

Enhancing Learners Specialized Languages acquisition through an Effective Cognitive Approach of Translation

Sabah FARRAH ^{1*} صباح فراح & Chaouki BOUNAAS ² شوقي بونعاس

¹ *Department of English Language and Literature
M'sila University, Algeria.
ilfiorerosso@hotmail.fr*

² *Department of English Language and Literature
M'sila University, Algeria.
mr.linguiste@gmail.com*

Received date: 25/06/2020

Revised date: 08/12/2020

Publication date: 31/12/2020

Abstract:

World-wide development made of that large universe a global village, facilitating intercommunication and inter-culturality among people to share ideas, conceptions, sciences and knowledge. Knowledge variety led to the emergence of diverse specialized languages and raised the need to their fast learning and mastery, for the warranty of a successful communication among individuals of different cultural and civilizational backgrounds. Hence, the importance of specialized languages incites learners to think about cognitive approach of translation contribution in specialized languages acquisition and mastery. This paper investigates the contribution of cognitive approach of translation in raising learners capacities to learn specialized languages and impact on their specialized linguistic performance in a globalized age; as well as the manner educators and syllabi designers use to raise learners' awareness of the importance of not only learning specialized languages but also how to use the cognitive approach of translation to reach that aim.

Keywords: Cognitive approach; Translation; Specialized languages; Global age; Communication.

* Corresponding author: Sabah FARRAH, ilfiorerosso@hotmail.fr

165

1- Introduction :

Language use is getting more importance for the rise of the influence of globalization resulted in the fast wide-spread of English as a global language; limiting other languages use in a multi-linguistic and multi-cultural world. Bilingualism, and more recently multilingualism, is attracting considerable attention due to the increasing influx of people with different ethnolinguistic backgrounds to all societies living in a globalised world. Given the pervasive importance of English in this changing time of globalization, its learning and teaching as a foreign language seems to be a daunting effort for students who seek effective communication. This paper investigates the importance of using the cognitive approach of translation to help learners acquire English for Specialized purposes, to use it in a more effective way in multi-ethnic and multi-cultural societies. Some helping factors led to the emergence and the need to use ESP such as industrialization and globalization. Hence, translation, as an effective communication tool, helped in conveying the specialized knowledge facilitating the touch of teachers.

1. The Essence of English for Specific Purposes

General (language for no purpose) courses at any proficiency level almost always teach too much, e.g. vocabulary, skills, registers or styles some learners do not need, and too little, e.g. omitting lexis and genres that they do. Instead of a one-size-fits-all approach, it is more defensible to view every course as involving specific purposes..
(Long, 2005)

English, or any language, is taught with specific purposes explicitly in mind. The reality is that the purposes served in language instruction are not always those of the language learners, so the instruction may look to learners like “language for no purpose”, or more troubling, like language for other people’s purposes (individuals or even national entities in positions of power). Commitment to the goal of providing language instruction that addresses students’ own specific language learning purposes is what those

who take an English for Specific Purposes (ESP) approach see; as distinguishing it from other approaches to English Language Teaching (ELT). (Hyland, 2002, pp 385-395) [We should note that the specific-purposes approach is not exclusive to the teaching of English; it can be used to teach any language, hence the broader term *Language for Specific Purposes (LSP)* also exists. Since this volume focuses primarily on the teaching of English, the goal of ESP-specific-learner-centered language instruction-may appear straightforward enough, how best to meet the goal may be less obvious.]

ESP approach requires a willingness on the part of the language educator to enter (not unlike ESP students themselves) as a stranger into strange domains—academic and occupational areas that may feel quite unfamiliar—and to engage in a degree of reflection that attempts to sort out the extent to which learners’ purposes are served when the language practices of any target discourse community are taught.(Belcher, 2006, pp 133-156) For many involved in ESP, these intellectual and, some would add, ethical challenges (Hyland, 2002, pp 253-269) are among the main reasons why they find ESP exciting, intellectually stimulating, and professionally and personally gratifying.

2. ESP vs. General English: Common Core or Different Aspects?

For teachers of General English, a key question is finding materials and methodologies which are effective for a particular class (e.g. ‘Is the approach or method I’m using appropriate for learners of this age, culture, level, first language(s) etc.’?). This question is also relevant to ESP but one other factor should also be considered: **subject specific knowledge** (of legal procedures, of engineering methods, of software programming, etc). By definition, the learners, in an ESP course, will know more about the subject than the teacher. This factor often makes ESP a daunting, but also an exciting, challenge. However, there are three key strategies open to ESP teachers whose knowledge of the specific subject is limited: **honesty and openness, preparation and confidence**.

