Focus Group on Computer Tools Used for Professional Writing and Preliminary Evaluation of LinguisTech

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Abstract

This paper focuses on computer writing tools used during the production of documents in a professional setting. Computer writing tools include language technologies, for example electronic dictionaries and text correction software, as well as information and communication technologies, for example collaborative platforms and search engines. As we will see, professional writing has become an entirely computerised activity. First, we report on a focus group with professional writers, during which they discussed their experience using computer tools to write documents. We will describe their practices, point out the most important problems they encounter, and analyse their needs. Second, we describe LinguisTech, a reference web site for language professionals (translators, writers, language instructors, etc.) that was launched in Canada in September, 2011. We comment on a preliminary evaluation that we conducted to determine if this new platform meets professional writers' needs.

1 Introduction

This paper focuses on computer writing tools used during the production of documents, be they letters, newsletters, policies, guidelines, releases or annual reports, in a professional setting, what we call *professional writing* (Beaudet, 1998). The importance of professional writing in private and public organisations is undeniable as written documents serve as communication between employees, support in decision making and organisational memory.

Computer tools can be used in a variety of writing situations, such as learning how to write in schools (Kuhn et al., 2009), learning a second language (Milton and Cheng, 2010), and helping people with cognitive, visual or motor disabilities (Majaranta and Kari-Jouko, 2002). However, our knowledge and understanding of computer tools used by professional writers are somewhat limited. Which tools are used by professional writers? Are these tools meeting their needs? Do writers know what these tools can do? Kavanagh (1999) is one of the few authors who investigated such questions. In his detailed analysis of Microsoft Word, he demonstrated that the text processor mostly meets formatting and editing needs, and that it cannot, by far, support every step of the professional writing process. Kavanagh's research was quite a revelation at the time. However, many years have passed, and we have seen few studies on that subject since then.

Writers have seen their profession evolve over the last 20 years. First, the massive use of personal computers has transformed writing practices as writers now have to cope with machines (computers, printers, scanners) and computer tools (text processors, search engines, electronic messaging systems, electronic dictionaries, spelling checkers, and collaborative platforms), whose number increases each year. Surely, this computer revolution has simplified professional writers' work as computer tools can help render more efficient document formatting, proofreading, collaborative writing, and content reusing, to name just a few examples. In that perspective, computer tools should help professional writers produce more documents. However, the number of documents that need to be produced in today's society, especially in the service sector (Nakbi, 2002), is such that productivity's expectations towards writers are

great. And, as we will discuss in this paper, computer tools are not always well-adapted to professional writing.

Also, the webification of human knowledge is creating new expectations in professional writers' skills. While only a few years ago, documents written according to printing standards were scanned and published on the web as images, an increasing number of documents are now produced according to hypertext standards. Therefore, professional writers have to master new specialised skills, for example in hypertext information organisation, document design, and computer science (Kavanagh, 2006).

The goal of this paper is twofold. First, it reports on an exploratory study on computer tools used for the production of written documents in the workplace (see Section 2). This research consisted in asking questions to professional writers during a focus group. We will present a summary of those discussions and analyse professional writers' needs in terms of computer writing tools. Second, the paper describes and analyses LinguisTech, a reference web site for language professionals that was launched in Canada in September, 2011 (see Section 3). This preliminary evaluation will allow us to determine if this new platform actually meets professional writers' needs.

2 Exploratory Study on Computer Tools Used by Professional Writers

2.1 Focus Group

A focus group was conducted with volunteers. This method is well suited for exploring subjects, gathering opinions on a specific topic, and asking questions to participants when more details are needed. Participants were met together and could interact with each other. Eight francophone professional writers working in Canada's capital region (Gatineau-Ottawa) participated in our study[1]. Our principal selection criteria was that the candidates' main task consisted in writing practical texts or, at least, that this be the most important part of their job. The participants had between 3 and 12 years of experience in professional writing and came from different sectors: government and parapublic, enterprise,

non-profit organisation, professional association and print media.

Prior to the focus group, it was assumed that professional writing had become an entirely computerised activity. The main objective of the study reported in this paper was to gather information on professional writers' experience with computer tools. We also wanted to explore their thoughts on how these tools could better support professional writing in general. Here is a sample of the questions that we asked them. Those questions were addressed to the group, not to individuals.

