

Recibido / Received: 25/07/2021
Aceptado / Accepted: 11/01/2022

Para enlazar con este artículo / To link to this article:
<http://dx.doi.org/10.6035/MonTI.2022.ne7.02>

Para citar este artículo / To cite this article:

Hurtado Albir, Amparo; Anna Kuznik & Patricia Rodríguez-Inés. (2022) “Translation competence and its acquisition.” In: Hurtado Albir, Amparo & Patricia Rodríguez-Inés (eds.) 2022. *Hacia un marco europeo de niveles de competencias en traducción. El proyecto NACT del grupo PACTE. / Towards a European framework of competence levels in translation. The PACTE group's NACT project. MonTI Special Issue 7*trans, pp. 23-44.

2. TRANSLATION COMPETENCE AND ITS ACQUISITION

AMPARO HURTADO ALBIR

Amparo.Hurtado@uab.es
Universitat Autònoma de Barcelona

ANNA KUZNIK

Anna.Kuznik@uwr.edu.pl
Uniwersytet Wrocławski

PATRICIA RODRÍGUEZ-INÉS

Patricia.Rodriguez@uab.es
Universitat Autònoma de Barcelona

2.1. Research on competences in other disciplines

Compared to translation studies, where the study of translation competence (TC) did not begin until the mid-1980s, other disciplines, such as applied linguistics, work psychology and pedagogy, have a longer tradition of research on the notion of competence.

In applied linguistics, the concept of “communicative competence”, as opposed to linguistic competence as proposed by Chomsky (1965), has been in use since the mid-1960s, with a long record of analysis by Hymes (1966, 1971), Canale-Swain (1980), Canale (1983), Widdowson (1989), Spolsky (1989) and Bachman (1990), among others.

In work psychology, the concept of “professional competencies” was put forward by McClelland (1973) in the early 1970s. His proposal was



Esta obra está bajo una licencia de Creative Commons Reconocimiento 4.0 Internacional.

followed by various studies undertaken by scholars such as Boyatzis (1982, 1984) and Spencer, McClelland and Spencer (1994), leading to competence models for specific jobs being developed on the basis of studying professionals who capably perform the tasks required in the corresponding positions. This competence-based management model is used in human resources.

In pedagogy, a pedagogical model known as “competence-based training” (CBT) has become popular since the beginning of the 21st century. Competences lie at the heart of curriculum design in CBT, which advocates an integrated approach to teaching, learning and assessment. CBT is rooted in cognitive-constructivist and socio-constructivist learning theories; furthermore, it represents an operationalization of studies targeting more meaningful learning in students conducted in the last few decades.

Mention should also be made of studies carried out in cognitive psychology, a discipline that does not actually use the concept of competence but does involve research on the characteristics of expert knowledge (or expertise) and how it works in a given area (Ericsson and Crutcher 1990, Ericsson and Charness 1997, Ericsson *et al.* 2006, etc.). Such research can help with the analysis of the highest level of TC. Additionally, cognitive psychology establishes certain distinctions relevant to the study of competences, particularly the distinction between declarative knowledge (know-what) and procedural knowledge (know-how), as proposed by Anderson (1983) and others¹. Some authors (Wellington 1989, Pozo and Postigo 1993) extend the distinction to include explicative knowledge (know-why), and others (Paris *et al.* 1983) also refer to conditional knowledge (knowing when and why to use knowledge).

2.2. The difficulties of research on translation competence and its acquisition

A number of difficulties have hindered progress in the empirical study of TC and its acquisition.

1. This is based on the distinction made by Ryle (1949) between *knowing that* and *knowing how to*.

Campbell (1998: 18) suggests some requirements for a TC model: (1) to show whether TC is divisible into components and, if so, to describe them and their relationships; (2) to describe the translation competence acquisition (TCA) process; and (3) to include means of describing the differences between the performance of different translators. Waddington (2000: 135) raises a number of problems involved in the development of a TC model: (1) it is difficult to know how many components there are and to clearly identify them and their relationship; (2) a model developed for a particular level of competence will not necessarily be valid for another; and (3) a TC model would, therefore, be incomplete without a TCA model. Both authors thus concur in highlighting the difficulties that describing TC entails and the need to describe the TCA process.

