Journal of Translation Studies 9(1) (2006), 27–42

The Deliberate Practice: Translation and Expertise

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Abstract

The field of expertise studies in cognitive psychology proposes that expert performance in cognitive skill domains such as chess, computer programming, or systems analysis is enabled by distinctive cognitive resources that allow "consistently superior performance on a specified set of representative tasks for the domain that can be administered to any subject" (Ericsson and Charness 1997). These resources are accumulated within the framework of deliberate practice, engagement in regular activities that are specially designed to improve performance. The cognitive resources that underlie expertise arise from the operation of pattern recognition, problem representation, "chunking", schematization and knowledge proceduralization processes on the contents of episodic memory over long periods of deliberate practice. The cognitive changes that characterize expertise are held to be consistent across domains. If this is the case, we should expect translation experts to exhibit some of the same cognitive characteristics as experts in other fields. We should be able to both identify and quantify cases of deliberate translation practice and record their effects. Research methods used in expertise studies to verify claims of cognitive changes during novice to expert development should be replicable in translation research. Looking at the expertise studies literature and its findings could provide new directions for research for those interested in translation competence and its relationship to the poorly defined notion of translation expertise. Thus, this paper proposes a theoretical framework for situating translation expertise within empirical translation studies.

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Published by The Chinese University Press, ISSN 1027-7978.

1. Introduction

An individual performing a translation task brings a certain organization and array of cognitive resources to bear. Using the terminology of translation studies, we could refer to these multiple translation-relevant cognitive resources as *translation competence*. From a cognitive perspective, competence could be seen as declarative and procedural knowledge from a variety of cognitive domains accumulated through training and experience and then stored and organized in a translator's long-term memory. As a translator performs translation tasks over time and accumulates specific translation experience it is possible, though not inevitable, that the accumulated and stored knowledge could change in composition and organization, evolving to the point where "consistently superior performance" on a set of defined translation tasks (Ericsson and Charness 1997) could be supported. In the parlance of expertise studies this consistently superior performance could be called *translation expertise*. The important question for scholars interested in the relationship between translation competence and expertise is this: under what conditions and in what ways does translation competence evolve to support expertise?

2. Deliberate Practice

The field of expertise studies has shown that the specific aggregation of long-term domain-specific experience in episodic memory under conditions of *deliberate practice* is the key factor in the development of expertise (Ericsson, Krampe, and Tesch-Roemer 1993). It must be noted that superior performance in a task domain such as translation is not the inevitable result of the mere accumulation of domain-specific experience. If deliberate practice is absent, if there is not a critical mass of experience, or if the requisite conditions of the practice are not met, then the cognitive changes associated with expertise will not occur. However, if the conditions of deliberate practice are met, it is possible to create the conditions that allow for the precipitation, from patterns of experience accumulated in episodic memory, of new more efficient knowledge structures capable of supporting superior performance.

Expertise in the task domain is assessed against a performance model that mandates consistency. This means the expert must be able to consistently reproduce the behavior. The model must also fully describe

the empirical characteristics that define superiority. In other words, what diagnostic characteristics of the performance signal superior, rather than simply acceptable or even good performance? While superior performance in domains such as sports can be easily measured in minutes to the finish line or feet and inches jumped, the characteristics of superior performance in translation have yet to be clearly defined. Thus, a research agenda for the empirical study of expert performance in translation must certainly involve the generation of translation task-specific rubrics for the qualitative differentiation of superior performances from those of novices and other non-experts. Of course, it is at this juncture that the study of translation expertise and the study of translation quality assessment necessarily intersect.

The field of expertise studies has convincingly demonstrated that the qualitative performance evolution that we identify in translation experts and other domain experts emerges only under the specific circumstances of deliberate practice. Expert performance is demonstrably an acquired skill, and empirical studies have shown that there is no necessary relationship of domain expertise to general cognitive capacities such as intelligence or memory. The single biggest factor in the evolution of expertise is deliberate practice. Shreve (2002) has previously discussed the general theoretical issues surrounding the notion of translation expertise, its relationship to translation competence, and the specific nature of the cognitive changes that occur in translation experts. This paper focuses more narrowly on the implications of the concept of deliberate practice in translation.

