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Free and Open Source Software in Translator Education. The MINTRAD Project

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Abstract: The paper provides a description of the main objectives pursued and results obtained by the 'Grupo de Estudos das Tecnoloxías Libres da Tradución (GETLT)'[1] during the implementation of the MINTRAD project focusing on the compilation of Free and Open Source Software (FOSS) for translators in a comprehensive Linux distribution. First, a brief overview is provided regarding the use of FOSS in Translation Schools and generally among translators. This background section is followed by a detailed description of the different phases of implementation of the MINTRAD project, with particular reference to the results of each phase and to the new paths of study this project has opened in the field of FOSS for translators.

Keywords: CAT tools, Free and Opens Source Software (FOSS), translation memory (TM), translator training, usability testing

1. Introduction

Since the '90s Spanish departments and schools training language mediators (translators, interpreters, localisers, subtitle editors, and the like) have not only considerable increased in number, but have also been obliged to adapt their training offers, both to the needs of evolving translation markets and to the requirements of the recently created European Space for Higher Education. It has been a few years since graduate degrees coexist in translation and interpreting schools with research and professional postgraduate degrees focused on particular aspects of language mediation. Terms such as globalisation, internationalisation and localisation are commonplace in the daily lives of professional translators in response to present consumer expectations of having access to products and services adapted to their social and cultural reality. Translators have abandoned pen and ink forever, and nearly printed documentation as well, and now live surrounded by computer equipment which, together with the 'traditional' office applications, run other software including translation memory managers, text aligners, terminology managers, subtitle editors, concordance analysers and localisation tools.

However, although training institutions have been able to adapt their offer and their training methods to the new reality of the

[1] In English 'Free Translation Technology Research Team'.

translation market, training is still supported by closed commercial software, i.e. applications subject to restraining licenses, which cannot be adapted to the particular requirements of both trainers and trainees. It is a practice that conflicts with recent recommendations from different local and international administrations and public organisations, which plead for the implementation of open standards and for the use of FOSS (Diaz Fouces, 2008, p.58).

As already mentioned above, FOSS stands for Free and Open Source Software, i.e. software that is liberally licensed, thus granting the right to use, study, adapt and improve its source code to users. FOSS is not something new. The free software movement was started by the computer scientist Richard Stallman in 1983, when he launched the GNU project to provide a replacement for the UNIX operating system – a replacement that would respect the freedom of those using it. Then, in 1985, he founded the Free Software Foundation (FSF),[2] a non-profit organisation with the mission to promote computer user freedom.

It should be noted that, in this context, 'free' refers to *liberty*, the liberty to run, copy, distribute and study the software, and not to price (Stallman, 1999, p.56).[3] As Stallman claims:

> Since free refers to freedom, not to price, there is no contradiction between selling copies and free software. In fact, the freedom to sell copies is crucial: collections of free software sold on CD-ROMs are important for the community, and selling them is an important way to raise funds for free software development (Stallman, 1999, p.56).

The FSF maintains a Free Software Directory of over 5,000 free software packages organised in twenty-two different categories, one of them being *localisation*. Some FOSS applications are well known and widely used around the world. The free office suite *OpenOffice.org* is already preferred by many public administrations for its use of the open document standard (ODF),[4] and due to the fact that it runs on several hardware structures and under multiple operating systems, including Windows, Mac OS X, GNU/Linux and Sun Solaris.[5] The *Firefox browser*, created by Mozilla, is one of the most widely used Internet browsers worldwide, only behind *Chrome* by Google and *Internet Explorer* by Microsoft, which has the advantage of being pre-installed with all Windows Operating Systems (See Figure 1). In fact, a

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[2] *Free Software Foundation, meet the founder, staff and board of directors*. Retrieved January 28, 2013, from http://www.fsf.org

[3] FOSS is different, therefore, from what it is normally known as 'freeware', which is cost-less software but not necessarily open-source. As a consequence, it cannot be freely adapted for the purposes of training, one of the main reasons that led GETLT to the exclusion of freeware and the election of FOSS as the basis for its training environment.

[4] For a detailed study on open standards and their use in translation and localization, see Mata, 2008, pp.75-122.

[5] In addition, a recent study presented by the city of Freibourg, in Germany, reveals that moving to the open source OpenOffice is three to four times cheaper than using a proprietary alternative (source: OSOR website, 2011).

recent survey has revealed that Firefox is already more popular among Internet users in Europe than Internet Explorer (See Figure 2). Another Mozilla application, Thunderbird, is also among the most widely used email clients worldwide.

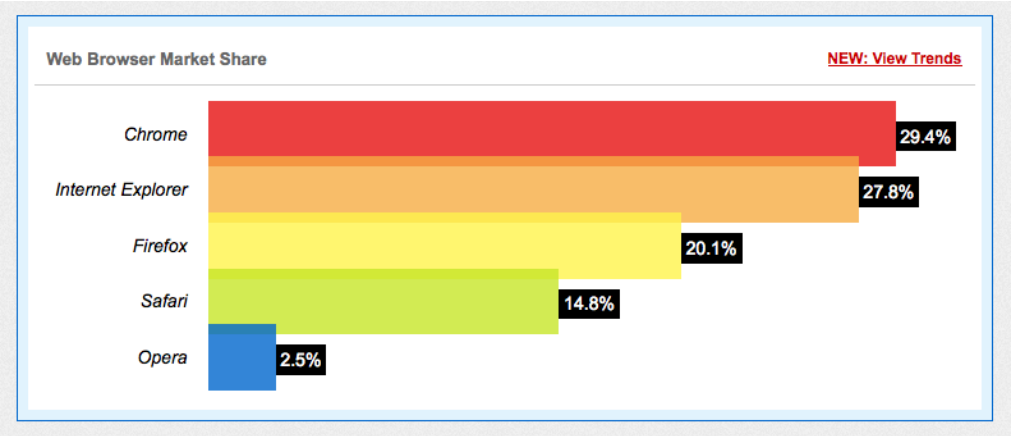

Figure 1: Top Web Browsers worldwide on December 2012 (source: StatCounter Global Stats).

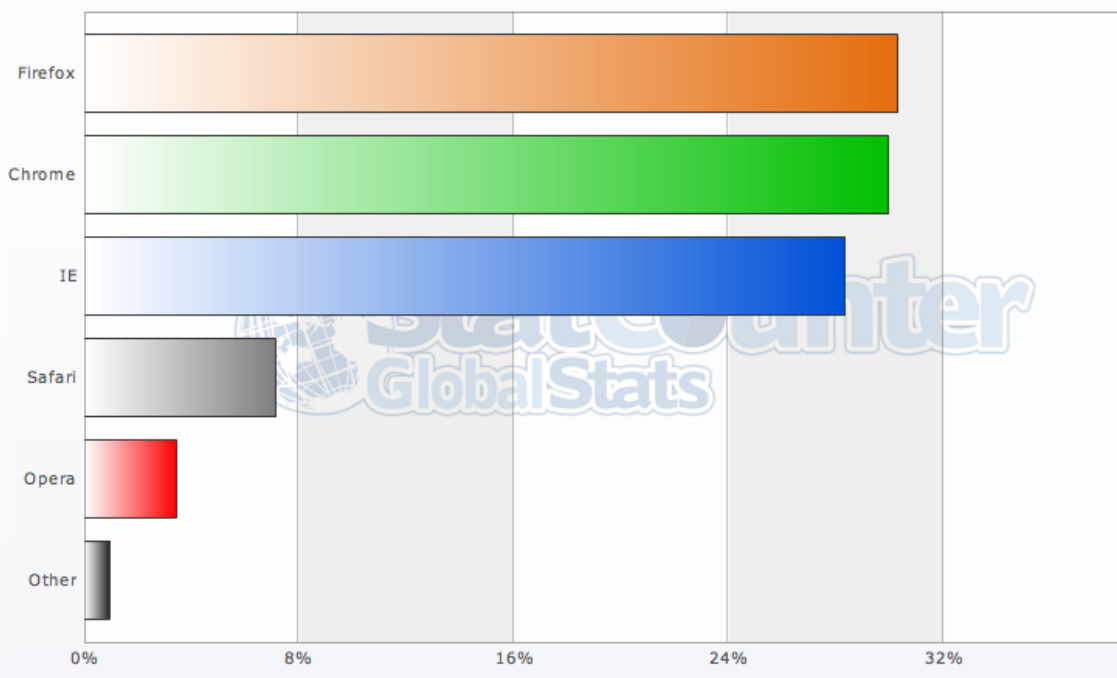

Figure 2: Top Web Browsers in Europe between December 2011-2012 (source: StatCounter Global Stats).

