Convergences and divergences between studies on translator training and interpreter training

Findings from a database of English journal articles

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Discussion on the convergences and divergences between Translation Studies (TS) and Interpreting Studies (IS) has taken place since the emergence of the latter. The unity and divide between translation and interpreting (T&I) activities are also strongly felt in the field of training. This study adopts a data-driven approach to examine research on translator and interpreter training. Based on an annotated database of T&I journal article entries, it shows the differences and similarities in research on translator training and interpreter training. Findings suggest that research on translator training and interpreter training share a thematic and methodological framework, but have different focuses on research themes and methods. The two sub-disciplines have different active authors, institutions and country/area rankings, linked by a small yet possibly growing number of cross-sub-disciplinary producers. These findings will shed much light on our knowledge of T&I activities and research.

Keywords: training, Translation Studies, Interpreting Studies, research themes, research methods

1. Introduction

The training of translators and interpreters has seen accelerated developments since the late 20th century (Kelly and Martin 2009; Pym 2009). Consequently, research on training has also witnessed advancement in number and depth (Gile 2004; Kelly and Way 2007; Kelly and Martin 2009; Yan, Pan and Wang 2015).

One issue arising from this expanding pool of literature is the increasing divide seen between translator training and interpreter training regarding their respective focuses, content and methods. Such an issue may be traced to the significant

differences identified between the activities of translation (T) and interpreting (I)[1] at the cognitive level (Kurz et al. 2000; Dragsted and Hansen 2009) and in practice (Kade 1968, as in Schäffner 2004a, 1; Holmes [1972] 1988, as in Pöchhacker and Shlesinger 2002, 2), as well as the serious reflections on the relationship between Translation Studies (TS) and Interpreting Studies (IS) since the birth of the latter in the 1990s (Gile 1995; Pöchhacker and Shlesinger 2002; Schäffner 2004b).

According to the literature, the training of translators, regarded as preceding interpreter training in history (Pym 2009), seems to feature concerns such as text, equivalence, purpose, process, style, specialized topics, dictionary, computer-aided translation, task-/project-based approach, and localization (see Ulrych 2005; Kelly and Martin 2009; Pym 2011; Gambier 2012). Interpreter training, although sharing common interests with translator training in areas such as technology, communication, quality, competence, curriculum development and professionalism (see Gile 2004; Angelelli 2013), tends to give more prominence to topics such as conference/community interpreting, the interpretive approach, cognitive abilities/constraints, short-term memory, note-taking, norms, ethics, and accreditation (see Niska 2005; Kelly and Martin 2009; Stern 2011; Pöchhacker 2013). Moreover, in a citation analysis of research on T&I didactics, Gile (2005), in addition to identifying differences in the conceptual priorities (functional theories vs. the AIIC model) and most frequently cited authors in translator training and interpreter training, shows that research on interpreter training cited more empirical studies as compared to research on translator training.

A few studies, applying a data-driven approach, presented the current thematic and methodological development, as well as the author/institutional/geographic distribution of research on T&I training in general or interpreter training in particular. For example, Yan et al. (2013), aiming at describing the status quo of IS reflected by T&I English journal articles (2000–2010), reported findings on an interpreter training sub-database (1/4 of the overall IS database in size), which included almost a half teaching-themed articles and over a quarter learning-themed ones. While the whole IS database featured more empirical studies than non-empirical ones, no such result was reported on the interpreter training sub-database. Yan, Pan and Wang (2015), applying a similar approach, reviewed a more recent development (2000–2012) in research on T&I training as a whole. The study indicates that the field was heavily overwhelmed by research from a teaching rather than learning perspective, each prioritizing certain research themes and

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1. In this article, "translation" (T) refers to written translation only, as a term distinguishable from "interpreting" (I), which is non-written (including spoken and sign language). In particular, the database in the present study included 8 entries that discussed the training of sign language interpreting.

sub-themes. The study also shows a slight prevalence of empirical research methods over non-empirical ones. It reported a list of active authors in T&I training, which looks very different from that in IS. However, despite their significance, none of the existing data-driven studies seem to be able to provide a systematic and up-to-date comparison between research in the two sub-fields, i.e., translator training and interpreter training, which can lead to better understanding of the differences and similarities between translation and interpreting practice, and between TS and IS at large.

Against such a background, the present study was conducted with the aim to investigate the convergences and divergences of research on translator training and interpreter training in the new millennium. Instead of attempting to prescribe the nature of their relationship (cf. Schäffner 2004b), this study, tapping into the research resources and methodology developed in previous efforts (Yan et al. 2013; Yan, Pan and Wang 2015), applied a descriptive perspective to systematically examine and compare research works on translator training and interpreter training over the last decade. In particular, it aims to answer the following questions:

1. Does research on translator training address the same research themes as that on interpreter training?
2. Does research on translator training apply the same research methods as that on interpreter training?
3. Does research on translator training feature the same active authors, producing institutions and countries/areas as that on interpreter training?

A corpus of journal articles, built on products of a large research project (see Yan et al. 2013; Yan, Pan and Wang 2015), was tagged and analyzed for the purpose of this study. Applying a set of research methods proven useful in previous data-driven reviews (Yan et al. 2013; Yan, Pan and Wang 2015), the study investigated and compared the research themes, methods, authors and geographic distribution of the articles in the corpus. The resulting picture will therefore shed important light on the complicated relationship between translator training and interpreter training and inform the positioning of TS and IS at large.

2.   Methodology

2.1 The database

The present database was a result of continuous development, expansion and refinement of two earlier constructions, i.e., one composed of annotated IS journal articles (Yan et al. 2013) and the other of journal articles on T&I training in

general (Yan, Pan and Wang 2015). In particular, Yan et al. (2013) surveyed 9 T&I journals and identified 58 articles on interpreter training and assessment, out of a total of 235 articles on IS from 2000 to 2010. Yan, Pan and Wang (2015), in order to reflect the recent development in the field of T&I training, built on the interpreter training sub-database of Yan et al. (2013) to cover both interpreter and translator training. In addition, the T&I training database added one more journal to the resource pool and extended the data coverage to 2012, resulting in 323 entries in total. The present database, furthering the effort in Yan, Pan and Wang (2015), had a more recent development by extending the data collection year to 2013, with the main purpose to review and compare the features of research on translator training and interpreter training respectively.

