

Conceptual Transfer Studies in the Context of Second Language Acquisition: A Scoping Review

*Kajian Pemindehan Konseptual dalam Konteks Pemerolehan Bahasa Kedua:
Tinjauan Skop*

XU ZHAORONG, ROSLINA MAMAT & ZAID MOHD ZIN

ABSTRACT

Conceptual transfer has emerged as a prominent focus in Second Language Acquisition (SLA) research since 1998. Given the complex and diverse theoretical frameworks associated with conceptual transfer, a commitment to methodological rigor within this field becomes imperative. Currently, among the existing review studies pertaining to conceptual transfer, there seems to be a lack of comprehensive studies conducted to discover how this broad topic has been approached in the literature. This scoping review has synthesised empirical studies on conceptual transfer, focusing on publications indexed in the Social Sciences Citation Index and Chinese Social Science Index from 1998 onwards. A total of 55 studies were coded in terms of adopted theories, research lines of inquiry, participant backgrounds, and research design. The primary aim was to identify the range of goals to date and emerging trends for future research. Our analysis has revealed that empirical research in this area encompassed a broad scope of inquiry lines and employed various research designs. However, several gaps in previous studies were identified, including the following: (1) a lack of critical theoretical explanations in their empirical studies; (2) an unbalanced development of lines of inquiry in conceptual transfer studies; (3) a lack of attention to target foreign languages other than English and participants from alternative educational levels; and (4) homogenisation issues in both their data collection and analysis process. These gaps underscored the pressing need for a more comprehensive and multi-dimensional investigation in the future.

Keywords: Conceptual transfer; Conceptualization; Cognitiv; Second language acquisition; Scoping review

ABSTRAK

Pemindehan konseptual muncul sebagai tumpuan utama dalam penyelidikan Pemerolehan Bahasa Kedua (SLA) sejak tahun 1998. Memandangkan rangka kerja teori berkaitan dengan pemindehan konseptual adalah kompleks dan pelbagai, komitmen terhadap ketelitian metodologi dalam bidang ini menjadi suatu kemestian. Pada masa kini, dalam kajian tinjauan skop sedia ada sehingga pemindehan konseptual, terdapat kekurangan kajian komprehensif yang dijalankan bagi mengetahui bagaimana topik yang luas ini boleh digunakan dalam literatur. Tinjauan skop ini mensintesis kajian empirikal mengenai pemindehan konseptual dengan menumpukan kepada penerbitan berindeks di dalam Social Sciences Citation Index dan Chinese Social Science Index bermula daripada tahun 1998 dan seterusnya. Sebanyak 55 kajian telah dikodkan dari segi teori yang diamalkan, jenis siasatan penyelidikan, latar belakang peserta, dan reka bentuk penyelidikan. Matlamat utama adalah untuk mengenal pasti julat matlamat setakat ini dan sebarang kecenderungan yang muncul untuk penyelidikan masa akan datang. Analisis ini telah mendedahkan bahawa penyelidikan empirikal dalam bidang ini merangkumi skop jenis siasatan yang luas dan menggunakan pelbagai reka bentuk penyelidikan. Walau bagaimanapun, beberapa jurang dalam kajian terdahulu telah dikenal pasti, termasuk yang berikut: (1) kekurangan penjelasan teori kritikal dalam kajian empirikal mereka; (2) perkembangan jenis siasatan yang tidak seimbang dalam kajian pemindehan konseptual; (3) kekurangan perhatian untuk menasarkankan bahasa asing selain bahasa Inggeris dan peserta daripada tahap pendidikan alternatif; dan (4) isu-isu penghomogenan dalam kedua-dua proses pengumpulan dan analisis data mereka. Kesemua jurang ini menekankan keperluan mendesak untuk pelaksanaan penyiasatan yang lebih komprehensif dan pelbagai dimensi pada masa akan datang.

Kata Kunci: Pemindehan konseptual; Pengkonsepan; Kognitif; Pemerolehan bahasa kedua; Tinjauan skop

INTRODUCTION

In second language acquisition (SLA), the first language (L1) and the second language (L2) may influence each other at the linguistic level and conceptual level. These kinds of cross-linguistic influence, respectively, are termed as linguistic transfer and conceptual transfer (Jarvis & Pavlenko 2008). The former focuses on types of transfer that are examined primarily in relation to linguistic forms and structures, while the latter focuses on types of transfer that are analysed in relation to the conceptual understanding that underlies those forms and structures (Jarvis & Pavlenko 2008: 61; Jarvis 2016). Compared to linguistic transfer that results from cross-linguistic similarities and differences in form and meaning (Odlin 1989), conceptual transfer arises from similarities and differences in language users' L1 and L2 conceptual knowledge and conceptualization patterns (Jarvis 2007, 2011, 2016), which is more covert and elusive. Thus, conceptual transfer has been attracting more attention in recent decades.

Unfortunately, conceptual transfer research still suffer from several limitations at the theoretical and the methodological levels. Theoretically, some studies failed to distinguish the collected evidence for their conceptual transfer hypothesis, linguistic relativity, and thinking-for-speaking hypothesis (Baten & De Cuypere 2014), while other studies lack appropriate theoretical explanations in their empirical studies (Wang 2015; Adamou et al. 2019). Methodologically, the method of judging conceptual transfer is still not rigorous enough, which often results in an overinterpretation of linguistic transfer as conceptual transfer (Zhang & Liu 2014). And some studies still adhere to conventional approaches and suffered the homogenisation issues in both their data collection and analysis process (Cao & Badger 2021). Whereas in the last two decades, there has been an increased interest in conceptual transfer (such as Bylund & Jarvis 2011; Türker 2016; Wolter et.al. 2020; Austen & Jarvis 2021; Wang & Wei 2023; Aveledo & Athanasopoulos 2023), not only as a subject of research but also in many empirical studies, the literature lacks an integrated review of prior empirical studies to discover how this broad topic has been approached in the literature and what the findings suggest in relation to the diverse theoretical framework and methodological frameworks of conceptual transfer.

