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# The Evolution of Students' Ability to Identify and Solve Different Types of Translation Problems: Insights From a Longitudinal Process and Product Study

ABSTRACT
Problem-solving is a multi-faceted activity, which lies at the very heart of the translation process and requires the effective operation of translation competence (TC). This article investigates how a group of undergraduate students who participated in a comprehensive longitudinal study into the development of TC approached three different types of prototypical translation problems before and after receiving 7.5 months of translator education. The study examines 315 problem-solving paths, focusing in particular on verbal (but also non-verbal) evidence confirming students' awareness of the nature of the problems, the strategicness of the problem-solving process, and the plausibility of the final solutions provided.

KEYWORDS
translation problem; translation competence; translation process research; translation competence acquisition; translator education

## 1. Translation problems: conceptualisation and findings from translation process research

Translation problems have for years been an important area of interest for translation scholars and in particular researchers who have investigated the behaviour of novice and experienced translators, designed models of translation competence (TC) and translation competence acquisition (TCA), and sought to optimise translator education.

In research investigating cognitive processes in translation, problems have been associated with non-automatic processing, which leads to the activation of strategies. Strategies, which are traditionally viewed as potentially conscious procedures making it possible to solve problems (Krings, 1986; Lörscher, 1991), in turn, give insight into the level of development and interaction of different elements of TC. Micro-level or "local" problems (Jääskeläinen, 1993) have been categorised for instance by the Process of Acquisition of Translation Competence

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and Evaluation research group (PACTE)[1] (2011a) as problems of comprehension and/or re-expression that are cultural, linguistic, intentional, textual (involving style, coherence, text type, etc.), extralinguistic, and related to the translation brief and target-text (TT) readers. The TransComp TC study analysed comprehension, production, and combined problems (Göpferich, 2010), though the source texts (STs) posed "lexical, syntactic, pragmatic, text-linguistic, culture-specific, creativity-demanding and comprehensibility-related problems" (Göpferich, 2009, p. 26). Nord (1991), on the other hand, classified translation problems as pragmatic, cultural, linguistic, and text-specific. It is also Nord (1991, p. 151) who first made the important conceptual distinction between *problems* and *difficulties*; the former are viewed as "objective or at least intersubjective" and should continue to be seen as problems even if a translator is able to solve them efficiently, whereas the latter are subjective in nature and can be due to deficiencies in a particular translator's TC. This distinction is reflected in the methodologies of process studies, which took into account either the former (e.g., PACTE, 2005) or the latter (e.g, Göpferich, 2010).

Translation process research has delivered several findings concerning problem-solving and decision-making in translation. Although few of the studies conducted to date are longitudinal in nature in the strictest sense of the term (some notable exceptions are mentioned in the next paragraph), many of them have examined the performance of translators with various degrees of TC, making it possible to formulate assumptions regarding this feature of TC and the process of its acquisition (e.g., Ehrensberger-Dow & Massey, 2013; Göpferich, 2010, 2011; Jääskeläinen, 1993; Lörscher, 1992; PACTE, 2011b). Well aware of their role as intercultural mediators, experienced translators tend to have a dynamic/functional approach towards translation, which is focused on the TT readers and meaning. This is visible in the macro-strategies they adopt based on the translation situation and refer to when solving local problems. When dealing with these problems, they consistently take the criteria for producing an adequate TT version into account, considering multiple concerns and the interests of different participants of the translation process, and thus creating complex problem representations. In contrast, translation novices have a tendency to proceed in a sign-oriented manner, ignoring important elements of the translation situation and context and resorting to guessing. Regarding the ability to identify translation problems, which should be associated with the effectiveness of the processes of solving them and the quality of the end product, PACTE (2011a), for example, found that foreign language (FL) teachers tended to describe their problems as linguistic, whereas translators perceived their problems as functional, intentional, and textual in nature. However, the characterisation of translation problems as such was not

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associated with more acceptable solutions and was concluded not to necessarily be a feature of TC based on the findings (PACTE, 2011a). As for the relationship between the approach towards translation and the quality of translation problem solutions, it is worth mentioning that the research by PACTE (2011b) showed that translation professionals' dynamic approach towards translation was associated with more acceptable translation decisions than was the case for teachers. On the other hand, in the TransComp study, in contrast to other research, professionals' strategic behaviour informed by this approach did not necessarily translate into a higher number of acceptable solutions than was the case for *advanced* translation students (Göpferich, 2010).

