared to discretely moving entities, the number of channels to the number of lanes. Here the completion mechanism comes in: it provides a cross-space counterpart for all linguistic information.

We add three theoretical comments. First, the definiens noun mostly refers to the source domain; targets are then given adjectivally (e.g. *electronic highway*) or by composition (e.g. *information highway*, *Infobahn*). The only example [2] without reference to the target is the title of the article, where the absence of a target (“surfing on the highway”) strategically exploits the ambiguity of the combination of elements belonging to the two different inputs, i.e. the surfboard and the highway, in order to stimulate the reader’s imagination. The adjectival or compositional nature of the linguistic wording does not only merely mention the source domain. It also serves the conceptual integration of two domains: an information highway is more than a highway with information instead of cars. The adjective underexposes large parts of the concept of everyday interstate highway; the conceptual image highlights the speed of the electronic current in terms of an object moving along a line. In this sense, *information* and *electronic* refer to different subdomains of the highway. Second, we introduce the idea of embedded spaces. Embedded spaces refer to more general conceptual realms than those indicated by the surrounding spaces they are part of. A highway is a kind of way/road, or a road is a path. Different features of the mapping trigger more generic or more specific subdomains of the right side IS, degrees of abstraction which do not necessarily appear in the left-side Internet IS. Levels of genericity then rather belong to the source domain of the mapping than to the target, or in BT terms, it is skewed to the right. *Information*, for instance, refers to the PATH image schema: in this schema a mover along a trajectory from a point of departure to a destination; it does not necessar-

ily imply a concept of *highway*, whereas the *electronic* feature and idea of *more than one channel* instead trigger the *highway* concept, more particularly the idea of speed and multiple lanes. Third, inputs overlap: *foundations* refer both to a building and to the substratum of the asphalted highway. Semantic features in blends can trigger different IS simultaneously. The idea of a four-space double-scope network can be extended to multiple-scope network, a network with more than four inputs, conventionally called a megablend (Fauconnier & Turner 2002: 283).

We now rethink the link between BT and CI: the IS set up by the higher principal act can be complemented in the lower areas of subordinate acts, interventions and exchanges. In Table 2, we inventory all references to IS mentioned in lower level acts, which from a hierarchical point of view depend directly on the inputs mentioned in higher level principal acts. Explicit reference to

Table 2. Linguistic and inferred features in lower-level CI acts

	Internet	path	road	highway	building
7	path	Bahn			
18	electronic			written	
23	hardware				infrastructure
23	development				economic growth
23	hardware				infrastructure
29	bandwidth		width		
33	capacity			capacity	
49	network architect				urbanist
49	channel		street		
50	vehicle		cart		
50	use		drive		
50	simultaneous			side by side	
51	vehicle		cart without horse		
52	interface			car	
52	overload			get into queue	
52	multichannel			4 lanes	
53	similar arguments con			arguments con	
54	optical fibre		new road surface		
55	500 TV channels			number of lanes	
56	digital shopping			shopping at distance	
57	video on demand			one car a lane	
58	TV in computer			cart better than car	

right-side inputs are given in bold. The corresponding inferable cross-space meanings are provided in normal font. Features in the text preferentially appear to refer to the right-side IS.

The difference between embedded and overlapping IS results from a difference in generic space. Although all of the IS involved in the blending process share some structure, like locations and scanning through time (Fauconnier & Turner 2002:289), these locations and states of the embedded inputs (path, road and highway) depend on the gradual concept of speed and the nature of the path: highways are basically conceptualized as broad trajectories with speedy traffic, whereas roads are slow and more narrow. A detailed description of the mappings in megablends is necessary for two main reasons. On the one hand, the cross-space mappings between two or more IS, even when the source domain is somewhat conventionalized (like the idea of Internet as a highway), differ from one text to another. The conceptual structure of a definition can lead to very heterogeneous mappings. Natural definitions in discourse are continuously and creatively enriched. On the other hand, the interaction between IS with a different topological organization structure is linked to successive phases in the linear order of the text. In the previous examples, the idea of Internet as a building precedes the elaboration of the highway input. In the remainder of this chapter, we specify the interaction between megablends, linear order and discursive hierarchy by means of a second, richer example.

Megablends and hierarchy

In order to understand inferential effects caused by cross-space mappings, we first call to mind the concept of mental space. Mental spaces are a basic mechanism of meaning construction in natural language: whenever we engage in some form of thought, connections between domains are locally set up: “technically, such connections are cross-domain functions that specify counterparts and projected structure from one space to another” (Fauconnier 1994:xxxvii). One value, when linked to different roles, can refer to different interpretations. Shifts in time, space and modality are typical space-building functions. In what follows, we show how inputs at different hierarchical CI levels set up roles and/or values, and how these values and roles inferentially affect other input spaces. The example we take more specifically deals with the conceptualization of Internet users or people involved in the development of the Net.

As explained before, principal act 4 of the very long intervention A4-253 stated that the Internet is more a subculture than a network. The presentation of the Net subculture is provided by intervention A146-165 as part of the over-

arching Internet IS; principal act 148 says that Net surfers consider themselves the intellectual elite. Who is often on the Net will have noticed the conspiratorial tone (A147). Crucial information about features in the subculture are given by act 146, which claims that the average (Dutch *doorsnee*) surfer is white, in his twenties and highly educated (an echo of the idea of intellectual elite in 148). These three values then reflect three roles set up by the subculture IS: race, age and level of education. A149 indirectly adds two other roles to the subculture IS: vocabulary and habits. The vocabulary is concretized by means of the emoticons value and the signatures (sigs) used by the average surfer. Acts 150–164 then introduce a second subset of users: the newcomers to the Net. The antagonism between these two subgroups leads to an axiological characterization in terms of the good versus the bad guys on the Net. New users share the conspiratorial tone, but add a new habit: they use long, irritant sigs. New users also access the Net in a different way: they do not create their own infrastructure, as academics used to do through the NSF Net, but sponge on the existing network: they get in through the backdoor. The detailed hierarchic structure of this intervention is represented in Figure 5.

We now have at our disposal eight roles within the subculture mental space, some of which are explicitly given as a role, others as a value. We can map the subculture IS features on each of the user subgroups. Not all the information in the mapping is given explicitly, but some of the lacking information can be completed (*italics* in the Table 3 below).

Completion of lacking information, like the race of the new user or the access method of the average surfer is provided through antonyms: the two cross-space user types should diverge on almost all role accounts. Negative reference to new users as irritant idiots automatically transforms the average user into a good guy.

