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# Systematic Literature Review of Conversational Code-Switching in Multilingual Society From a Sociolinguistic Perspective

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***Abstract*—Code-switching (CS) is widely used across the globe despite the unclear research trends and gaps in CS studies due to under-researched reviews on it. The current study is a systematic literature review (SLR) of conversational CS from a sociolinguistic perspective from 2010 to 2022 using the PRISMA 2020 framework. Keywords query was performed at Oct 31, 2022 on Scopus and Web of Science databases. As a result, a total of 117 articles were included for further analysis. It is found that the number of CS studies was continuously increasing before encountering declines from 2019. Previously, scholars preferred empirical studies, qualitative designs, and data collection methods including discourse analysis, observation, interview and questionnaire. Regarding research objectives, a majority of studies examined the factor of CS, mainly from the micro levels. Besides that, many studies had explored attitude and identity towards CS in the past five years. As for research contexts, Asia became the research centre of previous CS studies. However, there was a lack of CS studies worldwide, especially among Oceania, South America and Africa. Multilingual societies in the Expanding Circle require more discussion.**

***Index Terms*—code-switching, multilingual society, PRISMA, sociolinguistics, systematic literature review**

## I. Introduction

Multilingualism is a common linguistic phenomenon where different language speakers are brought together within the same political entity (Hoffmann, 2014). Due to globalization, the effects of multilingualism not only can be found in multilingual countries, such as the United States, Canada and India, but also monolingual countries, such as Germany, Japan and France (Grosjean, 1982).

Code-switching (CS), as a common consequence of multilingualism, refers to a linguistic phenomenon where elements of two or more language varieties occur in the same place (Myers-Scotton, 2002). It has been widely studied in multilingual regions, such as Africa, North America and Asia, with diverse language combinations, including English, Spanish, French, Arabic, Indian and Filipino (Chui et al., 2016; Habyarimana et al., 2017; Hout, 2018; Kathpalia, 2018; Sánchez & Pérez-García, 2020). With the spread of English as a lingua franca (ELF) globally, all countries are moving out from being strictly monolingual, and have begun code-switching (Kyuchukov, 2019; Lee, 2019; Wang & Curdt-Christiansen, 2019).

In the past two decades, CS has drawn much interests from the academia (Auer, 2013) where it has been studied from various perspectives including syntactic, sociolinguistic, psycholinguistic, neurolinguistic and interdisciplinary (combinations with health care and technology) perspectives (Chen et al., 2020; Daniel et al., 2019; Goral et al., 2019). The two major research perspectives to study CS are micro-linguistic and macro-sociolinguistic perspectives. Scholars from the micro perspective mainly examine the grammatical structure of CS (Muldner et al., 2019; Shen et al., 2020). They attempt to find universal grammatical constraints of CS, such as the Matrix Language Frame Model (Myers-Scotton, 1993, 2002) and the Minimalist Program (MacSwan, 2014), that can be applied to all kinds of CS practices (Khan & Khalid, 2018). Meanwhile, studies from a macro perspective aim to determine the potential functions and motivations of CS than can explain for the specific structures of CS in diverse contexts (Bader Alghasab, 2017; Habyarimana et al., 2017; Nasseh, 2020; Shay, 2015). The current study aims to review previous CS studies from a macro-sociolinguistic perspective.

Only four review articles were retrieved due to a lack of literature review on previous CS studies from a sociolinguistic perspective. Of the four, El-saghir (2010) reviewed the sociolinguistic studies of CS and particularly argued the definitions of CS, code-mixing and diglossia. Lim and Lim (2020) emphasised on the sentiment analysis for further application in English-Chinese CS study. Lin (2013) discussed the problems and difficulties encountered in the

process of studying classroom CS. Lastly, Smith and Thayasivam (2019) reviewed the data collection process of CS among social media.

However, none of the above reviewed previous CS studies systematically and comprehensively. Research trends and gaps of previous CS studies, such as in methodologies, objectives and contexts, were ignored. It indicates there are needs for a holistic and systematic review towards past CS studies in recent years. Hence, the current study aims to address two research questions as follows.

1. What are the research trends of conversational CS in multilingual society?
2. What are the gaps that require further research?

