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Mapping out translation training: a meta-analysis of eighteen major translation and interpreting journals (2000-2020)

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Abstract

Formal advanced training in translation necessitates establishing a career in an exceedingly competitive global industry. Conducting a systematic and comprehensive review of the research literature in the field of translation training can be beneficial for researchers and trainers. Thus, this article addresses research in translation training to analyze the findings of studies, covering a total of 1,088 published articles in major T&I journals from 2000 to 2020. Scientometric methods, as well as top-down and bottom-up thematic approaches, along with corpus analysis tools, were utilized to investigate the database. A multilayer (four-layer) classification system for the topics related to translation training was employed in the database. The research papers were generally categorized into four interrelated themes: translation teaching, translation evaluation/assessment, translation testing, and translation and technology. By employing a multilayer categorization scheme, the article presents the proportions of studies in each category and sub-category, including information on (co-)authorship, regions, institutions, journals, and languages. As a resource, the database distills top research for translation researchers, equipping them with the most up-to-date information on pedagogical practices, curriculum design, and the potential contributions of research.

Keywords: translation training; journal articles; translation studies; scientometric analysis.

1. Introduction

The training of translators has remarkably expanded over the past few decades. It takes several forms, namely: (i) on-the-job translation training (the initial level of training), (ii) short-term training courses, and (iii) long-term training courses. On-the-job training refers to the situation where a significant number of expert translators have likely had "no training in translation beyond such experience, and the value of experience is thus not to be underestimated" (Pym, 2009: 1). Short-term training courses, both in-house and on the market, such as those covering "new translation technologies, project management, and area-specific terminology" (ibid.), provide professional and trainee translators with the necessary skills and approaches to transition from one specialized area to another. Additionally, long-term training courses offered by universities at the bachelor's and master's levels aim to showcase the latest developments, principles, and key arguments of university-level translation training programs. In this regard, one of the remarkable changes has been the rapid increase in translation organizations and institutions with significantly enhanced expertise in training and "translation research models and methods" in response to "the growing demand for systematic and well-organized training for practitioners" (Akbari, 2018: 552). The institutionalization of translator/researcher/scholar training mandated by educational reforms has provided substantial momentum for professionals in the field of translation training. According to Kelly and Way (2007), the introduction of university-level training programs in translation and interpreting during the 1930s contributed to the proliferation of translation and interpreting (T&I) training programs. In this vein, various journals such as *The Interpreter and Translator Trainer* (Taylor and Francis Publishing), *Perspectives: Studies in Translation Theory and Practice* (Taylor and Francis Publishing), *Jostrans* (University of Roehampton), and *Meta* (University of Montreal), among others, devote all or parts of their issues to the expansion of subcategories of translation training (e.g., translation curriculum, task-based translation, translation competence, translation philosophies, translation testing).

Given the rapid growth of the translation training field, it is essential to reflect on its development to conduct future research and examine potential trajectories in this area of study. Recently, reports and reviews of methodological advancements have offered valuable insights for translators to gain "a historical overview of a particular field and to identify the paradigm shift" (Yan and others, 2015: 270) in translation training.

Despite the importance of translation training research, in both academic and professional contexts, and the increasing number of studies devoted to this field, there are still few studies and literature reviews on this practicum (Gile, 2000, 2005, 2009; Akbari, 2018). Thus, not only does the substantial rise in translation training programs strongly demand a comprehensive research study of the latest developments and advances in this valuable field, but the notable lack of cutting-edge research and reviews on translation

training, particularly meta-analyses or data-driven reviews, creates a clear impetus for the current research.

This research aims to examine and review articles on translation training from 18 peer-reviewed journals (both paywalled and open-access) published between 2000 and 2020. This summative analysis will reveal the prevalence of translation training, illustrate the circumstances surrounding empirical and non-empirical studies, identify challenges and obstacles currently faced by translators and translation trainees, and outline future directions in translation training.

2. Roadmap of the research

2.1. Construction of database

To illustrate the field of translation training research in the new millennium, the database collected entries from major T&I journals published between 2000 and 2020. Although English remains the dominant language in Scopus-indexed literature in this subject area, this does not seem to hold true across all T&I journals. Some journals, such as *Babel*, *Onomázein*, and *Lebende Sprachen*, accept and publish articles in various languages, including Spanish, French, German, Arabic, Chinese, Italian, and Russian. Thus, the articles analyzed in this research were written in English and other languages, including Spanish, Italian, German, and French. Microsoft Office Access 2019, recognized as an appropriate and powerful tool, was utilized to organize the bibliographic database. Each data entry includes details about the particular publication (both thematic and non-thematic issues), such as the year of publication, title of the original article, publication source, key indices, abstract, and information related to authors, such as the number of authors, affiliations, and countries. The six major factors considered in selecting the T&I journals (quartile one and quartile two) included thematic importance (categories A, B, C, and D), geography, journal, language, and authorship distributions. The journals were chosen based on quality indicators provided by the University of Barcelona. Additionally, due to space constraints, the study focuses on 'translation' articles rather than 'interpretation' articles. To enhance the objectivity and comprehensiveness of the data collection process, the authors employed a combination of computer searches and manual double-checking (cf. Grbić and Pöllabauer, 2008; Gao and Chai, 2009).

2.2. Data analysis

The database was analyzed using a combination of scientometric methods, thematic analysis, and corpus analysis tools. These methods are justified as they can offer a multidimensional and multifaceted representation of T&I journal publications over the past decade.

After creating the database, information drawn from the data entries, including publication source, year, and author details, was processed. The bibliometric indicators of the database were calculated to illustrate the ongoing distribution and social-biographic features of translation training research in the new millennium. Providing the bibliographical and bibliometric features of the entire database, as well as reflecting an original representation of the themes through the extracted database entries and the bibliometric distributions associated with each entry, is one of the outstanding traits of this research paper.

To reduce subjectivity, both top-down and bottom-up approaches were employed in the thematic analysis of the database. A multilayer thematic classification system was developed to represent the various dimensions of the field. A review of the literature related to translation training indicates that there is no existing pattern suitable for the current investigation, as most patterns have either become outdated or are not directly related to contemporary research in the field (Nord, 2012; Liu and Mu, 2013; Williams, 2013). However, examining existing patterns can provide fundamental ideas for the thematic classification of this research paper. For example, relevant studies conducted in this area include Gambier (2010), Liu and Mu (2013), and Yan and others (2015). Gambier (2010) utilized tags such as process-centered activities, situational approach, text-based approach, e-learning, learning progression, specialization, and evaluation/assessment. Liu and Mu (2013) applied thematic categories of testing and evaluation, translation competence and translator competence, teaching models and methods, curriculum design, textbook development, interpreter training, trainer preparation, and specialization and levels. Yan and others (2015) presented three general themes of teaching, learning, and assessment, with subcategories and subtypes in their study. However, these classification systems either overlapped with other categories or were often monolayer. Furthermore, previous studies have not addressed one of the principal areas of translation teaching, namely testing, in their analyses.

Furthermore, technology and training are among the primary subcategories in previous investigations. The use of technology in translation and localization is increasing due to the "technoscience move" in translation studies (Olohan, 2017: 268). In this context, the paper suggests that translation and technology must be treated as one of the main categories in translation education. Thus, we outline and categorize the themes into four main categories, dividing each of these categories into several subcategories and subtypes.

In the bottom-up approach, each entry was initially labeled with a key index (keyword) that corresponded to the same category, and those entries were then grouped accordingly. Next, the outline of these four categories was synthesized with the themes already established for translation training. The higher-ranked category was applied when one data entry fell into multiple themes or categories. The authors conducted a thematic analysis, and the results were compared. In the event of any disagreements in classifications, the research team reached a consensus through discussion.

Additionally, to help identify the research themes, Sketch Engine (2020), a corpus analysis tool, was employed to analyze article entries. To objectively demonstrate the research themes, high-frequency content words were calculated. Based on research methodology, paper entries were tagged in the database. Thus, to visualize the complexity of methodological evolution in translation training, a scheme (a multilayer system) comparing empirical and non-empirical research on translation training was developed (Gile, 2005). After the database was categorized, fundamental statistics were computed for each category. The findings were then integrated into the results based on specific criteria, such as geographical area, journal, language coverage, and authorship distribution (both single and multiple). Finally, the results obtained from the specified database entries were compared with previous research papers (studies) in broader or similar domains to provide a comprehensive overview of recent developments in translation training.

3. Results

3.1. Rudimentary (descriptive) statistics

In this research paper, 1,088 articles related to translation training were extracted from a total of 8,398 entries across 18 peer-reviewed journals, including both quartile 1 (Q1) and quartile 2 (Q2) open-access and paywalled publications accessed via the Scopus® database. Table 1 presents the sources and the organization of the planned database.