Deliberate practice can be more narrowly defined as regular engagement in specific activities directed at performance enhancement in a particular domain, where *domain* is some sort of skilled activity. The difference between deliberate practice and simply accumulating experience at performing the activity is important. While the accumulation of experience in the domain is a necessary condition for expertise, it is not sufficient. According to the results of expertise studies, deliberate practice only occurs only under the following conditions, when (a) there is a well-defined task, (b) the task is of appropriate difficulty for the individual, (c) there is informative feedback, and (d) there are opportunities for repetition and the correction of errors (Ericsson 1996: 21). Further, there is an expectation that the practice occurs over a significant period of time. For instance, Ericsson and Crutcher (1990), among others, have argued that expertise requires at least ten years of deliberate practice to emerge.

2.1. The Well-defined Task

Of course, even if we accept that translation is a domain of skilled activity, there are some difficulties in applying the concepts of deliberate practice to the translation activity. The first problem emerges in applying the notion of *well-defined task* to translation. Translation activity is, by definition, extremely complex and requires an intersection of a number of sub-competences related to a variety of different translation sub-tasks. Some of these sub-tasks are part of more general cognitive discourse process like reading and writing. Nevertheless, a translation task model for most forms of skilled translation activity might reasonably include a similar set of task components including reading and text comprehension, discourse processing during the construction of mental representations, processing of translation cues in the source text, the integration of reading, comprehension and mental model building with translation-strategic activity, and the subsequent production of a target language rendering under the influence of translation constraints.

However, as it turns out, there are a multitude of so-called well-defined tasks in translation with the same general configuration of these underlying task components that nevertheless vary greatly according to the *experiential parameters* of the task. These include the pragmatic circumstances, text types, subject domains, and *skopos* of the translation. From the perspective of expertise development, superior performance emerges not from the repetition over time of the basic underlying component tasks, but their repetition within specific sets of experiential circumstances. Thus, the notion of well-defined activity in translation expertise has to take into account the fact that expertise develops because translators translate similar kinds of texts, in discrete domains, for similar purposes, over relatively long periods of time. The developed expertise is restricted to a definable range of translation activities and is not applicable to all of translation. This is consonant with the general finding in expertise studies that expertise is confined to the domain and does not transfer to other domains.

This would argue, of course, against some sort of generic translation expertise ever developing. It would not be surprising at all, for instance, if performance quality were to decline if we presented an expert scientific-technical translator with a literary translation task. A translator of pragmatic materials would have difficulty reaching a level of performance deemed superior if evaluated using literary texts where the assessment

rubric valued different translation results achieved via different translation processes. Note that the argument here is not that the scientific-technical expert could not translate, or could not translate the literary text even very well, but that the results on the scientific-technical tasks would be demonstrably superior to those on the literary. There is also an implication here that the specialization we observe in the very best translators is not at all accidental or simply the result of inertia and choices made in the academy. For those who become experts, specialization is in fact a result of the very nature of the deliberate evolution of the skill, a purposeful seeking out of particular kinds of experience that requires the performance of particular kinds of tasks.

According to Ericsson and his colleagues (Ericsson, Krampe, and Tesch-Roemer 1993), experts demonstrate superior performance on tasks that capture the characteristic aspects of the skill in the task domain under investigation. For instance in chess, such a task would be choosing a move. Pym (2003) argues that the essential characteristics of the translation task are the "ability to generate a series of more than one viable target text (TT_1, TT_2, …, TT_n) for a pertinent source text (ST)" and the "the ability to select only one viable TT from this series, quickly and with justified confidence." Are these two activities, performed under specific experiential circumstances, the well-defined tasks of translation expertise?

2.2. Appropriate Difficulty

Pym's remarkably minimalist approach to translation competence goes directly to the core of the issue: problem-solving. Rhetorically, the question for the translator is: what are the alternative target text renderings and which ones do I pick in a particular translation circumstance? A translation expert is one who makes superior choices consistently, even when confronted with the great variety of linguistic, semantic, and other difficulties inherent in highly variable and potentially flawed source texts or when faced with unclear commissions and the threat of deadlines.