To answer the two questions, a systematic literature reviews (SLR) was conducted to assess previous CS studies. It aims to identify the research trends and gaps in methodologies, objectives and contexts in a comprehensive way. SLR is a type of literature review adhering closely to a set of scientific methods that explicitly aim to limit systematic error by identifying, appraising and synthesising all relevant studies to answer a particular question. In traditional narrative literature review, the identification and selection of papers to review are based on researcher's own judgment. However, in SLR, articles can be selected automatically through electronic literature retrieval systems based on pre-tested keywords query. Moreover, researcher is independent of the review whereas the criteria designed in advance are used for literature selection. Methods applied to identify and select literature are explicit and reproducible in SLR, without a priori assumption on the relevance of literature selection. In short, SLR can minimize biases, increase reliability and potentially improve the communication of the findings. Hence, all the features of SLR can accommodate the needs for a comprehensive and systematic review of conversational CS studies in multilingual society from a sociolinguistic perspective.

## II. Methods

In this study, an SLR was conducted to summarise the research trends and gaps in conversational CS studies in the past 13 years (January 1, 2010 to December 31, 2022). Pre-set criteria for inclusion and exclusion were used for article selection by screening the titles, keywords and abstracts. However, if the selection is uncertain based on the titles, keywords and abstracts, full-text reading is performed for further assessment.

### *A. Database*

Scopus and Web of Science (WoS), the two main databases for citation analysis (Singh et al., 2021), were chosen as the databases for literature retrieval in this study. Scopus is the largest abstract and citation database of peer-reviewed literature: scientific journals, books and conference proceedings (What is Scopus about?, n.d.). It can provide a comprehensive overview and various selections to refine the research output from the globe. WoS has dominated the field of academic reference (Falagas et al., 2008). Before 2004, it was the only source around the globe due to its comprehensive coverage. All the records retrieved from Scopus and WoS can be directly exported and linked to software, such as Microsoft Excel Spreadsheet, Mendeley and Endnote, at once.

Following several attempts, the keywords used for literature retrieval in title, abstract and keywords on Scopus included 'TITLE-ABS-KEY ((code AND switch* OR code AND mix*) AND (multilingual* OR bilingual*))'. The retrieval was performed on Oct 31, 2022. After refining the time span, document type, subject area, source type and language, a total of 354 pieces of literature were retrieved from Scopus.

Keywords used for literature retrieval on WoS were '(TS= ((code switch* OR code mix*) AND (multilingual* OR bilingual*)))'. The date of retrieval was also Oct 31, 2022. A total of 722 articles were retrieved after refining the document type, WoS categories and language. However, since books and book chapters cannot be excluded automatically from the WoS refinement, 50 pieces of literature were manually deleted to ensure consistency with the selection criteria across databases. Therefore, a total of 672 articles were retrieved from WoS for further analysis.

### *B. Inclusion and Exclusion Eligibility Criteria*

A series of inclusion and exclusion criteria were designed based on the document type, keywords query, time frame, research field, research questions and research objectives.

The inclusion criteria are:

1. Publications must contain "code switch*" or "code mix*" and "multilingual*" or "bilingual*" in its title, abstract or keywords;
2. Publications must be within the time range of January 1, 2010 to December 31, 2022;
3. Publications must be journal papers, conference papers or conference proceedings;

The exclusion criteria are:

1. Publications are not written in English;
2. The full text is not available online;
3. Publications do not focus on CS or code-mixing (CM);
4. Publications are not in the scope of sociolinguistics;
5. Publications are not about conversational CS or CM.

### *C. PRISMA Framework*

Figure 1 is the revised PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework (Page et al., 2021) based on the criteria of this study. It includes four phases: identification, screening, eligibility and inclusion.

During the identification phase, a total 1026 articles from Scopus and WoS had been retrieved and extracted through keywords query. Of these, 177 duplicates were automatically or manually excluded based on the extracted information, such as title and DOI number. Upon screening the titles and abstracts, another 683 articles were excluded. Meanwhile, 166 articles were subjected to full-text review. Following the eligibility assessment, a total of 117 articles were included for further analysis by excluding 49 irrelevant articles.