Table 3. Subculture roles and values in average versus new user inputs

Subculture IS role	Average user values	New user values
<i>Race</i>	white	<i>not white</i>
<i>Age</i>	twenties	
<i>Education</i>	high	idiots – <i>low</i>
Vocabulary	emoticons	
Habits	signatures	long signatures
Good	<i>average user</i>	
Bad	new user	
access method	<i>through own architecture</i>	through backdoor

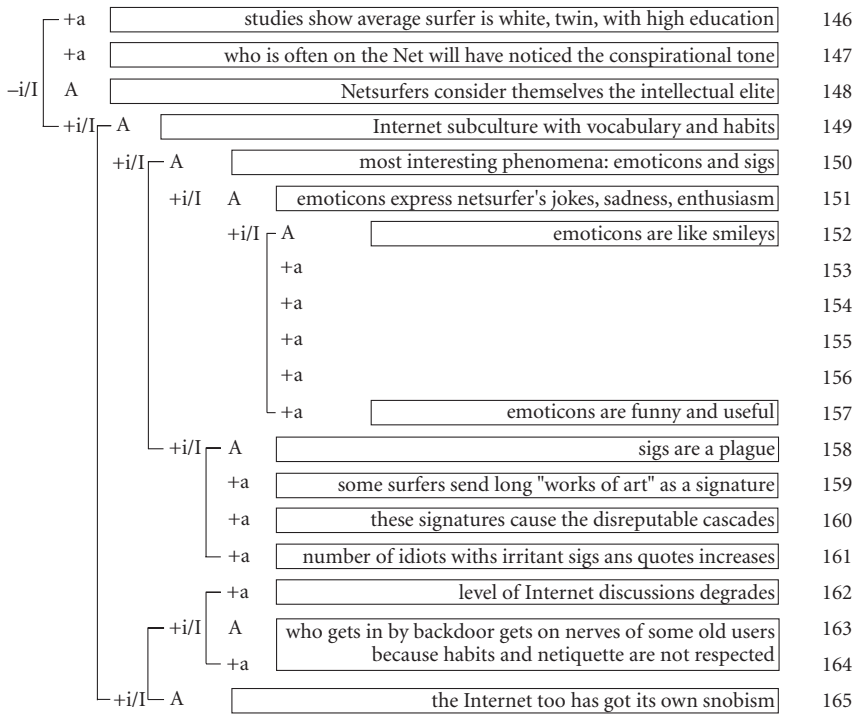


Figure 5. Hierarchic structure of intervention A146–165

After a short intermezzo on traffic jams (A167–181) and the high costs of Internet use (A183–223), a new group of users is announced: the Dutch hackers of Xs4all, who created (note the use of Dutch past tense in A224–226) free Internet access in order to ensure its democratic character. Although the method of access and their refusal of the industrial paid access are actually the only two explicit links to the subculture roles, our claim is that the roles set up by the latter will be complemented in the hackers IS. Since the focus in the hackers section is on the past tense, hackers are inferentially shown to be part of the group of average users: we can conclude they must be in their twenties, white (but Dutch in this case) and highly educated. The democracy advocated by the Dutch hackers adds a ninth role to the subculture space: the form of decision. The topology of the subculture IS then gets mapped onto the hacker IS: since they want democracy and democracy is good, the captains of industry are the bad guys.

One final group has to be added to the community of Internet users: the industry (A228–253). The central idea here is that a small group of industrials

control the Internet (A245) and is involved in secret (A246) lobbying in order to obtain major or European Commission investments (A247) in a useless European broadband network (A250) independent of the American Internet (A253). The industrial community is divided into two subgroups.

A first group are the members of the Esprit Board, with representatives of European companies like Daimler-Benz, Siemens etc. They collaborate with the EU against illegal software copies and secretly lobby. Only few personalities offer vigorous resistance to the Esprit Group: Rob Gonggrijp, the former CEO of XS4All, who wants free access and democratic control of the Net, Mitchell Kapor and the EFF (Electronic Frontier Foundation) who struggle against disinformation, and a group of independent consultants under the direction of Wisse Dekker, a former senior official with Philips (A250). The meaning of the intermediate heading *piracy* (Dutch *piraterij* in A230) is ambiguous in three ways: it refers (i) to the conspiracy of the captains of industry with the European Commission against the European parliament, (ii) to the illegal software copies and (iii) to the hackers who defend free Internet access and democracy, with their former leader Rob and *persona non grata* Gonggrijp as most important exponent. The relations between roles and values in this global conceptual network can be represented in terms of BT. This global network we represent in Figure 6. The graphic representation displays the following elements.

The nine input spaces set up throughout the text serve as overall conceptual architecture: Internet as network, as subculture, with different user groups: average users, newcomers, hackers and the industry. The captains of industry break into two subgroups: the Esprit group, which secretly lobbies with the European Commission, and the independent consultants like Gonggrijp of XS4All, Dekker and EFF's Kapor.

The basic antagonism between average and new users appears in the first intervention (A146–165). The following interventions of the same hierarchical level trigger the hacker (A224–227) and the industry (A228–253). Values within the two latter profiles may contain new roles; more importantly, the network tends to the completion of the missing roles. This conclusion is in line with the Pattern Completion Principle: “Other things being equal, complete elements in the blend by using integrated patterns as additional inputs” (Fauconnier & Turner 2002: 328). Linguistic relations are marked by continuous lines, pattern completion by dashed lines.

There is a link between the hierarchic position of CI interventions and pattern completion: interventions of the same level tend to complement the roles provided in the input set up by the principal act which governs these coordinate underlying interventions. The former intervention feeds the latter. Inferential

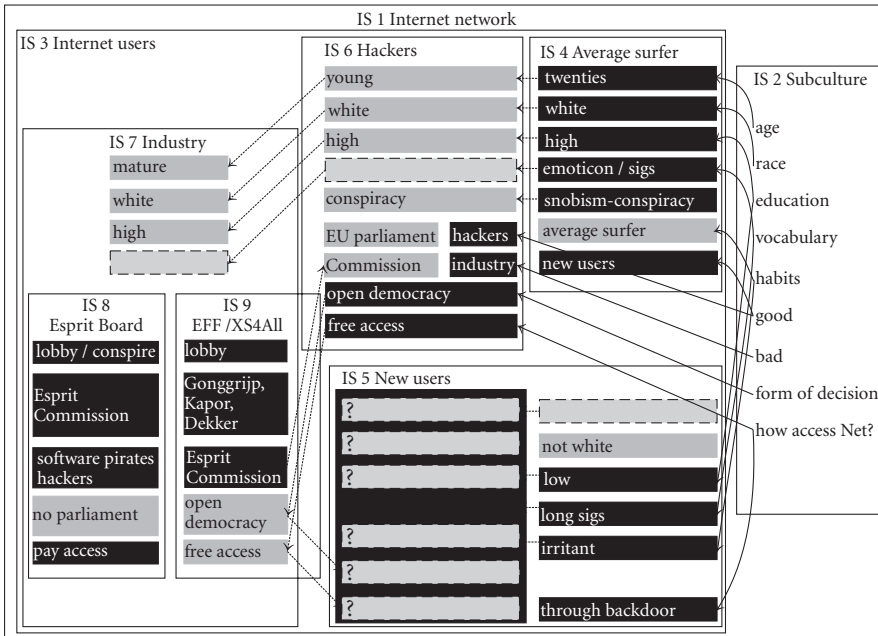


Figure 6. Megablend of Internet user

completion basically offers two possibilities: analogy and disanalogy. Analogy involves the repetition of the same value, whereas disanalogy injects the opposite value, sometimes an antonymic expression, linked to the role, as in *white* versus *non-white*, *in their twenties* versus *mature*, *open democracy* versus *no parliament*. In our analysis, inferential information quantitatively speaking prefers analogous completion.