• **Honesty and openness** are about managing expectations. ESP teachers don't need to pretend to be something they are not. An important skill for any specialist is the ability to describe what they do (and why) in a non-specialist language for reasons of understanding: a doctor explaining a medical procedure to a patient; or an engineer explaining to a client why a project cannot be completed in less than four months. Learning should be a joint process based on the teacher's expertise in language and methodology, and the learner's subject knowledge.

Preparation should include learning as much about the learners' professional field as the teacher can: research before the course, careful planning of the language and problems that may arise in a lesson, strategies to deal with vocabulary problems that can't be solved during the lesson, and a commitment to learn the learners' specialization for a better preparation.

Self-confidence about having the skills their learners need, such as knowledge of how to make learning successful, how to make language memorable, and how to motivate learners. In other words, an ESP teacher with strong methodology but limited subject knowledge may be more effective than a subject specialist with no knowledge of methodology (although of course a subject specialist with strong methodology would be even better!) (Jeremy & Krzanowski, 2011, p 07)

3. Multi-disciplines and the Need for English for Occupational Purposes

One gets a sense of the enormous range of domains that ESP specialists enter into by noting just some of the seemingly endless acronyms generated by the various branches of ESP. There are as many types of ESP as there are specific learner needs and target communities that learners wish to thrive in. Perhaps the best known of these (especially among language educators who are themselves most often situated in academia) is EAP, or English for Academic Purposes, tailored to the needs of learners at various, usually higher, educational levels. (Hyland, 2006) Less well known (to

many academics) and potentially more diversified, given the breadth and variety of the worlds of work, is EOP, or English for Occupational Purposes.

The fastest growing branches of EOP are those associated with professions that are constantly expanding and generating offshoots, such as EBP, English for Business Purposes; ELP, English for Legal Purposes; and EMP, English for Medical Purposes. There are also numerous other less well-known but equally intriguing varieties of EOP, such as English for Air Traffic Controllers, English for Tourist Guides, English for Horse Breeders, and English for Brewers. (Dudley-Evans & St. John, 1998; Hutchinson & Waters, 1987; Orr, 2002) The ESP picture is further complicated by numerous hybrid permutations of EOP and EAP, combining elements of both, such as EAMP, English for Academic Medical Purposes (for health science students); EABP, English for Academic Business Purposes (for students majoring in business), and EALP, English for Academic Legal Purposes (for law students). EAP, EOP, and still further combinations of both are not the whole story either, as socially conscious ESP specialists have begun to consider highly specialized sociocultural purposes too (hence, English for Socio- cultural Purposes, or ESCP) (Master, 2000); by addressing such needs as those of language and literacy learners who are incarcerated, coping with physical disabilities, or seeking citizenship. (Belcher, 2004. pp 165-186) What Hyland (2006) has recently observed of EAP is arguably an apt descriptor of ESP in general: its motivation to help those especially disadvantaged by their lack of language needed for the situations they find themselves in, hope to enter or eventually rise above. This commitment to the purposes of the learners themselves is what unites all the various branches of ESP. What the commitment entails is: (1) before, during, and even after instruction, finding out what learners' needs are; then (2) developing or adapting materials and methods to enable needs-responsive instruction while concurrently; (3) acquiring the expertise to function as needs-knowledgeable instructors.

4. Psycholinguistic and Cognitive Psychology Models in Translation Processes

Researchers borrowed ideas to suggest some models to theorize the mental process of the translator/interpreter from cognitive sciences, such as psycholinguistics, cognitive psychology, artificial intelligence and neuroscience. These models are here classified as a group as they share the hypothesis that translation is a process of decoding the source language and recoding the target language. Bell (1991) provided one of the important representative models based on the perspectives of systemic-functional linguistics and artificial intelligence to conceive translation as of the two phases of analysis and synthesis.