- In your every day job as a professional writer, what computer tools do you use?
- For what specific task of the writing process do you use those tools?
- Do you exclusively use computer tools or also printed material?
- Do you think that using computer tools improve your productivity?
- Do you have any problems using those computer tools?
- How, in your opinion, could computer tools better help professional writers?
- What other computer tools would you like to use?

We organised two meetings of one and a half hour each, for a total of three hours. The meetings were recorded and transcribed, rendering a 27,000-word text. This text was analysed by identifying all relevant information on professional writers' experience with computer tools, a step we repeated until we could not find any new information.

During the focus group, we used the general expression *computer tool* to refer to any tool used to accomplish a task related to professional writing. But as we will see later, this concept includes two types of computer tools: language technologies, for example electronic dictionaries and text correction software, and information and communication technologies, for example collaborative platforms and search engines.

2.2 Analytical Framework

In order to present results from the focus group, we need a standard procedural model of the writing process. We will use Clerc's model (1998, 2000), which is based on the actual professional writers' practice. This model includes five steps: assignment analysis, information research, information structuring,

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[1] As Geoffrion (1998) explains, the focus group calls for a small number of participants, preferably between six and twelve.

writing and revising. Table 1 gives an overview of the tasks accomplished at every step of the writing process.

Step 1: Assignment analysis	• Meet supervisor or client • Define mandate • Establish writing strategy and calendar • Write a proposal, if necessary
Step 2: Information research	• Establish a research strategy • Collect information
Step 3: Information structuring	• Select information • Group information • Determine information ordering • Find the main thread
Step 4: Writing	• Put plan into words • Write headings
Step 5: Revising	• Evaluate information • Evaluate structure • Evaluate writing

Table 1. Tasks done at different steps of the writing process in a professional setting (Clerc, 2000)

Although this model is in general suited for the purpose of our research, we needed to make some adjustments. First, since none of the participants seem to be using computer tools during the assignment analysis (in fact, no one brought this step up during the discussion), we excluded this step from our analysis. Second, "Information research" was renamed "Information research and processing", which better represents the fact that writers have to process (even summarily) the information during the research in order to evaluate information relevance. Third, we added the document transmission task but, instead of creating a new distinct step, we included it in the last one of the model. This step is thus renamed "Revising and document transmission". Table 2 shows a summary of the modified analytical framework.

Step 1: Information research and processing
Step 2: Information structuring
Step 3: Writing
Step 4: Revising and document transmission

Table 2. Modified analytical framework (adapted from Clerc, 2000)

2.3 Results

Results will be presented according to the four steps of our analytical framework.

Information Research and Processing

Morizio (2006) defines information research as an operation consisting of matching an information need and a document. In the context of our study, the professional writer formulates an information need after receiving an assignment from his superior or customer. As expected, most of the documents consulted by our professional writers are in electronic format: files either saved on a drive or available on a network (intranet or internet). Professional writers seem to take advantage of what the web has to offer, consulting newspapers, annual reports, web pages and social networks. Although the content of some of these web documents may be questioned (the content of a blog for example), they are still considered as "interesting" sources, which indicates the professional writers' interest and adaptability towards new forms of electronic information. However, the participants criticised the immensity of the web, which keeps growing day after day. If we add the fact that many documents found on the web are duplicated, and that the same document can be found in different format (HTML, PDF), this can really slow down the information gathering because the writer has to verify if it is in fact the same document. They do not blame the web for offering too much information, but they wish that this information be better organised and easier to find.

As we said earlier, professional writers summarily analyse documents during the information gathering, and they save relevant documents in personal folders. We identified two strategies used by writers to process the information at this stage of the writing project[2]. One of these strategies consists in searching for information within documents using the search engine available in conventional operating systems. Professional writers experience considerable difficulties with this method:

- They have to try many synonyms and lexical variants as search terms, in order to retrieve all relevant documents.
- Having copied many versions of a same document in different folders, processing the results can be a lot of work because

the operating system considers copies of the same document as distinct documents.

- Still according to the participants of our study, search engines from conventional operating systems produce a lot of noise.