Roles are set up in the subculture input. Values in the different user profiles correspond to the topology of this former input. Both roles and values can be expressed linguistically or inferentially. The relation between the generic space (IS2) and the underlying user (IS 3) depends on the hierarchic position of the inputs in the CI architecture. Information in higher level main acts creates a Global Generic Space (Fauconnier & Turner 2002: 297). This Global Generic is expressed in act 4. Subordinate interventions and/or acts then provide values for roles to be assigned to this Global Generic. Since BT is a theory of human conceptualization and not a theory of linguistic discourse, this conclusion is a new element of information.

Blending does not stop with pattern completion. Elaboration on these patterns can go on indefinitely (Fauconnier & Turner 2002: 48–49). Blending is

open-ended. Integration networks can serve many tools. We will discuss one fundamental issue, i.e. the relation between conceptual integration networks and the popularizing function of the newspaper article analyzed. Both in the example of the Internet as building-highway and in the Net user illustration, the relations between the discursive structure and the position of the reader have to be taken into consideration. Popularizing texts intend to clarify scientific or technological innovations in terms of existing concepts. The latter are part of the reader's mental universe: the inferential processes triggered by blends are not produced from scratch. Although we have not explicitly examined the link between discursive conceptual patterns and the way they might be interpreted differently by different audiences, with a different intellectual and cultural background, this seems an interesting point. Highways differ in different cultures; whenever a concept is transposed from one culture to another, the inferential mappings are affected by this change of context. Since BT is concerned with the mental mechanisms involved in human thinking, variation is somewhat neglected. What about the role of the individual reader? Consider the example of the Internet users above. It is not clear where the author of the text situates the reader. As newcomer to the Internet, the reader will identify basically with IS5. But some of the cross-space information might lead to confusion: this happens when the reader maps his own profile onto the values given by the input. He surprisingly discovers a poorly educated, irritant, and, eventually, non white potential web user, who gains access to the web through the backdoor. Whenever a feature of the mapping does not correspond to the reader's own profile, and we know the general newspaper Knack this article was published in focuses on a highly educated, Flemish (i.e. white) audience, the potential reader might lose interest in the topic. This problematic point is represented by the question marks in the IS 5 empty squares. Conversely, if the reader identifies with some of the other inputs, like the European industry or the average user, he shifts to another input and to the likely disanalogous values associated with the inputs other than IS 5.

Here again, the relation between conceptual mapping and discursive hierarchy has to be taken into account. Figure 7 gives a simplified CI overview of A146-254, with basic thematic information. Positive values are associated with the average surfer (IS 4), hackers (IS6) and the members of IS 9. Negative values are associated with Esprit (IS 8) and, to a lesser extent, with new users (IS 5). The opposition between positive and negative values is clearly given in overarching principal act A 166: "The success of Internet could contain its decay". The syntactic structure of this sentence stresses the negative value. The

argumentation of the different inputs for Internet users is centralized around this central claim.

The principal acts of the positively valued inputs clearly have a positive focus (cf. italics in the examples below), which affects the interpretation of values, as in “Net surfers consider themselves as the intellectual *elite*” (A148 in IS 4) and “Hackers *create free* Internet access” (A224 in IS 6). In technical CI terms, positive values are linked in a counterargumentative way (i.e. as $-i/I$) to the negative notion of decay expressed in A 166 (cf. Figure 7).

Negative focus in principal acts on the other hand generates negative (cf. italics below) axiological values: “European broadband projects are *useless*” (A 250 in IS 8). In CI terms, negative values are linked in a proargumentative way (i.e. as $+i/I$) to A 166 (cf. Figure 7). Both the argumentative status of the expression and the final position of I8, namely after main act A 166, underline the negative status of the industry from the double perspective of discursive architecture and cognitive processing.

Results

In this chapter, we examined the interaction between hierarchic discourse structure of cognitive interactionism and conceptual integration. We have shown that new concepts are defined by means of blending mechanisms, in which some elements are cognitively profiled and others backgrounded. We have detected mechanisms of cross-space mappings for these domains. We discussed two new theoretical aspects in blends: embedded spaces at different degrees of genericity and overlapping source domains.

At the methodological level, the use of a hierarchic discourse model enriches cognitive linguistics, still dominated by linear discourse approaches. We developed a three-step integration methodology for megablends: we detected explicit definitions; these can then be described in terms of multi-scope networks; the input spaces of complex integration networks are allocated to specific hierarchic position in a CI structure. The completion of conceptual patterns is guided by the linear order of IS interventions, whereas the axiological values associated with IS are elicited by the pro- or counterargumentative nature of the CI interventions they appear in.