Hurtado Albir (2020: 408) lists various obstacles to the study of TC and TCA:

1. The complex nature of TC and TCA, and the complexity of the relationship between the components of TC, given the wide range of cognitive areas and activities involved.
2. The procedural and automatized nature of TC and TCA, as procedural knowledge is more difficult to verbalize and observe.
3. The heterogeneity of TC and TCA, as TC involves a range of very diverse capabilities, which, furthermore, can vary from one area of professional specialization to the next.
4. The diversification of TC and TCA, given the differences involved depending on each individual's personal characteristics (knowledge, experience, cognitive styles, etc.), the way TC is acquired (with guidance, through teaching and learning; or autonomously, through practice outside the education system), the direction in which translation is performed (into L1 or L2), and the specific characteristics of each area of professional specialization (technical translation, legal translation, literary translation, etc.).

It may be because of the difficulties in question that, despite substantial progress having been made in empirical research in translation studies over the last few decades, most of the TC and TCA models proposed have

not been empirically validated and an empirical approach has been taken to only partial aspects of TC and its acquisition.

2.3. Translation competence

2.3.1. *Evolution of research and existing models*

Other than in certain pioneering proposals, such as those of Wilss (1976) and Köller (1979), it was not until the mid-1980s that TC began to be studied. The evolution of research on TC can be divided into two major periods, the first running until the end of the 1990s and the second, a period of consolidation, from 2000 onwards. For a description of the TC models that have been proposed, see Hurtado Albir 2001/2011: 383-392, 2017a: 18-31, 2020: 390-400.

First period: the dawn of studies of translation competence

Different TC models were proposed in this first period (up to the end of the 1990s), and most of them could be classed as “componential”, in that they revolve around describing the components of TC (Wilss 1976; Bell 1991; Hewson and Martin 1991; Nord 1988/1991, 1992; Neubert 1994, 2000; Kiraly 1995; Cao 1996; Presas 1996; Hurtado Albir 1996a, 1996b, 1999; Hansen 1997; Risku 1998; PACTE 1998, 2000). Others refer to translation abilities and skills (Pym 1991, 1992; Lowe 1987; Hatim and Mason 1997). Additionally, some proposals dealing specifically with translation into L2 were made (Beeby 1996; Campbell 1998).

The following are characteristics of this first period (Hurtado Albir 2020: 395):

1. Focus on component description and inclusion of transfer competence. Most of the proposals made in this period centre on describing the components of TC, putting forward other components besides those of a strictly linguistic nature: linguistic and extralinguistic knowledge; the ability to perform documentation and use technological tools; and transfer competence. Emphasis was placed on the components in question being of different types (knowledge,

abilities, skills and attitudes). Some authors also emphasized the procedural nature of TC, distinguishing between declarative and procedural components and stressing the importance of the strategic component (Beeby 1996; Cao 1996; Hurtado Albir 1996a, 1996b; Presas 1996; Hatim and Mason 1997; PACTE 2000).

Including transfer competence among the components of TC is characteristic of this period.

2. View of TC as a form of expert knowledge. Some authors (Bell 1991; Gile 1995; Cao 1996; PACTE 2000) linked TC with expertise in this period; there was seemingly confusion and no clear distinction between the two concepts, however.
3. Consideration of the specific nature of translation into L2. Some authors (Beeby 1996; Campbell 1998) looked specifically at TC in translation into L2.
4. Lack of specific studies. With some exceptions, including publications by Cao (1996), Presas (1996) and Risku (1998), most of the initial TC proposals made in this period are one-offs that only deal with the subject tangentially.
5. Terminological diversity and lack of definitions. While many authors discussed TC in this period, few defined it; definitions are offered in Wilss (1982), Bell (1991), Cao (1996) and Hurtado Albir (1996a, 1996b). Additionally, the terms used to refer to TC varied, including transfer competence (Nord 1988/1991: 160), translational competence (Pym 1993: 26; Toury 1995: 250; Hansen 1997: 205; Chesterman 1997: 147), translator's competence (Király 1995: 108), translation ability (Lowe 1987: 57; Stansfield *et al.* 1992) and translation expertise (Gile 1995: 4).
6. Lack of empirical studies. No holistic empirical studies of TC were conducted in this period. The empirical studies that were carried out only deal with partial aspects of TC (linguistic knowledge; extralinguistic knowledge; strategies used; the role of documentation; abilities and aptitudes, such as creativity and emotivity; attention; etc.).