On its May, 2001 report, the IDA (Interchange of Data between Administrations) program,[6] founded by the European Commission,

[6] IDA Program, European Commission, Enterprise Directorate-General *IDA BC The Program.* Retrieved January 28, 2013, from http://ec.europa.eu/idabc/en/chapter/3.html

mentioned low cost, independence of suppliers, safety and privacy, adaptability and respect for standards as the main reasons for the use of FOSS, together with the fact that it provides greater efficiency, transparency, accountability and reliability. Until 2009, when the program was closed, IDA prepared a considerable amount of literature on FOSS, partly through its Open Source Observatory and Repository (OSOR). In 2011, OSOR.eu was migrated to Joinup, a new collaborative platform created by the European Commission and funded by the European Union via the Interoperability Solutions for Public Administrations (ISA) Program.[7]

Also, the action plan eEurope2005,[8]aimed at developing modern public services and a dynamic environment for e-business through widespread availability of broadband access at competitive prices and a secure information infrastructure, set a framework based on open standards and encouraged the use of FOSS. This plan was in line with Decision 2004/387/EC of the European Parliament and of the Council, on the interoperable delivery of pan-European eGovernment services to public administrations, businesses and citizens (IDABC) whose annex II included as Infrastructure Services 'the comparison of open exchange standards with a view to establishing a policy on open formats as well as open source software-based tools and actions to facilitate the exchange of experiences between, and the take-up of solutions by, public administrations'. Likewise, as part of the Strategic and Support Activities, the Decision included 'the promotion of the spread of best practice in the use of e.g. open source software by public administrations'.

In the past years, similar action has been taken in the past years by Public Administrations in several European States. OSEPA is a good example of this type of public initiative. The OSEPA Project[9] is a European co-funded programme that aims at informing the public about the perspective and potential use of FOSS in European public administrations. It is jointly developed by a consortium of public administrations in eleven EU member states, IT innovation centres and the University of Sheffield and is particularly targeted to provide guidelines to those administrations that are less familiar with this type of software.

The OSOR provides many other examples of state, regional and local administrations encouraging or even enforcing the use of FOSS. As an example of the encouragement of FOSS use, the Andago Project,[10] subsidised by the Spanish Ministry for Innovation, resulted in the incorporation of a consulting firm devoted to the development of

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[7]Interoperability Solutions for Public Administration (ISA) *Joinup collaborative platform.* Retrieved January 28, 2013, from http://joinup.ec.europa.eu/
[8]European Union *eEurope2005.* Retrieved January 26, 2013, from http://europa.eu/legislation_summaries/information_society/l24226_en.htm
[9]OSEPA Team *Open Source Software Usage by European Public Administration.*Retrieved January 28, 2013, from http://www.osepa.eu/
[10]ANDAGO Team *Open Innovation for Everyone, eHealth and eGovernment.*Retrieved January 26, 2013, from http://www.andago.com/index.html

global services and solutions based on open standards for Spanish Public Administrations (see figure 4).

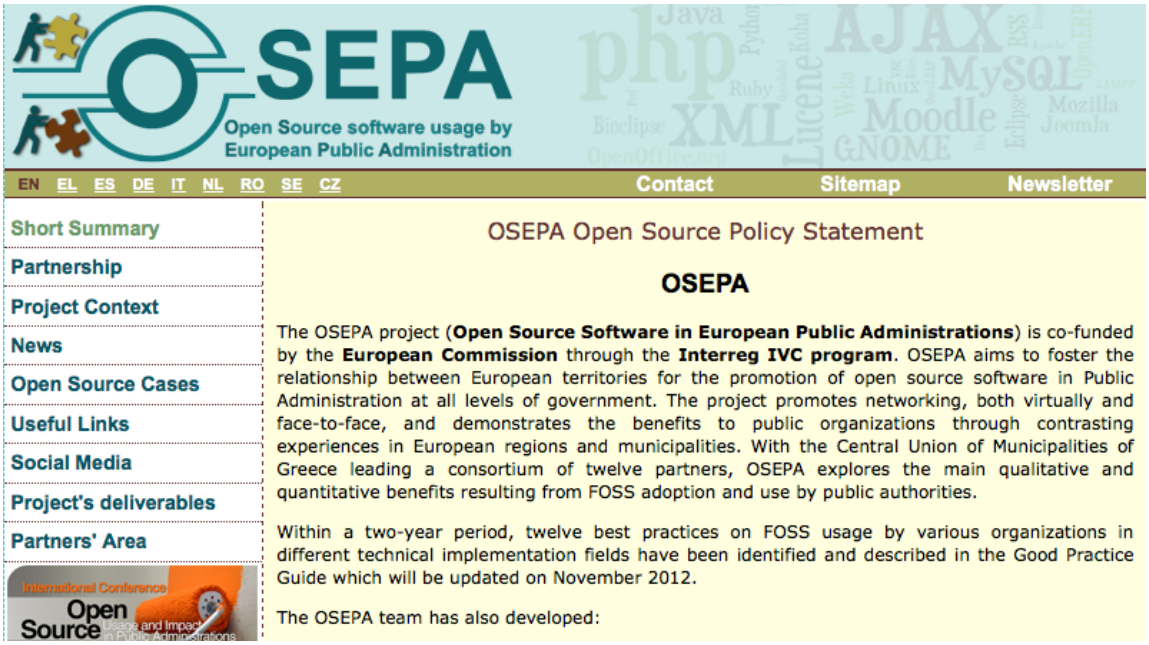

Figure 3: Main page of the OSEPA project website.