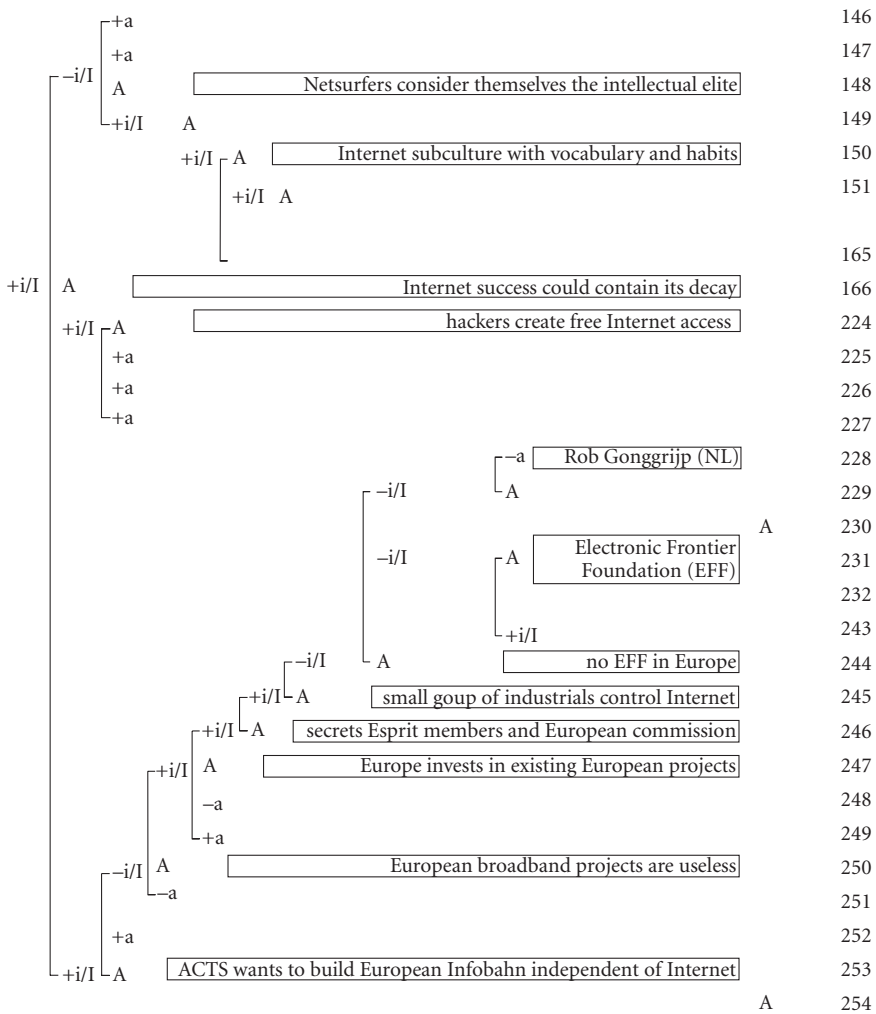


Figure 7. CI hierarchy of Internet user megablend

Limitations of the research

Our approach might lead to a challenge with respect to the generalization of results based on the analysis of one concept, one text and one language. Our descriptive object is limited. We are aware of this limitation. Our methodology however can be extended to the definition of other (non technical) concepts, and to texts in different languages.

Applications of the research

Popularizing discourse is the locus of production and reception of new meaning. The relevance of our approach to the domain of document design is threefold. First, it is of interest to text professionals involved in the diffusion and popularization of scientific and technical issues, both in the general press and in corporate communication, where communication professionals interact with researchers, management, executive levels and customers.

Second, the interaction between hierarchic stratification and enunciative layers finds a possible application in the development of modular UML/XML text databases and the Semantic Web. On the one hand, the current databases do not take into account this double stratification: stable database modules are mostly concatenated in a linear way. On the other, current work in ontologies for the Semantic Web is looking for (in our way of thinking: static) conceptual coding of Internet documents. More interdisciplinary cooperation is needed here: linguistics is absent in the information technology debate but might feed the work done in IT by its focus on dynamic meaning.

Third, unraveling discourse from a conceptual point of view has consequences to the field of terminography: as concepts penetrate in a linguistic community, the dynamics of definitions shifts away from the static meaning these concepts have in a technical nomenclature. Since terminologies do not only concentrate on the expert, but also on the newcomer (lawyers, technicians, managers, users) to the field, a better understanding of the systematics behind the spreading of a word is of relevance to the terminologist.

Suggestions for further research

This field of study is relatively new. At the moment of redaction of the present contribution, we do not know of similar work in text design.

In the global analysis of the 154 texts corpus, we discovered that definitions occur within a multidimensional semantic domain matrix, which extends from the technical domain of telecoms to metaphoric source domains, the life-history and force dynamics on the Net (Sambre 2005: Ch. 11). The dynamicity of compositional patterns between domains can be explained by small-scale syntactic and large-scale discursive variation within and between definientia. If domain matrices are stable, it is the discursive organization which enables a partial systematics of conceptual creativity. In this perspective, texts correspond to the local instantiation of enunciative positions and hierarchic structure with

respect to a global semantics. This intermediary conclusion is in accordance with the narrower scope of the present chapter. As for the dynamic conceptualization beyond linguistics, we see parallelisms in psychological research on perceptual simulation, i.e. the notion of *updating* in situation models (Zwaan & Madden 2004).

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Between customer and computer

Discursive effects of the use of computers in telephone complaints*

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This paper demonstrates how discourse analysis can identify problematic areas within the microstructure of business communication and yield an empirically-based platform for improvement strategies. A discourse-analytical investigation of authentic telephone complaints made to a German company reveals the impact of workflow management systems on the shape of complaint discourses, as operators have to actively rely on the computer as a knowledge base and are thus forced to divide their attention between the customer and the computer. This complex parallel processing affects discourse organization at many different levels and can be outright counterproductive to company policies requiring a customer-oriented, cooperative and polite discourse style.

Keywords: discourse analysis, business communication, telephone communication, human-computer-interaction (HCI), computer-supported cooperative work (CSCW), customer complaints

Background

In this chapter I present a section from a larger empirical study on complaint discourses (see Schnieders 2002, 2005). The material analyzed in this study consists of 100 telephone complaints between customers and telephone operators of a German company. For these discourses, it is characteristic that operators constantly make use of the computer as a knowledge base.

This specific constellation of parallel telephone and computer use has evolved some new forms of interaction between companies and their cus-

tomers that became quite prolific during the last decades. Besides telephone complaints, such new forms are, for instance, telephone orders, telephone bookings, telephone customer service and advice, home banking and telemarketing. An important characteristic of these discourses is that operators rely on computers for access to the company's internal workflow management system. This enables them to deal much more quickly and individually with the customers' concerns and needs.

In accordance with recent concepts of "customer relationship management" (see Bruhn 2003, for an overview), companies that make use of these forms place major emphasis on creating customer satisfaction in order to retain customers. For the operators, this implies that they are under the pressure of having to maintain a balance between computer-mediated efficiency and demands of politeness, such as being forthcoming and giving customers the impression that they are being taken seriously.

In the following, I explore the constraints computer use within the new communication forms places on linguistic interaction, and the consequences of these constraints for the desideratum of a customer-oriented discourse style. I attempt to demonstrate that discourse analysis can be of significant economic relevance. Among other things, it can supply the analytical tools to locate potentials for customer dissatisfaction.

Computer usage in telephone discourses places high demands on operators. They may have to search and identify written knowledge in the computer, read it, mentally process it, link it to the discourse, and enter new information into the computer. As a result, telephone operators have to constantly shift the focus of their attention between the discourse and the computer. This can affect their communicative actions at different levels and be counterproductive to the company's efforts to generate customer satisfaction.

