

In the driver's seat: Perceptions of control as indicators of language professionals' satisfaction with technologies in the workplace

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Introduction

Language technologies are continually improving and developing. However, technological advances are only one factor influencing users' satisfaction with technologies in their workplaces. At least since Martin Kay's (1980/1997) contemplation of "The Proper Place of Men and Machines in Language Translation," attention has focused both on the capabilities of computers and software applications (e.g. translation environment tools [TEnts], machine translation) and on the willingness of language professionals to share their activities with these and thus to give up a greater or lesser degree of control over their work. These two complementary facets of the integration of technologies into the language professional's workplace help determine the success of language technologies as working tools.

Two main avenues for investigating workplace integration of technologies have been explored. The first is the "objective" study of how technologies are changing the work and working environment of language professionals. These may include measures of the impact of technologies on factors such as productivity and required investments of time, effort and money, or the tracking of language professionals' day-to-day activities and in-depth analysis of their use of technologies, for example through eye-tracking, keystroke logging or screen recording (e.g. O'Brien 2006, Désilets et al. 2009, Massey and Ehrensberger-Dow 2011). Another focus—notoriously challenging to evaluate—is the quality of the product.

The second area is more user-focused: studies have recognized that technologies and their integration into working environments qualitatively affect users' attitudes and satisfaction. For example, Garcia (2006) and McBride (2009) collected evidence from a mailing list and discussion boards respectively to examine areas of satisfaction/dissatisfaction among translation memory (TM) system users. Taravella and Villeneuve (2011) described a case study of professional translators' reactions to the introduction of technologies in their workplaces, while LeBlanc (2012) shadowed and interviewed participants to examine their reactions to technologies in three working environments.

This paper aims to contribute to the study of language professionals' perceptions of their work and working environments, to complement objective measures, and to provide a general overview of more human factors. This includes evaluating perceptions of technologies among groups of language professionals with different backgrounds and in different working situations. It aims to complement and contextualize the in-depth observations from previous studies by providing a broader picture. The paper also concentrates specifically on users' perceptions of control over their work and environment.

The project emerged from observations of opposing points of view concerning technologies. The literature and marketing of technologies have revealed a number of valid yet often contradictory arguments for satisfaction/dissatisfaction. For example, a common marketing strategy for TEnts is that these tools increase productivity, allowing language professionals to translate more and thus earn more and allowing companies to reduce translation costs. Clearly, these two arguments may be in opposition. A productivity increase is not necessarily accompanied by higher income for language professionals, for example when productivity expectations also increase or clients expect discounts for TM segment matches (e.g. Cohen 2002). Language professionals' reactions to this may affect relationships with employers or clients. In addition, the language professional's productivity increase may be offset by the addition of tasks relating to the learning, management and updating of technologies, adding "non-core"—and possibly non-remunerated—tasks to the language professional's job description. Moreover, the "core" tasks may be changing: language technologies have revolutionized research methods, making greater quantities of data available and usable and even suggesting ready-made solutions. By sharing resources, language professionals can complement their own archives. However, clients may require professionals to use solutions from shared TM systems, either interactively or using hybrid "pretranslated" documents (which may be met with more or less enthusiasm) (e.g. Wallis 2006). Terminology management may vary with the availability and use of technologies and the changing nature of projects (e.g. Bowker 2011, Gómez Palou Allard 2012). Professionals may even be asked to post-edit machine translations (more or less thoroughly) rather than translating "from scratch" (TAUS 2010). Thus, technologies may affect the nature of the tasks and the methods used to perform them, and professionals' reactions to these effects on their work and the quality of the product will likely also vary. While vendors and many users laud the increased consistency and therefore quality of documents produced using technologies, others may feel constrained by using solutions originally intended for other contexts or chosen by other users, or may perceive undesirable risk in the potential for errors or inconsistencies due to insufficient critical thinking or revision (e.g. Bowker 2006). This phenomenon may be particularly significant when resources such as TMs and termbases are shared.