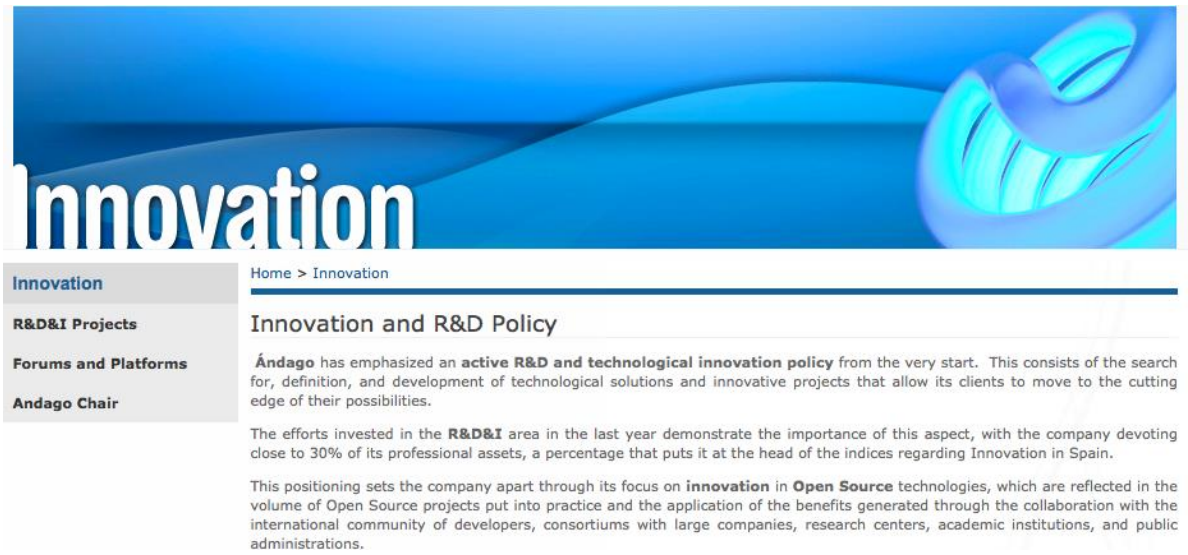

Figure 4: Main page of the ANDAGO portal, devoted to the promotion of open source solutions for Public Administrations

Regarding FOSS use enforcement, a recent example comes from Italy where a recent law, adopted on 2nd December 2010, by the regional administration of the Italian region Puglia instructs regional and local public administrations to use open formats for electronic disseminations of documents and to use FOSS wherever possible.

Similar actions are on their way in other European countries, such as Finland, were according to a survey of the Association of Finnish

Local and Regional Authorities (AFLRA), more than 80% of the Finnish municipalities use FOSS.

Within this context, the research team GETLT (Grupo de Estudos das Tecnoloxías Libres da Tradución) was created at the Universidade de Vigo, Spain, with the main goal of encouraging the use of free technologies in the field of Humanities and, particularly, in the field of Language Mediation, an area that relies one hundred per cent on the use of information technologies and that is also almost one hundred per cent controlled by proprietary, closed-source systems. With this target, the team started the research project 'Creación dunha plataforma docente GNU/Linux para a formación de tradutores, localizadores de software e subtituladores (Creation of a GNU/Linux training environment for the training of translators, software localisers and subtitle editors)'. The project was subsidised by the Dirección Xeral de Investigación, Desenvolvemento e Innovación of the regional government of Galicia, Spain, for a period of three years (2007-2010).[11]

2. Design and implementation of the Project

2.1. Background

As advanced in the abstract above, the purpose of the project was to develop a computer environment for the training of language mediators based on free, open-source software, more particularly a GNU/Linux distribution in live DVD[12] that could also be installed on a computer's hard disk. The distribution was to be freely used at translation training higher education centres worldwide, and adapted to meet the particular needs of the educational programs at each institution.

At the theoretical level, there was at that time an important amount of literature on the production of GNU/Linux distributions. There were also recent works particularly focused on the production of live CDs and live DVDs, such as the Negus live Linux series (Negus, 2007; Negus, Shingledeck & Andrews, 2008). Conversely, there were, and still are, only scarce references available on the field of translation, as revealed by the most specialised international forum, Linux for Translators,[13] which has been denouncing this lack of academic involvement for years. Most contributions (Bergmann, 2005; Fernández García 2006a, 2006b), in fact, are published in computing and FOSS magazines and websites and not in translation journals or monographs. Moreover, the state of the art in the field of translation research regarding FOSS for computer aided translation is far less

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[11] Project No. PGIDIT07PX1B302200PR of the INCITE Program by the Consellería de Innovación e Industria of the Galician Regional Government.

[12] A live DVD is a system that, once downloaded and burned onto a blank DVD disk, may be inserted into a DVD drive and run without affecting the local hard disk and data.

[13] Prior, M. *Linux for Translators Forum*. Retrieved January 28, 2013, from http://tech.groups.yahoo.com/group/linuxfortranslators/

developed than that of machine translation, where competitive systems are already available for certain language pairs.[14]

At the practical level, we verified that no GNU/Linux distribution that had been particularly compiled to be used as a teaching environment for the training of translators was available. Examples were found, however, from other areas, which could be used to support the feasibility of the proposal, such as the PaiPix distribution,[15] compiled for the *Curso de Pós-Graduação Especialização em Pogramação Aplicada e Instrumentação*, of the Faculty of Physics at the University of Lisbon; ArcheOS,[16] targeted for archaeological research (See Figure 5); CDMEDICSPACSWEB,[17]in connection with DICOM (Digital Images and Communication in Medicine), standard for the exchange of medical images; or finally Morphix-NLP,[18] a compilation of free applications in connection with natural language processing (See Figure 6).

Figure 5: Desktop screenshot of the ArcheOS distribution.

[14]In the last few of years, some authors, such as Flórez & Alcina (2011) and Ramírez Polo (2012), have shown some interest in the field of FOSS for translators, publishing papers particularly devoted to the topic. Other contributions, such as Diaz Fouces (2008), Canovas & Samson (2008), García González (2008) and Gil Castiñeira (2008) were included in a monograph published as part of the project's activities (see section 3.4 below).

[15] Amorim, A. *Index of PaiPix.* Retrieved January 28, 2013, from http://www.paipix.org/

[16] ARC-Team *What is Archeos.* Retrieved January 27, 2013, from http://www.archeos.eu/wiki/doku.php/#what_is_archeos

[17] Sau, P. *How to deploy a webpacs in minutes.* Retrieved January 28, 2013, from http://cdmedicpacsweb.sourceforge.net/cdmedic_en.html

[18] Le, Z. *Morphix NLP.* Retrieved January 28, 2013, from http://morphix-nlp.berlios.de/

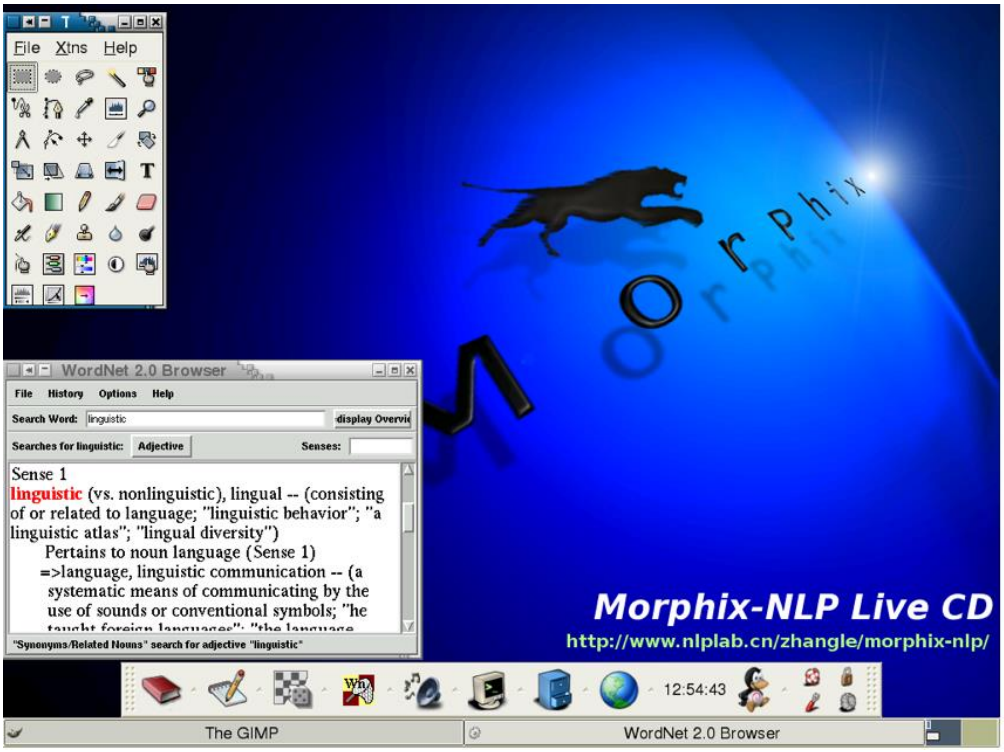

Figure 6: Desktop screen shot of Morphix OS distribution.