I shall limit my analyses to customer complaints. Complaint discourses are of particular interest for the investigation of the structures addressed here because creating customer satisfaction in complaint talks is a much more delicate task than in the other forms of interaction.

Customer complaints¹ arise within a buyer-seller relationship after a sales contract has been made. They are made by buyers when there is some violation of their contractually stipulated interests. Such violations can consist of, for example, defective goods or of shortcomings in the process of ordering and delivering. Within complaint discourses, customers and company representatives pursue opposing goals – just as they do in sales talks (see Rehbein 1995). The purpose of customer complaints is to reconcile – on the basis of contractually

stipulated obligations and entitlements – the opposing economical interests of customer and seller in direct cooperation.²

Customers who make a complaint have been disappointed in their expectations regarding the buying-selling-process and the usefulness of the purchased goods. In complaint discourse, customers tend to be impatient, less tolerant and sometimes even annoyed. Therefore, any behavior considered inappropriate by customers during a complaint discourse is likely to impact on customer satisfaction to a higher degree than in other forms of interaction.

I shall now address the following issues in detail: Does computer usage by company representatives in telephone complaints have effects on the discourse style required to create customer satisfaction? If so, what kind of effects may one expect and how do they manifest themselves?

Literature review

As for telephone operators, the new forms of communication employing telephone and computer are part of a much debated change of the work environment in relation to the development of information technologies (see e.g. Matuschek, Henninger & Kleemann 2001). As a consequence, these new forms are investigated by disciplines that – for various reasons and from different perspectives – have always been interested in phenomena of working life: psychology, sociology and economics (see e.g. Holtgrewe 2001; Heckert 2002). Linguistics, or more precisely discourse analysis, has also already paid some attention to these new forms of interaction, as has conversation analysis within the area of “workplace studies” (for an overview see e.g. Drew & Heritage 1992; Heath & Luff 2000; Luff, Hindmarsh & Heath 2000).

Phenomena very similar to the ones investigated here have been explored by Antos (1988, 1989). Antos analyzes the consequences of computer use in telephone complaints shortly after computers were introduced. At the company Antos carried out this investigation, it was common for operators not to receive any special training and to be quite unfamiliar with computer use during discourse. Antos demonstrates that operators’ attention is almost entirely on working the computer. As a result, operators are not able to react appropriately to customers – even when customers are angry. Antos concludes that operators without working experience in a computer environment need to be trained in order to maintain and enhance customer satisfaction.

A number of studies investigate the impact computer use has on telephone calls made to different kinds of helplines. Whalen, Zimmerman & Whalen

(1988) discuss a tragic authentic case of miscommunication during a call made to an emergency service. The operator focuses more on the requirements of the computer system than on the caller's main concern. Therefore the operator fails to respond swiftly to the reported medical emergency. Whalen (1995) analyzes calls by citizens reporting safety problems to a public safety communication center. Operators have to enter reports into the computer as a basis for further decisions. The operators' interactional conduct is significantly shaped by the demands the computer system makes on them. Houtkoop-Steenstra, Jansen & Walstock (2005) analyze calls regarding telecommunication problems to the communication center help desk of a bank's branch office. Operators enter a description of the problem into the computer in order to pass it on to technicians. The authors of the study provided the operators with a script guiding their interactive behavior when eliciting and producing these descriptions. As a result, the operators kept callers informed about the necessity of producing the description in a certain format and about what they were doing when working with the computer. This enabled callers to orient to the fact that their information was being computer-processed and to present their information in the required format.

Greatbatch et al. (1995a, 1995b) analyze the impact a newly introduced computer has on the communication between patient and doctor in general practice consultations, i.e. in a setting where patient has visual access to the computer work of the doctor. The authors show that patients adapt their turn-taking-behavior and their disclosures to allow for the fact that the practitioner is operating the computer. The doctor's capability to pay attention to the discourse with the patient is reduced.

The studies reviewed indicate that computer usage by one of the participants in (telephone) discourse does affect this participant's ability to attend to the interaction. This impact is compounded when the participant does not have much experience in this constellation. The study of Houtkoop-Steenstra, Jansen & Walstock (2005) suggests that professional advice on communicative activities in a computer environment can help the participants to improve coordination.

Research methodology and data analysis

Research methodology: Functional pragmatics

The methodological and theoretical basis of the analysis presented here is functional pragmatics according to the works of Ehlich and Rehbein (see Ehlich & Rehbein 1986; Ehlich 1988, 1991; Rehbein 1995). Functional pragmatics is an action-theoretical approach that mainly focuses on the analysis of communication in institutions. It differs from conversation analysis in some respects. While conversation analysis presupposes that discourse structures are constituted turn by turn in the process of their microstructural realization, functional pragmatics assumes that discourses – in terms of their underlying action structures – are determined by societal and institutional purposes. The main task of the approach is to investigate how people pursue these purposes with linguistic devices, i.e. how people realize the underlying action structure of the respective discourse in various surface forms.

One of the major advantages of this approach is that it allows for systematic reconstruction of mental operations and hence the systematic functions of epistemic structures. For a long time, linguistics only considered the results of linguistic interactions and ignored the process of their production. This production process involves mental operations of the interactants who plan their linguistic actions on the basis of the purposes they pursue, their expectations concerning the underlying action structures of the discourse, their knowledge about the relevant facts and their interpretation of the linguistic actions of their co-participants. Discourse analysis according to functional pragmatics involves the reconstruction of these mental operations and epistemic structures.

Data: Source and selection

The data analyzed consists of 100 telephone calls – complaints and related forms – made by customers to the customer service department of a company selling high-priced household appliances such as vacuum cleaners. The company markets its products directly to the customers. Sales are carried out either by telephone or – in the majority of cases – by sales representatives in the customers' premises. Delivery is done by mail. This marketing system is rather unusual. It requires confidence on the side of the customers, who need to let the sales representatives enter their homes. Therefore the company has a vivid interest in keeping a good reputation – and hence in keeping customers satisfied if they have reason to complain.

The operators processing the complaints are highly experienced professionals. In many discourses they have no ascertainable problems balancing the tasks of operating the computer and of employing a polite and cooperative discourse style. Often enough, though, even these professionals do have such problems. The three examples presented and analyzed in the following were chosen because they reveal how and where such problems may arise.

The discourses were audio-recorded and then transcribed according to the HIAT transcription system (see Ehlich 1993). They are in German. A straightforward translation is provided in the transcripts. Within the transcripts, 'M1' denotes the male operator and 'Kw' the female customers. The company requested total anonymity regarding their name, manufactured product types and all participants involved in the conversations.³

Data analysis I: The relevance of the computer for the processing of complaints

The first example reveals the relevance of the computer for the processing of complaints – if operators cannot access the institutional knowledge in the internal information system, the complaint cannot be dealt with.