Differing viewpoints may thus exist between users of technologies in a range of areas, including users' control over

- a) amount of work done,
- b) types of tasks performed,
- c) quality of the result,
- d) working methods,
- e) relationships with employers and/or clients, and
- f) remuneration.

We believe that individual working environments may play a significant role in determining which perspectives will dominate, and thus ultimately affect the acceptance of language technologies.

This paper presents a pilot study and concentrates specifically on whether occupation, type of employment, years of experience in language professions, and collaboration with other professionals appear to influence perceptions of how technologies affect professionals' control over various specific

aspects of their work, and how these characteristics correlate with overall perceptions of the usefulness of technologies in language professions. It may thus assist developers, clients and employers in judging how their relations with language professionals can be optimized when integrating technologies, and help professionals to identify factors that may help them to make informed choices and improve their appreciation for and satisfaction with technologies in their work and working environment.

Methodology

The data presented were gathered from approximately 250 responses to an anonymous online survey in French and English carried out between February and April 2012. The survey was open to any language professional who had used language technologies in professional activities. The invitation to participate was distributed internationally to the researcher's professional contacts and via various electronic resources consulted by language professionals (e.g. discussion boards, mailing lists, Web sites, newsletters).

Of the responses, 177 were complete. Incomplete responses include those from respondents who skipped questions, as well as 28 responses from professionals who had never used language technologies in their professional activities and who were thus not eligible to complete the survey. Because some respondents completed only part of the questionnaire, and because some questions were open only to users who had given a specific response to a previous question, the total number of responses for each question varies.

The questionnaire first established respondent profiles: primary occupation, type of employment, years of experience in the field, and experience in collaborating with other professionals using technologies. Next, respondents were asked whether they felt that the use of technologies influenced their control over the factors listed above in their work and working environment.

If they perceived effects on their control, respondents were asked whether they felt that technologies' influence was positive or negative (i.e. whether they were more or less in control) and why. Finally, respondents were asked to provide general reactions by indicating whether they felt that technologies were assets or drawbacks for language professionals and which factors contributed to this evaluation.

This paper will compare the responses of various sub-groups of respondents: translators and others; freelancers and salaried employees; respondents with < 5 years' experience and with ≥ 5 years' experience; and respondents who typically did and did not share resources. The paper will report on which characteristics appear to correlate with perceptions of control over specific aspects of the work and working environment and with overall attitudes.

Comparisons were carried out initially by identifying apparent variations in the proportions of responses among the various sub-groups of respondents, which were then tested for statistical significance using a chi-square (χ^2) test, where applicable. Differences were considered to be statistically significant when the corresponding p value was less than 0.05.

Some limitations

Readers should consider that the respondent sample is fairly small and, as the survey was administered anonymously online, a response rate cannot be calculated; representativity cannot be guaranteed. In particular, these statistics were gathered almost entirely from current users of technologies, with only 22 former users. Non-users of technologies are not represented and constitute an important focus for future work. This discussion also concentrates, for reasons of space, on statistically significant differences observed. Additional data could ultimately reveal more relevant differences.

Results and discussion

Approximately 61%¹ of the 229 respondents indicated that they were primarily translators, 7% editors/revisers, 4% terminologists, 3% interpreters, and 2% writers/technical writers. Another 18% were in another language profession and 4% in a non-language profession.² Of 228 respondents, 58% were freelance workers, 28% salaried, 9% salaried and freelance, 4% students, and 1% in another situation. A striking 73% of the 229 respondents reported having more than 10 years of experience in language professions. Another 14% reported 6 to 10 years, 9% 2 to 5 years, and only 3% less than 2 years of experience. Among 182 respondents, 69% had used language technologies to collaborate with other language professionals; of those 125, 22% were nevertheless typically sole users of resources such as TMs and termbases, while 15% shared with one other user, 28% with 2 to 5 other users, 12% with 6 to 10 other users, and 23% with more than 10 other users.

The variety in respondents' background and working environment may help to highlight potential sources of differences in their reactions to technologies. Of course, some associations between characteristics are to be expected; unfortunately, a detailed analysis of these relationships is beyond the scope of this paper.

