

The Freelance Translator's Workstation: an Empirical Investigation

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Abstract. The notion of a translator's workstation has been widely discussed at various points in the history of translation and computers, and a number of tools and language resources have been proposed for inclusion in it, ranging from general purpose text-editing facilities, to tools designed specifically for translators, such as translation memory and terminology management software. This paper reports on the progress of a project that has been initiated to investigate which of the many available tools and language resources translators today are actually incorporating into their workstations, and which they deem to be useful in supporting their work. Specifically, in this paper, the findings of a survey of UK translators are presented, focussing specifically on the levels of uptake of a wide range of tools and language resources. To date, some 400 responses to this survey have been received, logged and analysed.

*Perhaps more than other professionals,
translators are feeling the long-term changes brought about by the information age.
The snowballing acceleration of available information, the increase in intercultural encounters,
and the continuing virtualisation of private and business life
have resulted in drastic and lasting changes in the way translators work.
(Austermühl 2001:1)*

1. Introduction

The notion of a translator's workstation, comprising a number of computer-based aids to support translators in their work has been widely discussed in the past few decades in the literature of translation and computers (see for example Kay 1980/1997; Melby 1982 and 1992; Hutchins 1998; and Somers 2003). Still other authors have recently provided detailed and comprehensive overviews of the burgeoning array of tools and language resources available to the translator today (see for example Austermühl 2001), ranging from word processing facilities, through dictionary look-up tools, systems for creating and managing terminology collections, to translation memory and machine translation.

In addition to these discussions of the computer-based facilities that exist to support translators, a number of studies have been conducted to determine how translators actually work and which of the available tools and language resources they add to their workstations and incorporate into their translation workflow. Some of these surveys, although comprehensive

in their coverage of translators' working practices, were undertaken prior to, or in the very early days of, both the 'Internet boom' in the commercial world and the commercial availability of tools such as translation memory (see for example Smith and Tyldesley 1986; Fulford, Höge and Ahmad 1990). Consequently, they can give little indication of the use being made of these facilities by translators, and are thus inevitably now somewhat dated. Still other studies have focused on a narrow range of tools in the translation environment, such as the uptake of machine translation (see for example Brace, Vasconcellos, and Miller 1995), or have been concentrated on tool usage within an individual organisational setting: see for example the review of technology usage at the European Commission (Blatt 1998). A further study of translators in various European countries (reported in Reuther 1999), has considered the 'language engineering' and 'language technology' requirements of translators working in a variety of contexts, but does not really provide any detailed insights into what is actually in use in the translator community.

In the light of the lack of empirical data regarding actual translation practice, a three-year project (funded by the EPSRC¹) has been established, the aim of which is to explore the tools and language resources UK translators today are incorporating into their workstations, and to identify the strategies they employ for integrating them into their workflow, as well as the impacts those computer-based aids are having on their working environments. The focus of the project is on freelance translators and small translation businesses as these today represent a significant proportion of the translator community in the UK (Fraser 2000). Part of the first phase of the project comprised a survey of translators based in the UK, the key objective of which was to determine the uptake of a range of tools and language resources. To date, some 400 responses to this survey have been received, logged and analysed. The initial findings of this survey are presented in this paper. The paper concludes with a discussion of the implications of the findings for translation tool developers, translator trainers, and researchers, as well as for working translators. Before presenting the survey findings, an overview is provided of the conceptual framework for the research project as a whole.

2. Conceptual Framework

It was recognised from the outset of this research project that an investigation into the uptake of computer-based aids by translators would entail an interdisciplinary literature search in order to gain adequate coverage of the wide range of factors to be considered in such a study. To this end, the following domains were identified as key 'informant domains' for the project: first, language and translation (including translation principles and methods, and language technologies); second, information and communications technology (ICT) and information systems; and third, small business management. Within these informant domains, the areas being studied include:

- **Language and translation:**
 - Translator working practices and working environments;
 - Computer-based aids available for translators, and the categorisation of these aids;
 - Translation workflow models.

- **Information and communications technology and information systems:**
 - Measures for determining the success of ICT adoption in small businesses;
 - Stage models of ICT adoption in small businesses.
- **Small business management:**
 - ICT adoption decisions in small businesses;
 - Motivators and inhibitors for ICT adoption in small businesses;
 - Small business planning, and business strategy formulation.