Those remarks are not original, but they suggest that professional writers know which computer tools, or which aspects of a particular tool, can slow down their productivity. Conventional operating systems are ubiquitous in organisations and are relatively user-friendly, so we can easily understand why our participants use them to track documents, but it appears that they are not optimal for professional writers, for whom information research and processing can be impressive in terms of workload. Of course, all writers may not classify their documents in folders astutely, a step that would allow for more specific searches afterwards in individual folders. Second, some writers may not use the advanced functions of the search engine correctly. It would be interesting in further research to study writers' behaviour in-vivo, allowing for more specific recommendations for document and information management. Also, other information management solutions should be tested in regard to professional writers' needs. Could more specialised tools improve their effectiveness, or at least their satisfaction?

The participants described a second strategy for processing information, which consists in copying and pasting parts of a source document (web page, email, PDF document, etc.) in a text file. More specifically, they create a thematic file in which they paste relevant parts of web documents, making sure that they note the source. As we know from other computational linguistics related research such as automatic summarisation by sentence extraction, this operation causes considerable information loss, making it difficult to interpret the information correctly when writing. In fact, the participants admitted that they often have to go back to the original document in order to understand the parts they had copied. In other words, professional writers need a better strategy to process textual electronic information.

The copy-and-paste method is also problematic for at least one other aspect: the manipulation of the target document. Professional writers of our study explained having problems organising the parts they copy in the target document, especially when those files contain a considerable amount of pages. Therefore, we understand why some writers chose to create a home-made database (using Excel or Access) in which they record the name of the documents they consulted and the topic(s) associated to those documents. This information can then be automatically sorted, for example, by location, topic, or name.

Information Structuring

The last task before the writing step is information structuring. This is where the writer groups chunks of information and plan the ordering. This plan is generally written using a word processor, and is sometimes created directly in the document used to write the text. Surprisingly, none of the interviewed writers use tools such as mind mapping at this stage of the writing process.

Writing

When it comes to actually writing, participants use the traditional language technologies associated with the production of professional writing, such as text correction software (Word, Antidote [3]), electronic dictionaries (Le Petit Robert, Le Grand Robert et Collins, Word Reference) and terminology data banks (Termium Plus, Le Grand dictionnaire terminologique). Professional writers use more than one language technology at once. Overall, they find these tools useful, an assessment that should reassure the language industry, which has put its focus on developing and promoting this type of tools in the past years.

Revising and Document Transmission

During the revising step, professional writers use Word's advanced functions (track changes and add comments) and the other language technologies that we already mentioned in the previous section. Regarding document transmission (or sharing), professional writers favour web-based file hosting services, even though some of them still prefer emails. We also include groupware like Google Documents in this category. As showed in Adler et al. (2006), group writing is a growing practice in professional settings, and writers in our study corroborate this evolution.

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[3] As our participants write French documents, most language-specific tools that they use are for French textual data.

2.4 General Conclusions

Table 3 presents a summary of computer tools used for professional writing by the participants of the focus group.

Steps of the writing process	Computer tools used by writers
Information research and processing	• Web search engine • Email • Operating system • Office tools (text processor, database)
Information structuring	• Text processor
Writing	• Text processor • Text correction software • Dictionaries • Terminology data banks
Revising and document transmission	• Text processor (including advanced functionalities) • Text correction software • Dictionaries • Terminology data banks • File hosting service • Collaborative platform • Email

Table 3. Summary of computer tools used by professional writers of the focus group

Our study allows us to draw general conclusions on the actual practices of Canadian professional writers, or even those to come, regarding their use of computer tools. First, it confirms that professional writing has become an entirely computerised activity. In fact, except for the assignment analysis, step that our participants did not address, all tasks related to writing are accomplished using computer tools. While some tasks could still be done by hand, for example reading a document selected during information research or editing a colleague's document working in the same physical environment, this is not what professional writers choose to do. Only one participant (out of eight) mentioned using printed dictionaries, but never exclusively.

We also know, from this study, that professional writers, at least those we interviewed, would welcome the integration of additional computer tools to their workstation. In particular, they expressed the need for better information and document management software. This assessment is quite surprising considering the fact that, as Clerc (2000) notes, the information research can represent more than half of the total time dedicated to one writing project. However, although professional writers would like to use other computer tools in their work, they are afraid that they would not know how to use them.

Professional writers also wish to see other specialised tools developed. For example, the participants would use a writing memory system in contexts where they reuse content such as producing an annual report. This idea is certainly not out of reach. As a matter of fact, Allen (1999) suggested that the concept of translation memory be adapted to writing technical documents in a controlled language. A preliminary inventory confirms that such tools still exist (for example, Author-it, Congree), but we will have to verify to which extent they could be adapted to writing practical texts in general-purpose language.