Second period: consolidation of research on translation competence

Research on TC has taken on a new dimension since the turn of the millennium. TC models have been proposed from different perspectives, including those of didactics (Kelly 2002, 2005; González Davies 2004; Katan 2008; EMT 2009, 2017), relevance theory (Gutt 2000; Gonçalves 2003, 2005; Alves and Gonçalves 2007), expertise studies (Shreve 2006; Göpferich 2008), knowledge management (Risku *et al.* 2010), and a professional and behavioural viewpoint (Gouadec 2002, 2005, 2007; Rothe-Neves 2005).

The following are characteristics of this second period (Hurtado Albir 2020: 400-401):

1. Range of approaches. TC models have been put forward with different aims: to be used in curriculum design; to enhance performance in professional practice; or with theoretical goals, to learn about the function of the competences that identify translators. While most of the models in question propose similar components for TC, they distribute them differently and attribute varying degrees of importance to them, in addition to differing in their focus and the terminology they use.

Most of the proposed models are cognitive in nature, although some are based on a behavioural perspective. These two approaches to studying TC (focusing on what translators need to *know how to do* and what they *do*) are complementary as regards describing how TC works.

The disparity of criteria outlined here simply underlines the complexity of TC and the variety of its sub-components.

2. Importance of the procedural component and of strategic competence. In contrast to the models proposed in the previous period, most now emphasize the procedural nature of TC and include strategic competence as an essential part of solving translation problems.
3. Link with expertise studies and definition of the differences between TC and translation expertise. Some authors have linked

TC and translation expertise (Shreve 2006; Göpferich 2008, 2009), as others did in the first period. In this second period, however, progress has been made in establishing the characteristics of translation expertise and how it differs from TC (see section 2.3.2.2).

4. Beginning of empirical validation. While most proposed TC models have not been validated empirically, there are now at least some that have been validated in experiments (PACTE 2000, 2003, 2017a, etc.; Gonçalves 2003, 2005; Alves and Gonçalves 2007).

2.3.2. PACTE's research on translation competence

The PACTE group was founded in 1997 to carry out empirical research on TCA in written translation. The group began by conducting research on TC itself, as there were no empirically validated models of the competence at that time.

2.3.2.1. PACTE's holistic model of translation competence

The first TC model PACTE produced was presented in 1998 (PACTE 1998, 2000, 2001). It was subsequently modified on the basis of the results of exploratory studies conducted between 2000 and 2001.

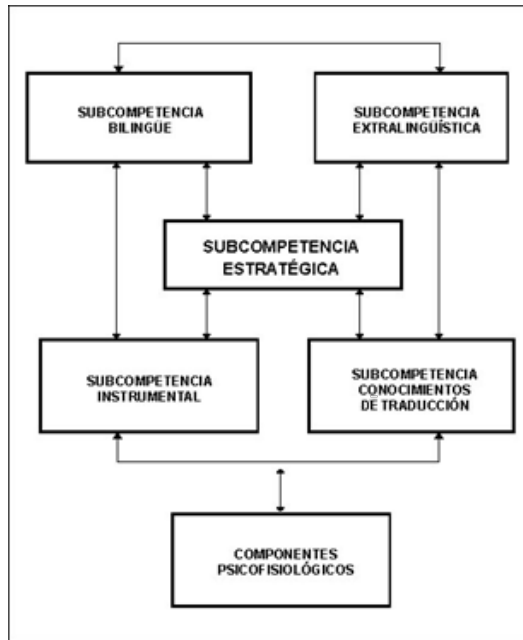
PACTE has always viewed TC as predominantly procedural knowledge that is qualitatively different from bilingual competence and comprises different interrelated sub-competences; furthermore, the group has always attributed particular importance to the strategic component of TC. Accordingly, PACTE has defined TC as the underlying system of declarative and fundamentally procedural knowledge required to translate; a combination, thus, of knowledge, skills and attitudes.

PACTE's first TC model identified six competences (PACTE 2000, 2001): communicative competence in two languages; extralinguistic competence; professional instrumental competence; psycho-physiological competence; transfer competence; and strategic competence.

The results of two series of exploratory studies, carried out between June 2000 and January 2001, led to a revision of the proposed TC model

(PACTE 2003). The revised model features five sub-competences² plus a range of psycho-physiological components (see figure 2.1).

Figure 2.1. PACTE's translation competence model (PACTE 2003, 2017a, etc.)³



Each component of PACTE's TC model is defined below.