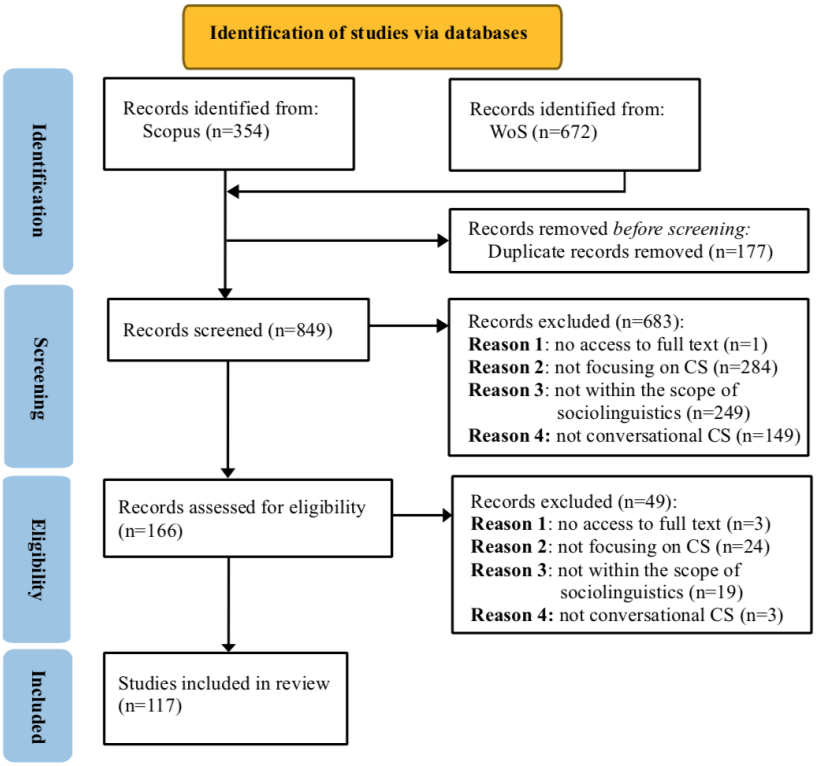


Figure 1 PRISMA 2020 Flow Diagram for SLR (Page et al., 2021)

### *D. Research Instrument*

Microsoft Excel (ME) is a piece of software developed by Microsoft for spreadsheet with basic features. The arithmetic operations of all spreadsheets can be displayed as line graphs, histograms, and charts. It is timesaving when exporting the articles directly from databases, managing the relevance of information among articles, and directly outputting exquisite graphs based on the managed data. ME sheet can be applied for literature review as it can record researcher's notes after careful reading of articles. Hence, the features of ME sheet enables it to automatically generate tables and figures used in the presentation of results and interpretation.

In this study, information, of all the retrieved 1026 articles, available on Scopus and WoS had been extracted and accumulated into one ME sheet first. The second step was the deletion of duplicates. Most duplicates were deleted through the 'Remove Duplicates' option under the 'Data' option in the toolbar of the ME sheet. Other duplicates were manually excluded by checking the titles and DOI numbers.

After all duplicates were deleted, abstracts were initially screened by following the pre-set criteria. However, full text was assessed if information in abstracts were insufficient. In addition, some other information were added to the same ME sheet in the screening and eligibility phases so as to answer the research questions, namely the research trends and gaps in methodologies, objectives and contexts. All information displayed in Figure 2, from Column I to T, were newly recorded information in the same ME sheet. Whereby, Column I and J refer to the results of inclusion and exclusion at the screening and eligibility phases respectively. Of which 0 indicates that the article did not meet the pre-set selection criteria, 1 implies it did meet the pre-set selection criteria, and 2 means uncertainty. Other information, like RO (research objectives), country, continent and methodology shown in Column L, M, O and R respectively, of the included 117 articles were recorded in the ME sheet. As a result, all the recorded information can be easily assessed as the first row of the sheet was 'Filtered' and 'Frozen' through the ME functions.