Given these gaps, it is crucial to conduct a systematic scoping review of the literature pertaining to conceptual transfer studies. The primary aim of this study was to reflect on the theoretical and methodological characteristics of previous empirical conceptual transfer studies in this field to capture trends in this realm. By synthesising the existing literature, this study could offer a more complete account of the key patterns and challenges that shape the current understanding of conceptual transfer. This, in turn, is essential for the development of effective pedagogical strategies and the enhancement of learning outcomes (Nurhidayati et.al. 2021).

LITERATURE REVIEW ON CONCEPTUAL TRANSFER

Since Jarvis (1998) and Pavlenko (1998) placed the conceptual transfer issue on a systematic scholarly footing (Baten & De Cuypere 2014), it has emerged as one of the hot topics in SLA research (Austen & Jarvis 2021). Jarvis (2007: 44) delineated conceptual transfer as follows:

“...the observation that second/foreign language learners and bilinguals from different language backgrounds often refer to the same objects and events in conceptually different ways and in ways that are specific to their language backgrounds...”.

Jarvis (2007: 54) further distinguished the differences between concept transfer and conceptualization transfer, with the former referring to the conceptual knowledge or L2 user's conceptual inventory in the long-term memory, and the latter referring to the L2 user's processing of that knowledge in the working memory (For details please refer to the example of two kitchens in the U.S. and Finland in Jarvis 2007, p. 53). Subsequently, Jarvis (2007) introduced the Conceptual Transfer Hypothesis (CTH), which posited that conceptual transfer can originate from either conceptual knowledge or cognitive processing, and these two types that a person has acquired as a speaker of one language will influence all the other languages that he knows (p. 56).

Given the intrinsic relationship between conceptual transfer and cognition, Jarvis (2016) highlighted that the evolution of Thinking for Speaking Hypothesis (TFSH) and Linguistic Relativity significantly has significantly contributed to the development of CTH, despite their distinct characteristics. On the one hand, conceptual transfer finds its principal theoretical underpinning in linguistic relativity, thus, CTH may be regarded as an extension of the Linguistic Relativity Hypothesis (Jarvis 2016). Nevertheless, the former is explored through learners' language use (Jarvis 2016; Adamou et.al. 2019; Wolter et.al. 2020), although the latter is often investigated in relation to nonverbal behaviour (Bylund & Jarvis 2011; Cook 2018).

On the other hand, Jarvis (2011) has also observed a substantial overlap between conceptual transfer and thinking-for-speaking, especially when the TFSH expands from monolinguals to bilinguals or second language learners. They emphasise that speakers could organise their thoughts in language-specific speech planning (Slobin 1996; Jarvis 2016). However, their divergence lies in TFSH asserting that language specificity emerges solely in speech planning (such as Wu et.al. 2022; Aveledo & Athanasopoulos 2023), while CTH suggests that conceptual knowledge and non-verbal behaviour may also exhibit language-specific characteristics (Austen & Jarvis 2021).

The growing importance of conceptual transfer research in cognitive development has garnered increased attention in recent years (Jarvis 2016; Cai 2021). Jarvis (2011: 1-3) provided a wider scope of conceptual transfer studies, which were used in this study to screen the literature. He proposed that conceptual transfer covers three distinct levels: an observation of cross-linguistic influence that extends to conceptual meaning; an approach for investigating conceptual cross-linguistic influence through the perspective of cognitive linguistics; and a hypothesis that different languages may develop different mental concepts or conceptualization patterns. These studies held significant interest, as they can reveal differences not only in language use but also in the cognitive process among speakers of different languages (Wolter et al. 2020). Nevertheless, there is a scarcity of systematic scoping reviews that examine research related to conceptual transfer.

METHODOLOGY

Scoping reviews aim to rapidly map the key concepts and available sources of evidence in a research area. They have proven to be useful for comprehensively summarising research activities and identifying the gaps, especially in complex or emergent research areas (Arksey & O'Malley 2005). This type of reviews has been increasingly employed particularly since 2012, and has become a popular method in a wide range of healthcare disciplines, software engineering, or education for discovering the nature, extent, and range of the identified research (Tulloch & Ortega 2017; Khajeei et al. 2022). However, in the field of applied linguistics, scoping reviews are rare.

While both scoping reviews and systematic reviews strive to be systematic, transparent, and replicable approaches, scoping reviews can address broader topics that encompass various study designs rather than specific research questions (Arksey & O'Malley 2005: 20). This current study fit these characteristics and has adopted the five-step framework proposed by Arksey and O'Malley (2005): (1) identifying the research questions; (2) searching for relevant studies in designated databases or other sources; (3) selecting studies based on predefined search criteria; (4) charting the data by tabulating and illustrating information from the selected studies; and (5) collating, summarising, and reporting the results and conclusions. The steps taken in this review are to be detailed in the following subsections.

FORMULATION OF THE SCOPING REVIEW RESEARCH QUESTIONS

This study aimed to describe the overall features and trends of conceptual transfer studies, which involved the systematic mapping of the theoretical foundation, lines of inquiry, participant backgrounds, and research design. To achieve these objectives, four research questions (RQs) have been formulated as follows:

- RQ 1: What types of theories are commonly employed in conceptual transfer studies?
- RQ 2: What lines of inquiry are examined in conceptual transfer studies?
- RQ 3: What are the backgrounds of participants in conceptual transfer studies?
- RQ 4: What types of research design are adopted in conceptual transfer studies on research paradigms, instruments, and data analysis methods?

LITERATURE SELECTION

According to Duman et al. (2015), studies published in the Social Sciences Citation Index (SSCI) would have to undergo rigorous peer review based on stringent academic criteria, which has resulted in a higher impact within the field. In addition, regarding the rapid strides of Chinese scholars in the performance of conceptual transfer studies (such as Zhang & Liu 2014; Cai 2021; Liu & Chen 2021), this review has also included journals from the Chinese Social Science Citation Index (CSSCI), which is considered as an authoritative and comprehensive database for bibliometric studies of China's social sciences (Gong & Cheng 2022). The combination of two gold-standard lists of established journals such as SSCI and CSSCI plays a crucial role in facilitating the quality and credibility of the scoping review.

The search started with publications from 1998, as prior research on conceptual transfer was limited and the methodologies adopted were significantly distinct (Cai, 2021). To better understand this field, this review has adhered to the conceptual transfer definition by Jarvis (2011) at three different levels: observations, approaches, and hypotheses. Keywords articulated in the definitions proposed by this author concerning conceptual transfer were employed for the search formula, as described in the following section.