2. In this publication, the term “sub-competence” is only used in relation to PACTE's TC and TCA models. When revising the group's initial TC model and formulating the final version, it was deemed clearer to refer to the components of TC as “sub-competences” than as “competences”. In the NACT project, however, the term “competences” was used instead, because it is more common in translation studies and other disciplines and is the term used in curriculum design.
3. Only the two main publications in which the model is described in detail are cited here. The model features in many more of PACTE's publications, however, as it is the basis of all the group's research on TC.

- Bilingual sub-competence. Predominantly procedural knowledge required to communicate in two languages. It comprises pragmatic, sociolinguistic, textual, grammatical and lexical knowledge.
- Extralinguistic sub-competence. Predominantly declarative knowledge, both implicit and explicit, about the world in general and specific areas. It comprises bicultural knowledge, general world knowledge, and subject knowledge.
- Knowledge of translation sub-competence. Predominantly declarative knowledge, both implicit and explicit, about what translation is and aspects of the profession. It comprises knowledge about how translation functions (translation units, processes required, methods and procedures used, and types of problems) and knowledge related to professional translation practice (the labour market, types of translation briefs, target audiences, etc.).
- Instrumental sub-competence. Predominantly procedural knowledge related to the use of documentation resources and information and communication technologies (ICT) applied to translation (dictionaries of all kinds, encyclopaedias, grammars, style guides, parallel texts, electronic corpora, search engines, etc.).
- Strategic sub-competence. Procedural knowledge for guaranteeing the efficiency of the translation process and solving problems encountered. As it controls the translation process, this is an essential sub-competence that affects and interrelates all the others. The functions for which it is used are to plan the process and carry out the translation project (selecting the most appropriate method); to evaluate the process and the partial results obtained in relation to the final purpose; to activate the different sub-competences and compensate for any shortcomings in them; and to identify translation problems and apply procedures to solve them.
- Psycho-physiological components. Different types of cognitive and attitudinal components and psycho-motor mechanisms. They include cognitive components, such as memory, perception, attention and emotion; attitudinal aspects, such as intellectual curiosity, perseverance, rigour, critical thinking, motivation, and knowledge

about, confidence in and the capability to measure one's own abilities; and abilities, such as creativity, logical reasoning, analysis and synthesis.

PACTE considers the knowledge of translation, instrumental and strategic sub-competences to be specific to TC, and they have therefore been the focus of the group's empirical research on TC. It should be noted that PACTE's model of TC is a general model that must be adapted to each area of professional specialization.

2.3.2.2. Main results of PACTE's experimental research on translation competence

PACTE's experimental research centred on the three sub-competences the group deems specific to TC (the knowledge of translation, instrumental and strategic sub-competences) and did not encompass the psycho-physiological components of TC. Six language combinations (English / French / German – Catalan / Spanish) were used in the research, which included comparing translation into L1 (direct translation) and translation into L2 (inverse translation). Full details of PACTE's research on TC and the results of the group's TC experiment can be found in Hurtado Albir (2017b).

Firstly, two series of exploratory studies on TC were carried out between June 2000 and January 2001 (PACTE 2002, 2003). The subjects in the first series were members of PACTE; in the second, they were six professional translators. A pilot study in which three professional translators and three foreign-language teachers participated was then conducted between February and April 2004 (PACTE 2005a, 2005b).

Those preliminary studies made it possible to refine the hypotheses and the design of the study variables and the experimental tasks used in the TC experiment, which took place between October 2005 and March 2006. The experiment involved comparing the performance of two groups of subjects: 35 professional translators without a specialization in any particular area of professional practice; and 24 foreign-language teachers with no prior experience of translating. All the subjects were L1 speakers of Catalan or Spanish and L2 speakers of English, French or German.

Six dependent variables were studied in the experiment, namely knowledge of translation; translation project; identification and solution

of translation problems; decision-making; efficacy of the translation process; and use of instrumental resources. A total of 22 indicators were analysed, including translation acceptability as a cross-cutting indicator whose results were compared with those of the indicators corresponding to each of the study variables. Additionally, the performance of the nine translators with the highest acceptability scores was analysed to confirm the distinguishing features of TC.

The subjects were asked to perform the following tasks: (1) carry out a direct translation (into L1); (2) answer a questionnaire about the problems they encountered in the direct translation; (3) carry out an inverse translation (into L2); (4) answer a questionnaire about the problems they encountered in the inverse translation; (5) answer a questionnaire about their knowledge of translation; and (6) participate in a retrospective interview.