We therefore deemed it relevant to compile on a single environment all those free, open-source applications language mediators could use as part of their work (Diaz Fouces, 2005, pp.1-11).[19] The final purpose was to develop an environment that could be used for translator training in all the different courses which comprise a degree in translation and interpreting.

Apart from facilitating the use of CAT tools for translator training by removing the expensive costs of proprietary licences, the fact that free, open-source software was selected in all cases could help to encourage the use of this type of software among students, future professional translators and thus would fill the existing gaps within this group regarding free software (Fernández García, 2006a, pp.76-80; García González, 2008, pp.9-31).

In regard to professional translation-oriented GNU/Linux distributions, again no distributions which had been particularly developed for use by professional translators were found at the time the project started. Since that time, however, two distributions have been released that are specifically compiled for translators: Linguas SO and Tuxtrans.

[19]As it can be seen, the idea goes in line with the current pedagogical model of developing Personal Learning Environments (PLE) comprised of all the tools the student needs for learning (Attwell, 2007; van Harmelen, 2006).

The first of them, **Linguas SO** (See Figure 8) was released shortly after the project started. It was first developed as a demo for a translation conference and its author's goal was to adapt a Linux operating system distribution with tools and applications particularly chosen to assist translators. No new versions have been released since January 2008, and in October 2009 the author announced in the project blog that the distribution was no longer in development, due to *scant interest* and lack involvement by other translators (Baldwin, 2009).[20]

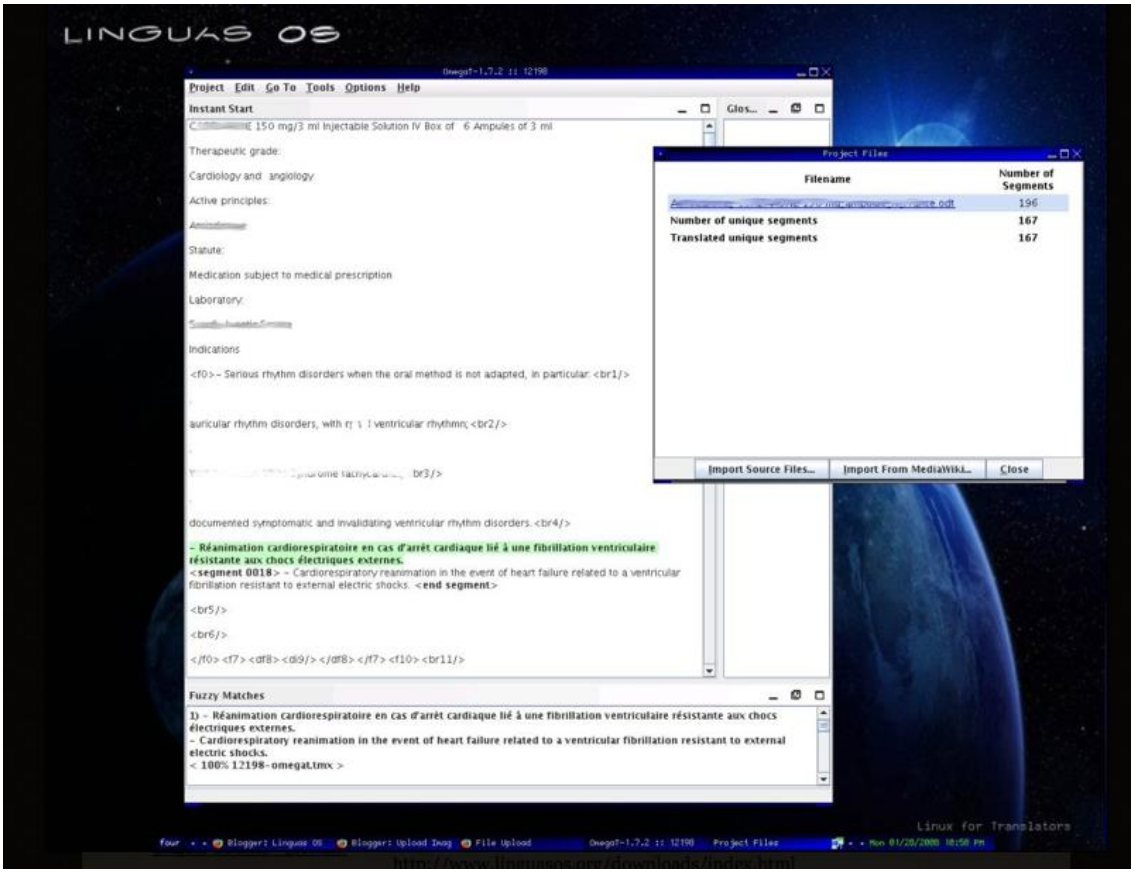

Figure 7: Desktop screen shot of Linguas OS distribution.

The other distribution, **Tuxtrans** (See Figure 8), first released under this name in 2010, is a further development of a previous distribution, **PCLOSTrans**, released in December 2007, soon after our project started. The project is based at Insbrück Universität, Austria. Tuxtrans combines the advantages of the GNU/Linux based operating system Ubuntu 10.4 and of the translator-oriented free software compilation USB-Trans, a collection of free software for translators also developed at the Insbrück Universität.[21]

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[20] Baldwin, A. (2009) *Linguas OS is dead. Long live linguas OS.* Retrieved January 28, 2013, from http://linguasos.blogspot.com.es/2009/10/linguas-os-is-dead-long-live-linguas-os.html

[21] The developer of Tuxtrans, Peter Sandrini, is also the author of several works dealing with the use of FOSS in translator training, such as Sandrini (2012) and Sandrini (2010) (See references section below).