Analysis of the literature from these informant domains has led to the formulation of a conceptual framework to guide and shape the research. Details of the process of developing this framework are beyond the scope of this paper, but are provided more fully elsewhere (see Fulford and Granell-Zafra, in press). In summary, the framework comprises three principal components:

- **Translator's workstation levels:**
 - The workstation proposed here comprises six levels of adoption of ICT. These levels are as follows:

Document production level: Tools to support the tasks of producing text-based documents, as well as graphics-based documents, and web pages. Such tools include word processing packages, desktop publishing applications, presentation software, OCR tools, and web site design packages.

Business management level: Tools to support the day-to-day operations of a small translation business, including electronic mail, spreadsheet and database packages, accounting and financial management software, search engines, word counting tools, invoice generators, and project management / scheduling tools.

Terminology management level: Tools to support the creation of terminology collections, such as MultiTerm, Lingo, and TermStar. Language resources available to translators, including multilingual terminology databases,

¹ EPSRC (Engineering and Physical Sciences Research Council)

online dictionaries and glossaries, online libraries, and document archives.

Translation creation level: Tools to support the actual translation task, e.g. by providing archives of legacy translations, or previously translated text segments, as well as tools for automated translation. Tools at this level include translation memory, such as TRADOS, DéjàVu, and STAR, as well as machine translation systems.

Collaborative level: Tools to support freelance translators in collaborating with translator colleagues and other stakeholders, either for information gathering and sharing purposes, (e.g. mailing lists and discussion groups) or for working as a team or workgroup on individual translation assignments (e.g. shared translation memory and terminology databases).

Integrated level: Tools to support the coordination and management of the lifecycle of translation projects involving distributed translator teams, and comprising a common online environment incorporating facilities for sharing translation memory and terminology databases, communicating in real time with project stakeholders, and also for creating and assembling the translation deliverables. Tools at this level might include STAR Proactive, LTC tools, and TRADOS GXT.

In proposing these six levels, the aim has been: first, through the business management level, to acknowledge the freelance environment in which many translators work today, and thus to

incorporate the range of tools they are likely to require to run their freelance operations effectively (basic office automation software). Second, the aim has been to recognise and accommodate, through the collaborative level, the increasing emphasis in ICT developments on interconnectivity and networking, making it possible here for freelance translators to work together on group translation assignments, to communicate electronically, and to share the necessary terminology and memory resources to achieve this. Third, the proposed levels incorporate, through the integrated level, the growing trend of adopting more formal project management approaches to the undertaking of translation assignments in globally-distributed teams. These three aspects of the proposed levels differentiate the translator's workstation proposed here from some of the earlier workstation proposals, such as that put forward by Melby (1982), as well as that outlined by Somers (2003).

➤ ***Factors affecting adoption:***

The factors that might either motivate or inhibit the uptake of tools and language resources into the translator's workstation, including both internal and external factors. Included here are also the business and IT strategies that translators formulate in the running of their translation enterprises.

➤ ***Impacts of adoption:***

The benefits realised from the adoption of ICT (e.g. cost savings and productivity increases), and the problems encountered in its adoption.

A diagrammatic overview of the conceptual framework outlined above is presented in Figure 1.