From a human performance point of view, one characteristic of experts is that they overcome such task difficulties more efficiently and effectively than non-experts. They solve problems faster and more efficiently than non-experts posed with the same task. Schenk, Vitalari and Shannon (1998), Ericsson (1996) and others in the expertise literature argue that the cognitive changes characteristic of expertise primarily originate from a

knowledge accumulation process that emphasizes the development of awareness and familiarity with the nature and structure of problems in the domain as well as the development of strong methods for their resolution. Thus, expertise develops not just because a well-defined activity is repeated, but because the temporal course of a specific set of translation activities has continually presented challenges and posed problems to be resolved.

The difficulty of any given translation task is an intersection of the specific characteristics of a given text with the existing (possibly deficient) cognitive resources of the translator. Specific difficulties can occur in any number of places during the translation task and be precipitated by multiple textual and contextual causes. It may be possible to categorize textual difficulty factors in translation performance by where they have an effect in the translation task: during input processing (reading, listening), during comprehension and meaning construction, during translation or transfer, or during target text production. Some textual properties may interact with basic components of the information processing system. For instance, texts of great propositional complexity and high terminological density may require re-reading, frequent refreshing of working memory, and access to multiple areas of long-term memory.

Any translator looking for performance improvement as a result of deliberate practice will necessarily have to choose texts whose difficulty profile and characteristics challenge existing and perhaps very specific skills. Because the repetition of tasks at lower levels of difficulty has little effect on skill improvement, translation experts must be able to identify and select translations of appropriate and incremental levels of difficulty on which to deliberately practice. Because the loci of difficulty may occur at variable points in the translation process and be due to different causes, considerable thought may have to be given to the materials selected in order for deliberate practice to have its desired effect. Absent the presence of frequent and structured feedback, potentially available in the workplace or in training contexts, this implies a high level of metacognitive activity, including the ability to attend to, monitor, and reflect on the nature of the text and the task. Glaser (1992) and others have referred to such behaviors as “self regulation”. Self-regulation is heavily associated with expertise and is likely to be important in the development of translation expertise, especially outside of optimally structured work environments, training academies, and other places with defined translation workflows and opportunities for feedback.

2.3. Informative Feedback

Clearly the selection of incrementally difficult practice texts targeting specific areas of improvement could be greatly facilitated by feedback from others involved in the translation activity. Shreve (1997) has particularly emphasized the role of informative feedback in the development of translation skill. A major objective of feedback is to allow "goal setting." Goal setting refers to the targeting of specific task-related skills and problem areas for improvement and the subsequent informed selection of relevant and appropriately difficult translation materials. It is impossible to set performance improvement goals in any activity, much less translation, unless the difference between current and desired performance can be determined. Therefore, unless the translator is capable of significant self-directed meta-cognitive activity related to performance assessment, feedback will be a critical factor in improving performance.

Once translators leave the confines of universities and training academies, establishing useful feedback mechanisms will most likely be quite difficult. Some feedback mechanisms can work well in learner situations, but be difficult to apply in the translation company workplace or free-lance translator's study. For instance, Lajoie and Lesgold's (1992) *dynamic assessment* is a real-time assessment of learners during a problem-solving activity where feedback is provided in the direct context of the activity. Such labor- and time-intensive techniques as this are unlikely to work outside of training situations with novices.

Typically, the opportunities for informative feedback on the job invariably decline for translation professionals unless they and their supervisors make deliberate and thoughtful changes to work processes and workflow. Such changes might include innovative workflow streams that feed the results of editing and revision processes back to the translator, if not in real time, then in a timely way. Translator feedback could also become a more integral part of translation quality assurance systems. The creation and implementation of useful feedback streams in professional contexts could be a way to provide one of the essential conditions of deliberate practice. Given the interdependent relationship between the capacity for self-regulation and the availability of feedback, the study of how task-relevant feedback information can be provided for translator self-improvement is crucial. An end result of such studies might be the development of practice agendas and regimens that lead to expertise.

2.4. Repetition and Correction

Finally, there is the issue of opportunities for repetition and for the correction of errors. Error correction, of course, can become part of editing and revising processes in a translation workflow. If translators are working with deliberately-sought "practice tasks" at higher levels of difficulty meant to improve skill, then they will be out of this more formal workflow, and error-correction will be more difficult to achieve. Compensatory error-correction schemes would have to be developed and might include mentoring or coaching relationships of the kind that are not uncommon in other domains. Other error-correction schemes might include more formal use of Internet-enabled collaboration for both error-correction and feedback generation.