The same source text (a tourist brochure) was used for all the different target languages in the inverse translation task, and parallel source texts in English, French and German (news reports on computer viruses) were used in the direct translation task. The subjects' translations were examined to gauge the acceptability of their output. Drawing on the experience of the exploratory studies and the pilot test, a decision was made to focus on analysing the subjects' solutions to five prototypical translation problems (known as "rich points") in each text.

The results of the experiment made it possible to draw a number of conclusions as to how TC works, the most important aspects of which are as follows (PACTE 2017b):

1. TC is an acquired competence that is different from bilingual competence.
2. TC affects the translation process and its product (translation quality).
3. The relevance of the knowledge of translation, instrumental and strategic sub-competences, and their status as competences specific to TC.
4. The interrelation of all the sub-competences of TC, and the fundamental role of the strategic sub-competence within TC as a whole.
5. Differences depending on directionality (translation into L1 or L2).

6. Differences between TC and translation expertise. The study of the nine translators with the highest translation acceptability scores (PACTE 2017c) clearly showed that they achieved better results than the other translators for most of the indicators⁴.

The results also made it possible to identify the distinguishing features of TC (see table 2.1).

Table 2.1. Distinguishing features of translation competence (PACTE 2017b: 295)

DISTINGUISHING FEATURES OF TRANSLATION COMPETENCE RELATED SUB-COMPETENCES		
Solving translation problems with acceptable solutions	↔	Strategic
Having a dynamic and coherent concept of translation (declarative knowledge)	↔	Knowledge of translation
Having a dynamic approach to translation (procedural knowledge)	↔	Strategic
Combining the use of cognitive (internal support) and different types of documentary resources (external support) in an efficient manner	↔	Strategic + instrumental
Combining automatized and non-automatized cognitive resources (internal support) in an efficient manner	↔	Strategic + knowledge of translation
Using instrumental resources in an efficient manner	↔	Instrumental

4. The nine translators in question were also shown to have characteristics that, according to expertise studies, typify experts and can therefore be taken as a basis for distinguishing between TC and translation expertise (PACTE 2017b: 293-294), namely superior performance; qualitative differences in the representation of knowledge; more highly developed structuring and interconnection of knowledge; more highly developed procedural knowledge; and more efficient use of documentation strategies.

2.4. Translation competence acquisition

2.4.1. Evolution in research and models proposed

Unlike in the case of TC, very few models of TCA have been proposed. Most of the TCA models that do exist are based on observation and experience or on studies conducted in other disciplines. The following are noteworthy models⁵:

- *Natural translation* (Harris 1977, etc.). Harris defines natural translation as a universal innate capability that all bilingual speakers have, one they develop in everyday life without special training. That capability is, thus, different from TC.
- *Socialization as concerns translating* (Toury 1995: 241-258). According to Toury, feedback from the social environment plays a key role in the process whereby a bilingual becomes a translator. He calls the process in question *socialization as concerns translating*.
- *Constructed translation* (Shreve 1997). Shreve views the development of TC as a continuum spanning *natural translation* and *constructed translation* (professional translation).
- Chesterman's five stages (1997: 147-149). Chesterman draws on the five steps proposed by Dreyfus and Dreyfus (1986) for the acquisition of expertise (the novice, advanced beginner, competence, proficiency and expertise stages). He considers the process involved to be one of gradual automatization and critical reflection.
- The connectionist model (Alves and Gonçalves 2007). On the basis of connectionist approaches, Alves and Gonçalves regard TCA as a gradual, systematic, recurrent process involving neuron networks expanding between different units of an individual's cognitive environment.
- The *emergence of translator competence* (Kiraly 2013, 2015). Kiraly, who has criticized two-dimensional TC models for being unable to capture the complexity involved, proposes a four-dimensional TC

5. For fuller explanations of TCA models, see Hurtado Albir 2001/2011: 402-406, 2020: 402-405; PACTE 2020: 97-100.

model. His model reflects the complex interplay of competences and their non-parallel emergence over time, and emphasizes that competence development is different in each individual. He advocates training based on projects and real experiences to promote learning and the development of translator competence (e.g. Kiraly and Massey 2019).