INCLUSION AND EXCLUSION CRITERIA

Studies were retrieved from two major databases, namely the Web of Science Core Collection (WoS) and the Chinese Social Science Citation Index (CSSCI). The search queries were formulated as Boolean expressions using the advanced search mode (Joni, et.al. 2023). To ensure a comprehensive retrieval coverage, 'TS' (i.e., topic, which included 'abstract' and 'keywords', in

addition to ‘title’) was incorporated in the search queries. For the WoS search, the search formula was as follows: TS = (“concept transfer”) OR TS = (“conceptual transfer”) OR TS = (“conceptualization transfer”) OR TS = (“conceptualization (pattern)”) OR TS = (“conceptual representation”) OR TS = (“conceptualization meaning”). Subsequently, the results were refined by focusing on the ‘Language Linguistics’ and ‘Linguistics’ categories. As for the CSSCI search, the specific search formula used was as follows: TS = (“gai nian qian yi”) which means conceptual transfer.

The journal literature search was completed on 20 November 2023, resulting in a total of 197 extracted records from the SSCI and 34 records from the CSSCI. Studies for inclusion in this review underwent a two-phase selection process. Initially, a screening of titles and abstracts was conducted, followed by a comprehensive full-text review of the articles that passed the initial screening. After excluding irrelevant studies, publications without full text, non-English or non-Chinese papers, and non-empirical studies, a total of 35 studies from the SSCI and 20 studies from the CSSCI remained and constituted the final target literature.

DATA CHARTING

Following the identification of the target papers for analysis, essential parameters were extracted from these studies and then, a coding scheme was devised. The data chart, as shown by Table 1, included a mixture of general information and specific coding parameters for each study.

TABLE 1. Coding scheme for the scoping studies

Category	Coding parameter
General info	Author, Title, Publication year, Publishing journal, Journal source
Theoretical Foundations	Related theories in conceptual transfer studies
Research Lines of Inquiry	Lines of inquiry in conceptual transfer studies
Participant Backgrounds	Region; Native languages; Target languages; Control group; Educational level; Major background; Language proficiency
Research Design	Research paradigm; Instruments; Data analysis methods

The initial coding round was conducted on these extracted studies by the first author. The coding parameters mainly included general information about these studies (author, title, publication year, publishing journal, and journal source), theoretical foundations, research lines of inquiry, participants’ background, and research design (research paradigm, instruments, and data analysis methods).

After the initial round of coding, the second author reviewed the coding and engaged in discussions with the first author to address any uncertainties before reaching a consensus. Next, the first author performed a second round of coding, refining, and categorising the gathered information. The refined data were subsequently checked by the second and third author.

RESULTS

Based on the 55 studies in our database, the four research questions were answered in this section, respectively. We first outlined the theoretical foundations incorporated in these studies. Then, we summarised the research lines of inquiry and participants’ background of the studies. Finally, we investigated the research paradigm, research instruments, and data analysis methods in each study.

THEORETICAL FOUNDATIONS

Jarvis (2007) posited that it is imperative to address theoretical issues prior to establishing a comprehensive framework that is aimed at understanding and investigating conceptual transfer. The elucidation of the meaning and scope of conceptual transfer through theoretical considerations can serve as a foundational step (Jarvis 2007: 65), while providing guidance for subsequent empirical studies. These theoretical underpinnings serve as guidance for stimulating researchers to delve deeper into the intricate relationship between language and cognition (Jarvis 2016; Cai 2021).

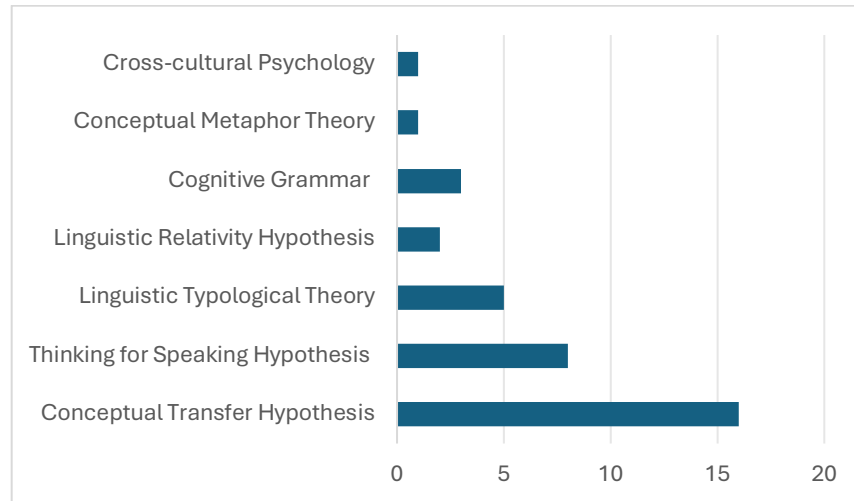


FIGURE 1. Related Theories in Conceptual Transfer Studies

Out of the 55 studies, 31 explicitly indicated their theoretical foundations, while 24 did not specify the theories they were based on. This review has extracted a total of seven different theories, as illustrated in Figure 1, which include the following: a. Conceptual Transfer Hypothesis [n = 16]; b. Thinking-for-Speaking Hypothesis [n = 8]; c. Linguistic Typological Theory [n = 5]; d. Linguistic Relativity Theory [n = 3]; e. Cognitive Grammar [n = 3]; f. Conceptual Metaphor Theory [n = 1]; and g. Cross-cultural Psychology [n = 1].

RESEARCH LINES OF INQUIRY

Conceptual transfer studies have been documented across a variety of linguistic domains, from semantics to pragmatics. This study has adopted the classification scheme proposed by Jarvis and Pavlenko (2008: 20) from the dimension of “area of language knowledge/use”. This dimension consisted of nine types of cross-linguistic influence, namely phonological, orthographic, lexical, semantic, morphological, syntactic, discursive, pragmatic, and sociolinguistic. In order to facilitate statistics, this study will refer to lexical and semantic domain as “lexicalized transfer”, while the morphological and syntactic domain will be referred to as “grammaticized transfer” respectively. Therefore, the 55 extracted studies have been categorised as follows: phonological and orthographic conceptual transfer (n = 0), lexicalized conceptual transfer (n = 15), grammaticized conceptual transfer (n = 36), discursive conceptual transfer (n = 2), pragmatic conceptual transfer (n = 2), and sociolinguistic conceptual transfer (n = 0). A pie chart was created to outline each category. As seen in Figure 2, a significant proportion of these studies (51/55) have concentrated

on the grammaticized and lexicalized levels, while the others were focused on discourse transfer and pragmatic transfer.