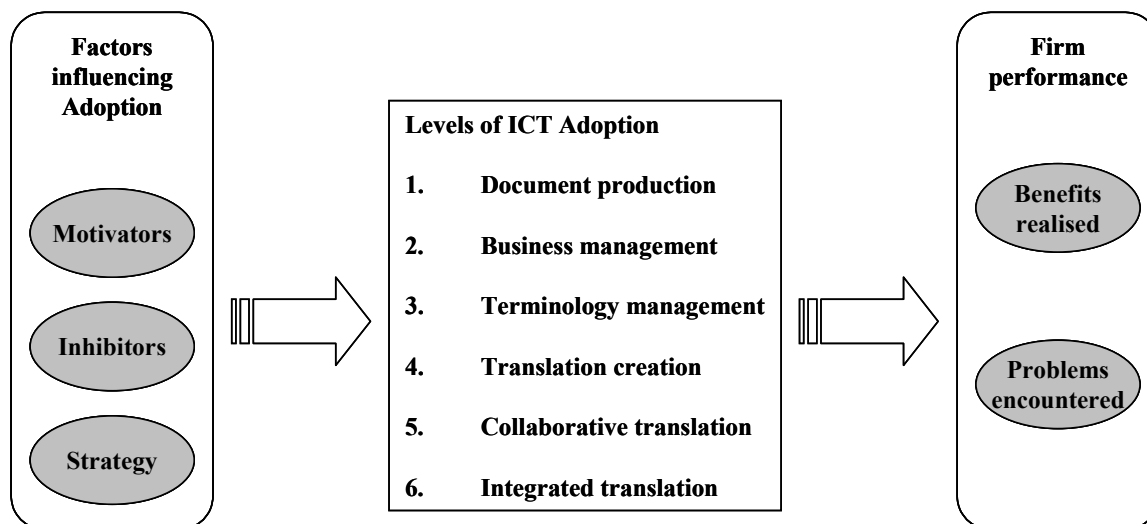


Figure 1: Conceptual Framework

The focus of the present paper is on the central part of the above research framework, namely the uptake of information and communications technology by translators.

3. Research Method

This section comprises an explanation of how a detailed questionnaire to explore ICT adoption issues among translators was designed, validated and conducted.

3.1. Questionnaire development and validation

A draft questionnaire was developed, based on a review of the relevant literature to identify the range of tools and language resources available to translators today. Since there are few published academic papers explicitly addressing the adoption of ICT by translators, the literature was used primarily as a guide to generate ideas and insights, rather than as a source of specific questions and item measures that could be utilised directly in this study. The resultant questionnaire was organised into the following sections:

Translator profile: demographic data; details of translator training and qualifications; ICT knowledge and skills.

ICT uptake and usage: tools and language resources adopted to date.

Internet usage: uptake of web-based technologies, and general Internet tools to date.

ICT strategy: perceptions of general ICT; perceptions of translation technologies; business planning and strategy issues.

The draft questionnaire was initially validated through a series of pre-tests, first with some experienced researchers, and then, after some modifications, it was re-tested with some translators. The pre-testers were asked to critically appraise the questionnaire, focussing primarily on issues of instrument content, question wording and validity, before providing detailed feedback. The pre-tests were very useful, as they resulted in a number of enhancements being made to the structure of the survey and the wording of specific questions. Having refined the questionnaire, a pilot study exercise was also undertaken, which provided valuable insights into the likely response rate and analytical implications for the full survey.

3.2. Questionnaire distribution

There is no official register of translators in the UK. For the purposes of this study, the sample used for the survey was drawn from a database of 1400 UK-based translators obtained from the membership database of a professional body. Questionnaires were mailed to the translators in the database.

3.3. Sample characteristics

To date, 590 responses to the survey have been received and logged, representing a response rate of 42%. Of these, 438 have been analysed, the others having been eliminated on the grounds that the respondents reported that translation is not currently their principal activity, but merely an activity they combine with undertakings, such as teaching, training, or interpreting. Of these 438 responses, 390 were from freelance translators, and it is the responses of these freelance translators that are the focus of the discussion in this paper. In comparison with the other studies of translators referred to earlier, both the response rate to this survey and the sample size generated for analysis are encouraging: the sample for Translator's Workbench Project survey, for instance, comprised a total of 110 translators (Fulford, Höge and Ahmad 1990); and the more recent LETRAC project survey sample consisted of just over 100 'individual translators' (Reuther 1999).

With regard to educational background, 92% of the present sample had university-level qualifications, with 53% of the sample having postgraduate-level qualifications. A high proportion of the sample (82%) had specific qualifications in translation (e.g. a first or masters degree in translation studies, or a postgraduate-level translation diploma). The responses to questions about IT knowledge revealed that the vast majority of translators in the sample were self-taught, and most had no formal IT qualifications.

The majority of the translators in the survey sample were female (63%). The distribution of ages in sample was as follows: 20-29 years (4%), 30-39 years (23%), 40-49 years (30%), 50-59 years (26%), and 60 and over (17%).

4. Summary of findings

The presentation of the survey findings is divided in this section according to the six levels of the translator's workstation outlined in the earlier part of this paper, beginning with the document production level.

4.1. Document production level

The overriding majority (99%) of freelance translators in the sample were using word processing software for document production. The use of other text and graphics packages was less prevalent: desktop publishing packages (17%); graphics applications, such as Powerpoint and Photoshop (25%); OCR tools (22%), and web publishing applications (13%).

4.2. Business management level

At the business management level, there was widespread use of electronic mail (93%), search engines (85%), and spreadsheet packages (79% of respondents), but less use being made of databases (25%), and accounting applications (13%).