Similar to Yan et al. (2013) and Yan, Pan and Wang (2015), the present study followed several criteria, in addition to the operational feasibility concerns, in the selection of data sources to ensure comparability between data entries. First, journals were the only type of publication included in the database. Academic journals usually have fixed number of periodic productions, similar peer-review systems, and require homogeneous article structure and lengths, which allow for the possibility of constructing a shared classification system of research themes and methods and for the cross-theme comparison (cf. Yan et al. 2013). In addition, T&I journals, taking a comparatively small fraction in previous T&I research databases (cf. Pöchhacker 1995; Gile 2005), are attracting increased attention along with its growth into one of the major channels for the publication of T&I studies in the new millennium (cf. Grbić 2007; Grbić and Pöllabauer 2008; Gao and Chai 2009; Shlesinger 2009). Second, the database only included peer-reviewed journals recognized by the international academic society. There are many good T&I journals that are worthy of study; however, it was only feasible, at least at this stage, to include a limited number of journals for detailed annotation and analysis. Therefore, the authors took into consideration the earliest and internationally recognized citation indexes used for academic journals in social sciences and arts and humanities, i.e., the Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index (AHCI), due to a lack of internationally agreed citation index in the field of T&I research at the time of the study (also see Grbić 2013). A total of 9 journals were kept in the database after the ones with very few or no entries relevant to the topic were excluded. In addition to the 9 SSCI/AHCI-indexed journals, *The Interpreters' Newsletter* was added into the database sources for its importance in IS as "the first journal devoted to interpreting" (Gile 2009, 139) and as a major citation resource in IS (Pöchhacker 1995; Gile 2000; Yan et al. 2013). Besides, as shown in Table 1, the 9 indexed journals were mostly TS oriented, two of which included only articles on translator training. It was therefore hoped that the inclusion of this interpreting specialized journal could help narrow down the numeric

differences between entries on translator training and interpreter training to facilitate the follow-up thematic comparisons. Third, the database only contained articles in English, as suggested in the title of this article. It is, of course, important to look into journal articles in other languages. However, it would be better to ensure comparability between the entries by keeping the database mono-language. The journals in the database featured English as the language of publication with two exceptions: 1) *Meta:Translators' Journal*, which publishes articles in French and English; 2) *The Interpreters' Newsletter*, which accepts papers written in English and Italian. Only English articles in these two journals were kept in the database.

The authors understand that the above selection procedure may sacrifice a certain degree of representativeness of the database and may therefore limit the generalizability of the results gained thereby. Nevertheless, as stated by Grbić (2013, 21), "it is important to take into account that no database will ever be able to cover the entirety of scholarly production." The authors hope that the study, based on the above selection criteria of database resources, could at least render a snapshot of features of research on translator and interpreter training in recent years (cf. Yan et al. 2013; Yan, Pan and Wang 2015).

All article entries of the database were manually selected through reading of the whole texts in order to include all possible entries covered by or related to translator and interpreter training.[2] These articles were then itemized in bibliographical formats and entered into Microsoft Office Access 2010. The database included information on the article ID, author(s), affiliation(s), country/countries, publication year, article name, journal name, volume, issue, key words, abstract, etc. (see Yan et al. 2013; Yan, Pan and Wang 2015). The articles were also primarily tagged by the words "translator training," "interpreter training" and "translator/interpreter training" (those concerning both translator training and interpreter training) according to the types of activity involved. The article entries can therefore be easily grouped and sorted by these tags in addition to bibliographical information such as authors and publication years.

Table 1 lists the sources and composition of the database. According to the table, of the 350 articles in the database, 213 (about 61%) focused on translator training (hereafter referred to as the "T training" sub-database), and 97 entries (28%) on interpreter training (hereafter referred to as the "I training" sub-database). In

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2. For the purpose of this study, articles including words such as "train," "trainer(s)," "teach," "teacher(s)," "pedagogy," "pedagogical," "didactics," "didactical," "education," "student(s)," "trainee(s)," "learner(s)," and "learn" were paid special attention to during the selection process. Because the list of words may not be exhaustive or decisive in describing research on translator and interpreter training, the researchers' expertise and judgment are still heavily relied on at this stage.

addition, 40 entries (11%) did not differentiate between the two or treated translator training and interpreter training as a combined entity (hereafter referred to as the "TI training" sub-database).

Table 1. Sources and composition of the database

Name of the journal	Range	Articles in the database[*]	Articles on T training	Articles on I training	Articles on TI training
Across Languages and Cultures	2000–13 (2 each year)	27	19	5	3
Babel: International Journal of Translation	2000–13 (issue 3[**]) (4 each year)	38	28	6	4
Interpreting: International Journal of Research and Practice in Interpreting	2000–13 (2 each year)	21	0	18	3
Meta: Translators' Journal	2000–13 (issue 3[**]) (4 each year)	95	68	19	8
Perspectives: Studies in Translatology	2000–13 (4 each year)	37	30	4	3
Target: International Journal of Translation Studies	2000–13 (2 each year before 2012, 3 in 2013)	12	12	0	0
The Interpreter and Translator Trainer	2007–13 (2 each year)	80	46	19	15
The Interpreters' Newsletter	2000–13 (less than 1 each year, published in 2000, 2001, 2003, 2005, 2009, 2010, 2011, 2012 and 2013)	27	0	24	3
The Translator	2000–13 (2 each year)	5	5	0	0
Translation and Interpreting Studies	2006–13 (2 each year)	8	5	2	1
Total		**350**	**213**	**97**	**40**

* Book reviews, interviews or bibliographic lists were excluded for consistency of database composition.
** At the time of the study, only 3 issues were available of these 2 journals.

2.2 Data analysis

An investigation of previous literature on T&I research or translator and interpreter training suggests that many previous studies treated training as a separate single-layer entity in contrast to other themes under TS or IS (e.g., Pöchhacker 1995; Gile 2000; Baker and Saldanha 2009; Gao and Chai 2009; Shlesinger 2009; Gambier and van Doorslaer 2012, 2013; Toury 2012), or described the sub-themes of training by mono-layer sporadic keyword systems, which sometimes turned out to be difficult to compare or combine (see Appendix 1). Yan et al. (2013), though providing a similar data-driven multi-layer system of IS and its sub-themes of interpreter training, could not be applied directly for the description of research on translator training without verification. Yan, Pan and Wang (2015), drawing from the data-driven thematic analysis method developed in Yan et al. (2013), offered a multi-layer classification scheme that could be applied to studies on translator and interpreter training in general, yet it was not clear if new themes would be added or adapted in the present study given the expansion of the database in size and its different research focus.

Similar to Yan et al. (2013) and Yan, Pan and Wang (2015), the authors of the study applied a method adapted from thematic analysis (Braun and Clarke 2006) and content analysis (Elo and Kyngäs 2008) to find the thematic and methodological features of the newly added articles and to see if it was necessary to make adjustments to the classification scheme applied in Yan, Pan and Wang (2015)[3]. During the process, the authors followed a combination of top-down and bottom-up procedures to analyse and tag each article entry by reading the whole text, comparing the generated themes with those in Yan, Pan and Wang (2015). The thematic mapping of articles in the database was represented both by hand-operated measures and the corpus analysis tool *WordSmith 5.0* (Scott 2008). The study also recruited multiple coders and measures to ensure inter-coder agreement to reduce subjectivity that may occur in the data analysis process (Saldana 2009).

According to Braun and Clark (2006), thematic analysis involves six phases: (1) familiarizing yourself with your data; (2) generating initial codes; (3) searching for themes; (4) reviewing the themes; (5) defining and naming themes; and (6) producing the report. Likewise, content analysis involves three steps: preparation, organising and reporting (Elo and Kyngäs 2008). In particular, content analysis includes an inductive approach (for the data coding without an existing framework, following steps of open coding, categories creation and abstraction, cf. the bottom-up procedure in the present study) and a deductive approach (to code and test data according to existing framework, cf. the top-down procedure in the study) (Elo and Kyngäs 2008).

