The place of screen recording in process-oriented translator training

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ABSTRACT

This paper explores the utilization of screen recording as a learner-centered methodology aimed at fostering the translator’s problem awareness and problem solving capacities. Along with keystroke logging and eye-tracking, screen recording is generally held in high regard within the research community as an unobtrusive tool geared towards the documentation and empirical analysis of translator behavior, such as decision-making and strategy execution. Of the three, only keystroke logging has consistently made its way from the research lab into the classroom for training student self-awareness of comprehension, transfer and production processes (cf. Alves 2005; Göpferich 2009; Hansen 2006a, 2006b; Jakobsen 1999; Lee-Jahnke 2005). Here, we will provide a brief overview of some of the preferred methods of process-oriented translator training to date, followed by a discussion of how screen recording fits into the bigger picture. Finally, we will outline a series of concrete problem awareness training activities in which students critically analyze their own screen recordings, both in isolation and in conjunction with comparable screen recordings produced by professional translators working with the same texts.

1. AN OVERVIEW OF PROCESS-ORIENTED TRANSLATOR TRAINING

Instead of approaching process-oriented training from the perspective of a single definition, we feel it is more conducive to elaborate on what it sets out to accomplish, namely, the enhancement of process knowledge (Shreve 2009). This
involves efficacy in monitoring one's progress when completing a task, evaluating one's performance, and keeping problems at bay as they arise. One of the primary objectives of process-oriented translator training involves honing the student's metacognition, or conscious, heightened, and strategic awareness of how one translates. In terms of concrete learning outcomes, students should be able to more successfully recognize problems, delineate their scope and nature, and ultimately understand how to best go about solving them. Early advocates of such performance-analytic training include Jääskeläinen (1990), Lörscher (1991), Gile (1994), and Kussmaul (1995).

Despite process-oriented training’s existence in translation pedagogy for the past thirty years, training today still tends to be biased in the direction of the final product, or, more specifically, the quality of the final product, thereby neglecting the processes going into its creation (Dam-Jensen & Heine 2009: 1). In predominantly product-oriented training environments, translation students are guided to see where errors were made and the types of errors made, but are often not encouraged to re-examine their own decisions, strategies, and behaviors that likely led to the errors in the first place. Furthermore, recent studies have indicated that student problem reporting often lacks detail (Göpferich 2008: 36), pointing towards shallow understanding of the nature and scope of problems encountered. Professional translators, on the other hand, seem to have a more firmly established capacity for recognizing cues in the text that indicate translation difficulty (Shreve 2002) and tend to exhibit strategic problem solving behavior more frequently and successfully than students (Angelone 2010; Angelone & Shreve 2011). Even when students recognize that a problem has in fact occurred, they are likely less cognizant than professionals as to what might be triggering it. Ultimately, due to faulty problem recognition and delineation, what students assume to be problematic often really is not, and, even worse, what really is problematic often goes unnoticed.

As trainers, we need to get our students to become better aware of the problems they encounter, or, as proposed by Dam-Jensen and Heine, “see themselves not only as learners, but also as thinkers and problem solvers” (2009: 1). This is where screen recording holds great potential, providing learners with real-time audio-visual documentation of their translation behavior and overall performance from both process- and product-oriented perspectives. Screen recordings render problems encountered in the form of observable indicators, such as extended pauses in screen activity, information retrieval from various computer-based resources, and revision behavior. We will illustrate these notions in greater detail over the course of this paper, but first we will review some of the most influential process-oriented training methodologies to date.

2. Process-oriented training methodologies

2.1 Integrated Problem and Decision Reporting

One of the pioneers of process-oriented translator training is Daniel Gile, who introduced the Integrated Problem and Decision Reporting (IPDR) model over
thirty years ago (2004: 3). Students are asked to keep a running log of problems encountered while translating, the steps taken to solve them, and their rationale for doing so. Having students report on problems and decisions over the course of a translation stimulates focused attention on the salient features of the task. Focused attention, in turn, may help the translator become aware of certain patterns in problem areas, as defined by a particular textual level (e.g. lexis, collocation, syntax, cohesion) and a particular locus, namely comprehension, transfer, or production. Over the years, IPDR has become a commonly-used pedagogical activity among trainers dedicated to enhancing process awareness. Figure 1 provides an excerpt from a student’s IPDR log. The text to be translated (German into English) was a résumé. Students submitted their logs along with a draft version of the target text, and both were then discussed in tandem in class.