Longitudinal research looking into the above aspects of translation has delivered somewhat mixed findings. For instance, some of the results of the TransComp study did not confirm an increase in the strategicness of student problem-solving behaviour after 4 semesters of training, strategic behaviour being marked by an awareness of "the criteria that a specific target text (TT) section has to fulfil in order to be an adequate correspondent for the respective ST [source text] unit" (Göpferich, 2011, p. 8). This raises, among others, the important issue of the non-linear, recursive, and individual nature of the process of TCA, during which particular sub-competences that form part of a dynamic system may not develop in parallel (see especially Göpferich, 2013; Kiraly, 2013; PACTE, 2000). On the other hand, Cintrão (2011, pp. 96–98) found greater improvement in giving priority to functional appropriateness and in solution quality in language and literature students who had received 4 months of function- and problem-focused instruction in translation than in the control group, both for a text the participants had already translated and one they had not. Piotrowska's (2002) 3.5-month-long pedagogical intervention carried out on a group of 35 students training to become EFL teachers found that owing to targeted training, the students (who initially exhibited poor competence) adopted an adequate macro-strategy, effectively used a range of micro-strategies, had a functional approach towards translation, and were more acutely aware of the nature of the problems rather than seeing all of them as linguistic in nature. Furthermore, Fernández and Zabalbeascoa (2012) observed growth – as a result of training with the use of metacognitive questionnaires, among others – in students' strategic (sub-) competence as well as their ability to identify translation problems, especially strategically relevant ones, and justify the solutions chosen. It is also worth mentioning that in their simulated longitudinal TCA study, PACTE (2015, 2020) observed that the students displayed a more dynamic approach towards the translation of both the entire text and particular problems and that translation acceptability increased, rising consistently over 5 years of training for all Rich Points examined, except for one that posed a textual and intentionality-related problem. Problem identification, on the other hand, did not improve consistently in the study.

## 2. Aim of the current study

In light of the findings of previous research regarding problem-solving and decision-making, which lie at the very heart of the translation process, and the non-linear and individual nature of TCA, the primary aim of the current study was to investigate how a group of undergraduate translation students approached three different types of prototypical translation problems before and after receiving 7.5 months of translator education. Drawing on data collected in a longitudinal multiple-case study of TC[2], I have analysed 315 problem-solving/decision-making paths, focusing in particular on three key variables. These are: (1) students' awareness of the nature of these problems, (2) the strategicness of the process of solving them, and (3) the plausibility of the solutions provided. The data were examined for three different types of problems (Rich Points) represented in the STs. It was expected that students' results would improve for all the variables analysed, for each problem category (hypotheses H1, H2, and H3, respectively). The results for the first variable were analysed based on verbal data for individual students and based on both verbal data and non-verbal data (evidence based exclusively on the translation product) for the entire group of students.

## 3. Methodology of the study

This section describes the methodology of the study, including its participants and setting as well as data collection, processing, and analysis.

### 3.1 Participants and setting

The study involved eight second-year Polish students of a BA programme in Applied Linguistics, who took parallel subjects in two foreign languages, the principal one being English. Students with stronger and weaker foreign language skills (n = 8) with no previous experience in translation were selected for the study. During the course of the study, the students took three strictly translation-related classes. These were courses in the fundamentals of (non-specialised) translation, sight translation, and translation theory (lecture). The first course[3] specifically was to help students develop a functional, strategic approach towards translation. It focused on adopting a suitable macro-strategy based on an analysis of the translation situation, designing adequate micro-strategies for making local decisions, evaluating alternative translation problem solutions, as well as collaborating with the client and using external resources effectively.

[2] Detailed information on the methodology applied in the entire study and its other results can be found in Chodkiewicz (2020).

[3] For a detailed description of the course see Chodkiewicz (2014).

### 3.2 Data collection

A combination of product- and process-oriented methods and a range of instruments of data collection were applied, including adaptations of those used in the PACTE and TransComp studies. Bearing in mind that L2 translation is a necessity and reality of the market in the Polish context, the STs were in the L2 and L1. Both STs were accompanied by briefs. The texts posed a range of different translation problems (see Section 3.3) and were comparable in terms of readability (Gunning-Fog index) and lexical variety (type-token ratio). L1 and L2 translation processes were recorded using screen-recording (Camtasia Studio) and keylogging (Translog) software. The participants then engaged in cue-based retrospective verbalisation, during which the recordings of the translation processes were replayed to them and they were to describe how they had dealt with any problems or difficulties they had experienced. Next, the participants completed a series of questionnaires, including a Retrospective questionnaire (adapted from PACTE, 2011a), which regarded, i.a., the five greatest problems experienced when translating the text and required a description of the nature of the problem, priorities adopted when solving it, and actions taken to solve it.