In the top-down process, a review of previous thematic classification schemes in TS and IS was first performed to build a primary scheme, which was later tested, adjusted and enriched through the bottom-up coding process. A shared set of possible categories for both translator and interpreter training was first generated at the top level of the pyramid, which included "A. Teaching," "B. Learning" and "C. Assessment"; see *Teaching and Learning of Translation* by Washbourne (2013), *Teaching and Learning of Interpreting* by Wilson (2013), the three trends of "*what to teach*," "*how to teach*" and "*how students learn*" described in Kelly and Way (2007, 2; italics in the original), the term "translation assessment" in Vandepitte (2008, 585), the sub-theme "assessment" under "pedagogy" in Pöchhacker (2004), and the subtheme "tests and assessments" for research on translator training in H. Liu and Mu (2013). These three top-level categories were generated as the secondary categories under the category "studies on interpreter training and assessment" in Yan et al. (2013) and became the primary categories in Yan, Pan and Wang (2015). The sub-categories developed in Yan, Pan and Wang (2015), drawing from tags such as "curriculum design," "implementation," "typical problem areas" (Williams and Chesterman 2002); "competence" (van Doorslaer 2009); "teaching models and approaches," "translation competence and translator competence," "discipline construction and talents cultivation" (H. Liu and Mu 2013), were taken into consideration in classifying and naming the secondary and tertiary categories in the database (see Appendix 1).

The top-down process provided a starting point and an intuitive framework to look into the data. The bottom-up procedure thus followed the steps taken in inductive content analysis (Elo and Kyngäs 2008) and thematic coding (Saldana 2009). During this process, a team of at least three coders read the full text of each article independently and tagged each with a "descriptive code" that best summarized its primary content (Saldana 2009, 3) in the column next to the article entry. The individually tagged codes were later compared and discussed where there was disagreement. For example, after reading the article "Personality Characteristics of Interpreter Trainees: The Myers-Briggs Type Indicator (MBTI)" (Schweda Nicholson 2005), two coders gave the same keyword "personality" and the third coder gave the word "learner profile." The coders then discussed with each other and agreed that "personality" was a better code at the bottom-level.

After the initial coding, the coders gathered to discuss the codes one by one and grouped them into higher rank categories. A category name was given to each cluster of codes to help describe their shared main features (cf. "grouping" in Elo and Kyngäs 2008, 110; "categorizing" in Saldana 2009, 11). Figure 1 shows an example of the categorizing process.
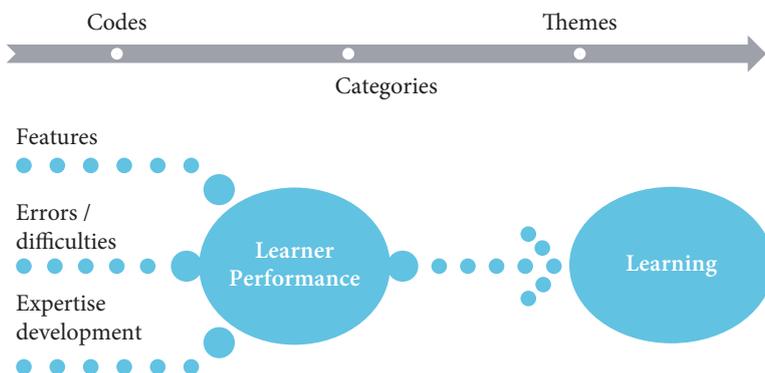
Figure 1. An example of the bottom-up categorizing process

The resulting codes, categories and themes were later examined and further re-fined through a process of "recoding" and "recategorizing" (Saldana 2009, 10). This process confirmed that the three-level classification scheme in Yan, Pan and Wang (2015) was sufficient to cover all subcategories and codes generated in the bottom-up process (see Appendix 3 for the classification scheme and results).[3]

The analysis of research methods applied in articles of the database was similar to the categorizing process of the research themes (see Appendix 3). Incorporating classification schemes of research methods in previous studies (see Appendix 2) while tagging each article entry from the bottom, a three-layer categorization scheme was developed for the present study. Since the differences between "Empirical" and "Non-empirical" research were not always clear-cut (see Williams and Chesterman 2002), in the study, a spectrum of research methods was identified between the two extremes of "Empirical" and "Non-empirical" (see Table 2; with reference to the parameters used in Seliger and Shohamy 1997, also see Yan et al. 2013, 14).

In the scheme, empirical research was divided into experimental and ob-servational research (also see Gile 1998; Williams and Chesterman 2002). Non-empirical research was divided into expository and theoretical research (see

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3. Originally, under the category "Assessment," a secondary category of "professional accredi-tations & certification" (8 entries in total, 4 on T training and 4 on I training) was included in addition to "classroom assessments." It seems that the closest umbrella category of this type of research is "translator training" (including testing techniques) according to the mapping of TS by Holmes ([1972] 1988, 77). A "professional dimension" (addressing accreditations and cer-tifications) was put as a subcategory under "translator training" in Williams and Chesterman (2002, 26), but it seems to share some gray areas with another category, namely, "the translation profession" (27). While Yan et al. (2013) and Yan, Pan and Wang (2015) included "professional accreditations & certification" under the category "(Training and) Assessment," the present study excluded this subcategory to allow for more focused discussion related to assessment in the training environment.

Table 2. A spectrum of research methods in the database

	Empirical Research ←		→ Non-empirical Research	
	Experimental Research	Observational Research	Expository Research	Theoretical Research
Synthetic/Analytical	Analytical	Analytical (Synthetic)	Synthetic (Analytical)	Synthetic
Heuristic/Deductive	Deductive	Deductive (Heuristic)	Heuristic (Deductive)	Heuristic
Degree of control & explicitness of data collection procedures	Highest	Higher	Lower	Lowest
Researcher subjectivity	Lowest	Lower	Higher	Highest

"theoretical research" in Gile 1998 and "conceptual research" in Williams and Chesterman 2002). The major difference between observational and expository research was that the former "seeks new data, new information derived from the observation of data" (Williams and Chesterman 2002, 58), and thus belongs to "primary research" (Rugg and Petre 2007, 31), while the latter is "based purely on existing information" (Goddard and Melville 2001, 10) and is typical "secondary research" (Rugg and Petre 2007, 32), being guided more by a synthetic and heuristic point of view than an analytical and deductive one. A survey study of students' learning needs (e.g., Li 2002) would be classified as observational research since the survey provided new data, while a review of research on aptitude in interpreting (e.g., Russo 2011) or a conference report (e.g., Pym 2000) would belong to expository research, since it was based on secondary data and old information. In addition, observational research identified in the bottom-up procedure included the subcategories of case study, corpus research, survey research, correlational research and action research, all related to studies "that investigate a phenomenon or a process as it takes place in real life in its natural setting" (Williams and Chesterman 2002, 62) rather than research that "deliberately interferes with the natural order of things" (Williams and Chesterman 2002, 63) (see Appendix 3).

The study adopted whole counting in the calculation of authorship, institutions and countries that produced the article entries in the database (see Grbić 2007; Yan et al. 2013; Yan, Pan and Wang 2015). If an article is written by two or more authors, the name of each author was counted once. The same applied to institutions. However, if the co-authors of an article come from the same institution, the institution was calculated only once. The purpose of this practice is to recognize the efforts of all authors and institutions related to the production of each article (see Yan et al. 2013). Corpus-based statistics were then run to generate the frequency lists of authors, institutions and countries in the database.

3.   Results

3.1 Translator training and interpreter training: A panorama overview

Some basic calculations were performed to find the statistical development of research on translator and interpreter training since the new millennium. Figure 2 shows the number of articles produced each year from 2010 to 2013. An overall quantitative growth can be spotted, in particular for research on I training. A sudden increase in T training in the year 2005 led to a peak of research on translator and interpreter training in total, but this number dropped slightly after a second peak in 2011. In addition, the number of articles on T training was always greater than that on I training, but the gap seems to grow narrower, especially in 2013.