| I | J | K | L | M | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|
| screening (1/0/2)(Y/N/U) | eligibility (1/0/2)(Y/N/U) | RO details | RO | country | language | continent | research types (empirical/theoretic | paper type (quanti-/quali-/mixed) | methodology | sample type/size | research subject |
| 0 | | written | | | | | | | | | |
| 1 | | | attitude & identity | China | Cantonese & English & Putonghua | Asia | empirical | mixed | questionnaire | 60 **university** students who were studying in a large public university in Hong Kong, | school: U/S |
| 2 | 1 | | identity & feature | the United States | Spanish & English | North America | empirical | qualitative | discourse analysis | four speeches given by Senator Tim Kaine during the 2016 presidential campaign | ordinary |
| 0 | | micro | | | | | | | | | |

Figure 2 The Filter Procedure in Microsoft Excel Spreadsheet

Following screening and eligibility processes, all the included articles and their information were copied to a new ME sheet to produce figures and tables. The graphs were automatically produced by using the 'Pivotchat' function in the ME sheet through dragging the required data to the 'Axis', 'Legend' or 'Values' tabs. The generated graphs can be reached in results and interpretations section.

## III. Results and Interpretations

After analysing all the included 117 articles, detailed information on research methodologies, objectives and contexts were recorded in the ME sheet and were transformed into figures and tables to explain the research trends.

### *A. Trends in Research Methodologies*

Figure 3 depicts an overview towards the distribution of yearly trends and research types from 2010 to 2022. Two sets of findings were generated based on the 117 articles.

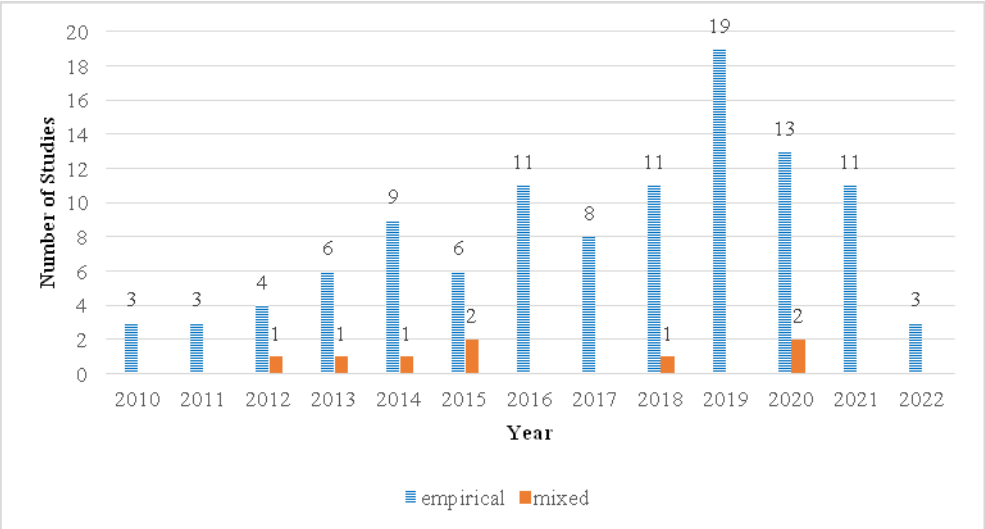


Figure 3 Distribution of Yearly Trends and Research Types (2010-2022)

Firstly, it reveals that the number of articles on conversational CS from a sociolinguistic perspective showcased a steady increase in the first 10 years (2010-2019) with mild setbacks in 2015 and 2017. While after 2019, the number of studies gradually decreased over three years. Secondly, results indicated that a majority of previous studies were empirical (n=107), with eight mixed-type studies, while the two review and overview studies towards CS were not included in Figure 3.

The current research divided the previous studies into three categories, namely empirical, theoretical and mixed types of studies. An empirical study is based on observed and measured phenomena, where it derives knowledge from experience instead of theory or belief, whereas a theoretical study uses a review of archival documents or ethnography to understand the subjective meaning. Meanwhile, a mixed type of study comprises both the empirical and theoretical types of studies.