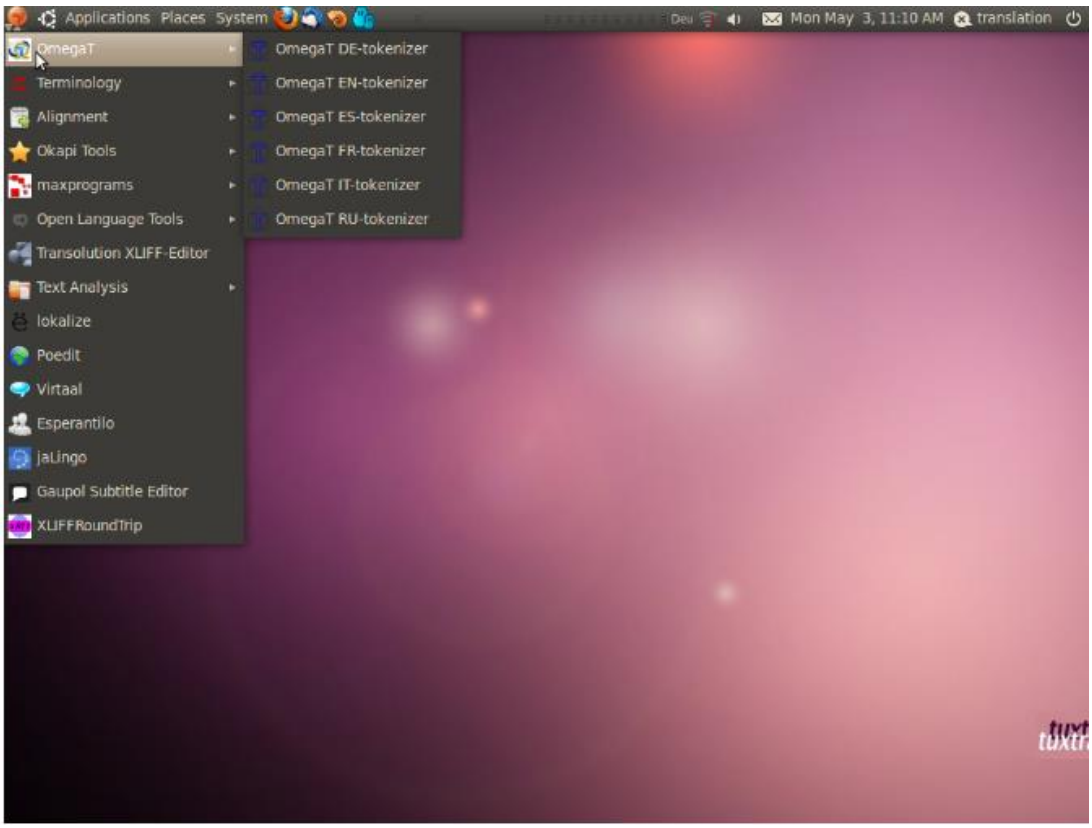

Figure 8: Desktop screen shot of TuxTrans OS distribution.

Far from discouraging us from our purposes, the release of these two new distributions at the time our project had already started gave us confidence in the relevance of developing and disseminating a GNU/Linux distribution that could be used in translator education and that could help students to become familiar with a system that seemed to be slowly but gradually gaining popularity among professional translators.

2.2. Project Phases

Based on the core purpose of this purpose, the activities were organised in four different phases that would be implemented on a simultaneous basis rather than following a strict consecutive schedule:

1. **Analysing training requirements in the different types of language mediation** by means of interviews to teachers and translation professionals, and **choosing a series of free software applications** running over GNU/Linux O.S. that were able to meet such requirements. Initially, we considered that the environment should include office applications, image editors, translation memory managers, advanced editors for the treatment of markup languages, Desktop publishing and subtitling and localisation software.
2. Based on the data compiled during phase 1 (requirements and chosen applications), **generating a GNU/Linux distribution that was both live executable from a live DVD and**

installable on the computer's hard disk, targeted to the training of language mediation professionals. The live DVD would facilitate first contact with GNU/Linux for non-users in a traditionally windows-based activity, as is the case of translation. Students would be able to run a GNU/Linux distribution on their computers without affecting the local hard disk and data and to delay the decision on whether to install it or not until they had had the opportunity to fully test it.

3. **Documenting the distribution in a complete and sufficient manner**. We considered that it would be difficult to introduce our environment in an academic area totally unfamiliar with GNU/Linux and in general with free, open-source software unless we provided prospective users with the necessary reference guides. We therefore intended to prepare a user guide for all the free CAT tools and applications included in the distribution.
4. In addition, as a complement to phase 2, we included in the documentation phase the testing of the environment both by translation students and by professional translators, whose feedback could be used to enhance both the architecture and the software compilation of the distribution.
5. **Disseminating the project results** within the university community, both at the training and at the research level, and encouraging the integration of not only translation teachers but also of translation students into voluntary free-software localisation teams.

3. Results

From the very beginning, the research team worked on all the phases simultaneously. The results achieved during the three years covered by the project are described in detail in the following pages.

3.1. Phase 1: Identification of requirements

As outlined above, apart from interviewing translation teachers in different institutions, an international survey was designed for professional translators in more than ten countries (García González, 2008, pp.9-31). The questions in the survey covered several topics connected to the use of free and open-source tools by professional translators and the reasons for using or not using it.

The survey was accessible online for thirty-one days, from March 1st to March 31st, 2008 and an e-mail message was sent to twelve translators' lists in Europe and America, inviting their members to complete the survey. Based on the membership figures of the selected list, over 1,000 translators should have received the invitation, of which only 105 completed the questionnaire. Eighty of them were MS Windows users, twelve Mac X OS users and eighteen GNU/Linux users.

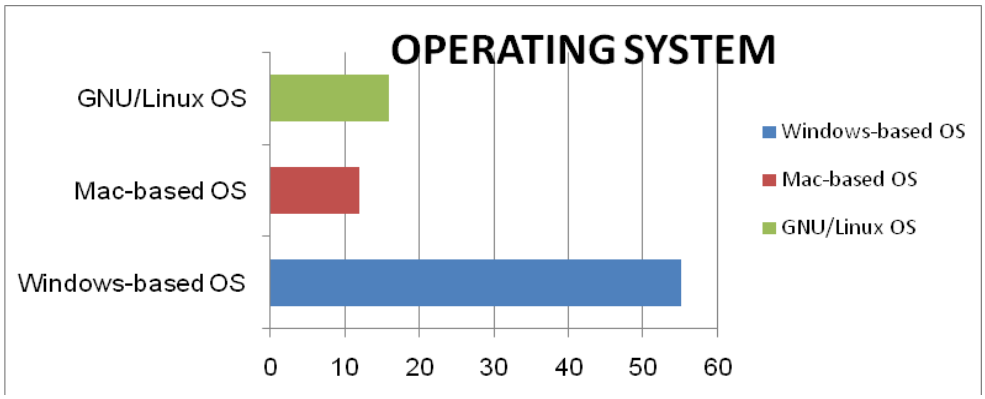

Figure 9: Operating System usage rate among respondents (source: García González, 2008, p.11).

Among the most relevant results of the survey, we should highlight the almost complete unawareness of the characteristics and possibilities of open-source software revealed by the participants through their responses, and the almost total prevalence of proprietary applications against FOSS in regard to both operating systems and office and CAT tools. CAT tools included translation memory managers, text aligners, concordance analysers and the like. The main reasons mentioned by respondents for such prevalence were the demands of customers and the lack of compatibility of open standards with these programs, a response that revealed in itself the lack of knowledge that translators had about FOSS.

Although familiarity with GNU/Linux and FOSS was a major issue in the survey, its main purpose was to identify the types of applications normally used by professional translators in the development of their work as this information was to be used to create the list of applications included in the GNU/Linux distribution. Figure 10 shows the results obtained to the question regarding the most commonly used applications: As it can be seen, word processors (90%), PDF viewers (88%), Internet browsers (87%) and CAT tools (86%) were the most voted options, followed by other applications such as spread sheet editors (69%), e-mail clients (64%), presentation tools (55%), word count applications (51%) and PDF editors (50%). Any other suggested applications fell below 50%. Although the percentages were mostly maintained when only the respondents reporting using GNU/Linux were considered (See Figure 11), a new category of solutions, html & xml editors, appeared among the frequently used applications with 66% of the votes, contrasting to the 26 % scored when the answers of all the respondents were considered. Also software and website localisation tools showed an increase (50% and 50% in the case of GNU/Linux users alone and 17.5% and 13.4% in the case of general respondents).