3.2 Translator training vs. interpreter training: Research themes

To compare the research themes of translator training and those of interpreter training, the number of articles in each thematic category was calculated (Appendix 3). Table 3 displays the numbers of entries in each sub-database of T training, I training and TI training at category level I. It appears that in each of the sub-databases, the largest thematic category remained the same, namely, "A. Teaching," which was followed by "B. Learning" and then "C. Assessment." While T training and TI training both featured a large numeric difference between "A. Teaching" and the other two thematic categories, the numeric differences between the three thematic categories in I training look much smaller.
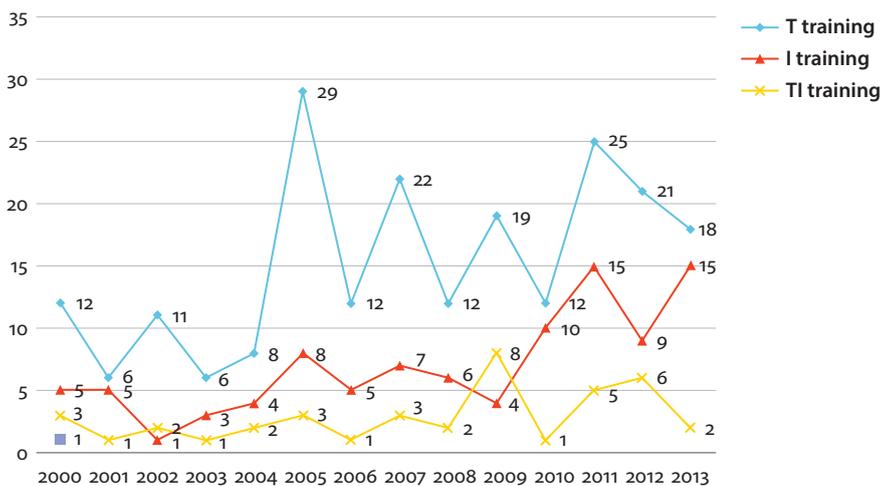

Figure 2. Number of articles in the database by year and category

Table 3. The number of article entries in the database by themes (Category Level I)

Category Level I	T training	I training	TI training
A. Teaching	175	54	33
B. Learning	26	32	4
C. Assessment	12	11	3
Total	**213**	**97**	**40**

3.2.1 Translator training vs. interpreter training: Teaching

The subcategories under "A. Teaching" were examined. Table 4 shows the number of article entries in each subcategory under "A. Teaching" at the second and third levels.

Table 4. The number of article entries in the database by themes under the category "A. Teaching"

Category Level II	T training	I training	TI training	Category Level III	T training	I training	TI training
a. Training philosophies	75	28	15	(a) Theoretical concerns / framework	36	9	9
				(b) Disciplinary typology	9	5	2
				(c) Training elements	30	14	4
b. Training methods & models	30	9	7	(a) Institutional training models	10	3	7
				(b) Classroom training approaches	20	6	0
c. Competence development	26	3	2	(a) General	3	0	1
				(b) Translator / interpreter competence	3	2	0
				(c) Translation / interpretation competence	20	1	1
d. Needs analysis	8	1	3				
e. Technology & training	24	10	0				
f. Training of research skills	5	3	5				
g. Translation & language teaching	7	0	1				
Total	175	54	33				

At category level II, of the total 175 entries on T training, the largest number of articles was in "a. training philosophies" ($n = 75$), while the second and third largest

subcategories were "b. training methods & models" ($n = 30$) and "c. competence development" ($n = 26$), respectively. In the I training sub-database, the top subcategory was also "a. training philosophies" ($n = 28$), but the second and third largest subcategories were "e. technology and training" ($n = 10$) and "b. training methods & models" ($n = 9$). Whereas the subcategory "g. Translation & language teaching" included 7 entries on T training, none of the articles on I training belonged to this category. In the TI training sub-database, the largest subcategory remained the same, i.e., "a. training philosophies" ($n = 15$), but the second and third largest subcategory became "b. training methods & models" ($n = 7$) and "f. training of research skills" ($n = 5$).

At category level III, within the category "a. training philosophies," the largest subcategories for T training and TI training were the same, i.e., "(a) Theoretical concerns/framework" (36 and 9 respectively), while the largest subcategory of I training fell on "(c) Training elements" ($n = 14$). Within the subcategory "b. Training methods & models," while research on T training and I training both favored "(b) Classroom training approaches" to "(a) Institutional training models," the TI training sub-database only included articles on "(a) Institutional training models." In addition, it should be noted that a comparatively large number of T training articles were on "(c) Translation competence" ($n = 20$) as compared to "(b) Translator competence" ($n = 3$) under the subcategory "c. Competence development." The number of I training or TI training articles under this subcategory, however, seems to be too small to show any pattern (3 and 2 respectively).

3.2.2   *Translator training vs. interpreter training: Learning*

This section reports the differences found between translator training and interpreter training under category "B. Learning." Table 5 shows some significant differences: T training appears to focus more on "a. Learner performance" while I training on "b. Learner factors." TI training seems to be more evenly distributed between the two subcategories but the total number of entries on "B. Learning" was very small ($n = 4$).

At category level III, under the subcategory "a. Learner performance," T training seems to favor research on the subtype "(b) Errors/difficulties" (10 out of 16), and I training "(c) Expertise development" (5 out of 8). Under the subcategory "b. Learner factors," T training tended to give prominence to research on "(e) Strategies" (8 out of 10), and I training on "(a) General/multi-factors" (10 out of 24, in comparison with none in T training).

Table 5. The number of article entries in the database by themes under the category "B. Learning"

Category Level II	T training	I training	TI training	Category Level III	T training	I training	TI training
a. Learner performance	16	8	2	(a) Features	1	1	1
				(b) Errors / difficulties	10	2	0
				(c) Expertise development	5	5	1
b. Learner factors	10	24	2	(a) General / multi-factors	0	10	1
				(b) Personality	1	2	0
				(c) Anxiety & stress	1	4	0
				(d) Learning styles	0	0	1
				(e) Strategies	8	8	0
Total	26	32	4				

3.2.3   *Translator training vs. interpreter training: Assessment*

In category "C. Assessment" (see Table 6), there appears to be no sharp difference between the article numbers of the two subcategories, i.e., "(a) Theoretical framework" and "(b) Models & methods." T training seems to focus slightly more on "b. Models & methods," and I training on "a. Theoretical framework."