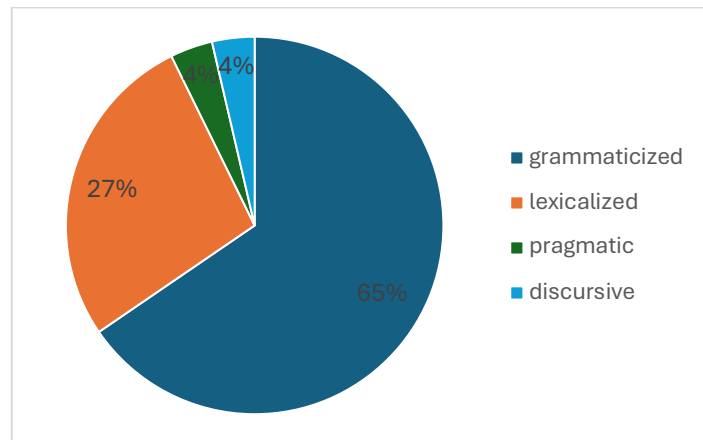


FIGURE 2. The proportion of each line of inquiry in conceptual transfer studies

Specifically, the lines of inquiry scrutinised in lexicalized conceptual transfer studies encompassed the following aspects: i) types of word acquisition, such as verbs (Zhang & Liu 2014), modal verbs (Mifka-Profozic 2017), copula choice (Adamou et al. 2019), spatial adjectives (Wolter et al. 2020), prepositions (Xu et al. 2014); ii) collocations, such as verb-noun collocations (Cao & Badger 2023), adjective-noun collocations (Cao & Badger 2023); and iii) idiom acquisition (Türker 2016).

At the grammaticized level, these studies included passive constructions (e.g., Chen & Oller 2008), linguistic alternative constructions (e.g., Baten & De Cuypere 2014), verb-directional constructions (e.g., Xu & Liu 2018), serial verb constructions (e.g., Tang et al. 2021), implicit topic structures (e.g., Jia 2013), counterfactual expressions (e.g., Jia 2019), grammatical aspect (e.g., Bylund & Jarvis 2011; Zaychenko 2022), motion event acquisition (e.g., Daller et al. 2011; Aveledo & Athanasopoulos 2023), etc. Moreover, while Kujamäki (2019) offered a wider perspective of the ways in which linguistic features of a source text can appear in the target text from the lens of discourse transfer, Alonso et al. (2012) and Zhang (2014) conducted studies of pragmatic transfer in rhetorical preferences and compliment response behaviours, respectively.

It should be noted that, within the purview of the 55 studies extracted in this study, more than half of them have explored the influence of cognitive differences on Second Language Acquisition (SLA) from the perspective of conceptual domains, while predominantly focusing on domains of motion, space, and time. However, other conceptual domains, such as gender, emotion, number, etc., have received relatively less attention.

PARTICIPANTS' BACKGROUND

Participants' background pertained key details of the participants involved in these empirical studies. Such details may include the geographical regions under investigation, the native languages, the foreign languages studied, involving control groups, educational backgrounds, majors, and their proficiency levels. Regarding that these coding parameters are rarely identified in qualitative and corpus studies, this study has organised other 48 studies based on the publication year of the relevant papers and in the alphabetical order of the authors' surnames. The results of this review have been synthesised in a narrative form, as shown in Table 2.

TABLE 2. Participants' Background Overview in Conceptual Transfer Studies

Author	Region	Native Languages	Target Languages	Control Group	Educational Level	Major Background	Language Proficiency
Aveledo & Athanasopoulos (2023)	UK and USA	Spanish	English	Yes	graduates and postgraduates	/	advanced
Wang & Wei (2023)	China	Cantonese	English Japanese	Yes	undergraduates	/	advanced; upper intermediate
Zhang & Zhang (2023)	China	Chinese	English	/	undergraduates	English	/
Wu et.al. (2022)	China	English, Japanese	Chinese	Yes	undergraduates	/	intermediate
Zaychenko (2022)	Germany	German	English	Yes	undergraduates	English	advanced
Austen & Jarvis (2021)	Italy	Italian	English	Yes	undergraduates	/	/
Cao & Badger (2021)	Vietnam	Vietnamese	English	/	undergraduates	English	intermediate
Liu & Chen (2021)	China	Chinese	English	Yes	undergraduates	Non-English English	low advanced
Park et.al. (2021)	Korea	Korea	English	Yes	undergraduates	/	/
Wang & Wei (2021)	China	Cantonese	English Japanese	Yes	undergraduates	/	upper intermediate
Zhang (2021)	China	Chinese	English	/	undergraduates	Non-English	/
Qiu (2020)	China	Chinese	English	Yes	undergraduates	Non-English English	lower & advanced
Tang et.al. (2020)	China, UK	Chinese English	English Chinese	Yes	undergraduates	English Chinese	upper-intermediate
Wolter et.al. (2020)	Japan	Japanese	Chinese	Yes	undergraduates graduates	Non-English English	/
Zhang (2020)	China	Chinese	Germany	/	undergraduates	German	/
Adamou et.al. (2019)	Mexico	Romani	Spanish	Yes	/	/	/
Kujamäki (2019)	Finland	Finnish	English	/	undergraduates	English	/
Lu (2019)	China	a range of languages	Chinese	Yes	/	/	advanced
Cook (2018)	Russia	Russian	English	Yes	Graduates	/	advanced
Xu & Liu (2018)	China	Chinese	English	Yes	undergraduates	/	/
Deng & Li (2017)	China	Chinese	English	/	high school undergraduates	Non-English English	a range of proficiency
Jiang & Wu (2017)	China	Chinese	English	Yes	postgraduates	English	advanced
Mifka-Profozic (2017)	Croatia	Croatian	English	Yes	undergraduates	English	upper-intermediate
Sharpen (2016)	UK Spain	English Spanish	Spanish English	/	undergraduates	Spanish	intermediate to advanced
Stojičić & Stamenković (2016)	Serbia	Serbian	English	Yes	undergraduates	English	advanced
Türker (2016)	US	English	Korean	/	/	/	advanced
Flecken (2015)	Germany	German	French	Yes	undergraduates	/	advanced
Li & Liu (2015)	China	Chinese	English	/	secondary; undergraduates	Non-English English	lower to advanced
Baten & De Cuypere (2014)	Belgium	Dutch	German	Yes	undergraduates	/	/
Zhang & Liu (2014)	China	Chinese	English	/	/	/	beginner
Park & Ziegler (2014)	Korean US	Korean	English	Yes	/	/	high-intermediate
Xu et.al. (2014)	China	Chinese	English	/	high school	/	/
Zhang (2014)	China	Chinese	English Japanese	/	undergraduates	English Japanese	/