Example 1: Complaint about repeated delivery of wrong goods

- 2 Kw[hier is Saal, guten Tag, ich hatte mich letzte Woche bei
this is Saal, hello, last week I complained to you about
- 3 Kw[Ihnen beschwert über den Osnabrücker Kundendienst, und
your customer service center in Osnabrück [= german town], and
- 4 Kw[zwar hatte ich ne .. äh, PRO/ also ne PRODUKTBEZEICHNUNG
actually, I ordered a .. uhm [pro/] well, a [product]
- 5 Kw[> und VERBRAUCHSMATERIAL bestellt, und hab dreimal hinter-
[*rhythmisch*]
and [additional material], and three times in a row
- 6 Kw[einander den . äh, ANDERES PRODUKT bekommen. Nun hatte ich
I received the . uhm [other product]. Now I
- 7 Kw[mich bei Ihnen beschwert darüber, und hatte das bei
complained to you about this, and I ordered it

- 8
- M1 [> \/
Hm
Hm
Kw [Ihnen bestellt, nun sch/ äh, schicken Sie mir n Schrei-
from you, now you s/ uhm send me a letter saying
- 9
- Kw [ben, Sie möchten die Auftragsnummer haben. Ich hab ja
that you want the order identification number. But I don't have
- 10
- Kw [gar keine Auftragsnummer, ich hab das immer telefonisch
this number, I always ordered by telephone.
- 11
- M1 [((3 Sek.)) ((Stöhnen)) Ich kann mich dran
((Groaning)) I can remember,
Kw [bestellt.
- 12
- M1 [erinnern, das Schreiben hab ich letzte Woche gehabt.
I had the letter last week.
Kw [Ja,
Yes,
- 13
- Kw [das is ja ärgerlich, dass man nun/ das sind jetzt vier
this is really annoying, that now/ it's four weeks now,
- 14
- Kw [Wochen, ich denk Sie schicken mir das umgehend zu, und .
I thought you'd send the stuff to me immediately, and .
- 15
- M1 [(We/) Ja, wir . können hier
(If/) Yes, we . can't find
Kw [nun krieg ich wieder n Schreiben von Ihnen.
now I receive a letter from you again.
- 16
- M1 [keine Auftragsnummer ermitteln, wenn hier bei mir jemand
the order identification number here, if somebody calls me
- 17
- M1 [anruft, dann geb ich das sofort in n Computer ein, wenn
here, I immediately enter it into the computer, if
- 18
- M1 [der was bestellt.
he orders something.
> \
Kw [Ja Ja, ich hab ja gar keine Auftrags-
Yes. Yes, but I don't have an order identifi-

19

```

>
M1 [ Also Sie ham noch nichts bestellt
      So that means that you just haven't ordered
Kw [ nummer, ich hab das/
      cation number, I did/

```

20

```

M1 [ dann eben.
      anything yet.
>
Kw [ Ich hab das telefonisch bestellt beim Kunden-
      [----- leicht rhythmisch -----]
      I did order this by telephone at the customer service

```

21

```

>
M1 [
      Hm
      Hm
>
Kw [ dienst, in Osnabrück. Und dann hat man mir dreimal hin-
      [-----] [--- rhyth-]
      center in Osnabrück. And then three times in a row I

```

22

```

>
Kw [ tereinander diesen ANDERES PRODUKT bestellt. . Äh, geschickt.
      [misch ---]
      ordered this [other product]. . Uhm, received.

```

The customer initiates the discourse after the greeting by presenting her claim (see transcription system 2–11). She has been delivered incorrect goods three times and has made a complaint about this matter before. Obviously, the problem has not been solved: Instead of providing her with the ordered goods, the company sent her a letter asking for the order identification number (system 8/9). Therefore she is impatient and annoyed (system 13–15).

The order identification number allows operators targeted access to the computer-based institutional knowledge concerning the individual purchase. This knowledge consists of the information contained in the sales contract (i.e. the date of the sale, customer's name and address, name of sales representative, the goods ordered, the prices of the single goods and the total price, the modalities of payment and the delivery date) and information about the current state of the processing of the order (revealing e.g. whether the goods have already been packed, whether and when they have been sent, whether the delivery has been successful or goods have been returned, whether and when payments have been made and also, whether there have been any communicative contacts be-

tween customer and service department since the contract has been made and if so, what these interactions were about).

This institutional knowledge in the computer is crucial for the processing of complaints. On the basis of this knowledge, operators examine whether the customer's claim is justified or not. This examination is central within the underlying action structure of complaints. Usually, the first thing operators do in complaint discourses after customers have presented their claim is to identify and mentally process the institutional knowledge concerning the respective individual purchase. Once they have processed this knowledge, it is evident to them that the purchase in question was indeed made. Then they start checking whether or not the claim is justified by attempting to match the electronic knowledge and customer's assertions. During this process, operators usually elicit more knowledge from customers about the matter of the complaint. Any specific details uttered by customers are compared to the computer-based knowledge. Therefore operators have to keep this knowledge present on the computer monitor during the entire discourse.

After examining the complaint, operators decide whether they accept or reject it. However, operators cannot finalize all of the complaints on the basis of computer-based knowledge alone. Frequently customers are requested to send goods or receipts to the company in order to prove their claim, or make a written complaint. Then the examination is postponed.

In Example 1 these action processes are blocked because the customer does not have an order identification number. The reason for this is that she has always returned the wrong deliveries unopened. However, the operator cannot process the claim without this number.

System 11 shows that the operator's action path is blocked: The operator pauses and then groans about the dilemma he is in. He is momentarily puzzled – his available action paths are tied to institutionally pre-organized action structures which, in this case, are not accessible. While the operator tries to deal with this problem, the customer gets more and more impatient. She verbalizes her annoyance, explicitly requests delivery (see system 12–15) and thus increases the pressure on the operator to present an acceptable solution.

Within this context, the reaction of the operator is very interesting. After an unsuccessful attempt to explain why he is having difficulties processing the matter (see system 15–18), he finally answers the customer's demand for a solution with the utterance *Also Sie ham noch nichts bestellt dann eben* [So this means that you haven't ordered anything yet] (system 19/20). With this utterance the operator categorizes the call as an order. He decides to ignore the abortive previous process of ordering and delivering that

he cannot repair and treat the case as a new order because within the given situation this is how the customer will receive quickest delivery of the correct goods. Thus the operator's actions correspond to the customer's demand for effective problem solution.