Professional writers have developed specific computerised strategies for each task related to written document production, using the computer tools that were available to them. Considering all the problems mentioned by the participants, it seems that this piece-by-piece process came to saturation. From information research to document transmission, the steps leading to the production of professional documents overlap, which results in the simultaneous presence of many computer tools on the writers' workstation. At the least, the workstation presents a word processor (text that is being written, writing plan and other documents that need to be consulted), a web navigator (with many open windows or tabs), a messaging system, and language technologies. This clutter of the workstation is not without consequences. Professional writers admitted that the numerous computer manipulations that are necessary to navigate from one tool to the other slow down their work, which goes against basic ergonomics. In addition, some writers suggested that the multiplication of computer tools was interfering with their creativity. Table 4 summarises the most important problems reported by

professional writers who use computer tools to produce documents.

1. Conventional operating systems are not effective to retrieve information or documents on personal computers.
2. Access to more specialised tools such as writing memory systems is difficult.
3. Desktop is cluttered up with too many computer tools and windows.
4. Training on computer tools is needed.

Table 4. Most important problems reported by professional writers who use computer tools to produce documents

In the next section, we will describe LinguisTech, a new web site dedicated to language professionals (translators, writers, language instructors, etc.), the first of its kind in Canada. We conducted a preliminary evaluation in order to determine how useful LinguisTech could be especially for professional writers.

3 Preliminary Evaluation of LinguisTech

3.1 Description of LinguisTech

LinguisTech[4] was launched in September, 2011. It is developed by the Language Technologies Research Centre (LTRC) and is funded by the Government of Canada's Canadian Language Sector Enhancement Program. LTRC describes LinguisTech as a toolbox for language professionals offering language technologies in both Canadian official languages (French and English), but also as a documentation and training centre, as well as a virtual community. We will comment more specifically on the Language Technologies Toolbox and on the Training Center, the two most developed features as of today.

LinguisTech's toolbox offers a broad selection of computer tools intended for language professionals (41 in total). The toolbox includes an inventory of free online tools useful for language-related tasks, as well as a "virtual" desktop with other information and language technologies. Computer tools included on this virtual desktop can be very expensive, but at the moment, they are available for free to Canadians who register and further obtain a password. Users can connect from any computer (Mac or PC), anywhere in the world, and access their own virtual computer. LinguisTech is also a documentation and training centre where language professionals can find, among other resources, tutorials and exercises on how to use computer tools (29 in total)[5].

Table 5 presents a complete list of computer tools, tutorials and exercises presently available in LinguisTech. Tool names in italics indicate free online tools. Tools names in grey lines indicate that a tutorial or an exercise is available, but not the tool itself.

Tutorial or exercise available?	
Office tools	
Adobe Reader X	yes
Microsoft Office	yes
Open Office	no
PDF Creator	no
Windows	yes
Search engines	
Google	yes
Library databases (uOttawa)	yes
ORBIS (uOttawa)	yes
Text correction software	
Antidote	yes
PerfectIT	no
WhiteSmoke	no
Text analysis software	
KwicKwic	no
Concept mapping tools	
CmapTools	yes
Microsoft Office Concept Mapping	yes
Text aligners	
YouAlign	yes
Concordancers	
Le Migou	yes
TextSTAT	yes
TradooIT	no
TransSearch	yes
WeBiText	yes
WordSmith Tools	yes
Dictionaries and terminology tools	
Diatopix	yes
DiCoInfo	yes
FranceTerme	no
Health Multi-Terminology Portal	no
Inspiration	no
InterActive Terminology for Europe	yes

Le grand dictionnaire terminologique	yes
lexicool.com	no
SDL MultiTerm 2009	no
SDL International (Trados 2007)	no
SynchroTerm	yes
Terminaute	no
TerminoWeb	no
TERMIUM Plus	yes
TermoStat Web	yes
UNTerm	no
Wiktionary	yes
WordNet	yes
Translation and localization tools	
CatsCradle	yes
Fusion Translate	no
Linguee	no
LogiTerm	yes
MultiTrans	yes
Online machine translation	yes
Reverso Promt	yes
SDL Passolo 2009	no
SDL Trados Studio 2009	no
Wordfast	no
Other resources	
Language Portal of Canada	no
Pidgin	no

Table 5. Computer tools, tutorials and exercises available in LinguisTech

3.2 Analysis

We address two research questions: How does LinguisTech respond to professional writers' needs in terms of computer tools and training material? Can LinguisTech solve any of the problems mentioned by our participants? This preliminary evaluation of LinguisTech will be presented according to the four steps of our analytical framework. The analysis is based on the information obtained from the focus group discussions (see Subsection 2.3). It is important to note that LinguisTech did not exist at the time of the focus group, which was in March, 2011, so the participants could not have used it prior to the focus group or mentioned it during the discussions.

