Towards a Knowledge Management Model for Online Translation Learning

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Abstract. This paper endeavors to build a knowledge management model for translation learning with special reference to an on-line translation teaching platform. The Platform features a computable network of inter-related and hierarchically distributed conceptual representations of the knowledge in this field. The representation utilizes "tag-words" as the knowledge nodes to form a roadmap of navigation and also as the keywords to introduce theory-informed annotations. This knowledge management system of tag-words aims to advance our understanding of how the knowledge of language and use of language can be modeled in the source language context and remodeled in different settings of the target language context. With the help of this knowledge management system, we may explore the ontological representations of translation and provide a navigation roadmap capable of generating effective learning pathways for learners. Facilitated by the platform, learning activities may be designed to investigate the behavioral patterns of knowledge construction in specific translation learning tasks.

Keywords: Knowledge management · Translation learning · Tag-words

1 Introduction

The translation and interpreting industry has witnessed tremendous growth in the past decades, at a rate of 10% to 15% annually [1]. The increasingly prosperous industry and the shortage of qualified translators or interpreters call for rapid development of translation and interpreting courses in universities throughout the world. Take China for instance, since the establishment of BTI (Bachelor of Translation and Interpreting) program in 2006 and MTI (Master of Translation and Interpreting) program in 2007, translation related programs and courses have experienced rapid growth in universities all over China. According to the latest statistics provided by China National Committee for BTI Education on its official website[1] as of 18 July 2017, there are altogether 215 universities in China with MTI programs and 252 with BTI programs (with 86 universities including both BTI and MTI programs), increased by almost 20 universities

[1] http://cnbti.gdufs.edu.cn/info/1006/1519.htm.

T. Hao et al. (Eds.): SETE 2018, LNCS 11284, pp. 198–207, 2018.
https://doi.org/10.1007/978-3-030-03580-8_21

on average annually. However, due to lack of professionally trained teachers in the field of translation in China, a large number of the newly added universities with BTI and MTI programs have encountered problems of shortage of qualified teachers. In this regard, our research team design the ClinkNotes Online Platform for the Teaching/(self-)learning of Translation (hereinafter referred to as "ClinkNotes Online Platform"), aimed at developing a cost-effective educational paradigm in classroom and web-based settings for the training of professional translators and English-Chinese bilingual language users.

The interdisciplinary scope of ClinkNotes Online Platform covers such fields as computer science, translation studies, language acquisition, functional linguistics, and corpus linguistics. It comprises: (1) corpus-construction (including text-annotation, exercises with explanation of answers, and knowledge-based topical boards); (2) the knowledge management system (theoretically-informed investigations to generate a system of glossed "tag-words" as knowledge nodes to identify/describe textual phenomena and translation methods); (3) electronic program design to interconnect all the aforementioned components for inter-module navigation online. The Platform features a variety of genres/subject domains (including news reports, technical texts, government documents, legal documents, literary texts, etc.), and the data are annotated following a system of 198 tag-words generated from research-informed text analyses, representing knowledge nodes indicating translation methods or language rules for learners. To be more specific, the translation corpus includes 1,772 bilingual texts for general reading and 240 bilingual texts with altogether 3,000 pieces of in-depth annotations, each of which contains the description of approximately 200 words to identify and explain language phenomena or translation techniques by using specific tag-words as knowledge nodes. Meanwhile, 3000 exercises in accordance with the tag-word-based knowledge nodes have been designed for learners to practice what can be learnt in the text data annotation, with each exercise accompanied by the explanation of approximately 200 words. In addition, there are 155 pieces of knowledge-based topical boards containing longer versions of detailed explanation to the tag-word-based knowledge nodes that may occur in the texts and annotations, accounting for 230,000 words in total. In this sense, the tag-words, functioning as important knowledge nodes for the description and explanation of language phenomena or translation techniques, form a knowledge management system and also a guideline for translation learning.

2 Literature Review

According to Zhu and Wang's review [2], the number of universities offering fully-fledged undergraduate translation programs is on the rise, not to mention translation courses offered in foreign languages or literatures across China. However, some institutions of tertiary education are found to be in a rather passive position in adapting to the trend, particularly on account of staff shortage. Liao [3] reported in 2004 that in most foreign languages and literature departments, where translation courses were normally provided and translation programs hosted, there were usually no more than two to three staff members who were engaged in teaching or research in translation, not to mention the situation of staff shortage in training schools. In this sense, the

internet-based and computer-aided language/translation training paradigm is of great necessity to optimize learning resources and alleviate the pressure of staff shortage/labor-intensive teaching.