Jia (2013)	China	Chinese	English	/	undergraduate	English	lower & advanced
Schmiedtová (2013)	Czech	Czech	English	/	postgraduates	English	advanced
Van Beek et.al. (2013)	Netherlands	German	Dutch	Yes	/	/	very advanced
Alonso (2012)	Spain	Spanish	English	/	teachers, researchers	/	advanced
Shi (2012)	China	Chinese	English	/	undergraduate	Non-English English	lower & advanced
Alonso (2011)	Spain	Spanish	English	/	undergraduate	English	advanced
Brown & Gullberg (2011)	Japan USA	Japanese	English	Yes	/	/	intermediate
Bylund & Jarvis (2011)	Latin American	Spanish	Swedish	Yes	/	/	near-native
Daller et.al. (2011)	German Turkey	German	Turkish	Yes	Undergraduates; Secondary secondary	/	/
Flecken (2011)	Netherland	Dutch	German	Yes	(and 1 teacher)	/	/
Pavlenko & Malt (2011)	US	Russian	English	Yes	undergraduate s graduates	/	/
Bylund (2009)	South American	Spanish	Swedish	Yes	/	/	/
Athanasopoulos & Kasai (2008)	UK Japan	Japanese	English	Yes	undergraduate	/	advanced intermediate
Chen & Oller (2008)	US	Chinese	English	Yes	postgraduates	English	advanced
Pavlenko & Jarvis (2001)	US	Russian	English	Yes	undergraduate	/	advanced

Table 2 demonstrates that the majority of studies (33/48) have been conducted in the participants' respective native countries, where the official language aligns with their native languages. A total of six studies were conducted in the country of the target language, while the remaining 42 studies included participants with diverse language backgrounds. Regarding the target language employed, these conceptual transfer studies have primarily examined the acquisition of English by learners from diverse native language backgrounds (19/48), while the remaining studies investigated Chinese (n = 4), German (n = 3), Japanese (n = 3), Spanish (n = 2), and other languages. Simultaneously, more than 60% of these studies incorporated a control group. In terms of educational level, the majority of these studies (33/48) have focused on foreign language learners or bilinguals at the higher education stage. Next, five studies have involved middle and high school students, one study targeted teachers or researchers as participants, and nine studies did not specify the educational background of the participants. Approximately half of these studies provided an explicit delineation of participants' major background, with only seven among them concentrating on participants majoring in non-English disciplines. Additionally, 67% (32/48) reported the foreign language proficiency of the participants. Meanwhile, 15 studies examined highly proficient participants, six studies were focused on participants with intermediate proficiency, one study targeted participants with low proficiency, and the remaining 10 studies conducted comparative research among participants with varying language proficiency levels.

RESEARCH DESIGN

The research design section codes 55 papers based on three dimensions, namely research paradigm (quantitative, qualitative, and mixed, as adopted from Cresswell 2007), research instruments (elicitation task, grammaticality judgement task, questionnaires, interviews, etc.), and data analysis methods.

The analysis results of the 55 extracted studies showed 39 quantitative studies, seven qualitative studies, and nine mixed-method studies. Among them, the qualitative studies have primarily employed narrative tasks (e.g., Austen & Jarvis 2021), case studies (e.g., Stojičić & Stamenković 2016), discourse analysis (e.g., Kujamäki 2019), and a mix of narrative, observation, and semi-structured interviews (e.g., Bisilki 2022). By excluding the qualitative studies and corpus-based papers (n = 6), the remaining 42 studies were arranged based on the dimension of “mode” (productive, receptive), as proposed by Jarvis and Pavlenko (2008) in their classification scheme. A list of the instruments that has been developed is shown by Table 3.

TABLE 3. Overview of Research Instruments in Conceptual Transfer Studies

Research Mode	Research Instruments	Examples
Productive	Oral Elicitation Task	Pavlenko & Jarvis 2001; Chen & Oller 2008; Bylund 2009; Daller et.al. 2011; Brown & Gullberg 2011; Schmiedtová 2013; Van Beek et.al. 2014; Deng & Li 2017; Xu & Liu 2018; Wu et.al. 2022; Aveledo & Athanasopoulos 2023
	Written Elicitation Task	Park et.al. 2021; Zhang 2021; Zhang & Zhang 2023
	Translation Task	Alonso 2011; Sharpen 2016; Stojičić & Stamenković 2016; Kujamäki 2019
	Writing + Translation Task	Jia 2013
	Discourse Completion Test	Zhang 2014
	Grammaticality Judgement Task	Li & Liu 2015; Adamou et.al. 2019
	Acceptability Judgement Task	Baten & De Cuypere 2014; Lu et.al. 2019; Tang et.al. 2020
	Self-paced Reading Task	Mifka-Profozic 2017; Cook 2018
	Naming task	Pavlenko & Malt 2011
	Categorization	Athanasopoulos & Kasai 2008; Qiu & Wen 2020
Receptive	Triads Matching Task + Sorting	Athanasopoulos & Kasai 2008; Baten & De Cuypere 2014
	Reaction Time (Eye-tracking)	Jiang & Wu 2017; Wolter et.al. 2020
	Elicitation Task	Liu & Chen 2021; Wang & Wei 2023
	+ Similarity Judgement Task	
	Elicitation Task	Zaychenko 2022
	+Memorization Task	
	Elicitation Task	Wang & Wei 2021
	+Reaction Time	
	Elicitation task + Grammaticality judgement task	Bylund & Jarvis 2011
	Elicitation Task + Grammaticality Judgement Task + Thinking	Austen & Jarvis 2021
Productive +Receptive	Aloud	
	Elicitation Task + Instant Translation	Xu et.al. 2014
	+ Interviews	
	Elicitation Task + Eye Tracking	Flecken 2011, 2015; Zhang 2020