The phase of analysis undergoes the specific stages of visual recognition of the words in the source text, syntactic parsing in combination with the structure analyser, semantic and pragmatic processing to generate a semantic representation with the work of an idea organizer and a planner. The final product of the analysis phase is the semantic representation, which is then reprocessed at the phase of synthesis through pragmatic, semantic and lexico-grammatical synthesizers to be encoded in the target language and to give rise to the translated text. (Bell, 1991, p 55)

Kiraly (1995) adopted a cognitive and a social perspective to suggest two models of the translation process: a **social** model and a **cognitive** model. In the social model, translation is considered as a three interrelated situational contexts act: the source text, the target text and the translational context. The translational context is meticulous as it cannot be observed directly due to its internal and mental traits, but it is externalized by the translator's self-concept. In Kiraly's cognitive model, the translator's mind is "an information-processing system in which a translation comes from the interaction of intuitive and controlled processes using linguistic and extralinguistic information" (Kiraly, 1995, p 102). His cognitive model consists of information sources, intuitive workplace and controlled processing centre. At the intuitive workplace, the information sources are processed without any conscious control to produce translation. If problems

emerge, they are reconsidered in the controlled processing centre and a strategy is chosen to deal with these problems. If the strategy failed to give a translation, the translation problem is sent back to the intuitive workplace for a second processing with the information yet not taken into account. If the problem remains unsolved, a tentative translation is given and accepted for lack of adequate information. (Kiraly, 1995, p 101)

Wilss (1996) argues that problem-solving and decision-making are the most relevant elements in translation. He takes a cognitive psychological perspective to view translation as a decision-making process involving knowledge-based intelligent activities. It requires the acquisition of organized knowledge. As schema is the representation of knowledge in mind, the central task of cognitive approaches to translation process is to investigate the way schemas operate. In problem-solving, the translator needs both declarative knowledge and procedural knowledge. Six phases in problem-solving are listed as: identification of problems, clarification of problems, search and retrieval of relevant information, problem-solving strategies, choice of solution, and evaluation of solution. There is also the cognitive simplification to reduce inaccuracies in specific translators' acts. (Wilss, 1996)

Translation process also involves the translator's/interpreter's cognitive efforts. Gile (1995) thus draws on the idea of processing capacity from the cognitive psychology to put forward a model of efforts for interpreting process. He argues that interpreting differs from monolingual communication in that it involves non-automatic operations that require three types of effort: efforts related to listening and analyzing, efforts related to discourse production in reformulation, and short-term efforts. (Gile, 1995)

5. Translation Process Theoretical Models Inadequacies

Theoretical models share some fundamental views about the mental process of the translator/interpreter. Most of them conceive translation as a cognitive process that is dynamic, interactive and non-linear in nature as it

involves the work of both the uncontrolled and controlled, or automatic and non-automatic processing. Thus, some consider it to be based on problem-solving and decision-making; as well, data sources are regarded as most important including internal and external resources with the work of long-term and short-term memory.

However, most of the models remain as a theoretical hypothesis without much empirical evidence. With recent empirical research methods, an increasing need for more laboratory relevant experiments models, to gather more specific information about the translator's mental traits in translation, emerged. While these models offer only imaginary thinking about what is happening in the mind of the translator/interpreter, researchers are hoping to gather more specific evidence of the translation actions, including data or observations from experiments to justify the theoretical hypothesis. Attempts to find answers to these questions among others characterize cognitive approaches to translation process in the first decade of the 21st century.

6. Translation Cognitive Approaches and Specialized Language Acquisition

Specialized Language acquisition research assumes that specialized language acquisition processes can be guided very little. People do not learn in the same way at the same pace in the same field of study as learners construct their knowledge individually. Internal differentiation in teaching takes this fact into account through differing quantities of materials and differing degrees of difficulty of specific tasks or learning tracks. So, we can notice the existence of a pragmatic cognitive model that is influencing the way learners acquire specialized languages and thus use them accordingly.

Gutt (1991) builds on relevance theory to develop a relevance model of translation. (Gutt, 1991, p 144) According to Sperber & Wilson (1986/1995) human inferential processes are geared to the maximization of relevance. Human cognition is either descriptive in the sense that it establishes resemblance between an object or state of affairs in the world

and a mental representation, or interpretive in the sense that it is the resemblance between two mental representations. (Sperber & Wilson, 1986/1995) Gutt argues that translation is a case of optimal interpretive resemblance in which “two utterances, or even more generally, two ostensive stimuli, interpretively resemble each other to the extent that they share their explicatures and/or implicatures”. (Gutt, 1991, p 44) The translator’s task is to transfer ostensively to the target readers or audience all relevant aspects ostensively and inferentially conveyed by the source text. Gutt suggests that the relevance translation theory would help in understanding and explicating the mental faculties of the translator/interpreter.