Equally unsatisfactory is the pattern and quality of translation teaching. The model dominating translator training in China still follows the tradition, blurring the line between translation teaching and language acquisition. Despite the awareness of using corpora in translation teaching, the current use of corpora in translator education is still limited to data retrieval by such means as concordancing, word frequency modeling, collocation clustering and keyword tracking [4–8]. With the lack of a systematic, knowledge-management based and theory-informed approach, the traditional translation teaching tends to be subjective and impressionistic. More often than not, assessment of learners' translation assignments leaves the them perplexed and unconvinced, and teachers themselves are sometimes trapped in their own intuitive comments. Moreover, traditional classroom teaching of translation usually favors general discussions at lexical and syntactical levels, without a clear guideline for the specific knowledge nodes that learners need to master. Sometimes, isolated sentences used by teachers as teaching examples with no context provided alongside may lead to diversified interpretations, and therefore it is difficult for learners to provide convincing translations supported by systematic knowledge repositories. In this circumstance, the application of a theory-informed and knowledge-management based approach is called for to drag translation teaching back to its role as cross-linguistic text formulation [2] away from the present undue concern with training of fragmented language skills. Indeed, a clarification for translation teaching and learning is needed. The latest literature on language teaching has pointed out "the weakness of exclusively monolingual language teaching" and argued strongly that "translation has an important role to play in language learning – that it develops both language awareness and use, that it is pedagogically effective and educationally desirable, and that it answers student needs in the contemporary globalized and multicultural world" [9]. In this spirit, the relationship between translation learning and bilingual language learning is that of a mutually benefited "symbiosis" [9]. In this regard, we define translation learning as a process of building up a knowledge management system for bilingual language rules and conversion methods between two languages, and therefore the dependence on knowledge-management based model of translation learning is crucial.

3 Knowledge Management Model for Online Translation Learning

The knowledge management model for translation learning on ClinkNotes Online Platform, which focuses on building up a knowledge management system for bilingual language rules and conversion methods between two languages, provides a research-informed and systematic guideline for translation teaching and learning. This model will be more objective and applicable than the simple empiricism of translators or translation trainers which used to take a large role in conventional translation teaching and learning. The core concept of this model is the system of 198 knowledge nodes (called tag-words in the platform) clearly defined based on existing linguistic and

translation theories, which are used to summarize and tag the main knowledge points concerning translation methods or bilingual language phenomena as instructed in the text annotations. In fact, the annotations tagged by the knowledge nodes function as learning instructions on how to use specific translation methods or language rules to solve translation problems in various contexts. Such instructions as revealed in the text annotations form teaching contents for learners, while the network of tag-words functions as a roadmap for knowledge construction of translation learning. The knowledge management model for online translation learning can be implemented through the following steps:

- Step 1: Selecting a tag-word from the network of knowledge nodes;
- Step 2: Finding out other tag-word combinations centering on the main knowledge node;
- Step 3: Referring to the text annotations tagged by a set of tag-word combinations for instructions on translation methods or language rules;
- Step 4: Reflecting on the tag-word network that learners have navigated, and summarize the perception of knowledge learning features in translation learning.

3.1 Tag-Word-Based Network of Knowledge Management Model

The tag-word network includes 9 categories of 198 tag-words to constitute a theory-informed knowledge network and act as signposts in on-line navigation. These 9 categories are idiomatic usage, grammar, rhetoric, translation methods, sentence information distribution, inter-sentence connection, intra-paragraph development, inter-paragraph development and cultural background knowledge. The following shows examples of tag-words for the 9 categories:

- Idiomatic Usage: Idioms, Four-characterPhrase, Collocation, Three-characterRhythm, Context, etc.
- Grammar: NounNumber, Article, ModifierTransfer, Adverbial-SubjunctiveMood, Tense-Particle, etc.
- Rhetoric: Pun, Reduplication, Personification, Parallelism, Understatement, etc.
- Translation Methods: Simple-Complex, Passive-Active, Positive-DoubleNegative, Merge, Transfer, etc.
- Sentence Information Distribution: EndFocus, Theme-Rheme, Progression, Sequence, Foregrounding, etc.
- Inter-sentence Connection: Inter-sentence, Connection, Cause-Effect, Condition, Adversative, etc.
- Intra-paragraph Development: Intra-paragraph, Listing, Comparison, Elaboration, Foreshadow, etc.
- Inter-paragraph Development: Inter-paragraph, Introduction, Conclusion, SubjectMatter, Echo, etc.
- Cultural Background Knowledge: BackgroundKnowledge, Intertextuality, SemanticGap, Allusion, Image, etc.