The IPDR model is particularly ideal in a heterogeneous training environment, where students bring different levels of language proficiency, levels of experience, and background knowledge, as each log is personalized according to the needs and behaviors of the individual learner. Through IPDR logs, learner autonomy is at the fore, as are opportunities for more targeted feedback from the trainer.

One of the potential drawbacks of IPDR is the assumption that students are in fact consciously aware of the problems they encounter in translation to the extent that they can accurately report on them. For example, a student might report a lexical problem (at the one-word level) when in reality the problem was more at the collocational level. A second drawback involves requiring students to break away from the translation task at hand to document their problems, strategies, and rationales. It is necessary to have them do so since this information would likely no longer be in their working memory if entry is postponed until post-task completion. Nevertheless, the natural “cognitive flow” of translation is likely to be interrupted if reporting is concurrent with translation. Despite these two inherent issues, Gile’s model is to be lauded, as it is, in essence, the first of its kind when it comes to problem-awareness training activities.

<table>
<thead>
<tr>
<th>Problem encountered</th>
<th>Strategy used</th>
<th>Rationale for doing so</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leben slauf appears at the top of the ST.</td>
<td>I left this out of the translation.</td>
<td>TL parallel texts suggest that this isn’t used as the opening to a U.S. EN-language résumé.</td>
</tr>
<tr>
<td>Abschluss: Dipl.-Kaufmann</td>
<td>Explicitation used; MBA equivalent</td>
<td>Culture/univ. system-specific degree; If the person is applying for a job in the U.S., additional information is needed to obtain equivalence.</td>
</tr>
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<td>...</td>
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**Figure 1.** A translation log excerpt in conjunction with an IPDR task.
2.2 Retrospection with Replay and Immediate Dialogue

Aware of the potential dangers in assuming students are capable of reporting on their problems, Gyde Hansen designed the Retrospection with Replay and Immediate Dialogue (R+Rp+ID) model, which makes use of the Translog software application to capture all of the student's keystroke, pause, and revision behavior during the translation process. This is then saved as a file that can be re-played and analyzed post-task. With R+Rp+ID, the bulk of problem awareness training takes place in the form of a dialogic retrospective session. Students are asked to reflect on thought processes, problems, and strategies employed when SDs (sources of disturbance, Hansen 2006a: 2) appear in protocols documenting their performance. SDs include such indicators as extended pauses, deletions, revisions, and cursor repositioning. It is important to note here that an SD is not a problem per se, but rather an indicator of heightened cognitive awareness in a general sense. When students have the opportunity to focus on such episodes of heightened cognitive awareness, as opposed to exclusively on errors in a more restricted sense, they are encouraged to reflect not only on what went wrong, but also on what went right in translation. The role of the trainer is to ask targeted questions so that students reflect critically on problems encountered and strategies that were or could have been employed to avoid errors.

Unlike an IPDR task, R+Rp+ID does not ask the student to reflect on and document problems concurrently with translation, thereby mitigating interruption in natural flow. That being said, it is crucial for the retrospective session to immediately follow translation so that the processes are still relatively fresh in the student's working memory and retrievable for analysis. Figure 2 provides the screenshot of a keystroke log containing multiple sources of disturbance. Each asterisk represents a three second pause. The mouse icon represents a mouse click. Arrowed boxes containing an 'x' represent deletions.