Learners, therefore, make mistakes that cannot and should not be prevented. Mistakes are an important indicator of an individual’s stage of language acquisition. A positive approach to mistakes has a positive effect on the self-confidence of the learner and on the learner’s willingness to take risks, and to use and further develop the specialized language. Specialized language production and specialized language knowledge are therefore not assessed on the basis of deficits that still exist, but rather on the basis of the level of specialized language already achieved. It motivates learners when their development is acknowledged and their progress documented.

7. Latest Developments in Translation Cognitive Researches

Cognitive approaches to translation process develop from theoretical thinking to more empirical verification. In the past ten years, the latest trends of the process-oriented translation studies are marked by the new ways of data collection, more delicate research design, better control of variables in experiments, and the deep integration of multidiscipline. Nevertheless, we can notice some important new methodologies that require the learner’s special attention which are listed below:

8.1. Translation New Methodologies

The earlier use of methods in the process-oriented studies is mostly confined in verbal protocols, such as the most typical one Think-Aloud

Protocols (TAPs). Researchers used to rely on the assumption that “verbalizations reliably indicate cognitive behaviour” (Shreve & Angelone, 2010, p 6). Later, especially during the 1990s, researchers become gradually aware of the several flaws with verbal protocols and the pool of available methods has been expanded. These methods are favoured for the data collected seem to be more scientific, reliable and closer to the translation practice as they are gathered in real time as the translators are acting. According to Gopferich & Jaaskelainen (Gopferich & Jaaskelainen, 2009, p 172), all these methods can be labelled as either “soft” as they are qualitative and subjective in nature, or “hard” as they gather quantitative and objective data.

8.1.1. Soft Methods

Soft methods are mostly verbal reports including: TAPs, dialogue protocols, retrospection, as well Integrated Problems and Decision Reporting (IPDR) that are often combined with questionnaires (Youssef, 1989), interviews (Shih, 2006, pp 295-312) and translation journals or diaries (Bergen, 2006, pp 119-126) to elicit informants verbal responses or accounts. In terms of data eliciting time, verbal reporting methods are distinguished between concurrent and retrospective reporting. The former takes place simultaneously with the task performance, while the latter takes place after the task performance. Time factor is now a great concern about the validity and reliability of the date elicited in the experiment. Think-Aloud Protocol was the first method used by the individual translator to report translation mental activities, while retrospection has been increasingly used, particularly altogether with other “hard” methods. Dialogue protocols began to be used in the late 1980s on two or more translators working on the same text (Kußmaul, 1995). Although dialogue protocols are reported to be superior to think-aloud as the former yields richer data; the question, whether the negotiating and debating between the partner translators have any effect on the efficiency of the translation, has been a concern. Another frequently used verbal report is IPDR, which requires subjects to write down comments on the problems they encounter

during a translation task and how they have solved them. It is more subjective as the subjects may write down what they consider to be most important or relevant, and more often used for didactic purposes. Verbal reports include also some methods borrowed from sociology or psychology, such as questionnaires, interviews and translation journals or diaries.

8.1.2. Hard methods

They emerge with the combination of the latest advancement of technologies and development of new software. They are keystroke logging with Translog, video and screen recording with Proxy and Camtasia, and eye-tracking with relevant software. In the late 1990s, the TRAP group employed Translog to record the keyboard and mouse activities during a translation process. This marks the early introduction of keystroke logging into the research of translation process (Jakobsen, 1998). One interest with the keystroke logging research is in pauses considered as cognitive processes indicators, especially planning processes. Pauses length and number may indicate the complexity of the linguistic units processed. Keystroke logging data are often complemented by think-aloud or retrospective reports rather than concurrent verbalization, as the latter may impose interference on the translator, most probably on the pause.

Video and screen recordings are used for their advantage of showing the subjects actions, faces and the electronic sources or web-sites they use in translation. These data offer richer aspects of the translator behaviours and the information sources elicited, with the help of think-aloud and retrospection to provide account of the problems they encounter and strategies they adopt to solve them. Apart of the use of these technologies and software, researches also introduce methods from neurosciences such as EEG, and neuro-imaging techniques such as functional magnetic resonance imaging (fMRT) and positron emission tomography (PET).