### 3.3 Data processing

The quality of the translation products was evaluated using a specially designed error-based assessment system, which largely drew (in terms of the error categories used and their definitions) on the typologies developed by Göpferich (2010), the ATA (Koby & Champe, 2013), and the ITI (2015). Errors were classified according to type as having to do with function, lexico-grammar, coherence, punctuation, or formal aspects (spelling and spacing) and according to severity, as minor (0.5- or 1-point), major (2.5-point), and critical (5-point) errors.

When it comes to describing and evaluating the translation process, so-called "Prominent Attention Unit protocols" (inspired by Göpferich, 2010, 2011) were compiled, containing the verbal and non-verbal data collected in the study. *Prominent Attention Units* (*PAUs*; term created based on Jääskeläinen's, 1993, attention units) were ST segments that the subjects devoted most of their attention to in the study and that triggered effortful, conscious, and/or goal-oriented (strategic) behaviour, aimed at making decisions or solving problems (see Lörscher, 1991; Jääskeläinen, 1993). They represented individual, subjective problems and were identified based on several primary and secondary indicators that were mostly similar to the ones used in TransComp, with some modifications (cf. Göpferich, 2010; see Chodkiewicz, 2020). Each step the subjects took (reflection or action) with regard to a given PAU was evaluated in terms of strategicness as strategic, neutral, or non-strategic. The level of strategicness of the entire decision-making/problem-solving path for a given PAU was assessed as well, as strategic, semi-strategic, neutral, or non-strategic, depending on the

combination of the strategicness of the steps taken and plausibility of the final solution (see Chodkiewicz, 2020). The final solutions were also included in the protocols with a quantitative assessment in the form of a negative score calculated by adding up the error points received for a given PAU in the product quality assessment and a qualitative assessment according to whether the solution was plausible (no errors), semi-plausible (0.5-point error), or implausible (errors amounting to 1 point or more).[4]

Some of the PAUs were then tagged as *Rich Points*, or *RPs* (see PACTE, 2003, 2005), that is predetermined units representing prototypical translation problems that were objective or inter-subjective in nature, considering the level of participants' bilingual (sub-)competence. Twenty-four RPs (12 in each ST) were tentatively selected pre-assessment and verified post-assessment. The RPs fell into the following three categories: RAs – encyclopaedic, cultural, and/or translation reader- and brief-related problems (n = 8); RBs – re-expression problems related to ST deficiencies or contrastive language features (issues with language correctness and coherence could be caused in TT; n = 7); and RCs – re-expression and also potential comprehension problems (issues with meaning could be caused in TT; n = 9).

### 3.4 Data analysis

For the sake of simplicity, the current discussion addresses the strategicness of the translation process by looking at strategicness scores (SS), which were calculated by subtracting the percentage scores for non-strategic processes from those for strategic ones (neutral and semi-strategic processes were ignored). The quality of translation solutions is represented by plausibility scores (PS), obtained by subtracting the percentage scores for implausible solutions from those for plausible ones (semi-plausible solutions were disregarded).

The study also analyses verbalised and non-verbalised awareness of the nature of the translation problems. The former refers to situations when the participants provided verbal data (oral and/or written) indicating their awareness of the key aspects of the problems discussed. This means that the students focused and reflected on them, voiced concern about them, and/or included them in the priorities/rationale for their translation decisions. Non-verbalised awareness of the nature of the translation problems was identified based on the translation product only. This pertains to situations where there were no pertinent verbal data, but the final solution was correct, which means that the nature of the problem was indeed properly addressed by the students.

[4] The final solution assessment system was inspired by the those used in the TransComp (Göpferich, 2011) and PACTE (2011a) studies.

Finally, it is worth noting that since only one student paid prominent attention to RB3 in test 2, the results for this RP have been disregarded for all parameters except PAU percentage.

## 4. Results of the study and discussion

The current section discusses the results of the study with respect to the aims outlined in Section 2.

### 4.1 Group results

The results obtained by the entire group for attention paid to the problems and verbalised and non-verbalised awareness of their nature with respect to the three categories of RPs are shown in Table 1.