*Figure 2. SDs in a keystroke log file*

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1 See www.translog.dk for additional information on this product and its applications in cognitive process research.
In terms of concrete R+Rp+ID learning activities, students could be asked to closely examine the distribution and duration of extended pauses as potential indicators of problems. In Figure 2, for example, a nine-second pause precedes ‘immense plain’, potentially indicating some sort of transfer or production problem at the collocation level. Without having access to such a protocol, the student may assume, from intuition and memory, that the translation of the Spanish adjective ‘inmenso’ posed problems. In fact, ‘immense’, as found in the student’s TT, is a valid English equivalent. The heart of the problem here is at the collocation level, in that ‘vast plain’ would serve as a stronger collocation than ‘immense plain’ in this context.

2.3 EYE-TRACKING APPROACHES

As a methodology for exploring cognitive processes in translation, eye-tracking rests on the eye-mind assumption (Just and Carpenter 1980), positing that eye movements reflect cognitive effort and attention. Unlike keystroke logging, eye-tracking has yet to make its way into the translator training arena. However, it has become a standard methodology in translation process research, used recently to explore such phenomena as coordination of reading and writing processes (Dragsted 2010), the impact of time pressure and textual complexity on visual attention (Jakobsen & Jensen 2008), and translation memory processing (O’Brien 2007).

Eye-tracking is an unobtrusive methodology for capturing visual attention, or what the translator looks at on the screen (fixation points), for how long (fixation durations), and in what sequence (saccades connecting fixation points). Figure 3 renders a student’s gaze plot, showing all fixation points and saccades occurring during the course of a sight translation activity. Figure 4 provides a student’s heat map, documenting the areas on the screen (here within the ST) looked at most based on the longest fixation durations. The brighter areas re-
present “warmer” colors, or areas looked at longer. The darker areas represent “cooler” colors, or areas looked at more briefly.

In the future, eye-tracking research will likely be extended in more of a pedagogical direction. For example, longer fixation durations might signal problem areas in translation. Self-analysis of gaze plots and heat maps could therefore be utilized as a point of departure in problem recognition training. Eye-tracking software also allows for the creation of a collective heat map, rendering the gaze duration patterns in a given text for the class as a whole. Analysis of such collective heat maps can provide the trainer with empirical evidence of textual properties that proved to be challenging or problematic for multiple students.

Although eye tracking technology has come a long way in recent years, its price, highly complex data output, and dependency on the presence of someone to calibrate pupils and load viewing stimuli have impeded a smooth transition from the lab into the classroom. Unlike Translog and BB Flashback Express (screen recording software to be discussed below), eye-tracking technology cannot be downloaded as a software application and installed on any given computer. Instead, cameras are built in to a specialized monitor that costs upwards of 40,000 US dollars. This certainly is not the type of tool that students could work with at home on their own time, and it does not offer the same opportunities for self-regulated learning that keystroke logging and screen recording do thanks to their relative portability. The pedagogical impracticality of eye-tracking should by no means undermine its robustness as a powerful research methodology for analyzing cognitive processes in translation.

2.4 Screen recording approaches

The remainder of this paper will focus on screen recording as a pedagogical tool in translator training. Screen recording software, downloadable onto

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2 Current price for the Tobii eye-tracking monitor, the tool of choice in eye-tracking research in translation.
3 For example, BB Flashback Express: www.bbsoftware.co.uk.
practically any computer, records an avi-file of all on-screen activity during the course of a translation task. In other words, anything the translator does on the screen is recorded by an unobtrusive application running in the background. Like keystroke log files, screen recording videos can be played back and closely analyzed post task completion.

With screen recording, trainers and trainees can directly observe the locus and manner of look-ups, particularly in conjunction with sources of disturbance. Students have a direct window into the problems they encountered, rendered via pauses in screen activity, deletion and revision behavior, direct or indirect articulation in corresponding audio data (if screen recording co-occurs with thinking aloud), and online information retrieval. More importantly, they have visual access to the strategies executed (or not) in response to the problems, and can reflect on the following: Was problem solving successful or faulty? Were problems even recognized in the first place (i.e., did sources of disturbance co-occur with errors as indicated in the translation product)? Were reliable resources utilized? Did the textual level of the error match the textual level of information retrieval? These are the types of questions that could either be addressed during a trainer-guided retrospective session or by the students on their own.