Table 6. The number of article entries in the database by themes under the category "C. Assessment"

Category Level II	T training	I training	TI training
a. Theoretical framework	5	6	2
b. Models & methods	7	5	1
Total	12	11	3

3.2.4   *Translator training vs. interpreter training: Title analysis*

Figure 3 reveals the high-frequency content words in the sub-databases of T training and I training by leaving out the "outlier" keywords related to "translation" (also "translator(s)" and "translating") and "interpreting" (also "interpreter(s)" and "interpretation"). The two sub-databases shared a few high-frequency words such as "training," "study/studies" and "student(s)." What is worth noting is that the words "teaching" and "approach(es)" seem to occupy a more outstanding position in T training than in I training. There were also a few high-frequency words listed as the top-frequency items in T training but not in I training, such as "English" (F = 21),

"competence" (F = 14), "education" (F = 14), "process(es)" (F = 13), "corpus/corpora" (F = 11), "professional" (F = 11) and "text(s)" (F = 11). In contrast, some salient words in the top high-frequency word list of I training included those such as "simultaneous" (F = 17), "consecutive" (F = 9), "learning" (F = 9), "aptitude" (F = 8) and "performance" (F = 7), "trainee(s)" (F = 7) and "strategy/strategies" (F = 6).
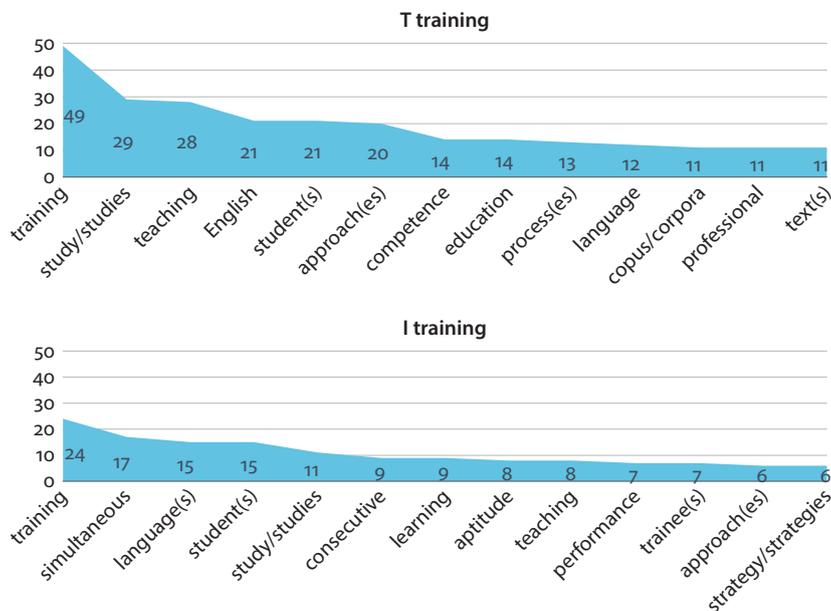
Figure 3. High frequency content words in the title analysis of the T training and I training sub-databases

3.3. Translator training vs. interpreter training: Research methods

To investigate how research on translator training and interpreter training were performed, the present study looked into the research methods applied in each sub-database. Table 7 gives the results related to research methods at category level I. As shown in the table, both T training and I training sub-databases had more

Table 7. The number of article entries in the database by research methods (Category Level I)

Category Level I	T training	I training	TI training
A. Empirical	116	59	15
B. Non-empirical	97	38	25
Total	213	97	40

empirical studies than non-empirical studies. In the TI training sub-database, however, non-empirical studies took the lead.

Table 8 gives more detailed information under the subcategory "A. Empirical." A similar patterning was found, in which observational studies were the majority as compared to experimental studies. Under the subcategory "a. Observational," case study was a more prominent research method as compared to the rest of the observational methods, although it appears to be more so in T training than in I training.

Table 8. The number of article entries in the database by research methods under the category "A. Empirical"

Category Level II	T training	I training	TI training	Category Level III	T training	I training	TI training
a. Observational	68	36	11	(a) Case study	39	13	4
				(b) Corpus research	4	2	0
				(c) Survey research	12	12	6
				(d) Correlational research	5	9	1
				(e) Action research	8	0	0
b. Experimental	48	23	4				
Total	116	59	15				

A similar ranking of research methods was identified under the category "B. Non-empirical": all three sub-databases of T training, I training and TI training had more expository studies than theoretical studies, although the numeric discrepancy between these two types of non-empirical studies seems to be much smaller in I training than in the other two sub-databases (Table 9).

Table 9. The number of article entries in the database by research methods under the category "B. Non-empirical"

Category Level II	T training	I training	TI training
a. Expository	76	27	21
b. Theoretical	21	11	4
Total	97	38	25

3.4 Translator training vs. interpreter training: Active authors, institutions and countries/areas

There were 386 authors who contributed to the 350 articles in the whole database. In particular, 239 authors produced the articles in the T training sub-database and 108 authors in the I training sub-database. Table 10 lists the most active authors in the two sub-databases, covering 23% and 36% of the author lists respectively. As shown in the table, the most active author in the T training sub-database showed a production rate of 10, whereas the highest repetition rate for I training authors was only 3. In addition, there seem to be no shared authors in the top active author lists of T training and I training, although 6 authors produced articles simultaneously

Table 10. Most active authors in the T training and I training sub-databases

Authors (T training)*	Freq.	Authors (I training)*	Freq.
Defeng Li	10	Yung-nan Chiang	3
Bryan J. Robinson	5	Leong Ko	3
Tomás Conde-Ruano	4	Jemina Napier	3
Brenda Malkiel	4	Jun Pan	3
Omar F. Atari	3	Franz Pöchhacker	3
María Rosa Castro-Prieto	3	Sherry Shaw	3
Maureen Ehrensberger-Dow	3	Jackie Xiu Yan	3
Anabel Galán-Mañas	3	Michaela Albl-Mikasa	2
María González Davies	3	Agnieszka Chmiel	2
Amparo Hurtado Albir	3	Andrew Clifford	2
Mira Kim	3	Jesús De Manuel Jerez	2
Don Kiraly	3	Clare Donovan	2
Ricardo Muñoz-Martin	3	Amparo Jiménez Ivars	2
Eva Muñoz-Raya	3	Sylvia Kalina	2
Miguel Murillo-Melero	3	Jieun Lee	2
María Dolores Olvera-Lobo	3	Peter Mead	2
Anthony Pym	3	Barbara Moser-Mercer	2
Enrique Quero-Gervilla	3	Mariachiara Russo	2
Christopher Scott-Tennent	3	Heidi Salaets	2
Yong Zhong	3	Robin Setton	2
		Miriam Shlesinger	2
		Sárka Timarová	2

* Authors with the same number of productions are ranked alphabetically by surnames.

in the sub-databases of T training and I training, in addition to another 57 authors who contributed to the sub-database of TI training.

Interestingly, of the 10 entries produced by the top-ranked author in the T training sub-database, i.e., Defeng Li from the Chinese University of Hong Kong, 9 entries were on the category "A. Teaching" (5 on "d. Needs Analysis" of "A. Teaching," in particular). In the I training sub-database, one author (Yung-nan Chiang) was from the National Taiwan University, two authors (Jackie Xiu Yan and Jun Pan) were affiliated to the City University of Hong Kong. These 3 authors, together with Sherry Shaw (University of Arkansas at Little Rock), mainly contributed to the category "B. Learning," in particular "b. Learner factors."