TABLE 1

The tour d'horizon of journals' information

JOURNAL	PUBLICATION ISSUES	NO OF ARTICLES IN TRANSLATION TRAINING*	OA/NOA**	TOTAL NO OF ENTRIES
Across Language and Culture	2000-2020 (2 issues)	70	NOA	365
Babel	2000-2020 (6 issues)	68	NOA	284
JoSTrans	2004-2020 (2 issues)	93	OA	451
Lebende Sprachen	2000-2020 (2 issues)	47	NOA	620
Machine Translation	2000-2020 (4 issues)	68	NOA	277

New Voices in Translation	2011-2019 (1 issue)	47	OA	330
Perspectives	2000-2020 (6 issues)	145	NOA	733
Skase Journal of T&I	2005-2020 (2 issues)	28	OA	95
Translation and Interpreting	2009-2020 (2 issues)	49	OA	211
Translation Studies	2008-2020 (3 issues)	27	NOA	440
The Translator	2000-2019 (4 issues)	37	NOA	481
InTRAlinea	2000-2019 (1 issue)	42	OA	440
Meta	2000-2019 (3 issues)	76	NOA	1540
The Interpreter and Translator Trainer	2007-2020 (4 issues)	108	NOA	285
Translation and Interpreting Studies (TIS)	2006-2020 (3 issues)	36	NOA	253
Target	2000-2020 (3 issues)	45	NOA	773
Translation Space	2012-2020 (2 issues)	51	NOA	112
Onomázein	2000-2020 (4 issues)	51	OA	708
Sum		1,088		8,398

* For consistency of database conformation, book-reviews and case-studies were included.

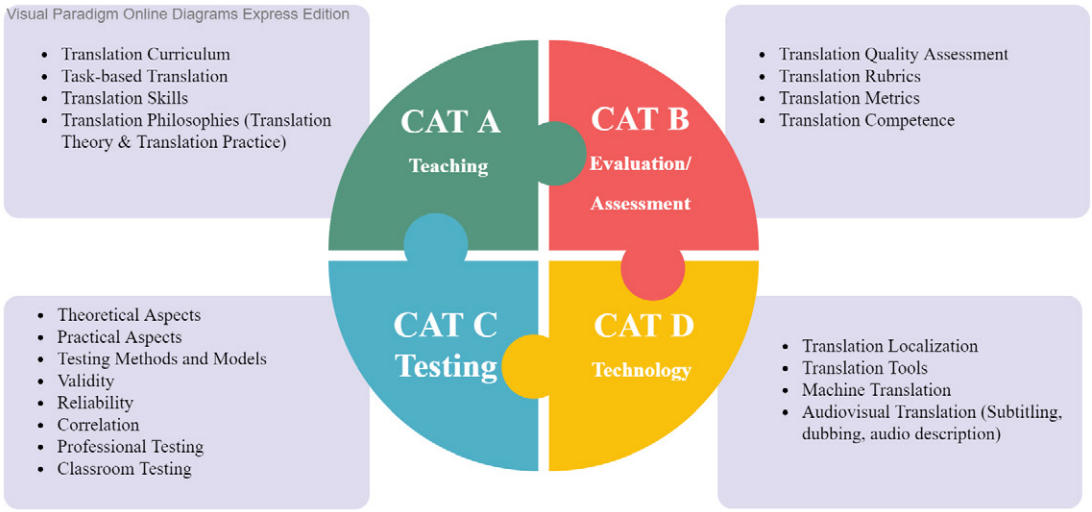
** OA= Open-access / NOA= Non-open-access.

3.2. Subject matters in the drawn-out database

Based on bottom-up and top-down approaches, four general subject matters (themes) were identified through thematic analysis as follows: 'Translation Training: Teaching' (category A), 'Translation Training: Evaluation/Assessment' (category B), 'Translation Training: Testing' (category C), and 'Translation Training: Technology' (category D) (figure 1).

FIGURE 1

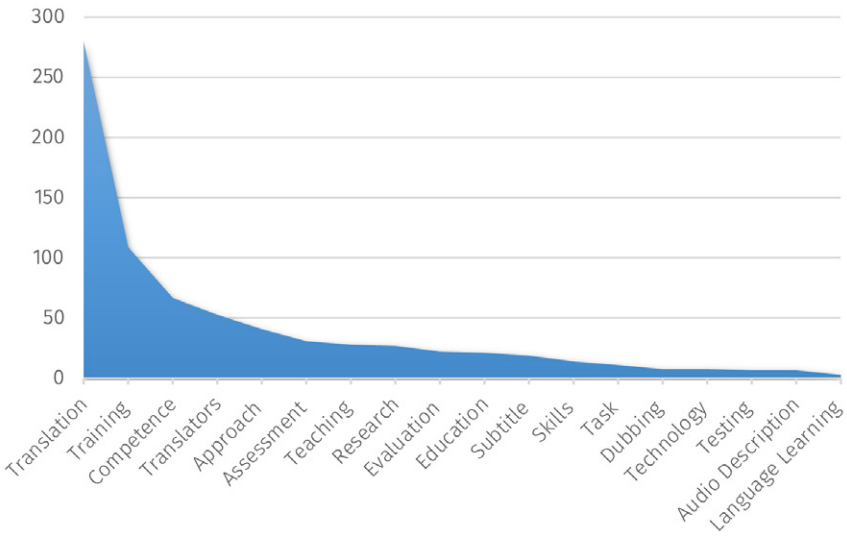
Sub-categories of 'A', 'B', 'C', and 'D'



To develop a clear understanding of what constitutes translation training, a list of words common to all articles was generated using the Sketch Engine (2020) platform. The following figure (figure 2) illustrates the most frequent content words found in four categories: 'translation,' 'teaching,' 'approach,' 'education,' 'evaluation,' 'technology,' 'assessment,' 'skills,' and 'task'. These frequent content words may define the aims and scope, as well as the description of journals in the field of translation training.

FIGURE 2

Most frequent content words in four categories



The most frequent content words in each category were identified and then depicted using Wordle (2020): 'Translation Training: Teaching' (category A), 'Translation Training: Evaluation/Assessment' (category B), 'Translation Training: Testing' (category C), and 'Translation Training: Technology' (category D). The resulting diagrams can be seen in figures 3, 4, 5, and 6.

FIGURE 3

Most frequent content words in category A

Translation: 40	Approach: 24	Teaching: 22	Education: 21	Practice: 17	Skills: 14	Translation Studies: 11
Translation Training: 11	Curriculum: 10	Theory: 10	Program: 9	Pedagogy: 3		

FIGURE 4

Most frequent content words in category B

Translation: 112	Quality: 38	Assessment: 31	Evaluation: 22	Evaluating: 10	Translation Competence: 9	Metrics: 7
Assessing: 7	Measure: 5					

FIGURE 5

Most frequent content words in category C

Test: 11	Validity: 10	Reliability: 8	Professional: 7	Testing: 6	Methods: 6	Models: 4
Classroom: 3	Correlation: 3					

FIGURE 6

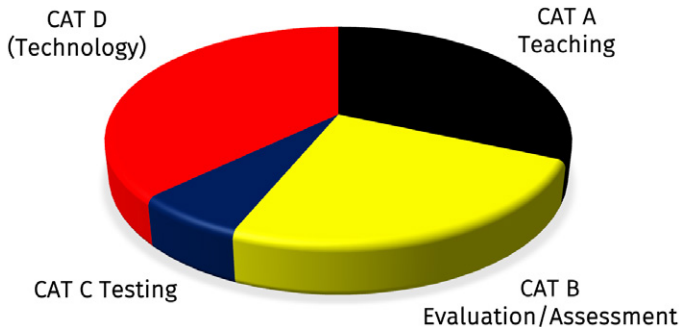
Most frequent content words in category D

Translation: 128	Machine Translation: 94	Subtitling: 19	Localization: 12	Audiovisual Translation: 10	Corpus: 10	Game: 10
Technology: 8	Dubbing: 8	Statistical Machine Translation: 5	Translation Memory: 4	Translation Tools: 4	Web Localization: 2	

The following figure (figure 7) illustrates the distribution of articles across thematic categories. Of 1,088 extracted research papers (including research articles, case studies, and book reviews), 344 (31.61 %) articles were assigned to category A (Translation training: teaching), 268 (24.63 %) articles to category B (Translation training: evaluation/assessment), 72 (6.61 %) articles to category C (Translation training: testing), and 404 (37.13 %) articles to category D (Translation training: technology).