Empirical studies on matters related to TCA have been carried out since the 1980s⁶. Some focus on the performance of translation students of a given level or of different levels; others compare translation students' performance with that of bilinguals or professional translators. Most such studies involve small samples. Furthermore, they only deal with particular aspects of the TCA process (creativity, automatization processes, problem identification, decision-making, strategy use, cultural competence, the influence of bilingualism, etc.). There is little in the way of research that looks at TCA in its entirety and on the basis of large, representative samples. Two research projects in which longitudinal studies of TCA were conducted are the TransComp project (2008-2011, University of Graz) and the Capturing Translation Processes (CTP) project (2009-2011, ZHAW Institute of Translation and Interpreting).

2.4.2. *PACTE's research on translation competence acquisition*

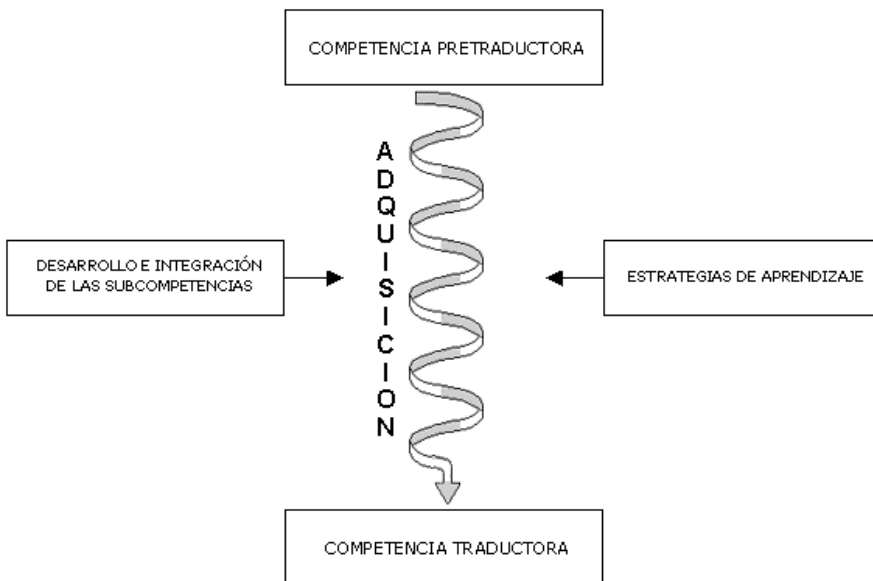
2.4.2.1. *PACTE's dynamic translation competence acquisition model*

PACTE conceives TCA as a dynamic, non-linear, spiral process in which novice knowledge (pre-TC) evolves into TC (see figure 2.2)⁷.

6. For a review of such studies, see Hurtado Albir 2020: 405-407; PACTE 2020: 100-102.

7. This model was first presented (together with PACTE's TC model) on a poster entitled "*La competencia traductora y su aprendizaje*" at the Universitat Autònoma de Barcelona's 4th International Congress on Translation, in 1998.

Figure 2.2. Translation competence acquisition according to PACTE (1998, 2000, 2020: 105)⁸



PACTE (2000, 2014, 2015, 2019a, 2020: 104-105) defines TCA as:

1. A dynamic, spiral process that, like all learning processes, evolves from novice knowledge (pre-TC) to TC. It requires learning competence (learning strategies).
2. A process of restructuring and developing the sub-competences and psycho-physiological components of TC.
3. A process in which both declarative and procedural types of knowledge are integrated, developed and restructured.
4. A process in which the development of procedural knowledge — and, consequently, of the strategic sub-competence — is essential.

8. Not all of PACTE's publications in which this model is presented are cited here.

The TCA process thus consists in an evolution that begins at a stage where an individual has only bilingual and extralinguistic competence and a rudimentary natural translation ability (Shreve 1997), and ends with the acquisition of TC. According to PACTE, TCA involves relationships, hierarchies and variations where sub-competences are concerned. The sub-competences that play a part in the process (PACTE 2020: 104-105): (1) are interrelated and compensate for each other; (2) do not always develop in parallel (i.e. at the same time and rate); and (3) are organized hierarchically. Additionally, the TCA process:

- might not be parallel for translation into L1 and into L2;
- may evolve at different speeds depending on the language pair;
- is influenced by the learning context (guided learning, self-learning, etc.) and by the methodology teachers use;
- may vary depending on the translation specialization (legal translation, literary translation, etc.).