Overall perceptions of technologies' usefulness

Not surprisingly, as respondents were almost exclusively current users of technologies, at least two-thirds expressed a positive attitude towards language technologies, considering them to be assets or overall assets (with some drawbacks) for language professionals (Table 1). Much smaller proportions (8-24%) of the various sub-groups of respondents were more neutral, considering that technologies were both assets in some ways and hindrances in others. Only small and fairly consistent proportions, varying from 4 to 7%, felt that technologies were hindrances or overall hindrances (with some advantages). Only 2% or less in each sub-group responded that they did not know how they felt about technologies. No significant variation was noted in the evaluations of technologies between translators and non-translators, more or less experienced professionals, and freelancers and salaried workers.

¹ Because of rounding, percentages may not total 100.

² The survey did not require that respondents' current primary occupation be language-related.

	Total	Assets or overall assets	Both assets and hindrances	Hindrances or overall hindrances	Don't know
Translators	111 ³	73%	20%	6%	1%
Non-translators	65	82%	12%	5%	2%
0-5 years' experience	26	88%	8%	4%	0%
6+ years' experience	150	74%	19%	6%	1%
Freelancers	101	74%	18%	7%	1%
Salaried workers ⁴	51	80%	14%	4%	2%
Resource-sharers	92	83%	11%	7%	0%
Non-sharers of resources	83	67%	24%	6%	2%

Table 1. Do you feel that language technologies overall are assets to language professionals?

However, those who did not share resources were much more often neutral about the benefits of technologies than those who shared resources. In fact, the former were the least enthusiastic about technologies overall, with only two-thirds of the respondents indicating a positive evaluation, and almost one-quarter neutral. When compared with the 83% of resource sharers who indicated a positive attitude and only 11% who were neutral, the difference is significant ($\chi^2 [3, N = 175] = 8.013, p < 0.05$). This suggests that the sharing of resources such as TMs and termbases is likely to play a role in encouraging users to view the positive aspects of language technologies. The relatively recent appearance of standards⁵ designed in part to make it easier to share and exchange these resources, and of resource-sharing initiatives,⁶ already reflect an awareness of the benefits of collaboration.

Amount of work, tasks and methods

No significant difference between groups was noted, either in the proportion of respondents who perceived an effect or in the nature of this effect, in questions concerning respondents' control over the amount of work that they do, the types of tasks that they perform, and the working methods used to perform these tasks.

Overall, when asked whether they felt that the use of technologies affected their control over the amount of work performed, just over two-thirds of the respondents felt that it did, while just slightly more than half of the remaining respondents felt that their control was not affected and the others felt unsure. Among those who felt that their control over the amount of work they did was affected by the use of technologies, the perceptions were quite positive, with approximately three-quarters of respondents overall responding that they were more in control, while approximately a quarter felt less in control.

³ As not all respondents answered every question, the number of responses may vary between questions.

⁴ Because of small group size, the figures for mixed salaried and freelance workers (15) and those in other employment situations (8) are not shown in the table.

⁵ For example, Translation Memory eXchange (TMX) and TermBase eXchange (TBX) Standards: <<http://www.gala-global.org/lisa-oscar-standards>> (Consulted 12 November 2012)

⁶ For example, TAUS Data Association <<http://www.tausdata.org/>> and the European Commission Joint Research Centre resources <<http://ipsc.jrc.ec.europa.eu/?id=61>> (Consulted 12 November 2012)

When asked about technologies' effect on their control over the types of tasks they accomplish, approximately half of the respondents indicated that they perceived an effect, about one third did not and the remainder were unsure. Although the impact was thus not as pronounced as that on users' control over the amount of work, there is evidence that some users' tasks are changing. Non-translators cited some of the same factors as translators in their explanations: re-use of existing materials, handing off of some tasks to technologies, and adjustment of working methods and workflows as required by the tools. Salaried respondents commented on factors such as the re-use of solutions from TMs (theirs or others') and the adjustment of workflows, while some freelancers noted not only the re-use and easy access to materials but also the need to manage technological tasks and problems and more intensive revision requirements as compared to original translations. The proportions who felt that they were more and less in control of their tasks remained relatively steady with between approximately two-thirds and three-quarters of respondents feeling more in control. This suggests fairly positive perceptions in a variety of working environments, although a considerable proportion of all of the sub-groups did express dissatisfaction with their control over their tasks, for example with the change from translation- to revision-related tasks.