As for repetition, what does this concept mean in the context of translation? While it could be claimed that all translations completed over the course of a career are unique, e.g., they are not identical texts, the actual case is that translators tend to specialize, not just obviously in a language pair, but also in particular subject areas and particular textual forms. Over the course of a career of practice, linguistic, textual, and conceptual patterns will be recognized, analyzed, and schematized, setting the preconditions for the fast, automatic performance attributed to experts. If the translation tasks are too varied (e.g., there is no repetition of pattern recognition and problem resolution sequences), then expertise cannot be developed. Similarly, this implies that text selection in programs of deliberate practice will have to provide not just for progressive improvement by introducing new and more difficult material, but opportunities for the repetition of material and translation challenges as well.

3. Cognitive Characteristics of Translation Expertise and Translation Knowledge

What cognitive changes occur in translators if and when they develop expertise after ten or more years of deliberate practice? We assume, of course, that expert translators can be shown to exhibit some of the same changes to cognitive processing and cognitive resources as has been shown in experts in other fields. The changes are not just a matter of the quantity of cognitive resources, but the quality and composition of those resources. The changes derive from the deliberate seeking of targeted experiences over the requisite amount of time.

For instance, an expert translator may not only have a quantitatively larger and more variegated vocabulary in the L_1 and L_2 than a non-translating bilingual, but have also integrated the vocabulary with a more complex and correct hierarchical concept structure and with text-specific schema for their deployment in different textual circumstances. In addition, changes are not confined to a growth in the quantity, quality and schematic organization of discrete declarative resources, but also include process changes such as the development of more effective problem resolution methods and task-specific action sequences called procedures.

As we have claimed, experts of all kinds appear to exhibit a greater awareness of the nature and structure of problems in their task domain. For translation experts, this would imply, for instance, a greater ability to recognize translation problems or difficulties, a greater sensitivity to the cues for potential problems embedded in the source text, and a greater familiarity with the potential task implications of certain linguistic patterns in the source text. Translation experts should also exhibit a greater facility and range in solving translation problems than non-experts. Indeed, the expertise of the translator emerges specifically in the way the problems of source text decoding, comprehension, and text production are solved. Experts show a greater range of more effective and less effortful solutions, implying not only a greater arsenal of stored translation procedures, but procedures optimized for speed and accuracy. In general, as expertise develops domain-specific methods (strong methods) tend to replace general-purpose methods (weak methods) in problem-solving. The development of the facility for recognizing and solving problems efficiently is a key aspect of expertise and can be directly related to the influence of deliberate practice.

Scholars of expertise have also noticed a variety of other cognitive changes, such as an apparent increase in the proceduralization of domain knowledge, most likely as the result of the distillation of patterns from episodic memory over the term of domain experience and deliberate translation practice. Proceduralization is a process where the declarative knowledge of the domain, what is known about the task, is converted into production rules, which are like conditional (if-then) statements that specify what problem resolution methods should be applied when certain patterns of events are recognized in a task. Proceduralization leads to less effortful processing and greater automaticity than occurs in novices, although when effortful processing does occur it will be at different points than in novices. For instance, novices may exhibit problems in decoding

complex syntax that will not affect an expert, conversely experts may spend some time considering complex solutions such as sentence recasting or textual rearrangement that never even occur to novices. Proceduralization, like strong methods for problem resolution, can also be precipitated by deliberate practice. The long periods of time over which practice occurs and the concomitant conditions of repetition, incremental difficulty, feedback, and error-correction create conditions under which declarative knowledge can be converted to sets of procedures involving a complex series of actions that occur automatically (Neves and Anderson 1981).