Apart from the tag-word-based network mentioned above, detailed annotations are provided for the original text and its translation at word, phrase, sentence, paragraph or

textual levels, based on the explanations of key knowledge nodes involved in specific cases as learning instructions. In this way, tag-word-based network and annotations as learning instructions form the core of knowledge management model. Within the network, different tag-words are interrelated and used as combinations in data annotation, to realize the co-reference and retrieval between text phenomena and translation methods, between text and text, as well as between method and method. As can be seen from the example below, the definition of a tag-word includes the following elements: (1) Definition of tag-word (2) Possible tag-word combinations (3) Relevant tag-words.

As Table 1 shows, the definition of the tag-word "Transfer" refers to other related tag-words that might be combined in particular annotations. For example, after translation, changes might happen to the information structure of the text, either in terms of information sequence or effects conveyed by the text. Another case might be that the theme, or the topic of the source text, becomes the rheme or the focus in the target text, accompanied with the changes in the textual effects produced. This translation phenomenon could be described as Theme-Rheme or Topic-Focus, with the sign "-" implying the concept of "Transfer". Taking into account the interconnection between tag-words in the knowledge network and the manifestations of the interconnection in description and explanation of specific texts, textual phenomena and translation methods, these tag-words, or rather the nodes in the knowledge network, can be combined and form the theoretical framework for data analysis. Figure 1 shows the possible tag-word combinations of "Transfer" that can be found and tagged in the data annotation of the corpus.

Table 1. Definition of tag-word

Tag-word: Transfer
Definition: Transfer focuses on the change of the effects of information delivery or the position of a certain language component in terms of its information structure in the process of translation, with considerations on different communication purposes, for instance, the transfer between topic and focus, the transfer between theme and rheme; the transfer between modifier and the headword, and other lexical or syntactical transferring devices.
Possible Tag-word Combinations: Topics, Focus, Theme, Rheme, Development, etc.
Relevant Tag-words: Shift, Transformation, etc.

The tag-words, stemming from text, textual phenomena and translation methods, form an inter-related knowledge network, and data annotation extracts several related nodes, or rather tag-words, to illustrate the text design or information management, either in ST or TT, and the effects achieved in both texts. Figure 2 demonstrates a knowledge network with 'Transfer' as the projecting node, which can be extracted from the various tag-word combinations existing in the actual data annotations of the corpus as shown in Fig. 1. The combination of these inter-related tag-words has

corresponding data annotation examples on the platform. Doubtless the tag-words system is open-ended. With more tag-words and annotated text data added to the platform, this diagram is likely to be more complicated.