4.3. Terminology management level

With regard to terminology management, the findings indicated that whilst the use of packages for creating and managing personal terminology collections (e.g. MultiTerm, Lingo and TermWatch) was not very extensive (only 24% of the respondents stated that they used such applications), the use of online resources for lexical and terminology searches and retrieval was more widespread: 59% stated, for example, that they use multilingual terminology databases. Table I below indicates, for example, that online dictionaries and glossaries in particular were being used by the survey respondents.

Table I: Use of Online Lexical and Terminology Resources

Online lexical and terminology resources	% of respondents using resource
Online dictionaries and glossaries	78%
Online encyclopaedia	38%
Online databases	30%

Furthermore, quite extensive use was being made of document archives, such as newspaper archives, as shown in Table II below.

Table II: Use of Document Archives

Document archives	% of respondents using resource
Newspaper and magazine archives	51%
Online academic journals	30%
Electronic libraries	27%

4.4. Translation creation level

To support the translation creation level, just over a quarter (28%) of the respondents in the survey sample were using computer-assisted translation tools, such as Trados Workbench, D  j   Vu, or SDLX. By comparison, far fewer (only 5%) made use of 'conventional' machine translation systems, and only 4% used online MT tools.

4.5. Collaborative level

There was some evidence among the respondents of collaborating in terms of participation in subscribing to lists (37%) and participating in discussion groups (29% of respondents). Beyond this however, there seemed to be little evidence of collaborative work: for example only 3% of the sample were using groupware or workgroup applications.

4.6. Integrated level

Evidence of activity at the integrated level was rather scant, with only 2% of the survey respondents indicating that they employed project and workflow management applications.

Having presented the findings for each of the levels of the proposed translator's workstation, some preliminary findings are now presented of efforts to categorise and profile the freelancers in the sample.

4.7. Profiles of the freelance translator community

The analysis of the sample is currently being extended to permit the identification of patterns of translator types according to their adoption of and familiarity with software applications, as well as online tools and language resources. This further analysis is being undertaken using the statistical technique of cluster analysis, broadly facilitating the allocation of individual translators to one of several clusters (or groups) in which cluster

members tend to share a number of characteristics in common with other cluster members (or are considered in statistical terms to be closely aligned to that cluster).

To date, the following seven clusters have been identified for the analysis of software applications (based on 281 responses deemed to be valid for cluster analysis purposes):

Cluster I: *Use* document production tools only, and show *no awareness* of other software applications (75 translators);

Cluster II: *Use* document production and business management tools only, and are *not aware* of translation software applications (37 translators);

Cluster III: *Use* some document production tools and business management tools and are *aware* of terminology and CAT tools (49 translators);

Cluster IV: *Extensive use* of document production tools and *extensive use* of business management tools and are *aware* of terminology and CAT tools, as well as groupware (37 translators);

Cluster V: *Use* document production tools and *use* terminology and CAT tools, but do not tend to use business management software applications, although they indicate *some awareness* of such facilities (29 translators);

Cluster VI: *Use* document production tools and *use* terminology and CAT tools, but do not tend to use business management software applications, although they indicate *considerable awareness* such facilities. They also show some awareness of machine translation systems (33 translators);

Cluster VII: Make *extensive use* of document production tools, *some use* of business management tools, *some use* of terminology management tools, and *extensive use* of CAT tools. They are only *aware* of machine translation systems and groupware. Unlike the other clusters, they show *some awareness* of localisation software and project management software (21 translators).

These clusters suggest that there was a high level of uptake among translators in the sample of general-purpose document production software (clusters 1-7). Some translators had also adopted business management software, but not gone beyond this to incorporate any translation-specific software into their workstations (clusters 2, 3 and 4). Other translators seemed to be focussing their ICT usage on the translation process rather than general business processes, by adopting document production tools and also terminology management and CAT tools, and 'leapfrogging' business management software (clusters 5 and 6). One small cluster of translators (cluster 7) had followed a combined path of adopting general-purpose document and business management software, as well as terminology management and CAT tools. It appears that the overriding majority of translators in the sample were working in a stand-alone environment, with only members of clusters 4 and 7 showing any awareness of groupware for facilitating collaborative work, and only members of cluster 7 showing awareness of a software such as project management software for more formalised integrated working environments. These various adoption levels seemed to contrast somewhat with the conclusions of the recent LETRAC project, in which it was reported that 'among freelancers two extremes can be observed: those translators who follow the principle of as little IT as possible, and those who can cope with virtually all aspects of new technologies' (Reuther 1999).