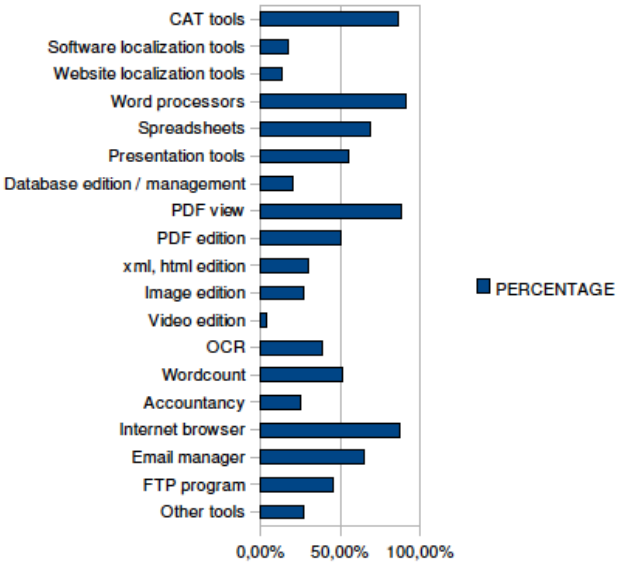

Figure 10: Use of applications by professional translators (source: García González, 2008, p.20)

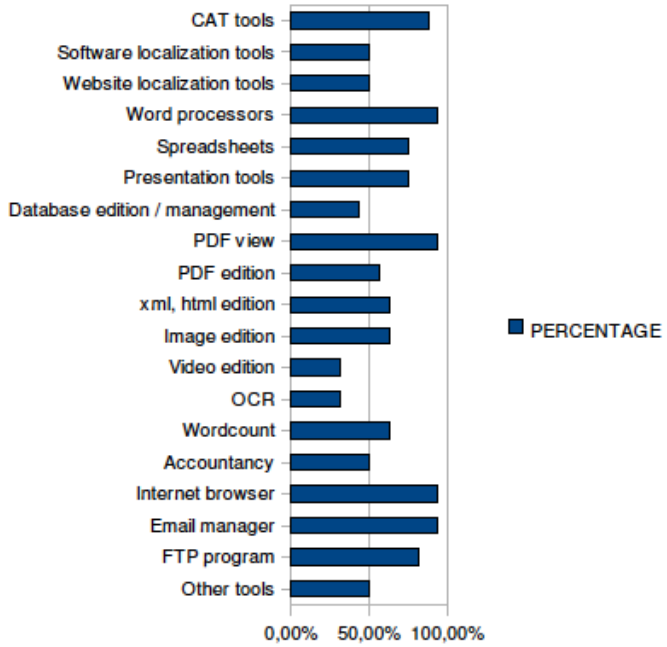

Figure 11: Use of applications by professional translators using GNU/Linux (source: García González, 2008, p.21)

3.2 Phase 2: Generation of the live DVD and installable ISO image

Based on the interviews and on the survey and in cooperation with several translation professionals and teachers, we chose a series of free applications particularly useful for translation, the availability of which was warranted either by their presence in GNU/Linux distribution repositories or by the possibility of obtaining at the time of the project a fully operating version of them from their respective developers.

Once the applications had been selected, a first (pre-alpha) version of the GNU/Linux distribution was released in 2008. The learning environment, developed from the Linux Mint distribution and hence

named MinTrad, was used in a pilot experience with translation students at the University of Vigo, namely with students of the courses '**Computer Science for Translators'** taught in the fourth year of the extinguishing degree (*Licenciatura*) in Translation and Interpreting and '**Tools for Translators and Interpreters: Computing'**, taught in the first year of the new degree (*Grado*) in Translation and Interpreting, during the academic years 2008-09 and 2009-10 respectively. The experience of the students with the new environment was documented by means of a voluntary questionnaire, and their responses (See phase 3: Documentation) were highly encouraging for the further development of the project. The ISO of the distribution can be downloaded from the GETLT website.[22]

Figure 12: Desktop screen shot of the first MinTrad distribution.

Figure 13: Desktop screen shot of the second MinTrad distribution.

[22]GETLT Team.*Grupo de Estudos das Tecnoloxías Libres da Tradución.* Retrieved January 28, 2013, from http://webs.uvigo.es/getlt/

A second version of the live DVD was developed in collaboration with Tegnix, S.L. It improves the look of the original distribution and includes several enhancements based on the opinions of the students and testers. The ISO image for this second version can also be downloaded from the GETLT website. Apart from general software (office suite, e-mail client, internet browser, player, etc.), the distribution includes the following particular CAT tools and applications:[23]

Localisation tools:

- **Lokalize:** Computer assisted translation system including usual components for CAT tools: translation memory, glossary and a unique translation merging capability. Particularly targeted for software translation, it integrates external conversion tools for office document translation.
- **Maxprograms:** Comprised of XLIFF-Checker and TMX-Validator.
- **Okapi Localisation Tools:** Set of interface specifications, object models, components and applications that provide an environment to build interoperable tools for localising and translating documentation and software.
- **PoEdit:** Cross-platform get text catalogues (.po files) editor.
- **Translate Toolkit:** Collection of useful tools for localisation and a powerful API for programmers of localisation tools. It can convert between various different formats (PO formats, XLIFF, OpenOffice.org, and Mozilla formats).
- **Virtaal:** Graphical translation tool for software localisation.

Subtitle editors:

- **Gaupol:** Free editor for text-based subtitle files. It supports multiple subtitle file formats and provides means of correcting texts and timing subtitles to match video.
- **Gnome Subtitles:** Subtitle editor for the GNOME desktop. It supports the most common text-based subtitle formats and allows for subtitle editing, translation and synchronisation.
- **GsubEdit:** Tool for editing and converting DivX subtitles.
- **Jubler:** Free tool to edit text-based subtitle files. Can be used to create new subtitles or to convert, transform, correct and refine existing ones. Supports most popular subtitle formats and permits preview of subtitles in real time and spell checking.
- **Subtitle Editor:** Tool to edit subtitles. Can be used for new subtitles or as a tool to transform, edit, correct and refine existing ones.

[23] The list herein refers only to the tools compiled in the MinTrad distribution and the descriptions are taken from the main websites of the compiled applications. For a comprehensive list of FOSS for translators, refer to the website Linux for Translators (http://www.linuxfortranslators.org/) maintained by Marc Prior. In this compilation, all the tools are described and valued based on their usability and compatibility with other free and proprietary software.

- **Ksubtile:** Editor for the KDE environment to edit, make and save subtitles in the SRT subtitle format.

Terminology managers:

- **TheW**: Program for creating and maintaining a thesaurus.
- **ExtPhr32:** Program used to extract every word and phrase up to a certain number of words in length that occurs at least a minimum number of times in a source text file. Phrases can be limited by establishing a start or end stop word.
- **IHMC Cmap lite:** Software that permits users to construct, navigate, share and analyse knowledge models represented as concept maps. Version of CmapTools reduced in functionality to allow it to run on small machines.

Text aligners:

- **BiText2TMX**: Program to align and segment corresponding translated sentences contained in two plain text files, and to generate a translation memory in TMX format, which is then used in computer-assisted translation applications.

Text analysers:

- **AdTAT**: Program used to work with corpora. Allows basic and associated word and phrase searches, and provides frequency lists of words appearing both left and right of search terms.
- **AntConc**: Cross-platform, user-friendly free concordance program.
- **TextSTAT2**: Program for the analysis of texts. It reads plain text files and HTML files directly from the Internet and produces word frequency lists and concordances from the files.