There were 215 institutions contributing to the article entries in the whole database. In particular, 154 institutions accounted for entries in the T training sub-database and 74 for those in the I training sub-database. Table 11 provides the top productive institutions for research on T training and I training, covering 31% and 35% of the institution lists respectively. The Autonomous University of Barcelona was the most productive institution in T training and the University of Bologna in I training. Both feature a specialized T&I department. The Autonomous University of Barcelona is home to the PACTE research group, which has been dedicated to empirical research on translation competence and the use of new technologies (PACTE 2005, 2009). Most of the university's research outputs on T training (9

Table 11. Most productive institutions in the T training and I training sub-databases

Authors (T training)*	Freq.	Authors (I training)*	Freq.
Autonomous University of Barcelona	14	University of Bologna	6
The Chinese University of Hong Kong	9	Macquarie University	5
University of Granada	9	University of Geneva	5
Jaume I University	9	City University of Hong Kong	4
Macquarie University	5	University of Granada	4
Rovira i Virgili University	5	University of Trieste	4
University of Ljubljana	5	University of Vienna	4
City University of Hong Kong	4	Lessius University College	3
Copenhagen Business School	4	National Taipei University of Technology	3
University of New South Wales	4	The University of Queensland	3
University of Sharjah	4		
Zurich University of Applied Sciences	4		

* Institutions with the same number of productions are ranked alphabetically.

out of 14) were contributed by members of the PACTE and concentrated on "A. Teaching" ($n = 13$), in particular competence development ($n = 5$) and technology and training ($n = 3$). The University of Bologna, in particular, proposed the Bologna Process in Europe that aims at enhancing inter-country comparability of higher education standards (Rico 2010). A total of 4 out of its 6 entries were on the thematic category "A. Teaching," and 3 were published in the Italian-based journal *The Interpreters' Newsletter*.

There were a few overlapping institutions in these two lists, such as Macquarie University, City University of Hong Kong and University of Granada, which were active in both translator training and interpreter training, although the rankings differed slightly.

In total, 50 countries/areas appeared in the whole database. The number was 45 and 26 respectively for the T training and I training sub-databases. Table 12 compares the most productive countries/areas in the two sub-databases, covering 68% and 75% of the sub-corpora of countries/areas respectively. Spain was found to be the most productive in T training, whereas the Greater China Area (including Mainland China, Hong Kong, Macao and Taiwan) was ranked second in the sub-database. In the sub-database of I training, the Greater China Area was at the top of the list, followed by Italy, Spain, Australia and the United States. The leading countries/areas, i.e., the Greater China Area (in both T training and I training), Spain (in T training) and Italy (in I training), correlated with their presence in the previous two tables of most productive authors and institutions. Countries/areas such as Spain, the Greater China Area, the United Kingdom, Australia, the United States and Switzerland were actively represented in both the T training and I training sub-databases.

Table 12. Most productive countries/areas in the T training and I training sub-databases

Countries/areas (T training)*	Freq.	Countries/areas (I training)*	Freq.
Spain	49	The Greater China Area	16
The Greater China Area	24	Italy	11
The United Kingdom	20	Spain	11
Australia	14	Australia	10
Canada	10	The United States	10
Denmark	10	Austria	7
Germany	10	Switzerland	7
The United States	9	South Korea	5
Switzerland	7	The United Kingdom	5
United Arab Emirates	6		

* Countries with the same number of productions are ranked alphabetically.

4.   Discussion and conclusions

This study set out to compare research on translator training and interpreter training since the new millennium, through an annotated database composed of articles from 10 T&I journals. The research themes and methods, as well as author and geographic distribution of the articles were studied. Findings of the study revealed that quantitative as well as qualitative differences exist in research on translator training and interpreter training, yet there were certain "shared grounds" linking the two (cf. Shlesinger 2001). The intricate relationship between research on translator training and interpreter training found in the study is in many ways reflective of the discussion regarding the relationship between TS and IS at large. The following sections discuss the convergences and divergences identified.

4.1   Translator training vs. interpreter training: A general overview

Findings from the database suggest that articles on translator training appeared to outnumber those on interpreter training, which is partially attributable to the fact that TS and translator training have enjoyed a longer history than IS and interpreter training (Pöchhacker and Shlesinger 2002; Pym 2002; Schäffner 2004a) have. This numeric difference may be able to account for the fact that results regarding translator training in the study, as compared to those of interpreter training in Yan et al. (2013), look closer to the general landscape in T&I training research in Yan, Pan and Wang (2015). Findings also indicate a comparatively steadier numerical growth for studies on interpreter training than for those on translator training, which is reflective of the stable development of worldwide interpreter training programmes as well as relevant research, in particular after the new millennium (Gile 2009; Pöchhacker 2010; Yan et al. 2013).

The fluctuating yet small number of TI training articles in the database shows a continuing entangled relationship between TS and IS that has been perplexing relevant scholars since the birth of IS (Gile 1995; Shlesinger 2001; Schäffner 2004b). Nevertheless, the majority of articles in the database were found to address translator training and interpreter training separately, indicating that a split between the two may be unavoidable in the future.

4.2   Translator training vs. interpreter training: Research themes

Articles in the database, through a combined top-down and bottom-up procedure of annotation, were found to share the same multi-layer thematic classification scheme, except for a few categories that were applicable only to translator training or interpreter training. This possibility of shared thematic tagging suggests that

these two sub-disciplines may have more in common than originally thought (cf. Gile 1995; Shlesinger 2001; Schäffner 2004b), at least as far as research interests are concerned. There is somehow a possible common ground, which stands as a basis to unite research on translator training and interpreter training, or even TS and IS at large (cf. Schäffner 2004b). As stated in Gile (2004), "the basic issues in both fields are similar" (25). The shared thematic classification scheme therefore forms an important part of this system, or at least a starting point for a shared set of "metalanguage" for both sub-disciplines (cf. Pöchhacker 2004; Vandepitte 2008; Gambier and van Doorslaer 2009).

Despite the similar general landscape of research themes, differences in research focuses in translator training and interpreter training were identified. Translator training was found to concentrate comparatively more on teaching, whereas interpreter training, although also teaching-oriented, included an essential proportion of research from the learning perspective, similar to the findings of the interpreter training sub-database in Yan et al. (2013). This result also confirmed that the prevalence of teaching-related articles in T&I training (Yan, Pan and Wang 2015) was more or less caused by the addition of TS entries in the database.

The shared interest in teaching over learning of research on both translator and interpreter training, supplementary to a similar finding on research in the overall field of translator and interpreter training (Yan, Pan and Wang 2015), may relate to the comparatively younger nature of studies on "*how students learn*" (Kelly and Way 2007, 2; italics in the original) and the only recent introduction of learner-centered theories and approaches to T&I classrooms (e.g., Kiraly 2000). The greater interest in learning by interpreter training researchers, however, may be associated with the long obsession in the cognitive process, or the "black box" of interpreting performers in IS, leading to many investigations into topics such as aptitude, expertise and psychological stress, especially in simultaneous interpreting (Pöchhacker and Shlesinger 2002; Kelly and Martin 2009), including the famous debate over the "trainability" of interpreters (see Mackintosh 1999). It is therefore not surprising to find that there was a comparatively greater distribution of articles contributed to assessment in interpreter training than in translator training, given the popularity of aptitude tests in interpreter training (see Russo 2011).

In particular, within the research theme of teaching, both synergies and differences were identified in translator training and interpreter training. In addition to a similar general landscape, both sub-disciplines focused on the investigation of classroom training approaches, supplemented by showcases of institutional training models. However, translator training shows a certain influence from language teaching that is missing in interpreter training. This may be accounted for by the historical intertwining relationship between translator training and foreign language teaching when the grammar-translation method was applied as one of the

earliest teaching approaches for the latter (Richards and Rodgers 2001). This link, however, seems to be missing in interpreter training, in which the earliest trainers were composed mainly of working interpreters (Gile 2004). In addition, translator training was found to give more weight to theoretical frameworks or different theories in training philosophies compared to interpreter training (cf. Gile 2004; Yan, Pan and Wang 2015). Interpreter training, however, appears to struggle more often with what to teach (training elements) as reflected in the database (cf. Kelly and Martin 2009). Moreover, competence was found to be the third popular subcategory under "A. Teaching" in translator training, making it a prominent high-frequency word in the title analysis. A closer look into the theme shows that translator training focused more on the development of translation competence compared to translator competence, in line with the many earlier investigations in translator training concentrating on the cultivation of skills or knowledge core to translation (see Kiraly 1995).