FIGURE 7

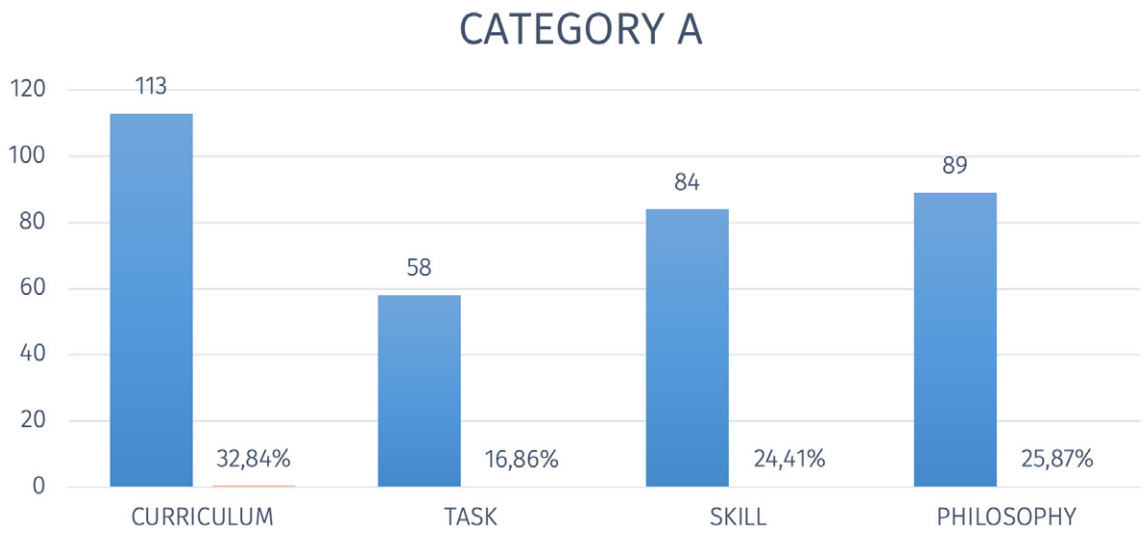
The diffusion of articles based on four categories

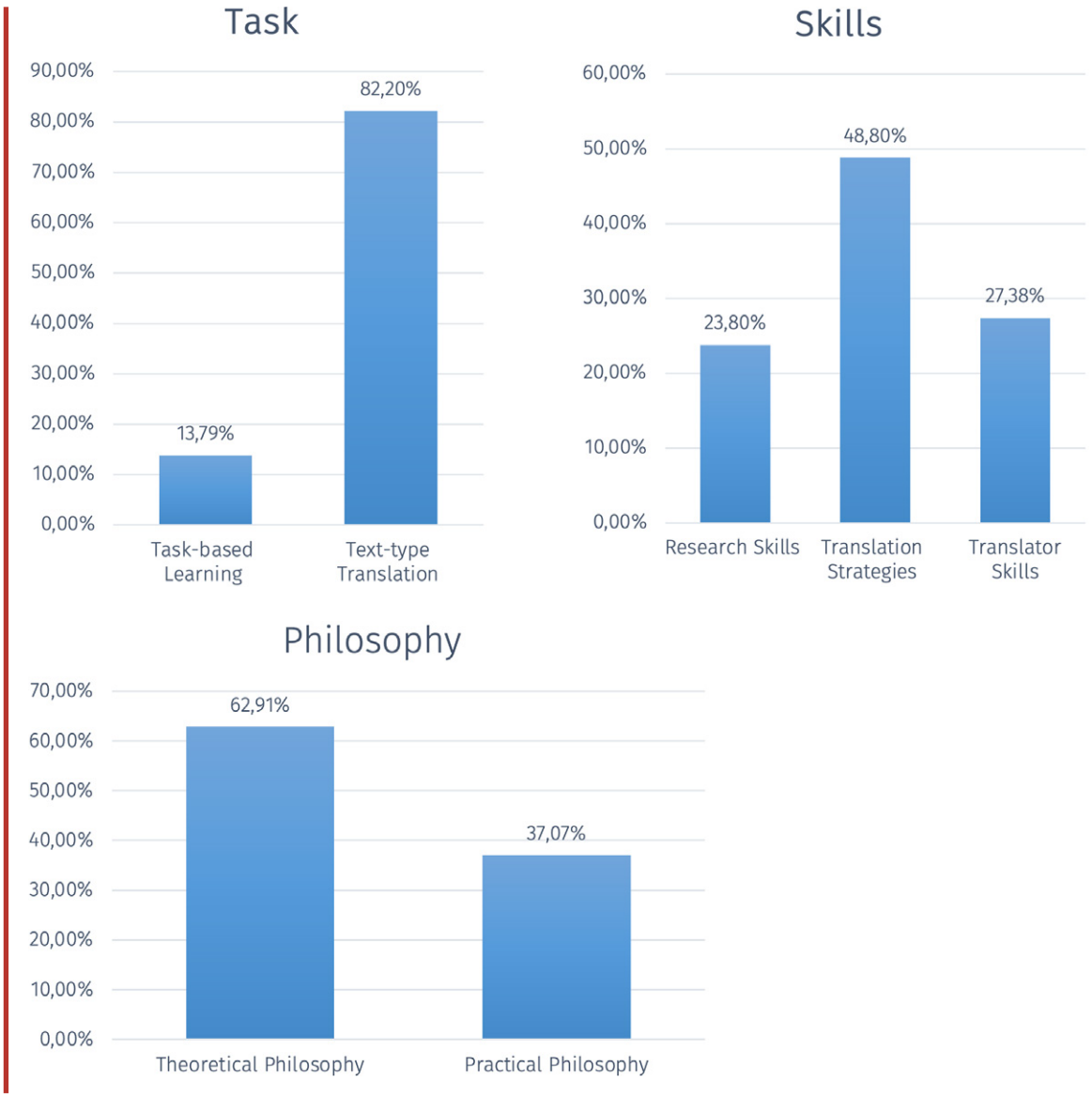


The following charts (figures 8, 9, 10, and 11) demonstrate the proportion of articles distributed in all categories (A, B, C, and D) and sub-categories.

FIGURE 8

Category A: categories and sub-categories of translation training in teaching





According to figure 8, 32.84 % of the total articles (category A) were dedicated to 'curriculum', followed by 'translation philosophies' at 25.87 %, which encompasses 'theoretical philosophies' and 'practical philosophies'. The 'skills' section (24.41 %) in translation training was divided into three subcategories: 'research skills', 'translation strategies', and 'translator skills'. The 'task' in translation training constituted 16.86 %, indicating the low frequency of terms like 'task-based learning' and 'text-types translation' within this context. The papers analyzed in the curriculum section mainly focused on designing curricula, translation courses, and translator training programs. Examples include Bestué and Orozco's (2016) "Online Training in Legal Translation: Designing Curricula for Bilingual Students", Chodkiewicz's (2014) "Addressing the Challenges of Designing a General Translation Course for

Undergraduate Students", Sikora's (2014) "The Need for CAT Training within Translator Training Programs: Modern Bare Necessities or Unnecessary Fancies of Translation Trainers?", Calvo's (2011) "Translation and/or Translator Skills as Organizing Principles for Curriculum Development Practice", Korkas and Pavlides' (2004) "Teaching Aspects of LSP (Language for Special Purposes) to Non-specialists: A Case for Background Courses in Translation Studies Programs", and Cleary and others's (2017) "TecCOMFrame: Building Bridges between Technical Communication and Translation Studies through a Prototype Specialization Curriculum".

As noted, 'translation philosophies' in category A was the second-largest category, consisting of 'theoretical philosophies' (62.91 %) and 'practical philosophies' (37.07 %). This sub-category encompasses concepts such as critical reviews, translation education, and the social, professional, and disciplinary dimensions of translation teaching and training. Representative examples include Jääskeläinen and others (2011) "Towards Professionalism — or against it? Dealing with the Changing World in Translation Research and Translator Education", Tabakowska (2014) "Teaching Translation: Can Cognitive Grammar Be of Any Use?", Cristina (2016) "Contextualizing Translator Training: Defining Social, Professional and Disciplinary Requirements", Hubscher-Davidson (2013) "Emotional Intelligence and Translation Studies: A New Bridge", Laborda and Litzler (2015) "Current Perspectives in Teaching English for Specific Purposes", and Greenall (2019) "The Discursive (Re-)construction of Translational Ethics".

The 'skills' section ranked third, comprising research skills (23.80 %), translation strategies (48.80 %), and translator competencies (27.38 %). These subcategories reflect themes such as the implications of translation strategies and the management of translator knowledge. Typical examples (to name a few) include: Morón and Calvo (2004) "Introducing Transcreation Skills in Translator Training Contexts: A Situated Project-based Approach", Whithorn (2014) "Translating the Mafia: Legal Translation Issues and Strategies", Siepmann (2004) "High-profile Translation from the Mother Tongue into the Foreign Language: Effective Translation Strategies and Implications for Translation Theory and Translator Training", Manzella (2018) "Strategies and Outcomes in Translating Industrial Relations Concepts in EU Texts", Castellano-Risco (2018) "Receptive Vocabulary and Learning Strategies in Secondary School CLIL and non-CLIL Learners", and González (2019) "Translating Accounting Texts: Documentary Resources, Covert Translation and Back-Translation".