It goes without saying that there may also be personal differences between individuals (knowledge, abilities, cognitive styles, etc.), which are difficult to measure in studies such as PACTE's.

2.4.2.2. Main results of PACTE's experimental research on translation competence acquisition

Like the group's TC research before it, PACTE's empirical research on TCA focused on the three sub-competences specific to TC (the knowledge of translation, instrumental and strategic sub-competences) and did not study its psycho-physiological components. PACTE also decided against studying the acquisition of learning strategies and the influence of pedagogical input, which should be dealt with in other research. As in its work on TC, the group concentrated on non-specialized translation in its research on TCA, the results of which are set out in PACTE (2020)⁹.

9. While PACTE collected data on translation into both L1 and L2 in its TCA experiment, only the data corresponding to translation into L1 are analysed in PACTE 2020, which includes results for all the variables and indicators.

The TCA experiment involved the same dependent variables as the TC experiment, and the subjects performed the same experimental tasks.

Before conducting the TCA experiment, PACTE ran a pilot test with 15 fourth-year translation and interpreting degree students from the Faculty of Translation and Interpreting of the Universitat Autònoma de Barcelona (UAB) in June 2011.

The TCA experiment would ideally have been a longitudinal study with a single group of subjects, but that would have entailed various practical and technical problems, such as the difficulty of retaining the same group of subjects for five years, the need to develop and test comparable instruments for each measurement, complications in terms of controlling extraneous variables (e.g. external factors that might affect subjects' language and translation skills), and technological changes. PACTE therefore chose to simulate a longitudinal study by taking measurements from groups of first, second, third and fourth-year students and a group of recent graduates simultaneously. A screening questionnaire was used to ensure that the subjects in each group were homogeneous and representative of the corresponding level. That approach made it possible to collect all the experiment's data in a single month, using the tasks and instruments validated in the TC experiment, and to guarantee that the conditions in which the data for every indicator were collected were the same.

The TCA experiment was conducted in November 2011. Its 129 subjects comprised first to fourth-year translation and interpreting students and recent graduates from the UAB's Faculty of Translation and Interpreting. The first-year subjects had just begun their degree course and had yet to take any actual translation subjects, so could be considered novices and had only pre-TC. The recent graduates had completed their studies in June 2011 and could be regarded as representing the end of the training process. The performance of the subjects was compared to that of the 35 professional translators who participated in the TC experiment.

On the basis of the data collected, PACTE identified four different types of evolution in the indicators studied:

- Non-evolution: no difference in the values between consecutive groups between the start and completion of training.

- Rising evolution: values rise between the start and completion of training, with each value between consecutive groups being higher than or equal to the previous one.
- Falling evolution: values fall between the start and completion of training, with each value between consecutive groups being lower than or equal to the previous one.
- Mixed evolution: a combination of rising and falling evolution between the start and completion of training.

The existence of those four types of evolution is the first confirmation of the non-linear nature of the TCA process.

The experiment's results showed the following (PACTE 2020: 211-218):

1. Increase in translation acceptability, and complex nature of intentionality-related translation problems. Translation acceptability increases as training progresses. As the type of translation problems with the lowest acceptability levels, problems involving intentionality (i.e. related to understanding information in the source text) are the most difficult to solve.
2. Progression from a “static” (linguistic, literal) to a “dynamic” (textual and contextual) concept of and approach to translation. The progression in dynamism is more marked in the case of procedural knowledge.
3. Concern for target text linguistic quality. Linguistic reformulation difficulties were the type of difficulties most often identified as problematic by the students, indicating that they are aware that translation requires proficiency in the target language and lack confidence in their ability to produce a linguistically correct target text.
4. Fluctuation in the acquisition of procedural knowledge, and influence of subjectivity. There is fluctuation in the acquisition of procedural knowledge for solving translation problems (most of the corresponding indicators undergo mixed evolution). Subjectivity has an influence, given that the way students identify problems, describe their characteristics, use procedures to solve them and

evaluate solutions depends on their knowledge, abilities and shortcomings. Subjectivity conditions both students' declarative knowledge (*implicit theories*) and their procedural knowledge related to solving translation problems.