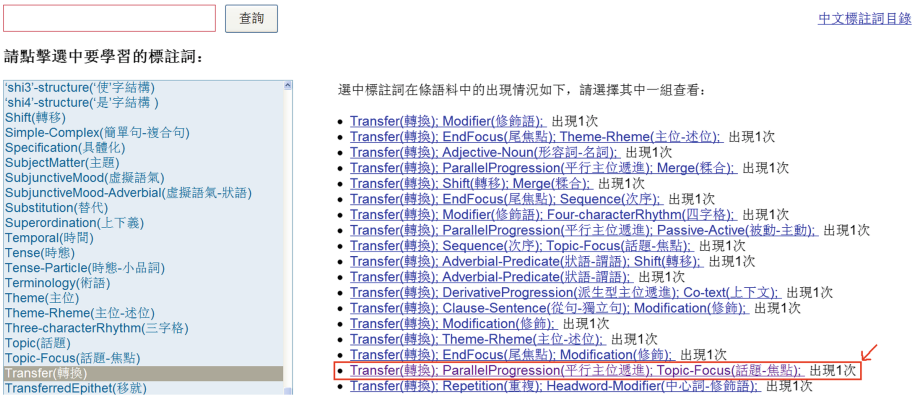

Fig. 1. Tag-word and possible tag-word combinations in data annotation

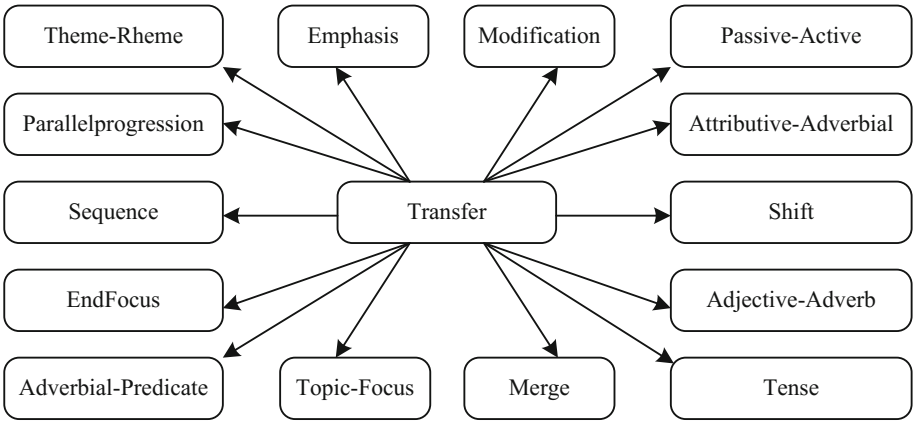

Fig. 2. Knowledge network with the tag-word "Transfer" as projecting node

The connection between different tag-words as illustrated in Fig. 1 can be exemplified by various combinations of several tag-words in specific data annotation. In other words, data annotation is constructed on the basis of the interconnection of tag-words. While the system of 198 tag-words covers the language and cultural phenomena as well as translation methods in the textual data and forms the theoretical framework for data annotation in the platform, the tag-word combination discloses the interrelation between different languages and cultural phenomena and translation methods, and illustrates this interrelation through data annotation, which is supposed to strengthen learners' sensitivity to language and cultural phenomena and translation methods in

teaching and self-learning. The core of this teaching concept is as follows: the tag-words, through the dynamic interrelation between one another, provide a cognitive basis for specific textual phenomena, and the understanding of texts is based on the network composed of the tag-words. Therefore, it is safe to say that the system of tag-words is the theoretical foundation of this online teaching/self-learning platform. The integration and interaction of the modules, data annotation, exercises, topical boards, etc., are also driven by the interconnection embodied in the tag-word system.

3.2 Annotations as Learning Instructions in Knowledge Management Model

The possible tag-word combinations in tag-word definitions are a theoretically conceived scenario, which needs examples in authentic data annotation. New combinations might be discovered in the process of annotation. The tag-word combination usually has one key tag-word with other related tag-words centering on it as subordinate points to aid the annotation. The key tag-word and other related tag-words are integrated and form a miniature annotation of specific text data. For a particular piece of translation or bilingual textual data, regardless of whether it is a word, phrase, clause, sentence, paragraph or text, the annotation will proceed from the tag-word combination and formulate comprehensive analysis of the text design, stylistic feature, text function and effects. The following is an example of the annotation based on the knowledge management model.

English Text: Yeung Hau Wong is the deity worshipped. There is still no consensus amongst scholars on his identity.
Chinese Translation: 侯王宫供奉的是杨侯王，至于他究竟是何人，现时还是众说纷纭。

Tag-word Combination: Theme-Rheme, EndFocus, Emphasis

Annotation: The English text includes two simple sentences. The theme of the first sentence is “YeungHau Wong”, a piece of new information which does not appear in the previous text. The EndFocus of the second sentence is “his identify” deriving from the first sentence, with “his” referring back to YeungHau Wong. Relatively speaking, “no consensus” is the new information in the second sentence. The Chinese text reverses the theme and rheme of the English text. Thus, new information “杨侯王” (YeungHau Wong) is placed as the rheme, occupying the end position of the sentence and emphasized as the EndFocus, its prominent position enhanced again by “shi” (是)-structure. The information “no consensus” in the English text is moved to the end of the sentence and translated into “众说纷纭”, becoming the highlighted EndFocus. Moreover, in the Chinese text, the theme “侯王宫” of the first sentence has appeared in the first paragraph. Therefore, this information is added here as the starting pointing of the ensuing information presentation and contributes to textual cohesion. The pronoun “他” (he) closely follows the noun “杨侯王” it refers to and continues the topic about the identity of this person, until arriving at the focus “众说纷纭”. Through information restructuring, the Chinese text achieves the movement from given information to new information, and strengthens the connection between sentences.

