



Languages and Cognition in Scientific Communication: Mutual knowledge and Understanding within Translation

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Abstract

In recent decades gradual evolution of linguistics has been based to a certain considerable extent on the cognitive discursive paradigm that is focused on defining the role attributed to language in building up of the conceptual and language pictures of the world. In the realm of scientific communication linguistic processing of information within knowledge transfer gives rise to issues that cannot be reduced to linguistic ones and becomes central to the development of a theoretical frame for cognitive and discursive researches, and translation studies as well. Special significance of the interdisciplinary approach in this area of knowledge owes to the multi-faceted nature of human cooperation and communication that have as their pivot cognitive, cultural, and pragmatic aspects of communication processes. The objective of this article is to consider scientific communication specificities within translation process with due account taken of the phenomenon of linguistic personality of translator and relevant intertextual peculiarities essential to semiotic and functional potential of scientific communication. The method of comparative analysis, along with translation method, and native speakers' questionnaire method are used in this research. Ph.D. students of People's Friendship University of Russia (107) from different countries speaking two languages who are both early and late learners of a second foreign language are involved in this study.

We come to the conclusion that in the context of mediated scientific communication the target text commences to function independently or autonomously throughout the act and the process of translation, and it is the translator's personality, along with professional experiences, theoretical and practical understanding of a given branch of science that predetermines both translators' activity, and the strategy of decision making in the course of cognitive and linguistic information processing aimed at facilitating an adequate effect, a fitting and remarkable grasp of the subject, and communication efficacy, throughout dynamic interaction of the conceptual systems of the translator and the other participants of the communication.

The article is of practical value for language and translation teaching, translation-training studies, and second language learning, including discourse studies in modern linguistics

Keywords: linguistics, translation, translator, conceptual systems, scientific communication

The ongoing debate on the main tendencies of translation theory evolution within the edges of new paradigms and interdisciplinary approach is being framed by the concept of Cognitive Linguistics, which is discussed among scholars and is high on the agenda of scientific researches.

Having acquired particular relevance, the cognitive and discursive paradigm contributes to the shaping of modern predominant approach in the realm of linguistics and translation theory, and provides for efficacious instruments for solving a wide spectrum of problems related to the functioning of language especially when exploring language phenomena through the prism of human cognition, intertextuality and poly-cultural space's peculiarities within scientific communication.

It is language that plays a major role of a constituent integral and inherent part of human culture and communication, *imprimis*, of the scientific one, in human society related to the linguistic processing of information within knowledge transfer. In the realm of scientific communication the latter gives rise to issues that cannot be reduced to linguistic ones and becomes central to the development of theoretical frame for cognitive and discursive researches, and translation studies as well.

«Communication represents a fundamental prerequisite for human cognition and perception of the world. The mere possibility of communication *per se* comes preconditioned by the fact that the codes (i.e. languages or verbal codes) of the participants of a cross-linguistic communication, while not being identical or matched, form overlapping sets, conditioning adequate decoding of the information received through different channels, including the ones of the semiotic system» [1:154].

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Scientific communication has its own specificities owing to the fact that science deals with data and information processing where successive development and continuity of cognitive process constitutes a particular and even essential quality or state.

New knowledge grounds on and follows upon a former, the preexisting one. It is integration, i.e. mutual adjustment, and rearrangement thereof that represents the text forming mechanism, as well as a valid tool for achieving sense production, and reflects specificities of the structure of scientific thought. Therefore, knowledge of the specificities intrinsic to the structure of scientific thought, in general, and to the ones in the subject area, in particular, manifested in the text to be translated predetermines professional interaction's efficacy with due account taken of linguistic presenting of knowledge and human experience when addressing concepts or signs lacking in one language in contrast to the other within respective language and conceptual pictures of the world.

«Moreover, the differences in abilities to draw implicatures (inferences) when processing information with regard to language content of an utterance, especially when dealing with specific objects, phenomena or the whole situation expressed by means that best accord with proper conveyance of peculiarities of social, cultural or expert and competent experiences of a given professional community in source and target language are determined, in first place, by subject knowledge and respective background presuppositions in combination with policultural space's cognitive peculiarities and the phenomenon of intertextuality that reflect pragmatic specificities of correlations between linguistic and cognitive structures that ensure precise cognitive perception of the subject while defining the semantic variant in translation compatible both with pragmatic context of the situation and original associations in target language» [2: 267].

In this respect, background knowledge of translator along with such skills as presenting of structures of knowledge by stable and recurrent forms within a given professional area that encode particular situations as fragments of national language picture of the world precondition the appropriateness and efficiency of transformations in translation. For example, technical or special terms and expressions used in a given field of science [3] acquire importance as a starting point for ST perception and analysis.