Lastly, the remaining article entries in category A are covered by the sub-categories 'task-based learning' (13.79 %) and 'text-types translation' (82.20 %). The frequently discussed domains include: Vieira (2017) "Cognitive Effort and Different Task Foci in Post-Editing of Machine Translation: A Think-Aloud Study", Low (2002) "Surtitles for Opera: A Specialized Translating Task", Washbourne (2012) "Translation Style Guides in Translator Training: Considerations for Task Design", Biel and Sosoni (2017) "The Translation of Economics and the Economics of Translation", Stolze (2001) "Translating Legal Texts in the EU", Inoue and Candlin (2015) "Applying Task-Based Learning to Translator Education: Assisting the Development of Novice Translators'

Problem-Solving Expertise", Al-Shehari (2017) "Collaborative Learning: Trainee Translators Tasked to Translate Wikipedia Entries from English into Arabic", and Koby and others (2013) "Certification and Job Task Analysis (JTA): Establishing Validity of Translator Certification Examinations".

Figure 9 illustrates the distribution of article entries in the database category B (Translation training: evaluation/assessment), which includes 'Translation quality assessment (TQA, hereafter)', 'Translation rubrics', 'Translation metrics', and 'Competence development'. The sub-categories of 'TQA' and 'Competence development' account for the highest shares, approximately (40.29 %) and (34.32 %), respectively. The most discussed topics in TQA are as follows: Al-Kufaishi (2011) "Obligatory Translation Shift as a Sub-Component of a Model of Quality Assurance Specifications and Performance Translator Assessment", Pietrzak (2018) "The Effects of Students' Self-Regulation on Translation Quality", Rovira-Esteva and Orero (2012) "Evaluating Quality and Excellence in Translation Studies Research: Publish or Perish, the Spanish Way", Chiocchetti and others (2017) "Quality Assurance in Multilingual Legal Terminological Databases", Hara (2017) "Ensuring Quality in Legal Translation by Three Parties – Governments, Courts, and Translators", and Dastjerdi and others (2011) "Translation Quality Assessment (TQA): A Semiotic Model for Poetry Translation". The TQA sub-categories were divided into 'General Terms' (41.66 %) (e.g., Al-Qinai (2000) "Translation Quality Assessment. Strategies, Parameters and Procedures"), 'Translation Process' (13.88 %) (e.g., Calvo (2018) "From Translation Briefs to Quality Standards: Functionalist Theories in Today's Translation Processes"), and 'Quality Assurance' (44.44 %), including Karwacka (2014) "Quality Assurance in Medical Translation" and Kockaert and Segers (2012) "L'assurance Qualité des Traductions: Items Sélectionnés et Évaluation Assistée par Ordinateur".

Competence development, as the second-largest subcategory of category B, accounted for 34.32 % of article entries. Research in the field of competence development encompasses two significant aspects: translation competence and translator competence (Biel, 2011). In simple terms, translation competence refers to "the competence necessary to produce a high-quality target text in accordance with the relevant norms observed by professional translators" (Cui and Zhao, 2014: 458). Furthermore, according to Bell (1991: 78), translator competence can be defined as

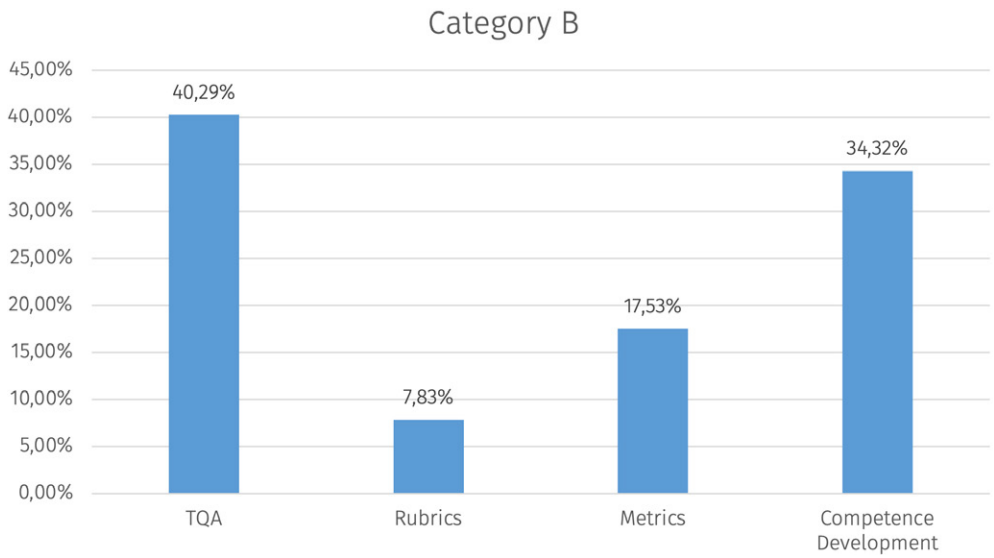
> A huge summation: target-language knowledge, text-type knowledge, source-language knowledge, subject-area (real world) knowledge, contrastive knowledge, then decoding and encoding skills summarized as 'communicative competence' (covering grammar, sociolinguistics, and discourse).

Research papers in the field of competence development examine specific types of translation competence models, such as the PACTE competence model (PACTE, 2000), the Göpferich competence model, and EMT competences. Figure 9 illustrates that the vast majority of research papers in this category are focused on 'translation competence' (72.82 %), while the remainder pertains to 'translator competence' (27.17 %). Notable examples include Kuznik and Hurtado (2015) "How to Define Good Professional Translators and Interpreters: Apply-

ing the Behavioral Approach to Studying Competences in the Field of Translation Studies", Márta (2007) "Conceptualizing Translation Competence", and Krajcso (2011) "Fostering Social Competence in Translation Studies". Additionally, Delicia (2011) "Madurez Sintáctica y Modos de Organización del Discurso: un Estudio Sobre la Competencia Gramatical Adolescente en Producciones Narrativas y Argumentativas", Di Mango (2019) "Does Teaching Theory Enhance Students' Translation Competence?", and Kupsch-Losereit (2009) "Die Kulturelle Kompetenz des Translators" are typical examples. Translation rubrics and metrics constitute other sub-categories of evaluation and assessment. The former primarily focuses on the grading of translation drafts based on several methods, including the holistic method (Bahameed, 2016), analytic method (Mariana and others, 2015), preselected items evaluation (PIE) method (Kockaert and Segers, 2014), calibrated parsing items evaluation (CPIE) method (Akbari and Shahnazari, 2019), and logistic calibrated items (LCI) method (Akbari, 2019). The latter regards the quality of translations according to various standards, such as LISA QA, SAE J2450, TAUS, MQM, and others. Examples include Kockaert and Segers (2017) "Evaluation of Legal Translations: PIE Method (Preselected Items Evaluation)", Mariana and others (2015) "The Multidimensional Quality Metrics (MQM) Framework: A New Framework for Translation Quality Assessment", O'Brien (2012) "Towards a Dynamic Quality Evaluation Model for Translation", Condon and others (2012) "Evaluation of 2-way Iraqi Arabic–English Speech Translation Systems Using Automated Metrics", He and Way (2010) "Metric and Reference Factors in Minimum Error Rate Training", Waddington (2004) "Should Student Translations be Assessed Holistically or Through Error Analysis?", Waddington (2001) "Different Methods of Evaluating Student Translations: The Question of Validity", and Sotomayor and others (2016) "Analytic Assessment of 4th Grade Chilean Students Writing".