Translation memory managers:

- **Anaphraseus**: Computer-assisted translation tool for creating, managing and using bilingual translation memories. It is mainly used as an OpenOffice.org extension although it can be also used as a standalone program.
- **OmegaT**: Computer-assisted translation tool written in the Java programming language. Includes among its features user-customisable segmentation using regular expressions, translation memory, fuzzy matching, match propagation, glossary matching, context search in translation memories and keyword search in reference materials.
- **Sun Open Language Tool:** Comprised of a XLIFF editor (tailor-made application for translating the contents of XLIFF files) and XLIFF filters (application used to read the source file, separate the translatable portions and write out an XML file that conforms to the XLIFF specification).
- **Transolution XLIFF editor:** Computer-assisted translation suite supporting the XLIFF standard. It comprises XLIFF editor, translation memory engine and filters.

Other tools:

- **LaTeX Kile:** High-quality typesetting system; it includes features designed for the production of technical and scientific documentation. LaTeX is the *de facto* standard for the communication and publication of scientific documents (Díaz

Fouces, 2010). Kile is a user-friendly TeX/LaTeX editor for the KDE desktop environment.

- **QtLinguist:** Tool for the translation of applications into local languages.
- **StarDict:** Cross-Platform and international dictionary software.
- **Gtk-recordMyDesktop:** Free, user-friendly desktop video session recorded for GNU/Linux.

3.3 Phase 3: Documentation

During the project, a bibliography of literature on FOSS for different operating systems was compiled, together with a series of reference books on computer aided translation. Because of the specialised contents of the compiled literature and the lack of familiarity with FOSS of the target group for the distribution, the decision was made to prepare a guide for the distribution, with detailed user information for each of the particular CAT applications included. The preparation of the guide is currently underway (See Section 4 below) and a second edition of the project will complete it.

In addition, as mentioned in the above section, the students testing the distribution in their computing science courses were asked to complete an anonymous questionnaire. The following subsections summarise the most relevant results obtained from such questionnaires, with distinction being made between the responses obtained from students in their fourth year of the degree and those obtained from students in their first year of the degree.

3.3.1 Familiarity with GNU/Linux before attending the course

As shown in Figure 14 below, 68.42% of the fourth year students claimed to have no knowledge at all when asked about their familiarity with GNU/Linux before attending the course, 18.42% reported a poor knowledge and only 13.16% of the respondents claimed to use a GNU/Linux-based operating system on a regular basis. When the same question was asked to first year students, a similar percentage was found for students claiming to use Linux frequently, while the number of students reporting to have no knowledge of Linux at all decreased in favour of those claiming poor knowledge. In particular, 10.26% of the students claimed to use a GNU/Linux-based operating system on a regular basis, while 46.15% and 43.59% claimed to have no knowledge at all and only poor knowledge of GNU/Linux respectively.

3.3.2 Degree of complexity of MinTrad

In regard to the question concerning the degree of complexity of the distribution MinTrad in which students were asked to value the distribution from 1 to 5 (1 being highly complex and 5 not complex at all), the fourth year students' responses revealed that more than 50% considered the environment to be just slightly complex or not complex at all, while only 2.78% of the interviewees valued the system as highly complex. Conversely, when the same question was placed to first year students, roughly one out of every fourth respondents considered the distribution to be slightly or not complex at all, while

almost 75% of them considered it to be rather complex or somehow complex (see figure 15).

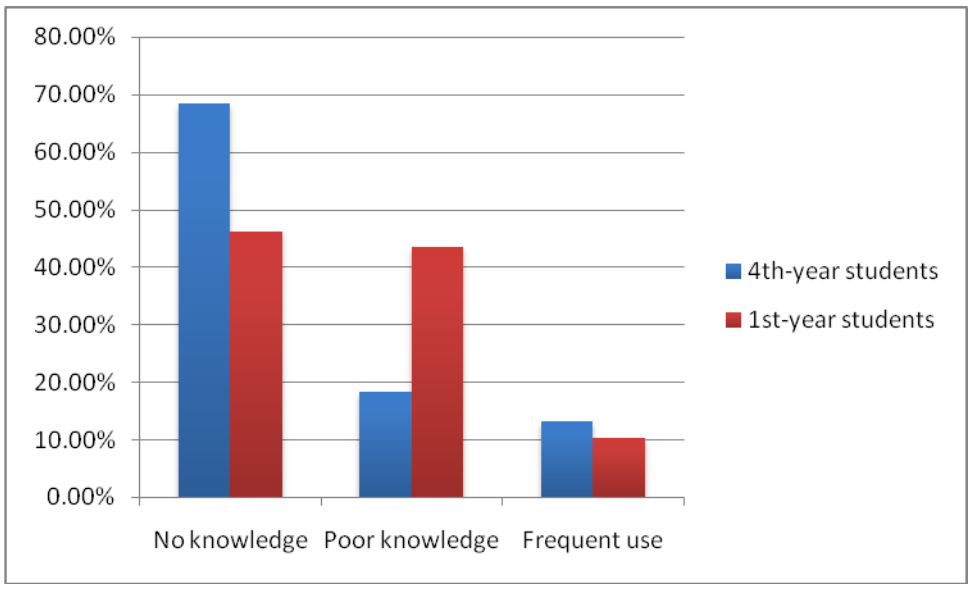

Figure 14: Prior knowledge of GNU/Linux among 4th- and 1st-year students (source: survey data).

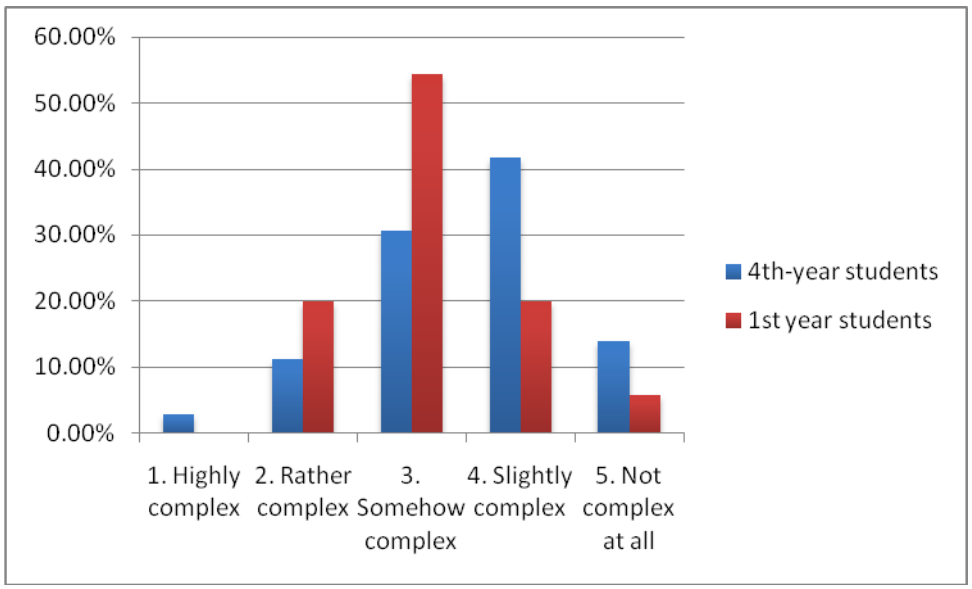

Figure 15: MinTrad complexity according to students (source survey data).

3.3.3 Usefulness of the distribution

Two questions were included in the questionnaire concerning the usefulness of the distribution. The first of them referred to its usefulness as a comprehensive tool in their training as translators, while the second one was aimed at determining the students' opinion in regard to the potential usefulness of the environment in their professional work as translators.