Efficacious tools provided by the methods of comparative analysis along translation, and native speakers' questionnaire are applied in this article to explore relevant aspects of translator's activity subjected to this study. Ph.D. students of People's Friendship University of Russia (107) from different countries speaking the Spanish, the English, and the Russian languages who are both early and late learners of a second foreign language are involved in this research.

Translation as an ongoing multidimensional and multilevel transformation involves different aspects of communication situating the process itself beyond the edges of relations between the languages. It is the phenomenon of intertextuality that ensures sense augment of the text which is crucial to the translation *per se* and mediated scientific communication in particular, for it constitutes the pivot of the latter in what concerns semiotic and functional potential thereof.

Accuracy and precision forming one of the essential characteristic features of the scientific text, the relevance of precise conveyance of the sense of the text through means of another language considerably increases within dynamic interaction between participants' conceptual systems with due account taken of specificities of verbalization processes, communicative effect, and original associations in target language (TL).

Translation process inevitably and necessarily involves personal characteristics of the translator related to his special knowledge, skills, aptitudes, and professional competence assumed to his mental capacity to analyze, classify, perceive, and explain, as well as interact with some or all phenomena of language and science within the limits of mediated communication.

In the course of linguistic and cognitive processing of the information, translator as the primary addressee (PS) or receptor of the source text (ST) information and the secondary sender (SS) thereof aims the strategy of decision-making at facilitating adequacy in linguistic presenting of knowledge and restoration of scientific communication presuppositions in order to guarantee identical and equal understanding of the original text, as well as ensure a fitting and remarkable grasp of the subject while establishing associative links with the referential situation in the SL, and pragmatic context thereof, for the maximum level of coincidence between conceptual systems of the sender and the addressee is particularly demanded.

We opine that it is the translator's personality with his particularly individual linguistic and mental (related to the mode of thought or capacity for thought *i.e.* the receptive faculty of cognition) characteristics, that is to say, *translator's linguistic and mental personality (TLMP)* [4] that forms the core of translation process as a speech act and an act of cross-cultural communication acquiring special relevance for the translation efficacy.

This leads us to maintain that within translation process the complex of distinctive features that characterizes TLMP in his relationship with the relevant factors of mediated communication can be classified as follows: I) characteristics having special relevance at the stage of ST interpretation; II) characteristics related to the process of target text (TT) production.

I) in the phase of ST interpretation TLMP influences the situation of

- ST perception;
- understanding or comprehension of ST.

II) at the stage of TT production TLMP has a marked impact on

- strategy choice;
- communicative orientation;
- pragmatic orientation;
- selection of linguistic means.

Subjective attitude of the addressee to the text can be referred to as a valid prism for the analysis of the types of perception which is also true for such criteria as degree of comprehension and intellectual depth of understanding. In this connection, we should note that the latter depend on various factors, background knowledge of the communication participants representing the main one of them.

In the process of discourse activity a new text in TL is created by the translator (i.e. mediator of the cross-cultural communication) in accordance with functional parameters of the ST and the translation norm. Traditionally, the intensively developed issue of transformation of the ST into the TT has been prevailing over the hermeneutical issue of adequate perception and understanding the ST *per se* by the mediator in cross-cultural communication.

While the vast majority of translator's errors are rooted in misunderstanding or incomplete understanding of the text in SL, all aspects of the text as a sign entity i.e. the pragmatic, semantic, and syntactic ones are adversely implicated and affected within translation process. As contrasted to the sender's communicative intention, the misunderstanding and incorrect interpretation of the pragmatic aspect of the text in SL may lead to failure of correct reaction of the addressee in TL and the lack of comprehension within translation. The most typical kind of incorrect comprehension (absolute misunderstanding, failure to fully understand, partial understanding, etc.) is related to the semantic level giving rise to a distorted sense conveyance that alters both the significative and denotative levels of the utterance which results from underestimation of communicative situation and presuppositions thereof along with failure to reflect the referential situation in SL.

The choice of decision-making strategy is central to adequacy and appropriateness issues regarding variability within the ways of translation of the same ST in a given professional situation. According to the predominant translation theory and practice postulates, the type of ST, type of addressee and objective of translation act form relevant factors that precondition strategy of translation.

We conclude that the correlation between linguistic and extralinguistic knowledge, in particular, background knowledge of the translator of scientific communication as the SS thereof can be considered as crucial and even constitute the core of the latter having a marked impact on both intertextuality phenomenon and scientific cross-cultural communication efficacy *per se*, for mental processing of respective information within interaction of different textual systems in translation presumes common cognitive and communicative strategies to be applied by the sender of information.

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