FIGURE 9

Category B: categories and sub-categories of translation training in evaluation/assessment

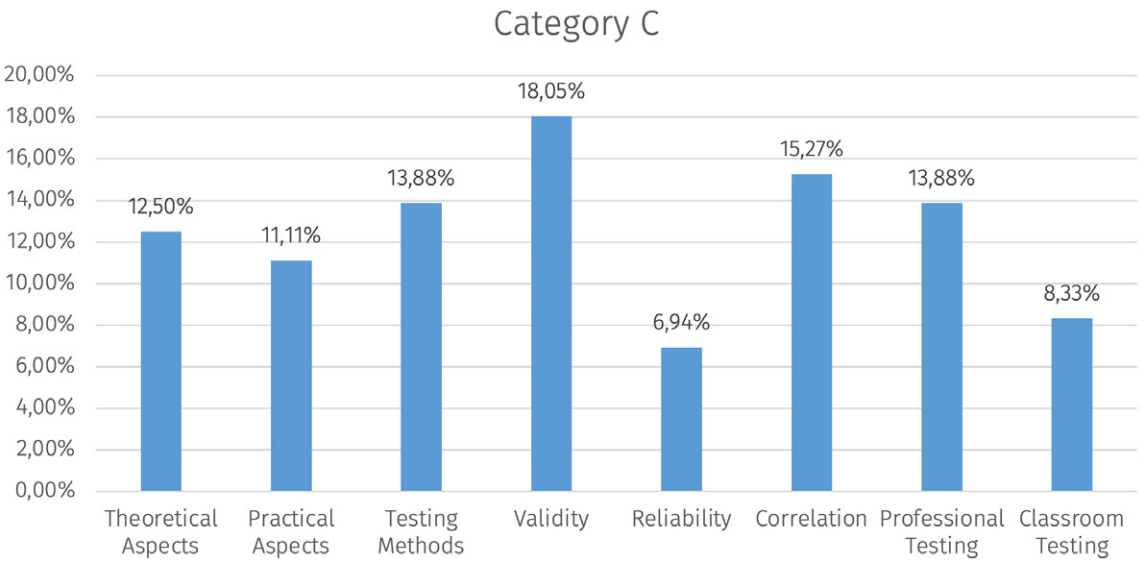


The third category (category C) focuses on the role of translation training and teaching in assessment. However, a smaller number of published research papers on testing and the art of testing are seen as crucial elements in training for translation. As shown in figure 10, over 18.08 % of research papers relate to 'validity' (e.g., validity coefficient), followed by 'correlation' (e.g., Pearson product-moment, Mann-Whitney U-test, Spearman rho) at 15.27 %, testing methods at 13.88 %, and professional testing at 13.88 %. This category emphasizes parameters such as the theoretical and practical aspects of testing, testing methods/models, validity, reliability, correlation, and both professional and classroom testing in

translation training. Typical examples in this category include: Dragsted (2012) "Indicators of Difficulty in Translation — Correlating Product and Process Data", Kruger (2019) "That Again: A Multivariate Analysis of the Factors Conditioning Syntactic Explicitness in Translated English", Lynn and others (2015) "A Corpus-based Multivariate Analysis of Linguistic Norm-Adherence in Audiovisual and Written Translation", Lai (2011) "Reliability and Validity of a Scale-based Assessment for Translation Tests", Ahmadi (2011) "On the Validity of a Multiple-Choice Translation Test as a Substitute for an Open-Ended Translation Test in the Iranian University Entrance Examination", Díaz-Galaz and Torres (2019) "Comprehension in Interpreting and Translation: Testing the Phonological Interference Hypothesis", Vanroy and others (2019) "Correlating Process and Product Data to Gain Insight into Translation Difficulty", and Delaere and others (2012) "Is Translated Language More Standardized than Non-Translated Language?".

FIGURE 10

Category C: categories and sub-categories of translation training in testing



Last but not least, category D (translation training: technology) has the highest number of published research papers compared to categories A, B, and C. As its name suggests, this category focuses primarily on technology and its role in teaching translation. It encompasses concepts such as machine translation (MT), audiovisual translation (AVT), crowdsourcing, computer-assisted translation (CAT) tools, localization (including both web and game localization), post-editing, MT quality, MT evaluation, and more. As shown in figure 11, 42.07 % of the total articles were dedicated to 'AVT', followed by 'translation tools' at 22.77 % and 'MT' also at 22.77 %. Translation localization is further divided into web localization (64 %) and game localization (36 %). Web localization (or website translation) includes

> Converting content into a different language through the simple substitution of words. Website localization is a more holistic process in which web content is adapted for consumption by a specific audience. This typically involves translation, as well as formatting and usability alterations and consideration of particular cultural likes and dislikes (Gengo, 2020).

Game localization settles at the core of localization; however, it takes "more than a simple translation to make it successful" (Altagram, 2020). GameDesigning platform (2020) contends that

> Game localization is the act of preparing games for their respective releases in different areas of the world. Different areas speak different languages, have different cultures, and have different content and censorship laws. Game localization allows developers to tailor the game experience to match the audience for which it's intended. Game localization involves everything from the obvious, like translating the game into new languages, to the less apparent aspects, like removing elements from a game that other cultures might not tolerate in their entertainment content.

Typical examples of published papers include: Sánchez Ramos (2019) "Mapping New Translation Practices into Translation Training: Promoting Collaboration through Community-Based Localization Platforms", Bernal-Merino (2009) "Video Games and Children's Books in Translation", Granell (2011) "Teaching Video Game Localization in Audiovisual Translation Courses at University", Jiménez-Crespo (2009) "Conventions in Localization: A Corpus Study of Original vs. Translated Web Texts", Mangiron and O'Hagan (2006) "Game Localization: Unleashing Imagination with 'Restricted' Translation", De Pedro Ricoy (2007) "Internationalization vs. localization: The Translation of Videogame Advertising", and Schäler (2007) "Translators and Localization".

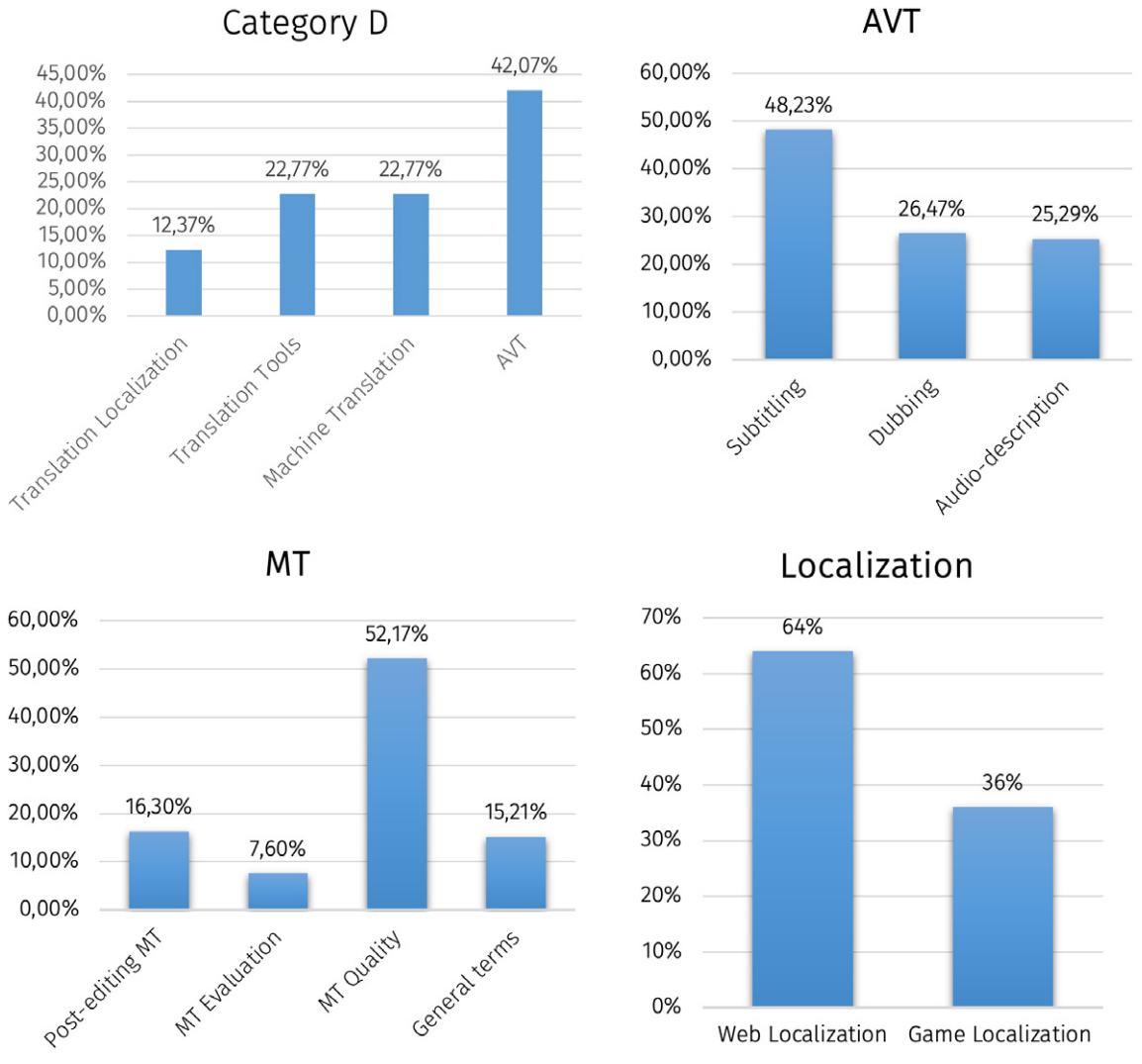
'Machine Translation' (MT) is categorized as a sub-category and constitutes 22.72 % of category D. MT is divided into several sections, including 'post-editing MT' (16.30 %), 'MT Evaluation' (7.60 %), 'MT Quality' (52.17 %), and general terms related to MT (15.21 %). MT encompasses topics such as translation memory, post-editing, quality machine translation, MT models, MT evaluation, MT algorithms and architectures, and more. Frequently referenced published papers include: Marzouk and Hansen-Schirra (2019) "Evaluation of the Impact of Controlled Language on Neural Machine Translation Compared to Other MT Architectures", Padó and others (2009) "Measuring Machine Translation Quality as Semantic Equivalence: A Metric Based on Entailment Features", Salesky and others (2020) "Optimizing Segmentation Granularity for Neural Machine Translation", Shterionov and others (2018) "Human versus Automatic Quality Evaluation of NMT and PBSMT", and Kenny and Doherty (2014) "Statistical Machine Translation in the Translation Curriculum: Overcoming Obstacles and Empowering Translators".