A fairly consistent two-thirds of the various sub-groups of respondents indicated that they felt that their control over working methods was being influenced by the use of technologies. The translators tended to identify reasons such as improved planning, workflow and research options as elements that increased their control, while rigid workflow and segmentation contributed to decreases in control. For non-translators, workflow and the need to use clients' tools were also found to reduce control over working methods, while the ease of comprehensive research and organization were considered to enhance control. The proportions of those feeling more and less in control were relatively similar for all of the sub-groups, with between half and two-thirds of the respondents perceiving a gain in control.

Control over the quality of work

Increased quality is one frequently promoted advantage of using language technologies, and the respondents very commonly felt that technologies contributed to their control over the quality of their work. The vast majority of respondents from the various sub-groups (generally 80% or more) who perceived an effect on their control over quality also largely agreed on the nature of this effect, with approximately three-quarters feeling more in control, due for example to the availability of quality assurance tools and the expected increase in consistency in documents produced. Those who felt less in control mentioned factors such as feeling forced to re-use inadequate or inappropriate solutions, time pressures, and problems relating to segmentation of texts.

	Total	Yes	No	Don't know	Total	More	Less
Resource-sharers	95	89%	8%	2%	85	73%	27%
Non-sharers of resources	83	76%	19%	5%	63	73%	27%

Table 2. Do you feel that the use of language technologies affects how much control you have over the quality of work that you do?

Between the sub-groups, the only apparent difference was observed between those who did and did not share resources, with a very high proportion (89%) of those who shared feeling that their control was affected (Table 2). Interestingly, the proportions of users who felt more and less in control remained relatively comparable to those in other sub-groups, as did the reasons given for these perceptions. No significant difference between these two groups was found, although a strong trend was noted ($\chi^2 [2, N = 178] = 5.821, p = 0.054$), suggesting that further investigation in a larger sample might reveal a link between collaboration and perceptions of improved quality.

Control over relationships with clients/employers

Only approximately half of the respondents felt that the use of technologies affected their control over relationships with clients and/or employers, and those who did perceive an influence were generally fairly evenly divided into groups feeling more and less in control (Table 3). These results indicate that this aspect is a quite dynamic one, in which the observation of influencing factors may be particularly relevant. The contrast between translators and others is unusual, in that the proportion of those who perceived an influence remained fairly consistent, and it was the proportions of those who perceived no influence and those who were not sure that varied. The difference between the sub-groups was significant ($\chi^2 [2, N = 177] = 6.174, p < 0.05$).

	Total	Yes	No	Don't know	Total	More	Less
Translators	112	49%	38%	13%	55	44%	56%
Non-translators	65	46%	26%	28%	30	70%	30%
0-5 years' experience	26	46%	27%	27%	12	58%	42%
6+ years' experience	151	48%	34%	17%	73	52%	48%
Freelancers	101	51%	36%	13%	52	48%	52%
Salaried workers	51	41%	37%	22%	21	67%	33%
Resource-sharers	93	58%	28%	14%	54	56%	44%
Non-sharers of resources	83	37%	41%	22%	31	48%	52%

Table 3. Do you feel that the use of language technologies affects how much control you have in your relationships with client(s) and/or employer(s)?

These are not the only striking differences in the data. The proportion of respondents who perceived an influence on their control over client/employer relationships was remarkably different among those who did and did not share resources, with almost 60% of those who did share feeling that their control was affected, compared to less than 40% of those who did not share. Among those who did perceive an effect, however, the difference was less pronounced, with just slightly more resource-sharers feeling more in control, and slightly more non-sharers feeling less in control. The difference between the two categories in perceiving an effect is significant ($\chi^2 [2, N = 176] = 7.553, p < 0.05$), although the difference in the nature of the perception is not.