An interesting research question for proponents of translation expertise is whether the proceduralization observed in experts is related to the distinctive "translation strategies", such as modulation or transposition, that have been described by translation scholars (Vinay and Darbelnet 1958). Alternatively, one could ask the question whether the procedures performed by experts, if empirically described and grouped into categories would resemble and empirically validate these so-called translation strategies. Many of the strategies appear to be characteristic of the translation task and either do not occur (or do not often occur) in other monolingual or bilingual tasks. An interesting research question in addition to determining their psychological reality would be to determine whether and how such strategies (as for instance transposition, modulation, equivalence, adaptation, etc.) are learned and internalized over time and whether only translators develop procedural knowledge of such distinctly translation-related techniques. It would be useful to determine how such knowledge arises, whether it is absent, present or nascent in bilinguals, and whether it develops naturally out of the deliberate practice of translation or must be explicitly developed via training (or both).

A significant portion of the translation task is based on or within the context of one or more fundamental cognitive processes. Procedures occur within the context of broader cognitive activities. For instance, a modulation procedure specific to translation is applied within the context of a text production process that was determined as the result of a problem-solving process precipitated by a reading process. Of course, expertise certainly must always develop in the application of particular task-related set of actions in the company of broader and less translation-specific processes. That said, it could be claimed that translation expertise cannot be independent and monolithic, that it can in fact involve several related "modules of expertise", if you will, such as writing or reading expertise

(Scardamalia and Bereiter 1991). A study by Shreve, Schäffner, Danks and Griffin (1991) investigated whether distinctly "translation-related" processing occurred when translators assigned the task of reading a passage were told beforehand that they were going to have to translate it. The authors found task-related effects, indicating that translation-related processes and reading processes were interacting. Over the course of deliberate practice, it is certainly possible that expert performance could develop in specific temporal portions of the translation task, even as early as reading and text comprehension, and result in specific measurable performance gains as the result of the reorganization of the reading process or the development of translation-specific reading procedures. This implies that the performance improvements associated with expertise are most likely localized within the entire temporal sequence of the task at specific intersections of translation and other sibling processes such as reading, discourse processing, and writing.

The superior performance of experts in a cognitive skill domain such as translation is the result of a number of interrelated cognitive changes, all apparently precipitated by deliberate practice. The primary cognitive changes leading to translation expertise involve:

(a) accumulating significant episodic memory under the conditions of deliberate practice,
(b) applying goal-directed pattern recognition to domain-relevant events represented in episodic memory, where the goal is the recognition and storage of patterns that will identify task-relevant problems, e.g., patterns calling for action to be taken,
(c) attaching domain-relevant meanings to such patterns and linking new "strong" problem resolution methods to them,
(d) continuing to learn domain specific methods for resolving classes of problems and organizing the application of those methods in optimal ways, including problem representation or "chunking" at higher levels of abstraction or according to different principles than novices use and, finally,
(e) organizing problem solution methods in long-term memory for optimal access and retrieval.

The reduction in effortful processing, increase in speed of task performance, and the "automaticity" often cited as a property of expert performance in translation could be explained by these cognitive changes. Such changes could produce the abilities that Pym has identified as central

to translation competence, and moreover provide the ability to perform the tasks quickly and more effectively than non-experts.

Of course, as discussed earlier, all of these cognitive changes are restricted. Because they occur under the conditions of deliberate practice, expertise is always task domain-specific. The development of strong problem resolution methods, translation proceduralization, task chunking, and the other cognitive changes that occur in translation experts is restricted to the domain of experience and practice. Once the translation expert moves out of the domain of practice, superior performance declines because there is no general expertise effect that can be separated from the domain of practice and manifest itself in other task domains.

4. Metacognition, Deliberate Practice and Expertise

If translation is assumed to be an effortful complex cognitive task with several component cognitive processes (reading and text comprehension, syntactic decoding, construction of semantic representation, target text production including syntactic encoding, application of target textual conventions), it is probably also likely to be consciously controlled at certain points. Even the most expert translators do not perform all cognitive processes automatically under all circumstances. A cognitive aspect that has been shown to have a major impact in training expert readers is metacognitive processing or metacognition. Metacognition is conscious awareness of how mental processes work, including, for example, strategies that help memory performance. It includes metacognitive regulation, which refers to a variety of processes that may be either conscious or unconscious and include, for instance, monitoring, resource allocation, and planning.