Within the theme of learning, although research concentrations seem to be very different in translator training and interpreter training, convergences are growing in the two. Translator training in the database focused more on learner performance, especially learners' errors and difficulties in translation, which is traceable to the influence of the earlier grammar-translation method in which the correct form of the language was greatly emphasized (Richards and Rodgers 2001). Research on interpreter training, however, apart from having more discussions related to expertise development, shows a more general concern over different learner factors in interpreting, correlating to more prominence given to words such as "learning" and "trainees" in the title analysis. Despite the numeric dominance of entries of T training, the thematic distribution of learning in the I training sub-database in the study looks closer to that of the general T&I training database in Yan, Pan and Wang (2015), indicating the exceptionally strong influence on learning-related topics by IS at large.

Lastly, in the thematic category of assessment, the present study shows that translator training focused slightly more on models for classroom assessment than interpreter training. Findings of this study suggest that showcasing of good practice and market concerns may be composed of the more important issues in translator training. The overall low proportion of assessment research in both subdisciplines, also reflected by the distribution of research in the general T&I training database (Yan, Pan and Wang 2015), confirms that assessment is still lagging behind, compared to the development of teaching approaches in both translator training and interpreter training (Kelly and Martin 2009).

4.3   Translator training vs. interpreter training: Research methods

Orozco (2004, 98) proposed a shared methodological model for TS and IS:

> It is true that the differences between Translation Research (TR) and Interpreting Research (IR) make it difficult to contemplate areas of research in common but, in my opinion, the clue to bringing research into translation and interpreting closer lies in the acceptance – and the use – of a common research methodology by scholars in both fields.

The current findings demonstrate that, in addition to a shared methodological model, research on translator training and interpreter training applied many common research methods. Of course, some specific research methods were used more often in one field than the other.

In the study, research on translator training and interpreter training both applied more empirical than non-empirical designs (also see Yan et al. 2013; Yan, Pan and Wang 2015), suggesting that the field of translator training may differ from that of TS, in which one may expect a more humanistic-oriented research method or a non-empirical mainstream (cf. Gile 2004, 2005). This may partially be attributed to the "applied" nature of research on training (Toury 2012, 12), and more importantly, to the many articles on competence development and strategies in translator training, both of which feature an experimental research design (see Williams and Chesterman 2002; Lörscher 2005; PACTE 2005, 2009; Toury 2012; Vandepitte 2013). Within the subcategory of observational studies, the case study method stood out as a distinctive feature of research on translator training, which supports that case study was a common research method applied in TS (Neubert 2004; Susam-Sarajeva 2009).

4.4   Translator training vs. interpreter training: Active authors, institutions & countries/areas

According to the study, the most active authors in translator training and interpreter training were basically two different groups of people, a phenomenon similar to the top-cited authors in Gile (2005). The present study also found that only 6 authors published in both translator training and interpreter training and some published on training in general. These findings may lend support to the following statement made by Gile (2004, 31):

> Under the circumstances, TR and IR are natural partners, which do not threaten each other, and can cooperate with each other. Many interpreting researchers (such as Kalina, Pöchhacker, Schjoldager, Shlesinger, Stenzl to quote just a few), have found interesting ideas and methods in TR which they have used in IR. If TR

scholars keep their minds open to ideas and methods found in the IR literature, they may well find them productive in TR as well.

Likewise, the top productive institutions and countries/areas in translator training look very different from those in interpreter training. There were a few (3) shared institution names in the top productive lists of both translator training and interpreter training but their rankings differ. The lists of top productive countries/areas of research on translator training and interpreter training, though featuring more overlapping names, showed different positioning of the countries/areas, suggesting a certain regional research priority (cf. Gile 2005).

Nevertheless, the findings of the current study only account for the differences between research on translator training and interpreter training in the distribution of active authors, institutions and countries/areas, not for differences in their impacts. The latter may serve an intriguing future direction for in-depth study of this subtopic.

4.5 Sign language interpreter training

Given the significance of the differences between spoken and sign language interpreting, the present study, however, did not separate these two for a number of reasons. First, this is a choice made as a result of the growing integration between the practice, training and research of the two types of interpreting. Napier (2015, 129) provided a summary of the relationship between these two:

> There is growing recognition that signed language should be included among all the languages to be considered in terms of interpreting practice … the shift is further evidenced through increasing cross-linguistic and cross-modality collaboration in the education of interpreters, in research on interpreting, and in the number of publications that feature discussions of spoken and signed language interpreting issues across genres of interpreting practice.

Second, the breaking-down of the partition between sign and spoken language interpreting may be more pragmatic in a review study such as the present one when the former has just "moved from primary a community-based interpreting industry with little academic foundation, to one that is increasingly embracing higher standards in training" (Bontempo 2015, 118).

As a matter of fact, the database in the present study (with a total of 350 entries) included only 8 entries that discussed in particular the training of sign language interpreting, none of which feature a new research theme or method. In addition, half of the 8 entries addressed participants or training programmes of both sign and spoken language interpreting; the other half, although involving participants or training programmes of only sign language interpreting, mostly

indicated their generalizability or implications to the training of spoken language interpreting or interpreter training in general.

Nevertheless, there appear to be some specific features of the 8 articles on the training of sign language interpreting as compared to the other articles in the database. For example, the research themes seem to be more focused on learning, in particular learner factors (6 entries), while empirical research methods were favored (7 entries). Also, there tend to be some dedicated authors that do not appear in the rest of the database, e.g., 3 entries were (co-)authored by Jemina Napier, 3 were (co-)authored by Sherry Shaw, while the rest of the authors appeared only once. Due to the small number of article entries (i.e., 8), the present database may not be able to show idiosyncrasies that could help separate sign language interpreter training from spoken language interpreter training. Along with its "rapid evaluation and growth" (Bontempo 2015, 124), this field of research on sign language interpreting, however, is expected to show distinctiveness that may be observed from an expanded version of the database.

To conclude, the present study provides important empirical evidence of the convergences and divergences between research on translator training and interpreter training. Findings of the study indicate that a shared framework of research themes and methods is feasible for research on translator training and interpreter training, and perhaps TS and IS at large (cf. Schäffner 2004b; Vandepitte 2008; Gambier and van Doorslaer 2009). The study also suggests that research on these two sub-disciplines will certainly inform and benefit from each other. Nevertheless, the study also shows that research on translator training and on interpreter training have different focuses of research themes and methods (cf. Gile 2005; Kelly and Martin 2009). Scholars and institutions of T&I research may still be positioned in a tug-of-war between departmentalization and unification (cf. Gile 2005). The study, however, suggests a possible growth in the number of scholars and institutions that excel in both T&I research. Therefore, more synergies between translator training and interpreter training can be expected in the future.