The highest proportion of research papers focused on AVT (42.07 %), a term that refers to the transfer of verbal components from one language to another. This research classified AVT into three categories: subtitling (48.23 %), dubbing (26.47 %), and audio description (25.29 %).

Commonly discussed topics in this field include 'interlingual and intralingual subtitling', 'live subtitling', 'cultural references in subtitles', 'humor in audio descriptions', 'captioning', and more. Notable examples are: De Ridder (2015) "(Audiovisual) Translation and Sociolinguistics – Bridging Theory and Practice", Mubenga (2009) "Towards a Multimodal Pragmatic Analysis of Film Discourse in Audiovisual Translation", Pettit (2004) "The Audiovisual Text: Subtitling and Dubbing Different Genres", Bywood and others (2013) "Parallel Subtitle Corpora and their Applications in Machine Translation and Translatology", Dorado and Orero (2007) "Teaching Audiovisual Translation Online: A Partial Achievement", Kruger and Orero (2010) "Audio Description, Audio Narration – A New Era in AVT", and Oncins (2015) "The Tyranny of the Tool: Surtitling Live Performances".

FIGURE 11

Category D: categories and sub-categories of translation training in technology



3.3. Empirical and non-empirical studies

This research paper categorizes all extracted article entries into two main types: empirical (observational and experimental studies) (Gile, 1998) and non-empirical (descriptive and theoretical studies) (Liu and Mu, 2013; Saldanha and O'Brien, 2013). According to the University of Southern Denmark (2020), empirical studies involve "the collection and analysis of primary data based on direct observation or experience in the field". In contrast, non-empirical studies emphasize theories and descriptions, including "methods and their implications for education research". This category encompasses "comprehensive reviews and articles that focus on methodology" (BMC, 2020). Observational research papers (empirical studies) were identified by the following subtypes: 'case study,' 'book review,' 'corpus research,' and 'correlational and action research' (Bevilacqua, 2012). Descriptive research studies consist of "fact-finding inquiries and surveys" (Akbari, 2018: 553). The subsequent table (table 2) and figures (figure 12) illustrate the distribution of empirical research, which includes observational and experimental research papers, as well as non-empirical research, encompassing descriptive and theoretical research papers.

TABLE 2

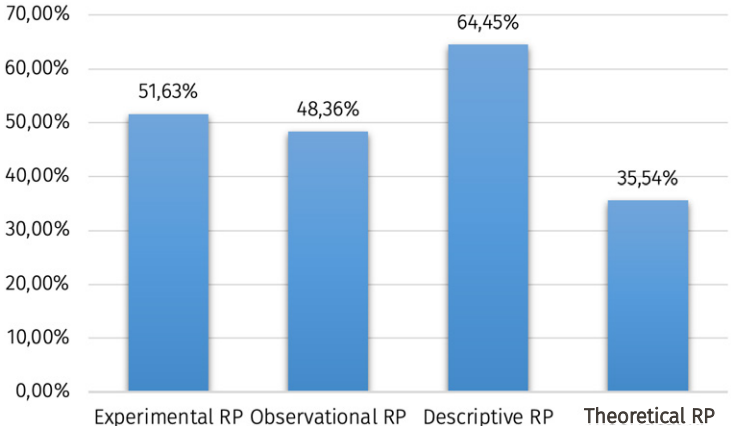
The proportion of empirical and non-empirical research papers

JOURNAL	EMPIRICAL	NON-EMPIRICAL	SUM (A, B, C, D)
Across Language and Culture	20	50	70
Babel	10	58	68
JoSTrans	20	73	93
Lebende Sprachen	14	33	47
MT	20	48	68
New Voices in Translation	5	42	47
Perspectives	25	120	145
Skase Journal of T&I	3	25	28
Translation and Interpreting	12	37	49
Translation Studies	7	20	27
The Translator	15	22	37
InTRAlinea	10	32	42
Meta	17	59	76
The Interpreter and Translator Trainer	20	88	108

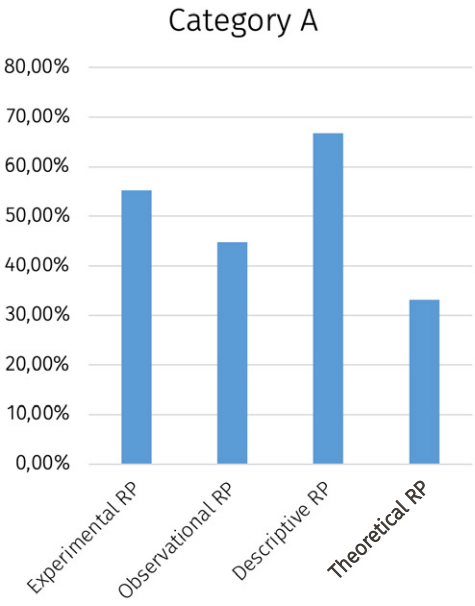
Translation and Interpreting Studies (TIS)	12	24	36
Target	15	30	45
Translation Space	9	42	51
Onomázein	10	41	51
Sum			1088

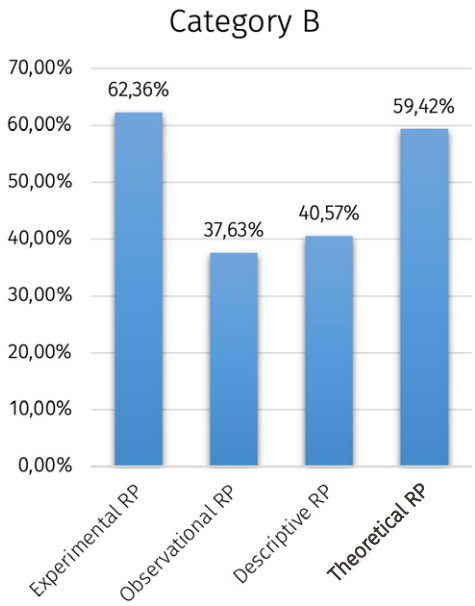
FIGURE 12

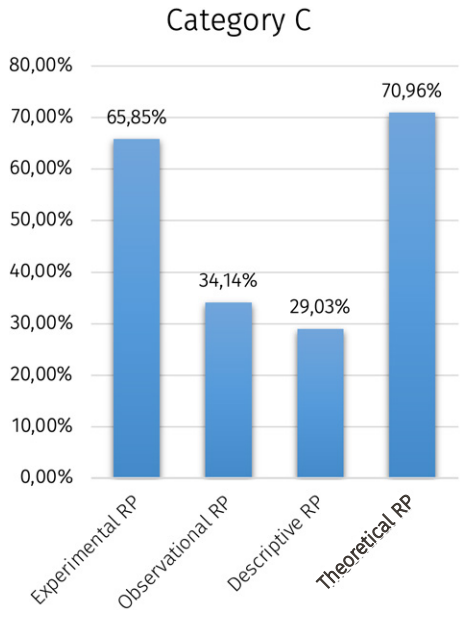
The proportion of empirical (experimental and observational) and non-empirical (descriptive and theoretical) studies for all categories

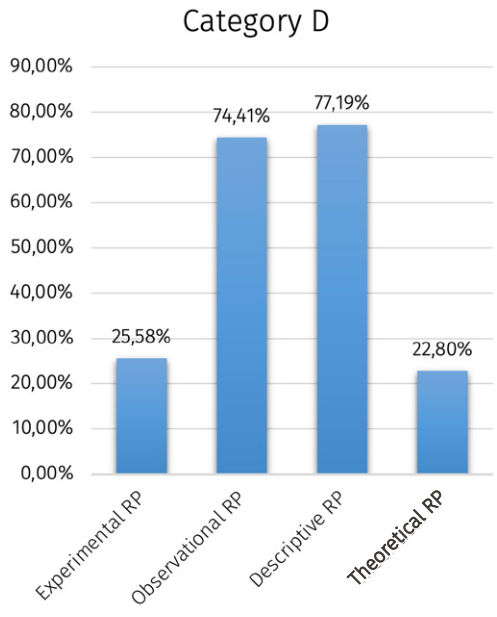


* RP = Research Papers.