Metacognition has been shown to increase as expertise increases, and explicit instruction in metacognition has been shown to improve reading performance (Brown and Campione 1990; Schneider and Pressley 1989). Since reading comprehension is an important part of the translation process, it is important to try to determine how expert and novice translators differ metacognitively in relation to this and other processes. Understanding the differences, in particular the extent to which there is evidence of planning, monitoring, and regulation (Brown 1987); evaluation (outcome checking) and recognition of failed processes (Robert and Erdos 1993); as well as explicit recognition of task variables (Flavell 1979, 1987) would be an important step toward the development of more effective training for translators.

There is likely to be a significant metacognitive component to the translation task. Metacognition (also: self-regulation, executive control, executive processes) in translation refers to higher order thinking and involves active control over the component cognitive processes involved in translation. The extent and location of metacognition (where active control occurs) may vary both by level of translation expertise and the novelty and complexity of the task. Translation metacognition assumes that the translator has an explicit knowledge and awareness of the mental processes involved in the translation, where active control is required, and, most importantly, what conscious strategies might be applied at these conscious control points. Some of the metacognitive questions raised in the reading expertise literature (e.g., how does a reader know when to look something up in the dictionary? how does a reader know that she has understood a text?) are just as applicable to the study of translation.

There may be an inverse relation between certain forms of metacognitive activity and expertise. If metacognition occurs when cognitive processes (unconscious, automatic) fail, such as a translator's recognition that he or she did not choose the correct translation equivalent, or did not understand the source text, then a metacognitive process may be activated to rectify the situation (Roberts and Erdos 1993). If expert translators, as is often assumed, exhibit more automaticity in cognitive processes in the translation task (less active control required) then there would be correspondingly less metacognitive activity — although it should be noted that greater automaticity and reduced metacognition would be exhibited only in translation tasks where the translator had garnered enough experience that problems and decisions requiring active control simply would not arise. On the other hand, metacognition also involves evaluation, determining whether the outcome of a process has been successful. In this context, expert translators may exhibit significant metacognitive activity, although not as the result of failed processes, but as the result the continuous assessment of successful ones. In fact, doesn't the ability to determine the successful outcome of a translation process satisfy the last requirement of Pym's (2003) definition of translation competence, to select only one viable target text from a series of possible texts "quickly and with justified confidence?"

5. Conclusion: Expertise Trajectories

Without undertaking an enumeration of all the possible ways of

partitioning translation competence, one expertise-oriented research model could assume that "knowing how to translate" means having access to (1) L_1 and L_2 linguistic knowledge (2) culture knowledge of the source and target culture including knowledge of specialized subject domains, (3) textual knowledge of source and target textual conventions and (4) translation knowledge — knowledge of how to translate using strategies and procedures including tool using and information seeking strategies. These four cognitive domains would have to integrate to allow the translator to successfully complete the translation task. Lajoie (2003) introduced the notion of an expertise trajectory, the path followed by a novice, or non-expert working professional on the way to developing expertise. Any expertise trajectory in translation would have to include directed changes in this set of four cognitive domains.

The identification of these different translation sub-competences implies that translation expertise can be developed differentially, depending on variations in how further experience in the domain of practice is acquired. By manipulating the specific nature of the deliberate practice a would-be translation expert engages in, it should be possible to differentially develop the translation sub-competences. The implication is that there can be different kinds of translation experts, for instance, those whose expertise is founded on highly developed linguistic and subject area knowledge and whose information seeking and instrumental skills are essentially unremarkable. Conversely, there can be translation experts who compensate for merely adequate background knowledge in a subject domain by exhibiting extraordinary performance in information-seeking. The empirical evidence for verifying differential development of competences is meager in translation studies, but from a theoretical perspective such differentiation would seem likely.

Translation expertise is not a homogeneous, easily describable set of uniform cognitive resources achieved by all translation experts. It is purely a reflection of the history of deliberately sought after experience in specifiable translation domains, what Shreve (1997) has referred to as a translator's *acquisition history*. Variation in the acquisition history will produce differential development of cognitive resources. When the acquisition process is driven by the specific goal-seeking of deliberate practice it would not only be possible for translators to seek and achieve expertise, but to realistically tailor that expertise according to the demands of their unique translation contexts.

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Received in December 2005
Revised and accepted in August 2006

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