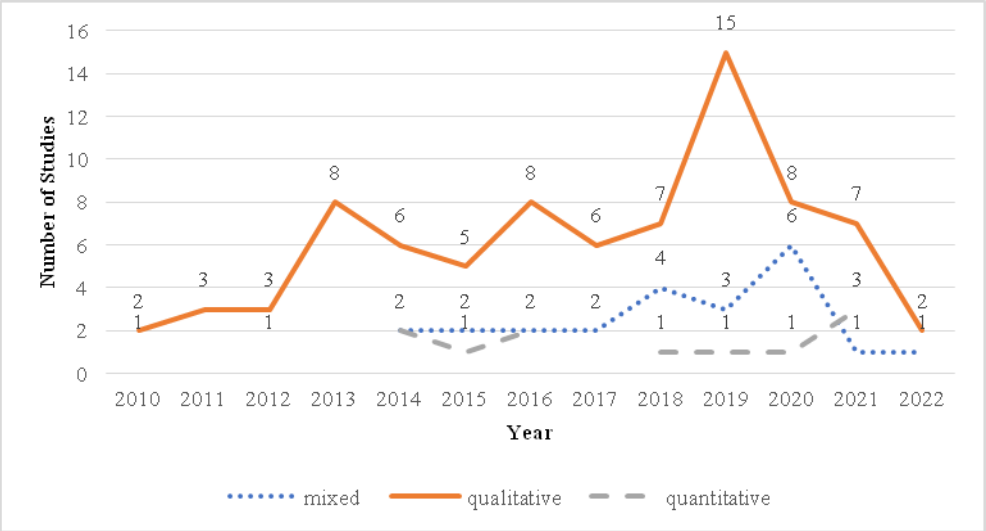


Figure 4 Distribution of Research Designs (2010-2022, n=117)

The next analysis determined the research designs applied in the 117 articles (Figure 4). It is found that previous CS studies used quantitative, qualitative or mixed research design. According to Creswell and Guetterman (2021), quantitative research design draws statistically significant conclusions that can be generalized through experimental and descriptive methods. It validates a theory by conducting an experiment and analysing the results numerically. Qualitative research explains a current situation in its natural setting for a specific group using anthropology and ethnographic methods. It arrives at a theory that explains the observed behaviour. Mixed research design refers to a combination of both qualitative and quantitative research designs (Denscombe, 2014). Based on the results observed in this study, more than three-quarters of the studies (n=80) utilised qualitative approaches to assess conversational CS from a sociolinguistic perspective. While only 25 articles used quantitative research design, and 12 applied mixed design. Comparatively, scholars preferred qualitative research design to examine conversational CS.

TABLE 1
DATA COLLECTION METHODS (2010-2022, N=117)

| Data Collection Methods | Number of Studies |
|---|---|
| Corpus | 3 |
| Discourse analysis | 16 |
| Discourse analysis & self-report | 1 |
| Discourse analysis & experiment | 1 |
| Interview | 1 |
| Interview & discourse analysis | 9 |
| Interview & discourse analysis & self-report | 1 |
| Interview & observation | 8 |
| Interview & observation & discourse analysis | 13 |
| Interview & observation & questionnaire | 3 |
| Interview & questionnaire | 9 |
| **Data Collection Methods** | **Number of Studies** |
| Interview & questionnaire & discourse analysis | 5 |
| Observation | 5 |
| Observation & diary | 2 |
| Observation & diary & discourse analysis | 1 |
| Observation & discourse analysis | 13 |
| Observation & discourse analysis & corpus | 1 |
| Observation & questionnaire | 1 |
| Observation & questionnaire & discourse analysis | 5 |
| Questionnaire | 12 |
| Questionnaire & corpus | 1 |
| Questionnaire & discourse analysis | 3 |
| Questionnaire & experiment | 1 |
| Meta-analysis | 2 |
| Total | 117 |

Following the full-text reading, the top four data collection methods (Table 1) implemented in the previous studies were discourse analysis (n=69), observation (n=52), interview (n=49) and questionnaire (n=40). Apart from these four preferred methods, corpus (n=5), diary (n=3), experiment (n=2) and self-report (n=2) were the four rare methods used to collect data (Chan, 2018; Klapicová, 2017; Klar et al., 2020; Kremin et al., 2022; Lipski, 2014; Meng & Miyamoto, 2012; Ng, 2018; Quirk, 2021; Raichlin et al., 2019; Stell, 2010; Vaughan, 2021; Wu et al., 2022), which can be explored in the future.

### *B. Trends in Research Objectives*

This section discusses the trends of research objectives in general and specific ways separately in the following two subsections.