Based on Table 3, a greater emphasis can be observed on language production compared to those centred on language comprehension, while a certain amount of studies endeavoured to concurrently explore language production and comprehension. With regard to the language production research, the primary focus has been on investigating cross-linguistic conceptual influence in the verbal production of L2 learners or bilinguals. Elicitation tasks that encompassed both oral and written modalities have emerged as the most commonly employed research instruments. Aveledo and Athanasopoulos (2023) scrutinised motion event expressions extracted from 6-second video clips, specifically focusing on manner and path components. Their findings substantiated the hypothesis that posited bidirectional cross-linguistic influence on the conceptualization of motion events. Park et al. (2022) executed a video description task to prompt participants to provide written descriptions of motion events. Specifically, the participants were

instructed to articulate what was happening in each video clip. Sharpen (2016) and several other studies explored translation tasks to explore the notion of conceptual transfer and the manifestation of L2 transfer in the expression of motion through inverse translation tasks. Furthermore, Zhang (2014) administered a discourse completion test along with an interview to examine the compliment response behaviours of Chinese learners of English and Japanese in China. The study revealed the influence of reverse conceptual transfer on their native language L1 speech acts.

Apart from data derived from productive language use, a series of studies have delved into exploring how conceptual transfer might impact language use on a receptive level (Jarvis 2016). Such studies involved comparing the performance of experimental and control groups in comprehending specific language structures to ascertain whether conceptual transfer has occurred, which encompassed explicit judgement and implicit judgement (Pavlenko 2009). In terms of the explicit judgement, researchers commonly employ grammaticality or acceptability judgement tasks, which are considered solid indicators of a learner's explicit and metalinguistic knowledge (Ellis 2005; Mifka-Profozic, 2017). Adamou et al. (2019) employed a contextualized copula choice task to assess simplification in the Spanish copula choice among Roman–Spanish bilinguals. Baten and De Cuypere (2014) reported on two acceptability judgment tasks aimed at testing whether Dutch learners of German could transfer their preferences regarding the dative alternation to the ditransitive construction in German. There are also other studies, such as Cook (2018) that employed online self-paced reading tasks to investigate language-specific conceptualizations. However, explicit judgement tasks cannot avoid potential methodological weaknesses, since participants were asked to use metalinguistic judgments (Pavlenko 2009). Thus, non-verbal studies that assess receptive language implicitly are necessary to determine whether transfer has originated from the level of conceptual meaning (Jarvis 2016: 627). As depicted in Table 3, a variety of non-verbal instruments, including naming (Pavlenko & Malt 2011), categorisation (Athanasopoulos & Kasai 2008), sorting (Baten & De Cuypere 2014), and reaction time (Wolter et al. 2020) have also been employed.

Currently, an increasing number of studies are moving beyond pure production or comprehension tasks. Instead, they would integrate both production and comprehension tasks by triangulating verbal, co-verbal, and introspective evidence to substantiate the occurrence of conceptual transfer at the conceptual level (Jarvis 2016). For example, Wang and Wei (2023) performed a linguistic encoding task and a non-linguistic similarity judgement task to examine the extent to which multilingual speakers would restructure their lexicalization and conceptualization of voluntary motion through exposure to the target language via audiovisual media. Flecken (2011) examined the construal of events by early Dutch–German bilinguals, as manifested in their oral depiction of the progressive aspect observed in video clips. The study has also incorporated recordings of eye movements to explore the extent to which an aspectual perspective can influence the allocation of attention during information processing, while engaging in the stimulus material. Xu et al. (2014) presented an empirical study on the influence of the categorization of reference objects on the use of English spatial preposition “in” by Chinese learners, with the incorporation of introspective data through interviews. Austen and Jarvis (2021) conducted an exploratory study to investigate the conceptual meaning in the construal of various temporal concepts among Italian-English speakers. Their study employed thinking-aloud reports as a data collection technique to examine whether specified patterns exhibited by Italian-English learners stemmed from differences in their mental representations.

Lastly, in terms of data analysis methods, the most frequently employed quantitative method was descriptive statistics ($n = 42$), followed by one-way/ two-way ANOVA ($n = 13$), independent /paired sample t-test ($n = 10$), correlation analysis ($n = 10$), chi-square ($n = 10$), mixed effects modeling ($n = 8$), multiple regression analysis ($n = 3$), factorial ANOVA ($n = 1$), Fisher's exact test ($n = 1$), and analysis of covariance ($n = 1$). Additionally, some studies ($n = 4$) used non-parametric tests due to the non-normative distribution of the data. In terms of qualitative data analysis methods, content analysis, thematic analysis, and discourse analysis methods have been utilised.

DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

From 1998 onwards, conceptual transfer has emerged as one of the hot topics in SLA research (Austen & Jarvis 2021). There has been a significant increase in empirical studies in recent years, with more broad lines of inquiry and more scientific research designs. Thus, it is important to foster comprehensive and multidimensional discussions on concept transfer for further advancements in this field of study. Additionally, this paper will also address the limitations of current studies and propose future directions in this field.

WHAT TYPES OF THEORIES ARE COMMONLY EMPLOYED IN CONCEPTUAL TRANSFER STUDIES?

It should be noted that among the 31 theoretical foundations under analysis, approximately 90% of these studies strived to testify the following three theories: the concept transfer hypothesis (CTH), thinking for speaking hypothesis (TFSH), and linguistic relativity hypothesis. Nevertheless, 24 studies that did not explicitly mention the theory they used, which has highlighted the need for further enhancement of their theoretical analysis.