Relatively little has been written to date on screen recording applications in translation. Dam-Jensen and Heine discuss screen recording in the context of a general overview of how all of the aforementioned methodologies can be integrated in process awareness training. They recommend having students reflect on a maximum of 15-20 minutes worth of screen recording content so not to overtax their retrospection capacities (Dam-Jensen & Heine 2009: 16). They also feel that screen recording files may be too complex for students to analyze on their own without trainer guidance. While we fully agree with the need for initial guidance, we feel that basic problem awareness training using screen recording can ultimately take the form of student-driven, autonomous learning and serve as a fundamental component of a process-oriented translator training curriculum. Anthony Pym is one of the early proponents of basic screen recording for translator training. He utilized it to have his students become better acquainted with their personalized translator style and workflow tendencies by having them determine how many seconds they spent on 1) documentation (web searches and information retrieval), 2) translation/drafting, and 3) revision (Pym 2009: 144). Pym also had his students examine changes in screen activity reflecting their comprehension, translation, and revision patterns under time pressure, an important variable in the world of professional translation and often underestimated in training contexts.

We strongly feel that screen recording, thanks to its user-friendliness and preservation of ecological validity, offers the greatest potential of the three methodologies presented in this paper as a pedagogical tool for process-oriented translator training. It provides students with the ‘freedom’ to translate naturally, using all computer-based resources they normally would in their unique translation environments. The real-time, visual rendition of translation made possible by screen recording reduces the student’s dependency on a trainer to help make sense of complicated forms of data. Students can quickly grasp what
to look for in their videos and become more autonomous learners. In the next section of this paper, we will present a series of process-oriented training activities using screen recording. In each, students either self-reflect on their own processes or on those of professional translators engaged in the same tasks.

3. Screen recording activities for training problem awareness

The screen recording data described in these activities was generated by two students in the first semester of the M.A. in Translation program at Kent State University and two professionals with over ten years of experience as full-time translators. They were asked to think aloud while translating a 70-word excerpt from a travel guide for the North Sea island of Borkum from German into English. Hence, problem recognition and problem solving tendencies were triangulated using a dual methodology of screen recording and concurrent verbalization. Upon task completion, the translations were graded and errors in the respective target texts were marked up. As a follow-up learning activity, the students were then told to critically examine screen activity for indication of source text miscomprehension, faulty look-up strategies, or complete lack of cognizance that a problem had occurred for each documented error. They were also asked to critically analyze the screen recordings of professionals, making note of information retrieval strategies, immediate post-pause behavior, and effective problem solving tendencies in a general sense.

3.1 First activity: Analysis of information retrieval efficacy (or lack thereof)

This activity involves a student reflecting on his own work. Many of the errors in the student’s translation product strongly suggested word-for-word translation. The student insisted that he was translating in chunks at the collocation level and he could not understand why such errors were occurring. His screen recording shows that while accessing various online bilingual dictionaries, he kept verbally repeating the two-word collocations causing problems, but then entered each word independently in the search query box when retrieving TL equivalents. The student then spent a one-minute span reviewing TL equivalents for the two words in isolation, and ultimately encoded a faulty collocation. Interestingly, he was unhappy with this solution and the recording captures him saying: “This is no good, but I will come back to it later”. Unfortunately, he never did. Having him sit down and watch the video revealed two important phenomena that would have otherwise gone unnoticed: 1) there was no denying the fact that he was translating at the word level, and 2) there was no extensive holistic evaluation of the TT upon completion of the task. New-found problem awareness through screen recording will hopefully catalyze heightened attention to these issues in the future. Figure 5 provides a series of screen shots from the student’s screen recording indicative of word-for-word translation. The problematic collocation here was ‘aktiv erholen’ (EN: ‘active relaxation’):
Figure 5. Word-for-word translation and problematic information retrieval
3.2 Second activity: Analysis of immediate post-pause activity