The way this problem solution is put into language, however, appears to directly contradict the customer's report. With his utterance, the operator negates the fact of a previous order. He thus negates the customer's entire claim. Consequently, the customer gets even more annoyed and insists on her presentation of the claim (system 20–22).

It is apparent that the operator is not primarily focused on discursive cooperation with the customer when he verbalizes the proposed solution. Instead, his utterance reflects the demands of the internal processing that tie him to the computer – by denying the existence of the previous order, he linguistically constructs reality in accordance with the fact that he cannot access the computer-based institutional representation of this order. Hence the operator does not manage to simultaneously attend to the requirements of this internal processing and to the demands of a customer-oriented discourse-style. As a result, he gives the impression that he is not taking the customer seriously – while he is about to solve her problem.

Data analysis II: Computer usage in discourse – discontinuities and focus dissociation

Example 1 shows a contradiction between the institutional demands concerning the computer-based knowledge and the demands of discursive cooperation. In Example 2, the same contradiction arises. Moreover, Example 2 reveals in detail how the use of the computer affects discourse.

Example 2: Complaint about an overdue refund

M1[Guten Tag! Hello!
Kw[. <u>Katsch</u> , guten Tag. . (Hören) Se mal, vor <u>vier</u> [---- <u>vorwurfsvoll</u> ---- <u>Katsch</u> , hello. . (Listen), <u>four</u>
2	
Kw[<u>Wochen</u> , <u>Mittwoch</u> vor vier Wochen wurde bei mir ne PRODUKT- ----- <u>vorwurfsvoll</u> ----- <u>weeks ago</u> , <u>Wednesday</u> four weeks ago a [product] was
3	

4 Kw NAME abgeholt, und zwar wollt ich die PRODUKTNAME zurückge-
 ----- vorwurfsvoll -----
 collected from me, I mean I wanted to give the [product] back,

5 Kw ben, und bis heute hab ich von der Firma FIRMENNAME nichts
 ----- vorwurfsvoll -----
 and I haven't heard back from the company [name] until today.

6 M1[Sagen Sie mir bitte mal die Auftrags-Rechnungs-

 Could I have the number of your invoice,
 Kw[mehr gehört!
 -----]

7 M1[nummer!

 please!
 Kw[Auftrags-Rechnungsnummer, die hab ich im Moment nich

Invoice number, I haven't got that here

8 Kw vorliegen. ((2,5 Sek.)) Paul, kannst du mal schnell raus-

 [----- an einen Dritten -----
 at the moment. ((2,5 sec.)) Paul, would you please get me

9 M1[. Sagen Sie mir noch mal Ihren Namen?

 . Would you please give me your name once more?
 Kw[suchen. Katsch.
 -----]
Katsch.

10 > \/
 M1[K, A? Ja

 [buchstabiert]
 [spells] Yes
 Kw[. K/ K, A, T, S C H. Petra Heide. . Schweinfurt.

 [-- buchstabiert --]
 [spells name] Petra Heide. . [German town].

11 M1[Postleitzahl? ((5,5 Sek.)) Soo.

Postal code? Weil.
 Kw[Fünzig vier fünf neun.

Fifty four five nine.

The customer in Example 2 follows this move without problems (system 7–11). She did not expect a request for the order identification number (system 7/8), but she does not seem to be surprised by the change of the thematic focus initiated by the operator and smoothly collaborates in the further process of providing data that allows the operator targeted access to the computer. This is quite typical for the customers' actions in this part of the discursive process. The vast majority of customers in the corpus expect this specific discontinuity. Many customers even prepared for it and have the relevant number at hand (like in Example 3 below). Obviously, most customers are already used to the role of the computer in telephone discourses with companies and consider this thematic change as a proper response to their claim.

At the same time they ask for the relevant numbers, operators start to defocus the discourse and to concentrate on the computer. This shift in focus is the second discontinuity within the interactional system.

Customers experience a similar discontinuity of focus because they have to look for, identify and read out the order identification number. In Example 2 the customer even initiates a side sequence with another person (system 8/9).

Once they have been given the relevant number, operators completely focus on the computer, which leads to pauses that can last for quite a few seconds (system 11/12). During these phases, customers are silenced; they have to wait. Meanwhile, they cannot perceive the discourse-external focus of the operators (although sometimes they might hear keystrokes). This is why customers often do not wait until the operator's knowledge processing is completed, but continue their own discourse – as the customer does in Example 2 (system 12/13). It is important to note, however, that in the corpus this rarely occurs if operators previously announce what they are going to do.

The operator's reaction in system 13–15 is very interesting with regard to his dissociation of focus. It is apparent that he has meanwhile found out that the matter has been saved elsewhere within the internal electronic database and that *es läuft aber schon unter so ner Pseudonummer* [*it's listed here under some pseudo-number*] (system 13/14). His professional knowledge enables him to conclude that the matter dates back quite a while – which he tells the customer (system 14/15).

However, this delay is the very reason for the customer's complaint. But the operator asserts this knowledge without any reference to the customer's original claim presentation. This is why the customer reacts by re-verbalizing this knowledge (system 15–18).

The example shows that computer-based knowledge processing absorbs the attention of the operator to a degree that he finds it difficult to relate his

interim utterances sufficiently well to the discourse he is supposed to maintain with the customer. The operator in Example 3 (W4) suffers similar difficulties.

Example 3: Complaint about delivery of wrong goods

- 2
- | | |
|------|-------------------------------------------------------|
| > | \ / |
| W4 [| Guten Tag. Ja |
| ... | Hello. Yes |
| Kw [| Ser, ich hab heute ne Sendung bekommen, aber . da ist |
| ... | I <u>received</u> a delivery today, but . some- |
-
- 3
- | | |
|------|--------------------------------------------------------|
| Kw [| irgendwas schief gelaufen, und zwar . schicken Sie mir |
| ... | thing has gone wrong, . you sent me |
-
- 4
- | | |
|------|-------------------------------------------------------|
| Kw [| n kompletten GERÄT, . und . bei Herrn Scholz hatte |
| ... | the entire <u>appliance</u> , . and . from Mr. Scholz |
-
- 5
- | | |
|------|--------------------------------------------------------------|
| Kw [| ich/ also unten, das nennt man wohl St/ mhm ZUBEHÖRTEIL |
| ... | I/ well below, you call this St/ uhm [name of product part]. |
-
- 6
- | | |
|------|----------------------------------------------------------------|
| > | \ / |
| W4 [| Ja |
| ... | Yes |
| > | / |
| Kw [| woll . Äh, <u>das</u> hatte ich bestellt. Und dann hatt ich |
| ... | right . Uhm <u>this</u> I ordered. And then, <u>with</u> it, I |
-
- 7
- | | |
|------|-----------------------------------------------------------------------------------------|
| Kw [| dazu . eine ZUSATZGERÄT . mit ZUBEHÖR bestellt. |
| ... | [----- deutlich -----]
ordered an [additional <u>appliance</u>] . with accessories. |
-
- 8
- | | |
|------|-----------------------------------------------------------|
| W4 [| Sind Sie so freundlich und sagen mir mal die Auftrags- |
| ... | Would you be so kind and give me the order identification |
-
- 9
- | | |
|------|--------------------------------------------------------|
| > | \ / |
| W4 [| nummer. Dann muss ich mir das mal <u>angucken</u> . Hm |
| ... | number. I have to <u>look</u> at it then. Hm |
| Kw [| Eins sieben, |
| ... | [-----
One seven |