Regarding the degree of usefulness of the distribution in their training as translators, most fourth year students valued the distribution as very useful (32.43%) or quite useful (40.54%). Only 2.7% of the

respondents considered the distribution to be not useful at all; the same percentage of respondents claimed it to be little useful. Finally, 21.63% of the students found the distribution to be relatively useful.

Again, when analysing the responses of first year students to the same question, the number of positive responses decreased, with only 17% and 37% of respondents claiming to find the distribution very useful and quite useful respectively. 43% of the students found the distribution only relatively useful and one student found the distribution not useful at all. Figure 16 provides a clear image of the differences in the assessment made by fourth and first year students.

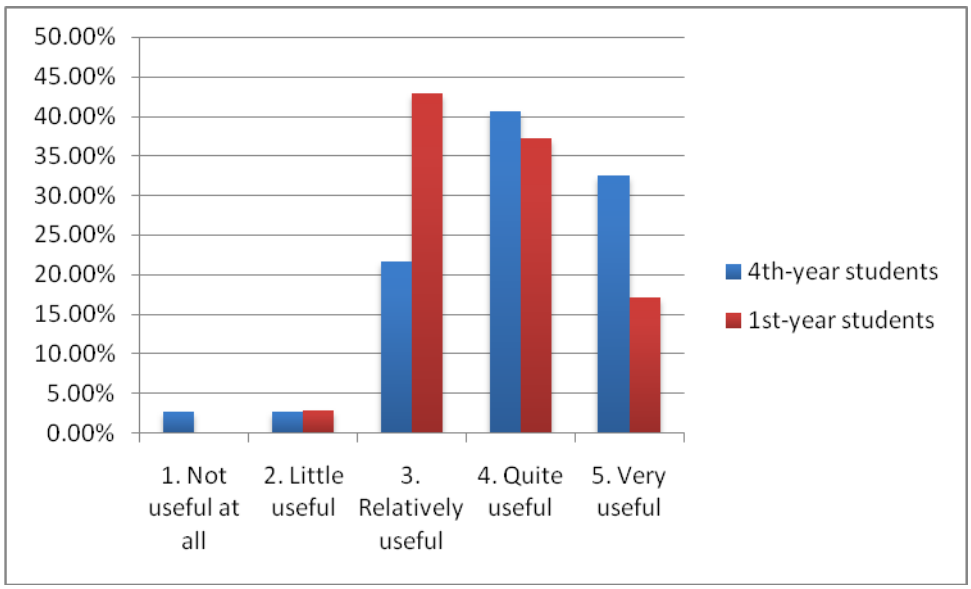

Figure 16: Usefulness of MinTrad in translation training environments as per 4th- and 1st-year students (source: survey data).

Finally, when asked about their expectations to use the distribution in their future, 97.30% of the fourth year students considered that the distribution would be useful for them, while only 2.7% thought it would be of no use in their profession as translators. In this last case, the same results were obtained from the responses of first year students, as shown in Figure 17: 96.97% of them answered yes when asked if they thought the distribution would be useful in their professional career as translators, while only 3.03% answered negatively.

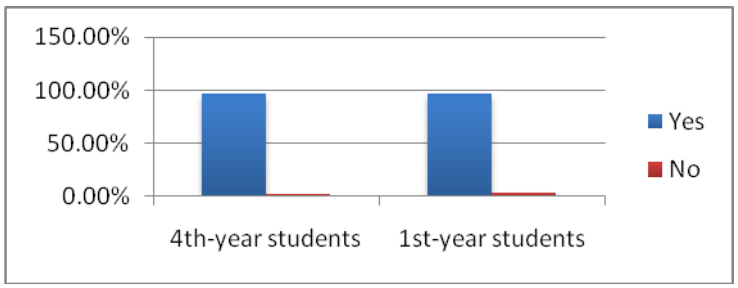

Figure 17: Usefulness of Mintrad in a professional environment as per 4th and 1st-year students (source: survey data).

A preliminary review of the responses collected from these two groups of initial *pre-alpha testers* reveals that most students found the environment interesting and relevant to their training as translators although interest was higher among students in their fourth year than in students in their first year. This can be due to the fact that first year students were actually in their first semester at university and had had no translation courses at the time they completed the questionnaire. As a consequence, they could hardly value the usefulness of many of the CAT tools included in the environment (translation memory managers, subtitling tools, localisation tools, etc.). It is not only the distribution itself that they thought to be 'complex', but also the software it compiles since they had had no opportunity to use it in real translation. Fourth year students, conversely, had already worked with CAT tools in previous courses and were able to assess the free, open-source tools included in MinTrad as compared to proprietary tools they were already familiar with.[24]

In any case, the paragraphs above summarise only a few part of the questions included in the survey questionnaire. Furthermore, as said before, the questionnaire was completed by the students after they had tested the first, *pre-alpha*, version of the distribution. At present, the beta version of MinTrad is being analysed by a group of *beta testers* for usability testing, aimed at identifying possible shortages and at enhancing both the architecture and the software compilation of the distribution. The responses of these beta testers will be fully discussed and compared to those of pre-alpha-testers in a further work.

3.4 Phase 4 Dissemination of results

As part of the project, the GETLT team has made the effort to provide visibility to FOSS for translation and to the localisation of free software within the university translation community. In 2008, a compilation of works concerning the different connections between FOSS and translation was published under the title *Traducir (con) software libre* (Fouces & García, 2008a). It included, among other issues, the complete results of the survey to language service suppliers carried out in the first stage of the project (See phase 1 above), commented catalogues of free software for translators running on MSWindows, Mac and GNU/Linux, and proposals of particular activities with free software in the translation classroom. It also included a couple of works on free software localisation, in line with our purpose of encouraging the integration of translation students and professional translators in free software translation teams.

In addition, papers were presented at several international conferences on translation and training and a series of contributions have been published in different translation journals and FOSS

[24]However, real contact with the 1st-year students in their translation courses has shown that their use of FOOS has remained at a low level during these four years and despite their being familiar with the TradMint distro, and despite the distro being installed in all the devices at the faculty's computer rooms, in dual boot with Windows, students always boot Windows unless asked otherwise.

magazines. The project was also presented at several universities, both in Spain and Europe as well as in the American continent.

Between 2008 and 2012 contacts and collaboration agreements have been established with FOSS organisations, both at the local level (TRASNO, GalPON, AGNIX or TEGNIX) and at the international level (BROffice.org, responsible for the Brazilian version of the free office suite OpenOffice.org). As part of the collaboration agreements, a Galician version of the LibreOffice Writer Manual was prepared. The project involved three undergraduate students who acted as translators, one MA student who took on the revision task and two members of the GETLT group, who carried out a second revision. Finally, the whole translation was reviewed by a FOSS expert of TRASNO.

4. Current and future work

After closing the project in December 2010, current research activities of GETLT have continued to focus on the dissemination of FOSS within the field of translation, particularly at the research and training areas. As an example, at the time when this contribution was closed, work is being carried out on two particular areas: the preparation of a comprehensive user guide for the MinTrad distribution and the testing of the usability of free and open-source translation memories with different types of texts.

Regarding the distribution guide, reference chapters are being prepared for translation memories managers, for subtitle editors, and for localisation tools, together with a general guide for the use of the Operating System itself.

The usability test for translation memories concerns the applicability of translations memories in the specialised translation classroom. In particular, OmegaT, Anaphraseus and Bitext2tmx are being used to translate and align legal, business and scientific texts to generate comprehensive translation memories that can be then tested with similar texts. Some preliminary results of these tests were already presented at the I T3L Tradumàtica Conference held in Barcelona in 2011.

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