Specifically, as previously mentioned, different frameworks have been employed to investigate the extent of cognitive involvement in cross-linguistic influence. Among the 31 studies, half of them employed the CTH to explore how L2 users utilised lexicalized and grammaticized concepts acquired in one language, while performing in another language (Baten & De Cuypere 2014; Liu & Chen 2021). Some studies (e.g., Sharpen 2016; Aveledo & Athanasopoulos 2023), particularly those analysing motion events in both L1 and L2 acquisition, have subscribed to the Thinking for Speaking hypothesis (TFSH) proposed by Slobin (1996). This hypothesis assumes that language can influence thoughts only when one is preparing thoughts for expression through language. Consequently, L1 constraints on these processes can affect L2 production (Wu et al. 2022). Certain studies on linguistic relativity have investigated whether cross-linguistic influence in learners' performance correlates with non-verbal tasks (Athanasopoulos & Kasai 2008; Cook 2018), which implied a relationship between language and thoughts in general. However, these three hypotheses have not achieved widespread comprehension, and researchers face challenges in distinguishing the evidence for the hypotheses (Jarvis 2016). Moreover, some studies have insufficiently integrated the theory, thus, hindering a comprehensive elucidation of research findings (Wang 2015; Adamou et al. 2019). Subsequent researchers should strive to avoid such circumstances and yield meaningful theoretical contributions through consistent validation.

In addition to the three aforementioned theories, the application of other theories is constrained. Nevertheless, these theories provide diverse perspectives for investigating concept transfer research. Consequently, future research may undertake in-depth exploration to validate these theories within the cognitive involvement of cross-linguistic influence.

WHAT LINES OF INQUIRY ARE EXAMINED IN CONCEPTUAL TRANSFER STUDIES?

Generally speaking, conceptual transfer studies have exhibited a broad scope but unbalanced distribution in both the linguistic and conceptual domains. They extended beyond the realm of Second Language Acquisition (SLA) to encompass other research areas, including translation, teaching, etc. These studies offered clear directions for future studies.

First of all, the development of conceptual transfer studies is noticeably unbalanced, both within the linguistic and conceptual domains. To attain a more thorough comprehension of the cognitive process in human language, future research should strive to enhance the depth of conceptual transfer studies across various domains. Therefore, it is imperative not only to conduct more research on discourse transfer and pragmatic transfer but also to broaden the scope of studies to encompass conceptual domains other than motion events, space, and time. This expansion aims to reveal the cognitive process of human language in a more holistic manner.

Second, conceptual transfer research in trilingual acquisition have garnered increasing attention in recent years. For instance, Wang and Wei (2023) investigated the influence of learning a second language (L2) and a third language (L3) on the categorisation of motion among functional Cantonese-English-Japanese multilinguals. In their study, the L1-based conceptualization patterns showed reverse transfer from both L2 and L3. However, the interaction between the learners' mother tongue and their second or third language is highly intricate. In future research, it is necessary to further explore how learner factors, environmental factors, and task types could affect transfer in trilingual acquisition, as well as its underlying psychological mechanisms (Cai 2021).

Third, conceptual transfer studies bear significant pedagogical implications in the teaching practice. The specific conceptualization patterns observed in the construal process have shed light into specific aspects that can be incorporated into classroom activities (Aveledo & Athanasopoulos 2023). Kujamäki (2019) contributed a developmental perspective to the influence of source text (ST) in translation. Their longitudinal study presented findings that concentrated on the evolving impact of a source text on students' translation at the beginning and end of their Bachelor level of translator training. However, there is a dearth of such explorations at present, calling for substantial advancements in future research.

WHAT ARE THE BACKGROUNDS OF PARTICIPANTS IN CONCEPTUAL TRANSFER STUDIES?

As depicted in Table 2, it is noteworthy that the demographic backgrounds of participants in these conceptual transfer studies are diverse, predominantly comprising college English learners. Nevertheless, there is a conspicuous dearth of attention to target foreign languages other than English and to attract participants from alternative educational levels.

Specifically, research on conceptual transfer in SLA are currently being conducted in different languages, such as English, Chinese, German, Russian, French, Italian, Spanish, Dutch, Turkish, Japanese, and Korean. This extensive cross-lingual evidence can provide more valuable insights. However, the primary focus has been on how English learners from different native language backgrounds approach second language acquisition. Future research should broaden their scope to include the learning of foreign languages other than English. Additionally, extending beyond the confines of comparisons between bilinguals/L2 learners and monolinguals, there is a necessity for further studies to encompass learner groups with varied L1 backgrounds (Jarvis 2000; Wu et al. 2022).

Regarding the education backgrounds of participants, current research are predominantly focused on foreign language learners in higher education, with limited extension to embrace a broader spectrum of educational levels. Furthermore, a significant volume of research is concentrated on participants majoring in foreign languages. However, it is crucial to acknowledge that learners from different disciplines may exhibit variations in concept transfer performances. Consequently, future research should encompass a wider range of educational levels, and increase the emphasis on non-foreign language major learners, which comprise a substantial and practically meaningful population (Xu 2021).

In addition, many scholars believed that concept transfer will be affected by foreign language proficiency (Javis & Pavlenko 2008; Wang & Wei 2023). Nonetheless, research on foreign language learners at the elementary level are limited. Zhang and Liu (2014) did explore the systematic features of frequently utilised English verbs among beginner learners of L2 English in China's extended ICCI sub-corpus by employing a conceptual transfer perspective. To gain a deeper understanding, future studies should include learners with different language proficiency levels and diverse native language backgrounds.

WHAT TYPES OF RESEARCH DESIGNS ARE ADOPTED IN CONCEPTUAL TRANSFER STUDIES ON RESEARCH PARADIGMS, INSTRUMENTS, AND DATA ANALYSIS METHODS?

Generally speaking, studies on concept transfer in SLA have employed various research designs. Some of the designs found in this investigation adhered to conventional approaches, which exhibited the homogenisation issues in both their data collection and analysis process. Consequently, future research should strive to enhance the breadth of data collection methods and innovate approaches for data analysis.