#### *(a). General Trends in Research Objectives*

The number of publications with different research objectives is listed in Table 2. A majority of CS studies in the past 13 years focused on the first category of research objective, namely the factor/function/purpose of CS (n=74). More than a third of the studies were from the second category (practice/pattern/form/feature of CS) (n=38). While merely 33 articles were on the third (attitude towards CS) and 23 on the fourth (identity/ideology affected by CS) categories respectively.

TABLE 2
THE NUMBER OF PUBLICATIONS WITH DIFFERENT RESEARCH OBJECTIVES (2010-2022)

| | Research Objectives | Total Number of Studies | Number/ percentage of studies in the recent 5 years (2018-2022) | Number/ percentage of studies in the recent 3 years (2020-2022) |
|---|---|---|---|---|
| 1 | Factor/function/purpose of CS | 74 | 39/53% | 20/27% |
| 2 | Practice/pattern/form/feature of CS | 38 | 17/45% | 11/29% |
| 3 | Attitude towards CS | 33 | 23/70% | 14/42% |
| 4 | Identity/ideology affected by CS | 23 | 13/57% | 4/17% |

Additionally, Table 2 displays the number of studies in two timelines, that is, five (2018-2022) and three (2020-2022) years. For the five-year timeline, the number of publications comprised 39 articles with the first category of research objective (factor of CS), followed by 23 from the third (attitude towards CS), 17 from the second (practice of CS) and 13 from the fourth (identity affected by CS) categories. Meanwhile, in the recent three-year timeline, the number of articles in the first category of research objective was 20, with 14 from the third, 11 from the second and 4 from the fourth categories.

Moreover, the percentage of studies shown in Table 2 refers to the percentage of the number of studies in each timeline taken in the total numbers of studies. For instance, in the first category of research objective, 53% of studies were published in the recent five (2018-2022) years, 27% was in the recent three (2020-2022) years.

By analysing the percentages, there were some noteworthy observations. Firstly, the increasing rate of the third category (attitude towards CS) was the most dramatic in both timelines, although the total number of studies focused on it was ranked as the second lowest. Most studies exploring people's attitudes towards CS (p=70%) were published in the latest five years. Moreover, in the latest three years, the publication percentage of the third category (p=42%) superseded that of the other categories. All the figures proved an exponential growth of analysing the attitude towards CS in recent years.

Secondly, in the recent five years, the publication rate of the fourth category (p=57%) was the second highest although the total number of publications of it (n=23) was the lowest. The statistics implied that more than half of studies exploring the identity or ideology affected by CS were published in the recent five years.

In brief, the figures revealed researchers' preferences to study the factor of CS in the recent 13 years with minor alternations. A majority of studies focused on the attitude towards CS and identity construction in CS were published in the recent five years.

#### *(b). Details in Research Objectives*

Based on Table 3, each category of general research objective can be further divided into specific research objectives in a detailed way.

Researches in the factor/function/purpose of CS were further classified into four types, namely pragmatic functions, pedagogical functions, comprehensive factors and motivations of CS. Approximately a third of studies examining the factor of CS were discussed from the pragmatic perspective. Frequently applied frameworks contained, firstly, Appel and Muyksen's (2005) framework including referential, directive, expressive, phatic, metalinguistic and poetic functions. Meanwhile, pragmatic functions proposed by Gumperz (1982) were the second most applied framework including quotation, addressee specification, interjection, reiteration, message qualification and personalization versus objectivization. The number of studies discussing the pedagogical functions of CS, which were mainly for communicative, interpersonal and classroom management purposes, was nearly same to that of the pragmatic functions. The comprehensive factors of CS, referring to the factors of CS from both the macro and micro levels, mainly applied Ritchie and Bhatia's (2013) and Mysl ń and Levy's (2015) frameworks. Whereas the rest studies mostly extracted the motivations based on empirical cases.