This activity involves the students closely analyzing the screen recordings of professional translators, making note of the screen activity and articulations immediately following extended pauses as indicators of heightened cognitive awareness and strategy execution. In the example illustrated here, an extended pause occurred when the translator encountered the ST collocation ‘tanken Sie Energie’ (En: recharge your batteries). When encountering this same collocation, both students quickly turned to bilingual dictionaries for assistance in an attempt to retrieve one-word equivalents for the collocation’s two constituents, leading to awkward TL constructs. When watching the screen activity of the professional, the students see a 30-second pause in screen activity post problem recognition, indicated via direct articulation. Rather than turning to online resources as a post-pause default strategy, the professional instead deverbalized and proposed a series of target language solutions, rendered as follows: “re- something, rejuvenate... o...recover, re-something...recharge your batteries...there you go”. The professional successfully engaged in solution generation, followed by solution evaluation, and ultimately solution encoding without once turning to online resources for external support. Many online dictionaries would not even propose “recharge your batteries” as a collocation equivalent. Putting external information retrieval on hold and instead working through the problem mentally turned out to be an effective, time-saving strategy. The professional's problem solving took only 20 seconds, in comparison to the (faulty) student problem solving described in the first activity, where 1.5 minutes were needed before encoding an incorrect TL equivalent for a collocation. In retrospect, the student was bogged down by extensive dictionary usage whereas the professional trusted her instincts.
3.3 Third activity: Analysis of the textual level of problem solving

Here, once again, the students are asked to closely analyze the professional translator screen recordings, this time focusing on the textual level of information retrieval. In this case, the professional encountered a difficult ST term, ‘Aerosole’, which one might assume could be translated as ‘aerosoles’. However, as the professional’s verbalizations note, the term ‘aerosole’ tends to take on a negative connotation in English, semantically linked with environmental pollution – not exactly appealing in a travel guide. Rather than turning to technical glossaries, the professional instead, after saying “what is the author trying to say here”, focused on the air in which the aerosol is contained. Using Google, she entered a string of thematically-related search words (Borkum+air+aerosol) in retrieving SL and TL parallel texts that describe the air on Borkum as being a fresh particulate mist. Figure 6 offers a series of screen shots exhibiting this strategy. Like the professional described in the second activity, here too the translator engaged in deverbalization to transfer the connotative meaning and author intent. Neither of the students utilized multi-keyword searching in retrieving a TL semantic and connotative equivalent for the problematic term, instead “forcing” the awkward cognate.

Figure 6. Multi-keyword information retrieval for a term based on semantic properties
4. Conclusion

Translation trainers interested in enhancing the process awareness of their students have often found themselves wondering how the powerful tools talked about in the context of process-oriented research can be made adaptable for the classroom. Eye-tracking is far from being classroom-ready. The plethora of complex data would run the risk of overwhelming the students (let alone the trainers!). Keystroke logging holds greater pedagogical promise and, like screen recording applications, is available for free. This likely explains why keystroke logging has become a methodology of choice in process-oriented translator training.

So what does screen recording offer that keystroke logging does not and how can screen recording complement keystroke logging in providing students with a more holistic picture of their processes and behaviors? We feel its greatest strength lies in its capacity to play back translation phenomena in a highly visual manner, in essence mirroring the actual task. Students can see exactly what they saw on the screen while translating, from the problems encountered and the resources utilized to the ebbs and flows of target text generation. Screen recording poses practically no restrictions on which resources can be utilized and students do not find themselves in an undesirable position of having to decipher abstract data in an unfamiliar user interface. Restrictions are kept to a
minimum, from the perspectives of cost, what can be done on the computer during video capture, and, most importantly, who can make sense of the data. In process-oriented translator training, screen recording has the potential to lead the way in ultimately ushering in a similar spirit of triangulation as found in the research community, with students taking charge of their learning through tool-enabled problem awareness.
References