Table 1. Focus of attention (percentages of students with PAUs) and verbalised and non-verbalised awareness of problem nature (for PAUs) for three types of Rich Points for entire group in tests 1 and 2.

| Rich Point type | Test | Focus of attention (Prominent Attention Unit, %) | Verbalised awareness of problem nature for PAUs (%) | Non-verbalised awareness of problem nature (based on product only) for PAUs (%) |
|---|---|---|---|---|
| RAs | T1 | 84.4 | 33.3 | 1.9 |
| | T2 | 84.4 | 72.2 | 5.6 |
| RBs | T1 | 67.9 | 42.1 | 0.0 |
| | T2 | 64.3 | 55.6 | 16.7 |
| RCs | T1 | 95.8 | 46.4 | 7.2 |
| | T2 | 88.9 | 64.1 | 4.7 |

When it comes to the extent to which the study participants focused on the prototypical translation problems represented in the RPs (Table 1), students gave the most attention to RCs (T1 = 95.8% and T2 = 88.9%). These were followed by RAs, for which the results were identical in both phases of the study (T1 and T2 = 84.4%); in test 2, the results for this category were thus very similar to those for RCs. The problems which were definitely focused on the least in both phases of the study were RBs (T1 = 67.9% and T2 = 64.3%). Thus, the extent to which students paid attention to particular types of problems either did not change or decreased across tests, but not considerably. This means that H1 was rejected.

It is now worth looking at how strategically the students who focused on the problems proceeded when making decisions regarding the three categories of RPs and how plausible their solutions were (Figures 1 and 2, respectively). Bearing in mind that solution plausibility was an element of the assessment of the strategicness of problem-solving (see Section 3.3), the rankings for the problem types were the same for the two variables in both tests. In test 1, the students

proceeded the most strategically and provided the best solutions for RBs (SS = −31.6%; PS = −39.5%), followed by RCs (SS = −39.1%; PS = −55.1%), the results for RAs being much poorer (SS = −55.6%; PS = −64.8%). The students' performance in test 2 was different, since their processes and products were the most successful for RAs (SS = 11.1%; PS = −7.4%), followed by RBs (SS = 0.0%; PS = −16.7%), whereas the results for RCs were less satisfactory than for the other two categories (SS = −20.3%; PS= −32.8%), and RCs remained the only category for which non-strategic processes still dominated over strategic processes. Therefore, H2 and H3 were confirmed on a group level. The changes for the two variables across tests were definitely the greatest for RAs, followed by RBs, and they were the smallest for RCs, indicating that the training received was most effective in helping students deal with RAs.

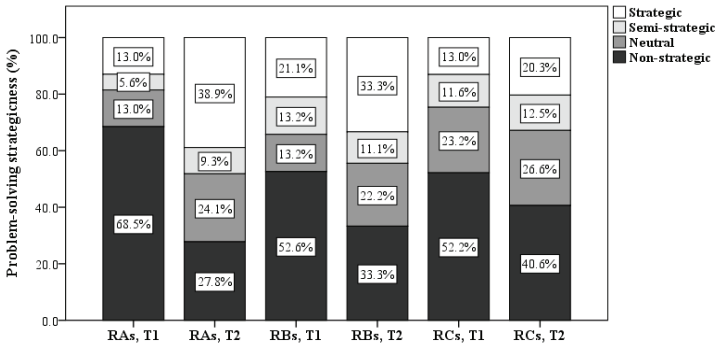


Figure 1: Strategicness of problem-solving processes for three types of Rich Points in entire group in tests 1 and 2.

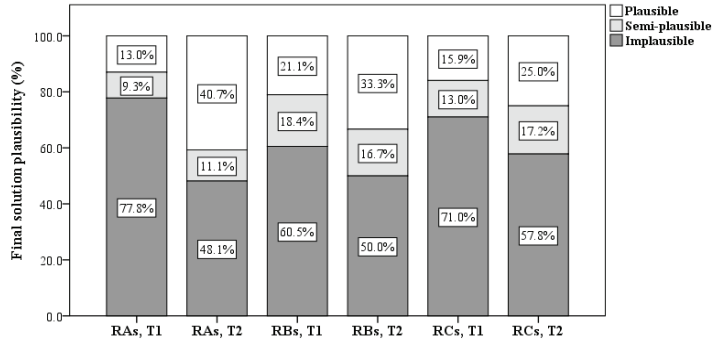


Figure 2: Plausibility of final solutions to three types of Rich Points in entire group in tests 1 and 2.

### 4.2 Individual results

The results for the three categories of RPs for individual study participants are shown in Figure 3.