TABLE 3
DETAILS IN RESEARCH OBJECTIVES (2010-2022)

| | Research Objectives | Details | Number of Studies | Total |
|---|---|---|---|---|
| 1 | Factor of CS | Pragmatic functions | 28 | 74 |
| | | Pedagogical functions | 24 | |
| | | Comprehensive factors | 14 | |
| | | Motivations | 8 | |
| 2 | Practice of CS | Muysken's typology | 11 | 38 |
| | | Poplack's model | 6 | |
| | | Grosjean's typology | 1 | |
| | | MacSwan's framework | 1 | |
| | | Empirical studies | 19 | |
| | | Theoretical studies | 2 | |
| 3 | Attitude towards CS | Positive attitude | 18 | 33 |
| | | Negative attitude | 4 | |
| | | Mixed/neutral attitude | 11 | |
| 4 | Identity affected by CS | Bicultural/flexible/hybrid/mixed/ multiple identities | 23 | 23 |

Studies about the practice/pattern/form/feature of CS mainly conducted empirical analyses in a general way without utilising specific model. While several oft-cited typologies, which include Muysken's (2000, 2013) typology, Poplack's (1980) model, Grosjean's (1982) typology and MacSwan's (2012) framework, were used to classify the patterns of CS. Muysken's (2000, 2013) typology, as the most frequently used model, further classifies CS into four patterns, namely, insertion, alternation, congruent lexicalization and backflagging. While Poplack's (1980) model, Grosjean's (1982) typology and MacSwan's (2012) framework share similar divisions to the patterns of CS, whereby CS is divided into inter-sentential CS, intra-sentential CS and tag-switching or extra-sentential switching.

Comparatively, two of the remaining research objectives were simply discussed, where they summarised the positive, negative or mixed attitude towards CS and identified multiple identities constructed in the process of CS.

### *C. Trends in Research Contexts*

This section is divided into two parts, firstly, describing the trends in research countries and continents, and secondly, trends in research domains.

#### *(a). Trends in Research Countries and Continents*

Table 4 displays the countries and continents distribution of previous CS studies from a sociolinguistic perspective in the last 13 years.

Comparatively, the United States topped the list with 24 CS studies, followed by China (n=10), Singapore (n=6), South Africa (n=6), the Kingdom of Saudi Arabia (KSA) (n=5) and Malaysia (n=5). A majority of studies in the United States explored the Spanish-English CS practices, while studies in China mainly discussed the Cantonese-English CS practices. Meanwhile, studies from other countries displayed diverse emphases on linguistic mixing.

In terms of continent, Asia was the preferred research centre for the past 13 years (n=49), followed by North America (n=25), Europe (n=17), Africa (n=13), South America (n=2) and Oceania (n=2). Among the Asian countries, 10 studies were conducted within the territory of China, while 20 focused on Southeast Asian regions. In North America, more than four-fifths of studies concentrated on the United States. As for Europe, most studies were conducted in the UK (n=4) as other countries were mostly ignored. Besides that, Africa, South America and Oceania were under-explored compared to the other continents.

Moreover, as 42 out of the total 49 Asian studies were published in the latest seven years (2016-2022), 33 were published in the latest five years (2018-2022), it further proved that studying CS among Asian countries had become the research trend.

TABLE 4
DISTRIBUTION OF COUNTRIES AND CONTINENTS (2010-2022, N=117)

| Country | Number of Studies | Continent | Total Number of Studies |
|---|---|---|---|
| China | 10 | Asia | 49 |
| Singapore | 6 | | |
| KSA | 5 | | |
| Malaysia | 5 | | |
| India | 4 | | |
| Indonesia | 3 | | |
| Lebanon | 3 | | |
| Pakistan | 3 | | |
| Vietnam | 3 | | |
| Israel | 2 | | |
| Arab | 1 | | |
| Iraq | 1 | | |
| Korea | 1 | | |
| The Philippines | 1 | | |
| Sri Lanka | 1 | | |
| USA | 20 | North America | 25 |
| Canada | 4 | | |
| USA and Canada | 1 | | |
| UK | 4 | Europe | 17 |
| Spain | 3 | | |
| Germany | 2 | | |
| Italy | 2 | | |
| Albania | 1 | | |
| France | 1 | | |
| Ireland | 1 | | |
| Luxembourg | 1 | | |
| Malta | 1 | | |
| The Netherlands | 1 | | |
| **Country** | **Number of Studies** | **Continent** | **Total Number of Studies** |
| South Africa | 6 | Africa | 13 |
| Algeria | 1 | | |
| Botswana | 1 | | |
| Nigeria | 1 | | |
| Rwanda | 1 | | |
| Tanzania | 1 | | |
| Tunisia | 1 | | |
| Zimbabwe | 1 | | |
| Belize | 1 | South America | 2 |
| Colombia | 1 | | |
| Australia | 1 | Oceania | 2 |
| Vanuatu | 1 | | |
| USA and UK | 2 | Complex | 6 |
| USA and Iran | 1 | | |
| Multiple countries | 3 | | |
| Unknown | 3 | | |
| Total | 117 | | |