In addition to the seven clusters outlined above, some further analysis of Internet tools and language resources was undertaken. In this analysis, the following three clusters have been identified (based on 241 responses deemed to be valid for cluster analysis purposes):

Cluster A: Make extensive use of e-mail, and some use of search engines and online dictionaries and glossaries. They show some awareness of a broad range of other online

terminology resources and document archives (77 translators).

Cluster B: Make extensive use of e-mail and search engines, and some use of online dictionaries and glossaries, terminology databases, mailing lists, and some document archives. They show some awareness of a range of other online terminology resources and document facilities, but do not demonstrate an awareness of online MT systems (81 translators).

Cluster C: Make extensive use of e-mail, search engines, and online dictionaries and glossaries. They make some use of a wide range of other online terminology resources and document facilities. They also show some awareness of online MT systems, usenet newsgroups and specialist gateways (83 translators).

These clusters suggest that the use of e-mail, search engines and online dictionaries and glossaries was widespread among the translators in the sample. Some translators had not gone beyond this level of Internet usage. Others were making use of a greater range of online terminology and document resources. Beyond terminology and document consultation / look-up, there was little or no actual use being made of online systems, such as MT.

Having completed this initial analysis of possible clusters in the sample, some of the demographic characteristics of each cluster are now being investigated.

5. Discussion of findings

With regard to the levels of ICT adoption in the translator's workstation proposed in this paper, it seems that all of the freelancers in the sample were using computer-based tools to support the document production level, a substantial proportion were making use of tools to support the business management level. Approximately one third of the translators in the sample were using tools to support the terminology management and translation creation levels. There was little or no evidence of translators using ICT to support working at the collaborative or integrated levels. It seems that the translators in this sample were some way away from Rico Pérez's conception of translators working in a co-

ordinated project-managed multi-stakeholder environment (Rico Pérez 2002). This issue arguably warrants further monitoring over time to determine whether translators do eventually progress to these higher collaborative and integrated levels. Initial attempts at clustering the sample have indicated a number of possible patterns, or pathways, of ICT adoption through the proposed workstation levels, and these are now being subjected to further analysis to both confirm their existence and explore possible reasons for them. Efforts at clustering also indicate that there was widespread adoption of Internet-based resources. Again, reasons for this will be explored in the next phase of the project.

The findings of the survey provide some useful insights for translators, trainers and software developers. From the point of view of people embarking on a career as freelance translators, the findings provide a comprehensive overview of ICT adoption among the freelance community, which could act as a guide to them when setting up their own translator's workstation. For trainers, the findings give indications of what ICT knowledge and skills trainees are likely to need when entering the translation profession, highlighting in particular the need for skills in both translation specific and business management software. The findings relating to the widespread use of Internet-based tools and language resources may usefully guide developers to consider online contexts for their future development of computer-based aids to support translators.

Using a survey-based approach for this kind of investigation of ICT usage, whilst providing a broad overview of the user community, inevitably is limited in the depth of exploration that can be undertaken, particularly with regard to the relationships holding between constructs. Consequently, the next phase of the project has been designed to follow a more qualitative data gathering approach allowing the confirmation of the findings obtained so far, as well as a deeper examination of the various factors influencing the adoption of ICT by translators. Whilst the survey has been focussed on UK-based translators, it is envisaged that the survey instrument now designed, developed and validated could be employed for replication studies among translator communities in other countries. Indeed, undertaking comparative studies among

translators in other countries would represent an interesting avenue for further research.

6. Concluding Remarks

In this paper, a translator's workstation was proposed, comprising levels from the document production and business management levels, through the terminology management and translation creation levels, to the collaborative and integrated levels. It was suggested that this proposal permitted the incorporation of the range of general-purpose and translation-specific tools likely to be of use to freelance translators today. The findings of a survey among freelance translators were presented in which it was shown that whilst extensive use is being made of ICT at the document production and business management levels, quite extensive use of Internet-based terminology management resources, and some translation creation tools, such as translation memory, there is little or no evidence as yet of translators using ICT to support collaborative work. Some preliminary patterns, or pathways, of ICT adoption have been explored, and deeper analysis of these is now underway.

For the next phase of the project, interviews are planned with translators to examine some of the ICT adoption issues raised in the course of the survey. In particular, the other parts of the conceptual framework will be subjected to analysis in the next phase of the project, focussing specifically on the factors that influence translators' adoption of ICT as well as the impacts of ICT adoption on their working environments.

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