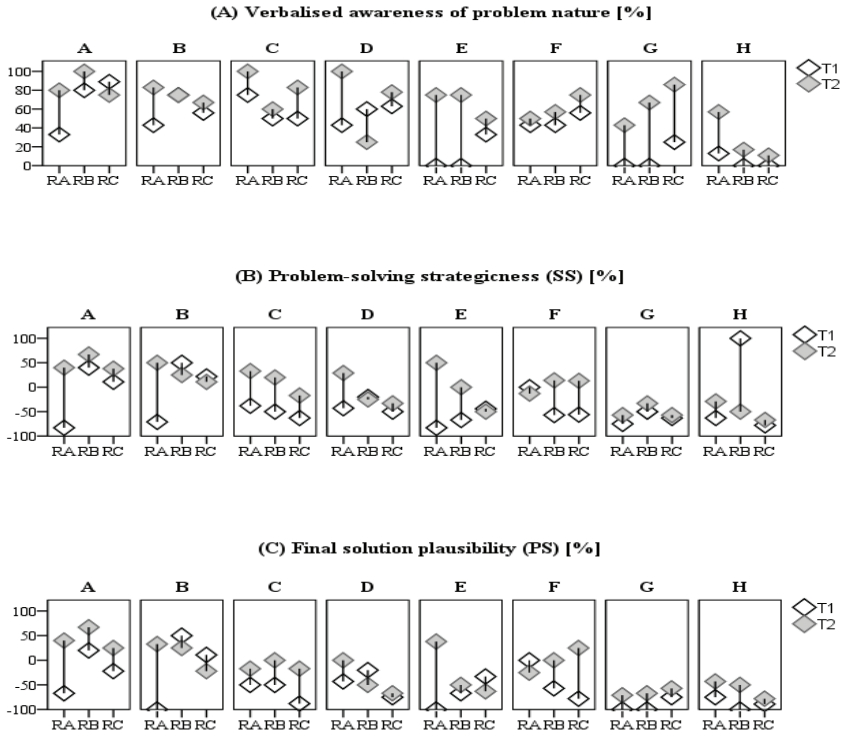


Figure 3: Verbalised awareness of problem nature, problem-solving strategicness and final solution plausibility for individual students (A-H) for three types of Rich Points in tests 1 (T1) and 2 (T2).

As shown in Figure 3, some students were unable to maintain their – often high – performances from test 1 in test 2. This was found for process strategicness and final solution plausibility (Figures 3b and c) for student B for RBs and RCs, student F for RAs, student D for RBs, and student E for RCs, as well as in verbalised awareness of problem nature (Figure 3a) for students A for RCs and D for RBs. The results of the study are thus indicative, among others, of the volatility of the translation performance and competence of novice translators; in contrast, experts consistently "exhibit superior performance for representative tasks in a domain" (Ericsson, 2006, p. 3). However, as noted by Chodkiewicz (2020), observing decreases in the scores should not lead to the conclusion that the students' TC did not develop whatsoever for the pertinent variables.

## 5. Concluding remarks

The following conclusions can be formulated based on the results of the study.

1. The study revealed growth in the entire group across all three problem types for the strategicness of the problem-solving process and final solution plausibility (cf. Section 1). This can be seen as evidence of the development of the elements of the students' TC related to problem-solving, primarily of the strategic and knowledge about translation sub-competences but also the instrumental (i.e., tools- and research-related) and possibly bilingual sub-competences (see Göpferich, 2009; PACTE, 2003).
2. The training received by the students had the greatest effect on how they dealt with problems that were encyclopaedic, cultural, and/or reader- and brief-related (RAs), showing that students became much more conscious of their role as intercultural mediators, followed by re-expression problems related to ST deficiencies or contrastive language features (RBs). The training had the smallest impact on helping students proceed strategically when solving re-expression problems that often involved comprehension issues and for which implausible solutions could affect TT meaning (RCs; similarly as in the PACTE, 2020, study). The reason for this might be that this involved making good use of one's reading skills and bilingual (sub-) competence, which are not trained as easily as the skills needed to solve the types of problems represented by RAs and RBs. Also, very often the final product for RCs could not be based directly on the results of searches in external sources, requiring heavier use of internal, cognitive resources and deep processing of situational factors.
3. The study did not unequivocally confirm that the group of students paid greater attention to the problem types examined in the study (similarly as was the case in the PACTE, 2020, study), though increases were found in the entire group across all three problem types for verbalised awareness of the nature of the problems.
4. Though few, the decreases observed for process strategicness and final solution plausibility for some individual students for the variables investigated in the study can be considered indicative of the instability of incipient translation competence and performance, but not necessarily as evidence that no growth took place in their TC.

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