Information Research and Processing

During information research and processing, professional writers use many computer tools: web search engines, email services, operating systems, text processors, and databases. As we can see in Table 5, LinguisTech offers many useful tools in regard to this stage of the writing process, for example Microsoft Office and Windows, many of which are accompanied by a tutorial or an exercise. Training material is also available for other tools required at this stage, for example Google search engine.

However, LinguisTech does not offer any tool, tutorial or exercise related to email, a service largely used by our participants to gather information from colleagues in the workplace. A forum where language professionals can share ideas on their profession has been recently created in LinguisTech. This forum will probably help develop a virtual community, but training material on how to effectively use this computer tool will be helpful.

Also, our participants stated that conventional operating systems are not effective to retrieve information or documents on personal computers, and that more effective information retrieval systems are needed. At the moment, LinguisTech does not provide any solution to this problem.

Information Structuring

During information structuring, our participants use a text processor, which is covered in LinguisTech, both in terms of availability and training.

Writing

While putting ideas into words, professional writers use a text processor, text correction software, some dictionaries and terminology data banks. LinguisTech offers many computer tools related to those tasks, with tutorials and exercises.

One of the problems mentioned by our participants was the difficulty to have access to specialised tools such as writing memory systems. As of today, LinguisTech does not include any specialised tools of that kind, or training material on such tools.

Revising and Document Transmission

During the last steps of the writing process, professional writers use two additional tools: file hosting services (for example Dropbox) and collaborative platforms (Google Documents). While those computer tools seem to grow in popularity among professional writers, LinguisTech does not cover them. They are neither included in the toolbox, nor is there any training material related to them.

As we reported in Subsection 2.4, the professional writers' workstation is cluttered up, meaning that the desktop is busy with many open windows. LinguisTech offers many useful computer tools, but no interface (or environment) to integrate them in an ergonomic way.

3.3 General Conclusions

In conclusion, this preliminary evaluation shows the usefulness of LinguisTech for Canadian professional writers, at least those who participated in the focus group. Most of the computer tools they use during the production of written documents are available in LinguisTech. Where LinguisTech falls short is in the integration of more effective information and document management systems and specialised writing tools (for example authoring memory systems). We do not know how many professional writers use LinguisTech[6], but we can imagine that they would expect a "reference web site for language professionals" to offer some specialised computer tools for tasks related to writing in a professional setting[7].

On the other hand, we have to admit that LinguisTech's focus on tutorials and exercises addresses concerns expressed in our exploratory study, since the absence of training on information and language technologies was one of the major problems mentioned by our participants.

Also, we think that LinguisTech could serve as an introduction to new tools, since our participants mentioned that they would welcome the integration of additional computer tools to their writing process. For example, LinguisTech includes concept mapping tools, which could be tested for information structuring, and concordancers, which could be tested for checking the correct usage of an expression during writing or revising. Those two categories of computer tools are accompanied by training material in LinguisTech.

4 Conclusion

In this paper, we presented results from a focus group with professional writers, in which they discussed their experience with computer tools used to produce documents in the workplace. As we have seen, although they would not be able to work without those tools, they reported a number of problems, namely that they do not have access to specialised writing tools, such as authoring memory systems, and that they need training on computer tools.

In the second part of the paper, we briefly described LinguisTech, a new platform for language professionals launched last September in Canada. We concluded that LinguisTech is useful for professional writers since it gives access to many computer tools intended for writing purposes, and many of those tools are accompanied by tutorials or exercises. However, according to our preliminary evaluation, LinguisTech would be even more adapted to today's professional writing if it offered more effective information and document management systems, specialised writing tools, and training material on collaborative platforms.

Acknowledgments

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[6] As a survey on LinguisTech users' satisfaction will be launched in March, 2012, we hope to have more information soon on that subject.

[7] Many resources are available for translation specialised tasks (see the list of translation and localization tools in Table 5).

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