A significant difference was also observed ($\chi^2 [1, N = 85] = 4.409, p < 0.05$) in the nature of effects perceived by translators and non-translators. Just under 45% of the translators felt more in control, often because of improved communication and discussion of solutions, quality and time management.

Perceptions of reduced control often resulted from having to re-use solutions, to use specific tools and to offer discounts for TM matches. In contrast, 70% of the non-translators felt more in control, for example because of clients' appreciation for their technology skills and the ability to justify choices based on empirical data.

Control over remuneration

It is in the area of control over remuneration that most variation was observed, with approximately 50% of the respondents overall indicating that they felt that the use of technologies affected their control (Table 4). Striking variations were observed between almost all of the sub-group pairs, highlighting the relevance of working environment and user profile in the perception of effects in this area. It is nevertheless relevant that the proportions of respondents perceiving increased and decreased control overall tended to remain fairly evenly split. Experienced professionals, freelancers and translators appeared more likely to perceive an effect on their control over their remuneration, and moreover to feel that they were less in control.

	Total	Yes	No	Don't know	Total	More	Less
Translators	112	62%	27%	12%	69	43%	57%
Non-translators	65	31%	35%	34%	20	55%	45%
0-5 years' experience	26	23%	46%	31%	6	67%	33%
6+ years' experience	151	55%	27%	18%	83	45%	55%
Freelancers	101	64%	25%	11%	65	42%	58%
Salaried workers	51	29%	41%	29%	15	60%	40%
Resource-sharers	93	56%	25%	19%	52	50%	50%
Non-sharers of resources	83	46%	36%	18%	38	39%	61%

Table 4. Do you feel that the use of language technologies affects how much control you have over your remuneration for your work?

The difference between the groups of freelance, salaried, mixed and other employee types in the proportion of respondents perceiving an effect on their control was significant ($\chi^2 [6, N = 176] = 23.174, p < 0.01$).⁷ A significant difference was also noted between more and less experienced professionals ($\chi^2 [2, N = 177] = 9.024, p < 0.5$) and between translators and other professionals ($\chi^2 [2, N = 177] = 19.082, p < 0.001$).

Loss of control was noted particularly among experienced freelance translators, who largely explained their reactions by referring to the imposition of discounts for the re-use of solutions from TMs (although others indicated productivity gains and better time management were positive influences).

⁷ This calculation took into account the proportions of respondents who did both freelance and salaried work (16) and other worker types (8), but the most relevant and significant differences occurred between the freelance and salaried employees shown in the table.

Comparison with priorities in evaluating technologies

The variations above can be contrasted with how important the sub-groups of respondents considered technologies' effects over their control over various aspects of their work and working environment to be when evaluating technologies' usefulness (Table 5).⁸

	Total	Amount	Tasks	Quality	Methods	Relations	Remuneration
Translators	111	67%	42%	82%	57% ⁹	26%	37%
Non-translators	65	68%	49%	85%	71%	35%	26%
0-5 years' experience	26	81%	42%	81%	62%	35%	15%
6+ years' experience	150	65%	45%	83%	62%	29%	36%
Freelancers	101	63%	46%	84%	58%	30%	39%
Salaried workers	51	75%	51%	80%	69%	31%	25%
Resource-sharers	92	70%	48%	90%	76%	34%	38%
Non-sharers of resources	83	64%	42%	75%	47%	27%	29%

Table 5. Factors considered important in evaluating technologies (percentages of respondents who considered control over these factors to be important)