Another trend of methodological innovation is found in the change from the use of single method in a research to the integration of more methods, as each method has its own advantages, disadvantages and specific

focus or emphasis. Recently, *triangulation* has been gradually adopted by more researchers to elicit data of different types and aspects so as to improve the quality, validity and reliability of the research findings (Alves, 2003). Triangulation is a term that refers to the use of two or more than two methods in a single study. The research of the past decade shows “an increasing reliance on multiple methodologies” (Shreve & Angelone, 2010, p 6), and the majority of the empirical studies in *Translation and Cognition* make use of one or more of the new methods. Angelone (2010), for example, uses screen recording and think-aloud in the research of the problem-solving behavior of professional and student translators. Dragsted (2010) employs keystroke logging and eye-tracking to explore source text comprehension and target text production. Fabio Alves (2010) and his colleagues are more innovative in integrating process-based and product-based research methods, namely the combination of corpus analysis and keystroke logging, eye-tracking and retrospection to the research translation unit associated with cognitive effort during a translation task.

8.2. Increasing Interdisciplinarity and Translation Process

Research of translation process has enjoyed a close relationship with the neighbouring disciplines such as psychology, linguistics, and psycholinguistics, in both model building and methodology borrowing. The integration of translation studies with cognitive sciences was increasingly remarkable in the past decade. One chapter of the book *Translation and Cognition* (Shreve and Angelone 2010) is given to the discussion of interdisciplinary approaches, with the title “Integration of translation process research and the cognitive sciences”. These interdisciplinary researches include: the expert-performance perspective exploration of expertise in interpreting, the search of neuro-physiological correlates of expertise in interpreting, and the study of the prompting cognates in the bilingual lexicon. These research findings are the strong proof of the productive forces of the sister disciplines, such as psycholinguistics, cognitive linguistics, cognitive psychology, neuro-physiology when they are integrated with translation process research. The interdisciplinary

approaches have contributed to the research of translation process in some inspiring notions and concepts, namely expertise, bilingual ability, conceptual representation, prompting cognates, metacognition, etc. Meanwhile, some traditional concepts such as competence, translation unit and strategies have been redefined and re-examined to their new vitality.

Another indicator of the interdisciplinary trend of translation process research is seen in the fact that an increasing number of researchers from neighbouring subject fields extend their interest in the field of translation studies. Among the 22 contributors to the book *Translation and Cognition*, seven (7) among them are based in other cognitive sciences, e.g. psychology, neuro-physiology, cognitive linguistics, and computational linguistics. They either cooperate with translation researchers, or adopt translation process researches with the models and methods in their own fields to probe into the mental mechanism of this particular bilingual activity — translation.

9. Cognitive Approaches Challenges to Translation Process

Though one can notice the remarkable development in data acquiring methods, research design, variable control, and project size in translation process research, still the cognitive approaches to translation process, as a relatively new paradigm, face challenges and potential inquiries are expected to emerge. A bound understanding of the challenges will give us an image of what might be the future direction to develop the cognitive translation studies as theoretical framework. The challenges can be summarized as building of theoretical models, evaluation of methodologies and establishment of data documentation systems.

9.1. Theoretical Translation Model Construction

Shreve & Angelone (2010, pp 1-13) suggest that model building is of paramount concern for the translation process research. Those models built on linguistics; literary theories or cultural studies are either product or function oriented or focus on linguistic comparison, without much concern about the mental traits of the translator during translation. These theoretical

models established on the basis of the adjacent disciplines such as psycholinguistics, cognitive psychology, neuro-science, bilingualism and second language acquisition have made tentative attempts in theorizing the mental process of translation to acquire specialized languages, but these models have limitations that restrict their success and use in a multidisciplinary world. The problem lies in the fact that most of them are more or less theoretically imaginary in nature; since they are somewhat far away from the experimental research design. Hence, the research topics addressed in these models are confined to relatively smaller coverage and the process description is rather general for lack of scientific data to support. This is the old story of process research in the last century.

Globalization and its effects mainly the progress and widespread of new technologies that led to the merging research methodologies and data eliciting measures enabled to carry out large-scale experiments in laboratory situations to observe many different aspects of translator behavior. Empirical researches need to be accomplished with the direction of appropriate theoretical models and “without a robust theoretical apparatus, we cannot hope to integrate and consolidate these massive amounts of data into a consistent understanding of translation and cognition” (Shreve & Angelone, p 12).