By all means, the present study has limitations, given the type and language constraints of data included in the database. Nevertheless, the database, with its certain representativeness, gives a very important snapshot of the differences and similarities in two important "applied" extensions in T&I research (Toury 2012, 12), at least by presenting some "construction that *represents* some aspect of reality," which "does *not* mean 'ideal'" (Williams and Chesterman 2002, 48; italics in the original). Some concerted effort in the extension and consolidation of such databases in width and in depth will certainly fill more voids in our knowledge of T&I research and benefit a wider range of trainers, researchers and practitioners at large.

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Appendix 1. Examples of thematic classification schemes of or related to translator and interpreter training in the previous literature

	Database	Sub-themes of or related to translator and interpreter training

Williams and Chesterman (2002)	Nil.	TRANSLATOR TRAINING
		  Curriculum Design
		  Implementation
		  Typical problem areas
		  Professional Dimension
		INTERPRETING
		  …
		  interpreter training
		  …

Franco Aixelá (2003)	BITRA (Bibliography of Interpreting and Translation)	TEACHING
		  Handbook
		  Thème

Pöchhacker (2004)	Nil.	PEDAGOGY
		  Curriculum
		  Selection
		  Teaching
		  Assessment
		  Meta-level training

Vandepitte (2008)	Terms drawn from Holmes ([1972] 1988), Baker (1998), the *Bibliography of Translation Studies* (1998–), Williams and Chesterman (2002) and the *EST-Directory 2003* (European Society for Translation Studies 2003)	STUDIES OF TRANSLATION TEACHING UF: studies of translation training UF: studies of translation didactics RT: language teaching studies RT: curriculum design RT: curriculum implementation RT: translation assessment UF: translation evaluation RT: translator-training institutions RT: place of technology in translator training * RT = Related Term UF = used for (a synonym with a lower frequency)

Van Doorslaer (2009)	The TSB (Translation Studies Bibliography)	DIDACTICS
		  Competence
		  Curriculum
		  Training
		  Teaching
		  Exercises

H. Liu and Mu (2013)	Chinese journal articles on translation teaching (2002–2011)	Interpreting teaching Teaching models and approaches Curriculum design and textbooks Tests and assessments Translation competence and translator competence Discipline construction and talents cultivation Teaching on specific topics and at different levels Teacher development and training

Yan et al. (2013)	Journal articles on IS (2000–2010)	STUDIES ON INTERPRETER TRAINING AND ASSESSMENT
		Interpreter Training
		  Training philosophies
		  New tech & Training
		  Training methods & models
		  Needs analysis
		Interpreting Learning
		  Learner performance
		  Learner factors
		Interpreting Assessment
		  Classroom assessment
		  Professional accreditations and certifications

Yan, Pan and Wang (2015)	Journal articles on T&I training (2000–2012)	TEACHING
		Training Philosophies
		  Theoretical concerns / framework
		  Disciplinary typology
		  Training elements
		Training Methods & Models
		  Institutional training models
		  Classroom training approaches
		Competence Development
		  General
		  Translator / interpreter competence
		  Translation / interpretation competence
		Needs Analysis
		Technology & Training
		Training of Research Skills
		Translation & Language Teaching
		LEARNING
		Learner Performance
		  Features
		  Errors / difficulties
		  Expertise development
		Learner Factors
		  General / multi-factors
		  Personality
		  Anxiety & stress
		  Learning styles
		  Strategies
		ASSESSMENT
		Classroom Assessment
		  Theoretical framework
		  Models & methods
		Professional Accreditation & Certifications
		  Theoretical framework
		  Models & methods
		  Market needs

Appendix 2. Examples of research method classification schemes related to T&I research in the previous literature

	Field of research	Classification schemes of research methods

Gile (1998)	Conference Interpreting Research	THEORETICAL RESEARCH
		EMPIRICAL RESERCH
		Observational (naturalistic) research
		  The exploratory approach
		  The focused analytical approach
		  The hypothesis-testing approach
		  Interactive and non-interactive observational research
		Experimental research
		  Statistical hypothesis-testing vs. 'open experimenting'

Gile (2000)	Conference Interpreting Research (based on CIR publications over 16 years)	EMPIRICAL STUDIES NON-EMPIRICAL STUDIES

Williams and Chesterman (2002)	TS (including IS)	CONCEPTUAL (THEORETICAL) RESEARCH
		EMPRICAL RESEARCH
		Subtypes:
		  Naturalistic (observational) studies
		  Experimental studies
		Examples:
		  Case studies
		  Corpus studies
		  Survey studies
		  Historical/archival studies

M. Liu (2011)	IS (based on 48 evidence-based studies in *Interpreting* [2004–2009])	QUALITATIVE APPROACH
		  Case study
		  Grounded theory research
		  Action research
		  Historical research
		  Hermeneutic analysis
		QUANTITATIVE APPROACH
		  Descriptive method
		  Survey
		  Correlational research
		  Experiments

Hale and Napier (2013)	IS	QUANTITATIVE RESEARCH QUALITATIE RESEARCH EXAMPLES: Questionnaires Ethnographic research Discourse analysis Experimental research Educational research

H. Liu and Mu (2013)	Translator training (based on 525 Chinese journal articles [2002–2011])	QUALITATIVE AND ANALYTICAL QUANTITATIVE AND EMPIRICAL SPECIFIC METHODS: Experience summaries Theoretical and analytical study Case study Experimental study Survey study Others
Saldanha and O'Brien (2013)	TS	QUALITATIVE APPROACH QUANTITATIVE APPROACH MIXED-METHOD APPROACH EXAMPLES: Product-oriented research Process-oriented research Participant-oriented research Context-oriented research: case studies
Yan et al. (2013)	IS (based on 235 Journal articles [2000–2010])	EMPIRICAL Pure Empirical (Experimental & observational) Pro-Empirical (Survey studies) NON-EMPIRICAL Pro-Non-Empirical (Descriptive) Pure Non-Empirical (Theoretical)
Yan, Pan and Wang (2015)	Journal articles on T&I training (2000–2012)	EMPIRICAL Observational Case study Corpus research Survey research Correlational research Action research Experimental NON-EMPIRICAL Descriptive Theoretical

Appendix 3. Thematic categories, methodological categories and their numbers of entries in the database

I. Thematic categories of articles in the database

Category Level I	No.	Category Level II	No.	Category Level III	No.
A. Teaching	262	a. Training philosophies	118	(a) Theoretical concerns / framework	54
				(b) Disciplinary typology	16
				(c) Training elements	48
		b. Training methods & models	46	(a) Institutional training models	20
				(b) Classroom training approaches	26
		c. Competence development	31	(a) General	4
				(b) Translator/interpreter competence	5
				(c) Translation / interpretation competence	22
		d. Needs analysis	12		
		e. Technology & training	34		
		f. Training of research skills	13		
		g. Translation & language teaching	8		
B. Learning	62	a. Learner performance	26	(a) Features	3
				(b) Errors / difficulties	12
				(c) Expertise development	11
		b. Learner factors	36	(a) General / multi-factors	11
				(b) Personality	3
				(c) Anxiety & stress	5
				(d) Learning styles	1
				(e) Strategies	16
C. Assessment	26	(a) Theoretical framework	13		
		(b) Models & methods	13		

II. Methodological categories of articles in the database

Category Level I	No.	Category Level II	No.	Category Level III	No.
A. Empirical	190	a. Observational	115	(a) Case study	56
				(b) Corpus research	6
				(c) Survey research	30
				(d) Correlational research	15
				(e) Action research	8
		b. Experimental	75		
B. Non-empirical	160	a. Expository	124		
		b. Theoretical	36		

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