Some overall trends help to suggest why evaluations of technologies' usefulness were consistently positive despite the ambivalence of respondents concerning certain effects on control over factors such as client/employer relations and remuneration. The highest priority was accorded to product quality in all sub-groups, with little variation aside from an even more pronounced focus on the role of quality among those who shared resources. The second key area of concern was the effect on control over the amount of work done, and this appeared to be particularly important for the less experienced professionals (who are likely to still be developing their knowledge and skills, and thus may particularly appreciate the aid to productivity). Somewhat unexpectedly, the proportion of respondents concerned with control over the amount of work done was also higher among the salaried respondents than the freelancers, perhaps reflecting production quotas imposed by employers. The same was true in the next most highly ranked category, control over working methods, but even greater discrepancies were observed between translators and non-translators (with the non-translators more concerned with control over methods), and the greatest gap between those who shared resources, who were very likely to be concerned with working methods, and those who did not share, who appeared much less likely to be concerned with this factor. Little pronounced variation between subgroups was observed in the proportions for the next two factors in the ranking: the tasks performed and the relationships with clients and/or employers (despite the variation observed in the perceptions of control over this latter factor). The relatively low importance accorded to the effect of technologies on control over client/employer relations and also remuneration no doubt helps to explain the positive attitudes towards technologies despite the considerable ambivalence in these areas. However, it is relevant to note the variation observed between a number of groups as regards control over remuneration, with a greater number of translators, freelancers and more experienced professionals (approximately one-third of the respondents in the sub-groups) finding this issue important than their non-translator, salaried and less experienced counterparts (approximately one-quarter of the respondents). Perhaps it is not

⁸ The chi-square test is not appropriate here as the categories of responses are not distinct; users were able to choose more than one option. The comparison of the proportions is thus used indicatively.

⁹ Differences of more than 10% have been indicated in bold.

surprising that those who tended to feel a loss of control in this area also were more likely to feel that this factor was relevant, but this does reflect some (admittedly non-significant) variation in the overall attitudes towards technologies, and emphasizes the importance of dealing with this dissatisfaction in order for established, experienced professionals to achieve a better working environment.

Concluding remarks

In this small but varied sample of language professionals who use or have used technologies in their professional activities, we can observe that language professionals who perceive an effect on their control over their work and working environment as a result of technologies tend to feel more rather than less in control in many important areas of their work, and this is consistent with the fact that these users of technologies overall view these technologies as assets in their work.

We can also observe both similarities and differences in perceptions of control over the work and working environment among sub-groups of respondents. It is clear that overall perceptions of technologies in all of the sub-groups analyzed are quite positive. However, it is also evident that in almost all of the specific areas analyzed there is scope for opposing points of view concerning both the presence of an effect of technology use on control over the work and working environment and the positive or negative nature of this effect. This helps to highlight the necessity of encouraging stakeholders to be aware of the potential effects of technologies and to take steps to reduce the drawbacks and maximize the benefits.

This task involves being aware of various aspects of the professionals' profiles and working environments and the roles they may play in influencing perceptions of technologies. The significant differences noted may provide a basis for discussions. Most of these were related to control over client relations and remuneration. It is particularly relevant that the factors most linked to the loss of control among experienced freelance translators appear to be related not to the inevitable effects of technology use (the need to learn to use tools and to manage resources, to adapt working methods and workflows) or to the amount or quality of work done, but rather to human factors and policies in tools' implementation. Although client relations can be strengthened by factors such as better communication, and tools help to increase productivity, the imposition of specific tools and discount schemes, along with the obligation to re-use solutions from resources, lead many respondents to feel they are less in control of their work. A number of respondents noted that they now choose or refuse clients in part based on such policies. Although this dissatisfaction appears to be largely outweighed by other benefits in the overall evaluation of technologies' usefulness, sensitivity to this phenomenon may help to improve relations between clients and language professionals, and specifically experienced freelance translators.

The significant association between the (quite common) sharing of TMs, termbases and other resources and the positive view of the usefulness of technologies provides encouraging feedback on recent initiatives to promote resource sharing. It also, however, emphasizes the importance of implementing professional practices that will facilitate this sharing. Moreover, it highlights the importance of updating technology components in the education of translators and other language professionals, to ensure that

they are exposed to the full benefits of technologies and acquire the skills required to share resources effectively.

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