A “robust” model for the purpose of directing empirical research is helpful in providing hypotheses about the research topics, guiding researchers to make testable claims and experimental research design, and offering frameworks for the analysis of the research findings. As Gopferich & Jaaskelainen (2009,178) argue some of the previous researches, for example the verbal reporting, might be based on false assumptions or might be inadvertently supporting misguided conceptions about the nature of translating, fundamentally due to the lack of theoretical guiding in research design. (Gopferich & Jaaskelainen, 2009, pp 169-191)

The construction of theoretical models for translation process will also initiate the critical thinking about the present empirical researches. The emerging research projects on an annual basis call researchers in this field to

be more optimistic in taking the cognitive and empirical researches. The critical examination of the validity of the research design and accountability of the research findings, under the direction of the theoretic models will help nurture this promising research paradigm to be developed in a desired way.

9.2. Working Methodologies Evaluation

Working methodological development has been most noteworthy in translation process research, but all previous adopted methods, either verbal reporting like think-aloud, retrospection, interview or the hard ones like keystroke-logging, eye-tracking, video recordings, have their advantages and disadvantages when applied to the specific research topics. Researchers may therefore highlight the advantages and ignore the disadvantages. Validity and reliability problems constitute the center of critics for researchers who prefer empirical researches for their scientific nature since they provide factual evidence. A critical evaluation of the empirical research methods must be established to help find appropriate methods for certain topics so as to increase the accountability of the research. The ecological validity of the methods in laboratory experiments constitutes another concern for researchers. People might have questions about the external interference into the translators when translation is demanded in a situation different of their workplace.

Some researchers (e.g. Ericsson & Simon, 1980, p 106) have reported the slowing-down effect of the concurrent reporting in think-aloud experiment, while some others find the effect of think-aloud on the translating strategies, for example fewer formal correspondence at the lexical level (Jaaskelainen, 2000, pp 71-82) or an increase of revisions in verbal reporting experiments (Krings, 2001, p. 229). The methods of translation journals or diaries might change the translation process itself as the subjects would be more aware of the problem-solving processes. Therefore, such questions remain to be answered as whether these methods will change the research object, or if data reflect the object of the research accurately, or even to what degree will the methods interfere with the translation process. A general concern with the methodological evaluation is

whether these effects and interferences change remarkably the translation product and the way translators use (Xiao Kairong).

Methodologies Evaluation is to be made on a contrastive basis, or to compare different methods to better choose an appropriate method for a specific research design. Another benefit of methodological evaluation is the combination of more methods in a single study. Triangulation has already been adopted by some researchers, but the number and nature of methods to be combined to produce that effect is a pertinent concern.

10. Conclusion

Language learning and use constitute a highly affected area in a globalized world. Globalization creates an excessive interest in learning English as a global language needed for international communication transforming it into a world-wide language. The emergence of various disciplines resulted in the birth of specialized languages and their learning process, which may be a daunting therefore an enthusiastic process for their learner. Hereafter, translation is a mediator in communication and a helping tool for mastering some or many specialized languages through its different cognitive approaches.

Translation cognitive approaches play a vital role in helping ESP learners find their way towards their enquiries about acquiring specialized languages in a multilingual world. Though some challenges may abate the learners' improvement such as: theoretical model building, methodological evaluation, data documentation and subject matter specification. These challenges also affect on the direction of future developments in the field of cognitive translation studies. Teaching English for Specific Purposes is still far from satisfaction. In comparison to General English, ESP is considered to be hard in its teaching for EFL teachers and learners; for which translation cognitive approaches play a first role.