The annotation above functions as a piece of learning instruction, providing learners with key knowledge nodes through tag-words and detailed explanations of translation methods used in this case to help them build up knowledge network concerned in the learning process. Such annotations not only describe how the textual phenomena come into being and how the translation methods are realized, but also explain why the textual phenomena exist and why the translation methods are employed, in order to avoid value judgment, inadequate annotation and over-interpretation.

4 Application of Knowledge Management Model in MTI Programs

The knowledge management model has been applied in the teaching of such courses as Practical Translation and Literary Translation in MTI programs at Hefei University of Technology and Guangdong University of Foreign Studies. The following shows our observation of learners' mostly focused knowledge nodes in their learning of Practical Translation course at Hefei University of Technology. There are altogether 32 students from the Master of Translation and Interpreting Program enrolled in Practical Translation course in the first semester of 2017-2018 Calendar Year. Apart from the 64 class hours of normal teaching in the whole semester, learners are required to conduct online learning facilitated by the ClinkNotes Online Platform for at least two hours per week. Since the historical performance module of the Platform records learners' learning pathways, including the frequency of tag-words, annotations, texts and exercises they have visited in this online Platform, learners' performance can be observed quite clearly.

Statistics has been provided to figure out the top 15 mostly focused knowledge nodes of the whole class, in order to testify the pedagogical hypothesis of translation teaching and learning. The top 15 knowledge nodes as indicated in the relevant tag-words are as follows: (1) Allusion; (2) Intertextuality; (3) Active-Passive; (4) Four-character Words; (5) Adjective-Adverbial; (6) Perspective; (7) Background Knowledge; (8) Image; (9) Metaphor; (10) Noun-Verb; (11) Theme; (12) Rhythm; (13) Linear Thematic Progression; (14) Backward Thematic Progression; (15) Collocation.

To further analyze the features of the 15 mostly focused knowledge nodes, we may find that these 15 tag-words fall into the following categories, listed in descending order according to their popularity: (1) cultural background knowledge; (2) idiomatic usage; (3) grammar; (4) rhetoric; (5) sentence information distribution; (6) intra-paragraph development.

This result reveals the following features of learners' focus on knowledge nodes:

(1) Cultural background knowledge becomes the main focus of learners in their learning of translation, which far exceeds other categories of knowledge according to the frequency of visit on the online Platform.
(2) The categories of idiomatic usage and grammar, the foundation of bilingual competence, are also receiving great attention from learners, which testifies the conventional pedagogical focus of translation teaching and learning.

(3) Categories related to textual development such as sentence information distribution and intra-paragraph development also receive much attention from learners, which are supposed to be difficult parts of translation teaching and learning.

These above-mentioned findings show that, according to our observation of MTI students, while conventional pedagogical focus of idiomatic usage and grammar still take an important role in knowledge management model, more attention has been given to the category of knowledge nodes related to cultural background knowledge. However, the focus on cultural background knowledge in translation learning was not so widely recognized by our learners before the adoption of knowledge management model, according to a follow-up after-class interview with learners, some of whom spent too much time practicing grammar and idiomatic usage but little time learning cultural background knowledge in both source and target culture. Moreover, learners need more efforts on categories related to textual development such as sentence information distribution and intra-paragraph development. Our knowledge management model provides learners with a theory-informed and systematic understanding of knowledge network for translation learning.

5 Conclusion

The knowledge management model supported by a theory-informed tag-word system and annotations sheds new light on translator training and the construction of corpora for the purpose of translation studies, which will hopefully counteract the subjective and impressionistic practice in traditional translation teaching. Learners may build up their own knowledge network with the help of our knowledge management model. This model also attempts to set up an efficiency-motivated, theory-informed pattern for translation teaching, to counteract the labor-intensive, time-consuming and space-constrained teaching of translation. Hopefully, the knowledge management model will provide a ground-breaking and cost-effective educational paradigm for the teaching/(self-)learning of English-Chinese bilingual text-production in classroom/web-based settings to alleviate the pressure on language/translation courses.

Acknowledgements. The work was substantially supported by Anhui Provincial Education Commission (Project No. SK2017A0062).

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