According to figure 12, descriptive research studies (64.45 %) and experimental studies (51.63 %) accounted for the highest proportions. Observational studies (48.36 %) and theoretical studies (35.54 %) came in third and fourth, respectively.

3.4. Geographical, journal, language and authorship circulations of article entries

Statistics related to geographical, journal, and language coverage, as well as authorship distribution, were calculated. The following tables present fundamental statistics concerning authors (both single and multiple), universities, countries, languages, and journals based on thematic categories (A, B, C, and D) and methodological categories (empirical and non-empirical). According to table 3, more than half of the published research papers (56.25 %) were written by single authors, followed by multiple authors (43.74 %). In this regard, single and multiple authors in categories A and D are the most active compared to other categories.

TABLE 3

Authorship distribution

DATABASE	Nº OF ARTICLES	Nº OF AUTHORS IN EACH CATEGORY	THE PROPORTION OF SINGLE AUTHORS	THE PROPORTION OF MULTIPLE AUTHORS
Category A	341	356	209	147
Category B	268	194	98	96
Category C	72	52	29	23
Category D	407	237	136	101

Table 4 demonstrates the most active authors in translation training. The selection criterion was to choose authors who published more than three papers. Authors (single and multiple) who published less than this number were excluded.

TABLE 4

Active authors in the field of translation training

AUTHOR'S NAME	AFFILIATION	Nº OF ARTICLES	PERCENTAGE
Amparo Hurtado Albir	Universitat Autònoma de Barcelona, Spain	12	1.10 %
Sharon O'Brien	Dublin City University, Ireland	10	0.91 %
Anabel Galán-Mañas	Universitat Autònoma de Barcelona, Spain	8	0.73 %
Anthony Pym	University of Melbourne, Australia	7	0.64 %
Miguel Jiménez-Crespo	Rutgers University, USA	7	0.64 %
Isabelle Robert	University of Antwerp, Belgium	6	0.55 %
Stephen Doherty	The University of New South Wales, Australia	6	0.55 %
Dechao Li	The Hong Kong Polytechnic University, Hong Kong	6	0.55 %
Andy Way	Dublin City University, Ireland	6	0.55 %
Alireza Akbari	University of Isfahan, Iran	5	0.45 %
Agnieszka Szarkowska	University of Warsaw, Poland	5	0.45 %
Christian Olalla-Soler	Universitat Autònoma de Barcelona, Spain	5	0.45 %
Gary Messy	ZHAW, Switzerland	4	0.36 %
Anna Kuznik	Uniwersytet Wrocławski, Poland	4	0.36 %
Silvia Hansen-Schirra	Johannes Gutenberg University of Mainz, Germany	4	0.36 %
Lynne Bowker	University of Ottawa, Canada	4	0.36 %
Dorothy Kenny	Dublin City University, Ireland	4	0.36 %
Patricia Rodríguez-Inés	Universitat Autònoma de Barcelona, Spain	4	0.36 %
Roberto A. Valdeón	University of Oviedo, Spain	4	0.36 %
Aline Remael	University of Antwerp, Belgium	4	0.36 %

Table 5 indicates the most active and productive universities in translation training. Universitat Autònoma de Barcelona (4.68 %) and Dublin City University (3.12 %) took the lead. Compared to other countries, Spanish universities publish the highest number of research papers (11.74 %) in translation teaching.

TABLE 5

Active universities in the field of translation training

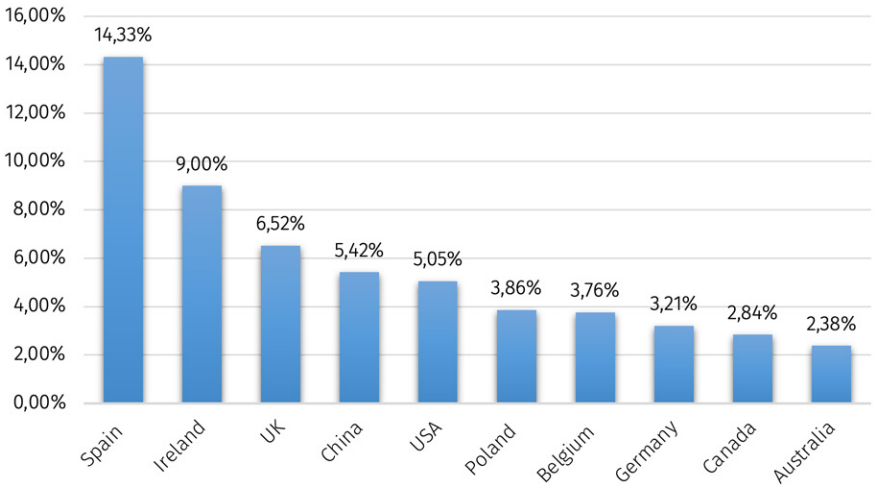
UNIVERSITIES	COUNTRIES	SUM	PERCENTAGE
Universitat Autònoma de Barcelona	Spain	51	4.68 %
Dublin City University	Ireland	34	3.12 %
Jaume I University	Spain	31	2.84 %
Rovira i Virgili University	Spain	25	2.29 %
University of Granada	Spain	21	1.93 %
University of Hong Kong	Hong Kong	18	1.65 %
University of Copenhagen	Denmark	17	1.56 %
Kent State University	USA	17	1.56 %
University of Antwerp	Belgium	17	1.56 %
Aarhus University	Denmark	15	1.37 %
Aston University	UK	12	1.10 %
Carnegie Melon University	USA	10	0.91 %
KU Leuven	Belgium	9	0.82 %
Ghent University	Belgium	9	0.82 %

Figure 13 illustrates the most productive countries in translation training, accounting for 56.37 % of the extracted articles. According to the findings, Spain (14.33 %) and Ireland (9 %) are identified as the most active regions, producing 156 and 98 article entries, respectively. They are followed by the UK (71), China (59), the USA (55), Poland (42), Belgium (41), Germany (35), Canada (31), and Australia (26).

Table 6 illustrates the most active journals (both open-access and paywalled) in the field of teaching translation. In this context, the journal *Perspectives* leads with 12.24 %, followed by *The Interpreter and Translator Trainer* at 10.93 %. This is primarily because several special issues have focused on translation and interpreting (T&I) training, including Abudayeh and Dubbati (2020) "Politeness Strategies in Translating Donald Trump's Offensive Language into Arabic" (*Perspectives*), Chmiel and others (2018) "Paraphrasing in Respeaking – Comparing Linguistic Compe-

FIGURE 13

Active regions in translation training



tence of Interpreters, Translators, and Bilinguals" (*Perspectives*), Chung-Ling (2005) "Translation Memory: A Teaching Challenge" (*Perspectives*), Al-Shehari (2017) "Collaborative Learning: Trainee Translators Tasked to Translate Wikipedia Entries from English into Arabic" (*The Interpreter and Translator Trainer*), Baker and Maier (2011) "Ethics in Interpreter & Translator Training" (*The Interpreter and Translator Trainer*), and Bowker and McBride (2017) "Précis-Writing as a Form of Speed Training for Translation Students" (*The Interpreter and Translator Trainer*).

TABLE 6

Active journals in translation training

JOURNAL	OA/NOA	SUM	PERCENTAGE
Perspectives	NOA	133	12.24 %
I&T Trainer	NOA	119	10.93 %
JoSTrans	OA	96	8.82 %
Machine Translation	NOA	73	6.70 %
New Voices	OA	69	6.34 %
Babel	NOA	65	5.97 %
Meta	NOA	57	5.23 %
InTRAlinea	OA	53	4.87 %
Translation Space	NOA	51	4.68 %
Onomázein	OA	51	4.68 %

Language coverage is another factor that influences how authors publish their works. While the majority of articles are written in English, some journals, such as *Babel*, *Onomázein*, *JoSTrans*, *Meta*, *Lebende Sprachen*, and *InTRAlinea*, accept manuscripts in Spanish, Italian, Russian, Chinese, and German to expand their readership. Figures 14 and 15 display the dominant languages used in both open-access and paywalled journals.

FIGURE 14

Active languages in OA journals

EN = 76.23 %	SP = 16.35 %	Italian = 5.24 %	Germany = 1.23 %	Other = 0.92 %

FIGURE 15

Active languages in paywalled journals

English = 81.93 %	French = 8.90 %	Spanish = 4.58 %	Germany = 2.61 %	Others = 1.96 %

4. Discussion

This research paper consists of three analyses: a corpus-based analysis of translation training journals, thematic analyses covering teaching, evaluation/assessment, testing, and technology, and methodological analyses of both empirical and non-empirical studies. It offers a comprehensive summary of research in the field of translation training and teaching based on eighteen peer-reviewed translation journals, which include research articles, book reviews, and case studies. Furthermore, this study highlights several trends in translation teaching research over the past twenty years and provides valuable insights into future developments in this important field.