Specifically, a substantial portion of these studies have employed corpora by encompassing both natural corpora and stimulus narrative corpora. In terms of natural corpora, with respect to judging the cases of conceptual transfer errors, these studies compared the similarities and differences of the conceptual categories between the corresponding learner corpora and the native speaker corpora. These errors have been judged to be caused by L1 conceptual transfer. However, due to the absence of the first language corpora, and the thematic variations between the learner corpus and the native speaker corpus, the utilisation of a natural corpus runs the risk of undervaluing the impact of L1 transfer (Odlin 2003; Cai 2021), which could lead to the poor evidence for conceptual transfer. Hence, narrative corpora, which affords the opportunity for a comparative analysis between learners' interlanguage and their first language, are more preferentially employed for judging conceptual transfer. Nevertheless, a limitation can arise from the content constraints in certain films or picture books, which could result in a restricted corpus quality pertaining to identical thematic content. Future research can consider further enriching data collection materials by not being constrained by any particular storylines. Moreover, the combination of quantitative and qualitative paradigms represents an emerging trajectory, with the purpose of providing a more comprehensive and in-depth understanding of the mechanisms of conceptual transfer in SLA.

Second, it is imperative to employ a synthesis of productive and receptive research modes that utilise both linguistic and non-linguistic instruments. Linguistic instruments allow for the justification of linguistic transfer, while non-linguistic instruments offer insights into underlying event representations linked to linguistic expressions (Flecken 2011). Non-linguistic instruments can facilitate the process of justifying whether it is from conceptual levels. Many studies have shown that this is a powerful combination because the verbal data are corroborated with a

consistent measure of behaviour and provide more direct evidence for conceptual transfer (Wolter et al. 2020; Wang & Wei 2023). Notably, investigations into the role of transfer in interactive processes during second language comprehension and production demand attention, given its pedagogical implications for enhancing language learners' production by bridging conceptual similarities and differences between source and target languages (Bylund & Jarvis 2011; Flecken 2011; Jarvis 2016; Wolter et al. 2020). Future research should not only integrate both productive and receptive modes but also ascertain their interrelation to achieve a comprehensive understanding of the mechanisms of conceptual transfer. Additionally, the adoption of advanced technologies, such as eye-tracking or Event Related Potentials (ERP) technology is warranted for future investigations (Jiang & Wu 2017; Wolter et al. 2020; Cai, 2021).

Third, numerous studies lack the methodological rigor when judging conceptual transfer, which has contributed to an issue of over-interpretation (Jarvis 2007, 2016). Jarvis (2000) introduced a unified framework for delineating three types of evidence that serve as indicators for transfer. He has also underscored the importance of verifying language transfer occurrence before justifying conceptual transfer, and advocated for the presentation of corresponding verbal and non-verbal evidence to justify cross-language influence at the conceptual level (Jarvis 2007:58). However, only a limited number of studies have employed this framework (such as Baten & De Cuypere 2014; Cao & Badger 2023), and most studies did not rigorously adhere to the steps in the framework for judging conceptual transfer. Furthermore, current researchers would often neglect individual differences in language transfer and fail to integrate group analysis with individual analysis when analysing data (Brown & Gullberg 2011; Cai, 2015, 2021). Cai (2015) believed that L1 transfer is an individual phenomenon and that language transfer at the group level can be inducted based on individual-level observations. Future research should undertake large-scale verification studies with diverse participant backgrounds to assess the applicability of these methodological frameworks.

Lastly, previous conceptual transfer studies have relied heavily on quantitative methodologies and suffered homogenisation issues in their data analysis methods. However, Jarvis (2016) advocated that a combination of linguistic, non-linguistic, and introspective evidence can triangulate the occurrence of conceptual transfer. The introspective evidence collected through different methods, such as think-aloud protocols (Austen & Jarvis 2021), interviews (Bisilki 2022), and instant translation (Xu et al. 2014) held particular significance. Therefore, to enhance the efficacy of data analysis methods, an augmentation of qualitative analyses is imperative. Such methodological diversification is pivotal for cultivating a more profound understanding of the timing and scope of conceptual transfer in cognitive processes (Jarvis 2016; Austen & Jarvis 2021).

CONCLUSION AND LIMITATIONS

This study has systematically explored previous studies on conceptual transfer from the SSCI and CSSCI sources. The aim was to provide a comprehensive analysis and outlook in four dimensions: theoretical foundations, research lines of inquiry, participants' background, and research design. The findings can be summarised as follows: (1) this field of study encompasses various theoretical foundations. However, some studies lacked appropriate theoretical explanations in their empirical studies; (2) research lines of inquiry in this field have exhibited an imbalanced development. The breadth and depth of future conceptual transfer studies must be expanded across various domains; (3) the demographic backgrounds of participants in conceptual transfer studies were diverse.

Nonetheless, future studies should also involve target foreign languages other than English and participants from alternative educational levels; and (4) although research designs in this field are becoming more scientific, there is still room for innovation in terms of research paradigms, research design, and data analysis methods.

Finally, it is important to acknowledge the limitations of this scoping review. First, some well-established and influential journals, which might not be indexed in the SSCI or CSSCI, were excluded from this review. Second, all articles included in this review were written in English or Chinese, which could lead to a potential source bias and may have resulted in missing important findings published in other languages. Moreover, due to space constraints, this study did not systematically review the internal and external factors that could be influencing conceptual transfer. This aspect remains an open question for future researchers to investigate various factors that promote or inhibit transfer and their respective weights (Bylund & Athanasopoulos 2014; Cai 2021). Nevertheless, this scoping review represents a crucial step in mapping out this significant field of study. Hopefully, it will serve as a catalyst for future research on conceptual transfer and complement other emerging reviews in this field.

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Xu Zhaorong
Faculty of Modern Languages and Communication,
Universiti Putra Malaysia,
43400 UPM Serdang, Malaysia &
Department of Foreign Languages,
Yuncheng University
044000 Yuncheng, Shanxi Province, China
Email: gs62150@student.upm.edu.my

Roslina Mamat (Corresponding author)
Faculty of Modern Languages and Communication,
Universiti Putra Malaysia,
43400 UPM Serdang, Malaysia
Email: linamm@upm.edu.my

Zaid Mohd Zin
Faculty of Modern Languages and Communication,
Universiti Putra Malaysia,
43400 UPM Serdang, Malaysia
Email: zaidmz@upm.edu.my