5. Fluctuation in the acquisition of strategies for solving translation problems, and very little use of internal support and automatized processes. There is also fluctuation in the acquisition of strategies for solving translation problems (in which regard mixed evolution takes place), and internal support (cognitive resources) and automatized processes are used very little. Students hardly mobilize their cognitive resources, i.e. linguistic knowledge, all kinds of extralinguistic knowledge, knowledge of translation, and cognitive strategies (contextualizing words, making inferences, drawing analogies, formulating hypotheses about meaning, etc.).
6. Very small rise in translation process efficacy. While translation acceptability increases as training progresses, the speed with which acceptable solutions are found does not.
7. More effective use of instrumental resources, fluctuations in the variety of resources used, and increase in the variety of searches performed. As training progresses, the variety of resources used fluctuates (undergoing mixed evolution) and the variety of searches performed increases (undergoing rising evolution), pointing to a gradual increase in familiarity with and confidence in using external resources.
8. Predominance of mixed evolution. The acquisition of procedural knowledge and the use of strategies are non-linear and are restructured as training progresses, given that most of the indicators analysed undergo mixed evolution and those that do evolve in such a way fundamentally correspond to procedural knowledge (most of them, furthermore, are related to the strategic sub-competence).
9. Varying progression from indicator to indicator, and lack of progression in the case of procedural indicators. The six indicators in which there is no progression correspond to procedural knowledge

(they are related to the strategic and instrumental sub-competences); it appears, thus, that procedural knowledge is harder to assimilate.

10. Very few relationships between acceptability and the other indicators. The lack of such relationships may be attributable to each person using the sub-competences of TC differently and compensating between them according to their needs to obtain acceptable solutions when translating, taking varying paths and using the strategic sub-competence differently.

The results obtained therefore appear to confirm PACTE's TCA model, as they corroborate the following aspects of it (PACTE 2020: 218-219):

- TCA is a dynamic, non-linear, spiral process: it has been seen to involve a combination of different kinds of evolution, with mixed evolution predominant, highlighting its non-linear nature.
- TCA involves an evolution from novice knowledge to TC: internal support (cognitive) and external (instrumental) resources have been seen to be combined and adjusted to produce better acceptability results as TC is acquired.
- TCA is a process in which the sub-competences of TC are developed and restructured, and it takes place in a non-parallel manner: the results obtained show there to be changes in declarative and procedural knowledge as TC is acquired and that those changes are non-parallel (i.e. they do not happen at the same time and rate).
- The importance of the strategic, instrumental and knowledge of translation sub-competences in TCA: the indicators analysed mainly provide information on those three sub-competences, which are specific to TC in PACTE's model, and the results obtained clearly show how important they are.
- The essential nature of the strategic sub-competence in TCA: the importance of acquiring the strategic sub-competence is underlined by the compensation and adjustments observed between the use of internal support (cognitive) and external support (instrumental) procedures to solve translation problems. According to PACTE's

model, the strategic sub-competence monitors the translation process, activates the other sub-competences to solve translation problems, makes up for shortcomings in the other sub-competences and is used to appraise solutions when translating.

The results of the TCA experiment also showed that the degree of an individual's TC influences not only the product (translation quality) of the translation process but also the way the process itself is conducted (concept of and approach to translation, identification of translation problems, application of strategies, etc.). Lastly, it is noteworthy that the new generations were found to use external resources more frequently and effectively than the professional translators who participated in the TC experiment did.

The results for the different variables in the TCA experiment showed most of the indicators to be influenced by the training received and pointed to certain flaws in training. Accordingly, a number of implications for translator training were identified (PACTE 2020: 223-225):

1. Greater emphasis should be placed on intentionality-related translation problems and developing the strategic sub-competence.
2. L1 writing skills should be developed further.
3. (3) More should be done to stimulate the use of internal support (cognitive resources).
4. Automatization in solving translation problems appropriately should be promoted.
5. The time pressure professional practice involves should be emphasized more.
6. More effective use of instrumental resources should be promoted.
7. *Deliberate practice* of translation should be increased with a view to translation problems being solved more effectively. That involves well structured translation tasks that have specific goals and can improve cognitive skills, increase efficacy in the use of instrumental resources and boost automatization in solving translation problems.

8. Clear competence level criteria should be established, as PACTE's research has shown that TC requires an acquisition process and that the process involved comprises different stages. Describing each stage's characteristics to make it possible to determine levels of TCA is something yet to be accomplished; doing so is the objective of the NACT project.

[The publication of this article was funded by the Department of Translation, Interpreting and East Asian Studies of the Universitat Autònoma de Barcelona and the Excellence Initiative – Research University program for the University of Wrocław.]