According to the results section (tables and figures), research on translation training and teaching has been escalating over the past few years, focusing more on translation training rather than interpreting training (Kelly and Martin, 2009). Another reason is that journal publications in academia, based on university and institution rankings such as QS, University of Leiden, U.S. News, Shanghai Rankings, and Times Higher Education, have been increasing. The most frequently occurring content terms that help elucidate the field of translation teaching are: 'translation', 'competence development', 'technology', 'assessment/evaluation', 'research', 'teaching', 'skills', 'language learning', 'testing', and 'approach'. The planned database includes four main categories: (CAT A = teaching; CAT B = evaluation/assessment; CAT C = testing, and CAT D = technology), with 'translation training: technology' accounting for the largest share (404 article entries; 37.13 %), followed by 'translation training: teaching' (344 article entries; 31.61 %). The weight of 'translation training: testing' (72 article entries; 6.61 %) is significantly lower compared to other categories.

The vast majority of extracted article entries in category A concentrate on 'translation curriculum', which includes the design of curricula, translation courses, textbooks, and translation training programs; 'task-based translation', emphasizing task-based learning and translation of various text types, such as economic, legal, and political, and 'translation skills', which refer to research abilities, translation strategies, and translator competencies. Translation philosophy (both theoretical and practical) represents another subcategory that emphasizes critical reviews and the social and professional dimensions of translation training. The connection between translation teaching and specific theories—such as communication and sociological theories—illustrates the interdisciplinary nature of translation training and teaching (Lederer, 2007; Bassnett, 2012).

Category B emphasizes translation evaluation and assessment, including TQA, translation rubrics, translation metrics, and competence development. TQA highlights 'general terms' such as the concept of quality in translation, "textual typology, formal correspondence, coherence of thematic structures, cohesion, text-pragmatic equivalence, lexical properties, and syntactic equivalence" (Al-Qinai, 2000: 498), 'quality assurance' (which focuses on errors

and mistakes), and the 'translation process' (e.g., from mentalist views to functionalistic/skopos theories) (House, 2001). Competence development (34.32 %) is another category that concentrates on translational (producing a high-quality target text) and translatorial (communicative competence of a translator) competences.

Translation rubrics and metrics are the two main subcategories that primarily highlight how translating drafts are scored and how translations are evaluated based on certain metrics. Common rubric methods include, among others: the holistic method (based on the evaluator's expectations), the analytic method (which focuses on error detection and analysis), the PIE method (based on the preselection of items), the CPIE method (which emphasizes all parsing items in a source text), and the LCI method (which foregrounds one- and two-parameter logistic models of item response theory).

Conversely, translation metrics assess translation products against certain standards such as LISA QA (for evaluating and categorizing errors), SAE J2450 (which categorizes errors as minor or serious and accommodates styles), TAUS (for evaluating translations based on error typologies), and MQM (for evaluating translations in terms of accuracy, fluency, terminology, style, verity, design, and internationalization) (Liu, 2018). For instance, in a research paper conducted by Kockaert and Segers (2017), the PIE method was applied to examine the consistency of evaluators' scores in relation to holistic and analytic methods. They ultimately demonstrated that the holistic and analytic methods lacked 'test reliability' (interrater and intrarater reliability), 'discriminatory power', and 'translation brief relevance'.

Although it ranks lower in the number of published papers, studies on 'translation training: testing' (CAT C) consist of several subcategories, including 'theoretical aspects', 'practical aspects', 'testing methods/models', 'validity', 'reliability', 'correlation', 'professional testing', and 'classroom testing'. Research in this valuable field predominantly comes from the areas of 'validity' (18.05 %), 'testing methods/models' (13.88 %), and 'professional testing' (13.88 %). For example, in a research paper by Lai (2011), she examined the validity and reliability of 'a scale-based assessment' by grading and re-grading the translation test. Ultimately, she demonstrated that the proposed scale method was used to evaluate 'machine-generated translations' more reliably and validly than human translations. Testing methods/models in professional and academic settings provided by different regions and universities are also significant contributors to the field of translation training. According to Akbari (2018: 570), translation testing "is at a transition stage from framework development to test development". Yan and others (2015: 280) have noted that "concerted efforts between institutions, trainers, and practitioners are needed so that the theoretical framework at this stage [translation testing training] can be tested and applied with productive outcomes".

The last category (translation training: technology), with the highest number of published papers, has been taken into account. Olvera Lobo and others (2007: 133) maintain that

> Translation teachers cannot ignore computer technology in the training of their students and in their own professional development. This is particularly obvious in today's translation market, which we briefly describe, and which can justly be called global, decentralized, specialized, dynamic, virtual, and demanding.

The exploration of various leitmotifs related to electronic learning, the use of audiovisual translation (subtitling, dubbing, fansubbing, and audio description), online translation resources like PEN America (a resource for literary translators), Babelfish, Google Translate, WorldLingo Free Translations, and more, along with computer-aided translation tools, machine translation (MT), translation memory (TM), and translation localization, all demonstrate that translation training and technology are gaining significant attention (Sandrelli and De Manuel Jerez, 2007). Due to the remarkable advancements in technology concerning translation training, it is anticipated that research publications in this area will continue to increase in the coming years. Therefore, the relationship between technology and teaching/training should not be overlooked. Moser-Mercer and others (2005) noted that well-established and reputable translation and interpreting institutions/universities tend to offer more online training courses to expand their audiences. Additionally, leveraging translation localization, web resources, and tools present more opportunities in this field of study. In doing so, Yan and others (2015: 263) highlighted that:

> Teaching materials may be featured by increased variety and newness; computers will be essential in T&I training classrooms. Traditional teaching content and method will change accordingly. These changes will ultimately affect every aspect of T&I teaching, learning and assessment. Ergo, the concepts related to T&I training in a rapidly changing technology world may eventually need a redefinition.

Both empirical and non-empirical research methods were employed to demonstrate the practicality and theoretical aspects of the articles. Empirical studies consist of experimental and observational studies, while non-empirical studies include descriptive and theoretical studies. As illustrated in figure 12, non-empirical studies (844 article entries) were utilized more frequently than empirical studies (244 article entries). This can primarily be attributed to the greater emphasis on descriptive aspects (64.45 %) of training in translation research. Experimental studies accounted for 51.63 % of all article entries in empirical studies. Categories A, B, and C had the highest number of experimental research papers, thanks to their subcategories, which included TQA, translation rubrics, translation philosophies [practical aspects], professional testing, validity, reliability, and correlation. Conversely, categories A and D contained a significant number of descriptive published papers, owing to their subcategories, such as curriculum, task-based translation, translation localization, translation skills, and audiovisual translation.

Additionally, this research paper examined the distributions of geography, journals, languages, and authorship, along with productive institutions for all article entries. The authors' analysis indicated that a significant majority of published papers were authored by

individuals (56.25 %) compared to those with multiple authors (43.74 %). Similarly, geographical coverage (active regions and institutions) highlighted that Spain and Ireland were key players in the field of translation training. Among the top twenty most productive authors, five were from Spain and three from Ireland. Moreover, Universitat Autònoma de Barcelona in Spain (4.68 %) and Dublin City University in Ireland (3.12 %) led the way, bolstered by the PACTE group of the University of Barcelona focusing on competence development and the MT Summit at Dublin City University. The leading journals in translation training included *Perspectives* (12.24 %) and *The Interpreter and Translator Trainer* (10.93 %) due to their dedication to special issues on translation training and teaching. Lastly, English was the predominant language in both OA and NOA journals because of its accessibility for researchers (Gile, 2005); however, there was also an opportunity for these journals to accept submissions in French, Spanish, Russian, German, Italian, and Chinese.

5. Conclusion

The accelerated growth of research in "translation training" necessitates a meta-analysis for researchers to analytically evaluate previous studies within the literature. This study aims to provide a quantitative and consolidated summary of such findings by creating a database of publications on the subject in major T&I journals since 2000. We hope that researchers, trainers, and trainees in translation training programs can use this study as a guide and reference for their own research. This study includes numerous features: it presents an organized and comprehensive data-driven review of translation training published in T&I journals, which we believe will inform translation training and the translation studies discipline. Additionally, the database offers insights into scholarship in the field and outlines key categories. This will assist translation researchers, teachers, and practitioners in reflecting on crucial topics in the field and identifying potential directions for future work.

Furthermore, the database highlights several pedagogical issues currently being examined, ranging from translation instruction to translation evaluation and assessment, as well as translation testing and technology. This study also provides valuable insights into translation training across various regions, universities, journals, and languages. Ultimately, this meta-analysis serves as a useful resource for establishing standards regarding translation educational systems both locally and globally and integrating prior findings when choosing a specific program or approach.

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