11. References

1. Alves, F., Adriana Pagano, Stella Neumann, Erich Steiner & Silvia Hansen-Schirra (2010). "Translation Units and Grammatical Shifts: Towards an Integration of Product- and Process-based Translation Research". In *Translation and Cognition*, edited by Gregory Shreve & Erik Angelone, pp. 109-142. Amsterdam & Philadelphia: John Benjamins.
2. Alves, F. (2003). *Triangulating Translation: Perspectives in Process-Oriented Research*. Amsterdam & Philadelphia: John Benjamins.
3. Bell, R. (1991). *Translation and Translating: Theory and Practice*. London and New York: Longman, p. 55.
4. Belcher, D (2006). English for specific purposes: Teaching to perceived needs and imagined futures in worlds of work, study, and everyday life. *TESOL Quarterly*, 40, pp. 133–156.
5. Belcher, D. (2004). Trends in teaching English for specific purposes. *Annual Review of Applied Linguistics*, 24, pp. 165–186.
6. Bergen, D. (2006). "Learner Strategies and Learner Autonomy in Translator Training". In *Translation and Interpretation – Training and Research*, edited by Tommola, J. & Y. Gambier. 119-126. Turku: University of Turku.
7. Dragsted, B. (2010). "Coordination of Reading and Writing Processes in Translation: An Eye on Uncharted Territory". In *Translation and Cognition*, edited by Gregory Shreve & Erik Angelone, pp. 41-62. Amsterdam & Philadelphia: John Benjamins.
8. Ericsson, A. & Simon, H. (1980). "Verbal Reports as Data". *Psychological Review*, 3: 215-251.
9. Fox, O. (2000). "The Use of Translation Diaries in a Process-oriented Translation Teaching Methodology". In *Developing Translation Competence*, edited by Schaffner, C. & B. Adab, pp. 115-352. Amsterdam and Philadelphia: John Benjamins.
10. Gile, D. (1995). *Basic Concepts and Models for Interpreter and Translator Training*. Amsterdam and Philadelphia: John Benjamins.

11. Gopferich, S. & Jaaskelainen, R (2009). "Process Research into the Development of Translation Competence: Where Are We, and Where Do We Need to Go?". *Across Languages and Cultures*, p. 172.
12. Gutt, E.-A (1991). *Translation and Relevance: Cognition and Context*. Oxford: Basil Blackwell, p. 144.
13. Hyland, K. (2002). Specificity revisited: How far should we go now? *English for Specific Purposes*, 21, pp. 385–395.
14. Hyland, K. (2006). *English for academic purposes: An advanced resource book*. London: Routledge, and Pennycook, A. Vulgar pragmatism, critical pragmatism, and EAP. *English for Specific Purposes*, 16, 1997, pp. 253–269.
15. Jaaskelainen, R. (2000). "Focus on Methodology in Think-aloud Studies on Translating". In *Tapping and Mapping the Processes of Translation and Interpreting. Outlooks of Empirical Research*, edited by Riitta Jaaskelainen & Son Tirkkonen-Condit, pp. 71-82.
16. Jakobsen, A.-L. (1998). "Logging Time Delay in Translation". In *LSP Texts and the Process of Translation*, edited by Gyde Hansen, 173-101. Copenhagen: Copenhagen Business School. Amsterdam & Philadelphia: John Benjamins.
17. Jeremy D. & Krzanowski, M. (2011). *Teaching English for Specific Purposes: An Introduction*, Cambridge University Press, p. 07.
18. Kiraly, D. (1995). *Pathways to Translation: Pedagogy and Process*. Kent: Kent State University Press, p. 102.
19. Krings, H-P. (2001). *Repairing Texts: Empirical Investigations of Machine Translation Post-editing Processes*. Kent: Kent State University Press. P. 229.
20. Kußmaul, P. (1995). *Training the Translator*. Amsterdam and Philadelphia: John Benjamins.
21. Long, M. (2005) *Second language needs analysis*. Cambridge, UK: Cambridge University Press.

22. Master, P. (Ed. 2000). *Responses to English for specific purposes*. Washington, DC: Bureau of Educational and Cultural Affairs.
23. Shih, C. Y. (2006). Revision from Translators' Point of View. *Target* 2, pp. 295-312.
24. Shreve, G. & Angelone, E. (2010). "Translation and Cognition: Recent Development". In *Translation and Cognition*, edited by Gregory Shreve & Erik Angelone, 1-13. Amsterdam & Philadelphia: John Benjamins, p. 6.
25. Sperber, D. & D. Wilson. (1986/1995). *Relevance: Communication and Cognition*. Oxford: Basil Blackwell.
26. Wilss, W. (1996). *Knowledge and Skills in Translator Behaviour*. Amsterdam and Philadelphia: John Benjamins.
27. Xiao, K., Cognitive Approaches to Translation Process: Current Trends, Challenges and Future Development, College of International Studies, Southwest University eroyxiao@swu.edu.cn
28. Youssef, A. F. (1989). *Cognitive Processes in Written Translation*. Unpublished PhD thesis. Ann Arbor: University Microfilms International.