10

```

>
W4 \/ \/ \/ \/ \/
   Ja  Hm  Hm  Hm  Hm
...   Yes Hm  Hm  Hm  Hm
Kw fünf, . vier, fünf, null, fünf, sieben, und dann
   ----- langsam und deutlich -----]
... five, . four, five, null, five, seven, and then

```

11

```

>
W4 \/
   .. Ja
...   Yes
   [klappert mit der Tastatur]
Kw steht dahinter noch ne drei.     ... Auf der Kopie kann
... there is a three behind it.     ... On the copy I can't

```

12

```

Kw ich auch gar nicht/ hat er gar nicht aufgeschrieben,
... read/                               he did not write down,

```

13

```

W4      Also das, was Sie bestellt haben, ist der . kom-
   [--- zögernd ---]
...      So, what you've ordered, is the the . complete
Kw was ich bestellt/
... what I ordered/

```

14

```

W4 plette GERÄT.
   - zögernd --]
... [product].
Kw      Nein. Hab ich eben nich bestellt. ..
   [----- entschieden -----]
...      No. I did not order this.

```

15

```

Kw Ich hab nur unten den . Teil, nennt man das denn ZU-
... I just ordered the . part below, do you call this

```

16

```

>
W4 \/ \/
   Ja  Jaa
...   Yes Yes
>
Kw SATZTEIL Einhundertfünfundzwanzig Mark. Denn äh, .
... [product name] Onehundredtwentyfive marks. Because uhm, .

```

The customer complains about a delivery of wrong goods. Instead of a product part and an additional appliance, she has received an entire appliance, which is considerably more expensive (system 2-7).

After the operator has requested the order identification number (system 8/9), the customer immediately verbalizes it (system 9–11). Obviously, the customer expected this request and has the number at hand. The verbalization is carried out digit by digit, slowly and thoroughly pronounced. The customer thus orients to the fact that the operator has to enter the number into the computer. Altogether, the sequence illustrates that customers usually are well acquainted with the fact that the institutional processing of their claim involves computer usage and adapt themselves to it.

While the operator is trying to identify the relevant knowledge in the computer, the customer continues the discourse (system 11–13) and adds some highly relevant information to her claim: In her copy of the sales contract, there are no records concerning the goods ordered. Possibly the sales representative filled in this information later, thereby trying to fraud the customer.

The operator, however, bluntly asserts as a fact that the customer ordered the entire appliance (system 13–14). Thus she negates customer's claim. As a result, the customer repeats her claim with strong emphasis (system 14–16).

It is obvious that the operator in system 13–14 is asserting the knowledge she found in the computer. Focusing on this knowledge, she has problems to properly relate its verbalization to the discourse with the customer. As a result, the customer does not get the impression that she is taken seriously. Therefore, customer satisfaction suffers.

Results

The analysis allows for some general and some more specific conclusions. In general, it has been confirmed that computer usage in telephone complaints makes high demands on the communicative abilities of operators. Operators have to constantly shift their focus of attention between the computer-mediated institutional processing of the matter and the discourse. This double orientation can make it difficult for them to maintain a discourse style that is suitable to maintain and enhance customer satisfaction.

The more specific finding is that such difficulties do not arise just somewhere in the discourse, but only in the context of certain actions. The operators in Examples 2 and 3 fail to appropriately relate the institutional knowledge in the computer to the discourse. In Example 1, the operator fails to verbalize appropriately his re-categorization of the customer's claim and thus, in fact, negates the customer's claim altogether. Hence the operators' main problem appears to be that – once they have computer-processed the customer's claim,

they cannot properly relate the result of their assessment to the customers' initial wording of their concerns. These problems can be identified as specific potentials for customer dissatisfaction in the given constellation.

Limitations of the research

Discourse-analytical studies yield detailed insights into the microstructure of interactive processes that have not only heuristic, but also predictive value. For example, the operators' problems with the appropriate verbalization of computer-based knowledge do not emerge in a random fashion, but in highly specific contexts tied to specific sets of purposes particular to complaint discourse.

It can therefore be predicted that problems of a highly similar nature will arise in any computer-assisted complaint discourse.

As for other forms of computer-assisted telephone interaction, the general findings are valid and have predictive value: It can be predicted that the operators' dual attention focus will create problems at crucial points of the action structure that underlie the respective discourse type.

Applications of the research

Discourse-analytical insights can serve as the basis for different applications. Results of analyses like the one presented here can be employed, for instance, to design empirically-based communication training programs for operators. Such training programs could benefit considerably from the use of real-life material, i.e. authentic recordings and transcripts. With the help of authentic material and insights from discourse analysis, trainers would be able to point out and explain the issues that can endanger customer satisfaction and to develop communicative strategies to counteract and overcome these problems before they even surface.

Notes

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1. The concept of complaint employed in this paper is the result of an empirical investigation of complaints in Germany. As Ohama (1987) demonstrates, complaints have a different structure in the Japanese culture. The form thus seems to differ between cultures. This chapter, however, only refers to the shape the form takes in the German culture.
2. It is important to distinguish between the customer complaints addressed in this paper and other forms of complaints occurring in everyday conversation. Customer complaints always refer to a buying-selling-process and involve material damage. Since a sales contract has been made, juridical aspects are relevant. Other complaints, in which the participants discuss a negative evaluation of a past action performed either by one of them ('direct complaint') or by a third party ('indirect complaint') differ from customer complaints in many respects (on complaints in general see e.g. Drew & Holt 1988; Drew 1998; on indirect complaints see e.g. Edwards 2005).
3. The transcription conventions are:
 - . pause of 0.5 sec.
 - ((2 Sek.)) timed pause
 - () utterance not audible
 - (text) utterance hardly audible, transcriber's assumption in brackets
 - ((text)) nonverbal utterances
 - text stressed
 - text lengthened
 - text. terminal intonation
 - text, progredient intonation
 - text? interrogative intonation
 - / \ \ / \ intonation on interjections and syllables
 - [text] transcriber's descriptions

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