*(b). Trends in Research Domains*

Table 5 explored the number of publications in diverse research domains from 2010 to 2022, ranging from school, daily setting, family, court, hospital and media domains.

According to Table 5, schools (n=53) were the most preferred domains among previous studies, followed by daily settings (n=40), family (n=11), media (n=10), court (n=2) and hospital (n=1). Daily settings refer to articles did not specify the research setting or may collect data from various sites. For instance, Carstens and Ang (2019) collected CS data from daily interactions before dividing them according to the locations of conversations for further analysis.

Moreover, among 53 studies in school domains, 25 were from universities, 11 secondary schools, 10 primary schools, one from kindergarten, another two K-12 (from kindergarten to 12th grade) schools and the remaining four were unknown. Based on these statistics, we can conclude that a majority of previous CS studies preferred schools, especially universities, as research sites. However, emphasis should also give to kindergartens, primary and secondary schools.

On the other hand, the preference in the choice of research domains was apparent based on the 74 studies aimed to explore the factor of CS. A total of 36 studies were performed within school domains, 20 natural settings, 10 collected data among families, two from court domains, five used media materials and one from a hospital.

TABLE 5
THE NUMBER OF PUBLICATIONS IN DIVERSE RESEARCH DOMAINS (2010-2022)

| Research Objectives | | Domains | | | | | |
|---|---|---|---|---|---|---|---|
| | | School | Daily setting | Family | Court | Hospital | Media |
| Factor | 74 | 36 | 20 | 10 | 2 | 1 | 5 |
| Practice | 38 | 11 | 18 | 4 | 1 | 0 | 4 |
| Attitude | 33 | 21 | 9 | 0 | 0 | 1 | 3 |
| Identity | 23 | 8 | 10 | 2 | 0 | 0 | 3 |
| Total | | 53* | 40* | 11* | 2* | 1* | 10* |

Note: *The total number of studies in one domain might not be consistent with the calculation of the number of studies in one domain from each research objective, since one article may include more than one research objectives.

However, articles exploring the practice of CS and identity construction in CS altered their preferences of research domains to the daily settings. For instance, almost half studies explored the identity affected by CS were conducted among daily settings (n=10), whereas eight focused on schools, two within families and three used media materials. The 10 studies on daily settings consisted of five studies on local people, four on immigrants and one on migrant. Since the proof was insufficient, more studies are required to examine the identity affected by CS in all kinds of research contexts.

## IV. DISCUSSIONS AND FUTURE AGENDA

Although CS was studied worldwide, gaps were observed in research methodologies, objectives and contexts. Hence, future agendas are suggested to fill the gaps.

### *A. Gaps in Research Methodologies*

The results of SLR reveal that the number of conversational CS studies in multilingual society was steady increasing in the past 13 years, reached its peak in 2019 and the declines afterwards.

Scholars around the globe had mainly conducted empirical studies and preferred to use qualitative approaches. Non-empirical studies and studies applied quantitative and mixed research designs, were insufficient, which may result from the nature of sociolinguistic studies emphasising on the interaction of society and language. However, less frequently-used research types and designs were still applied in few studies (Alkhudair, 2019; Cramer, 2015; Klar et al., 2020; Kremin et al., 2022; Lipski, 2014; Mad'arová, 2020; Myslín & Levy, 2015; Rahimi & Dabaghi, 2013; Sridhar & Sridhar, 2018; Stell & Couto, 2012), which indicates that it is possible for future studies to explore.

Results also indicate a highly repetitive rate of data collection methods including discourse analysis, observation, interview and questionnaire. Besides these four major methods, other possibilities to collect CS data include diary, experiment, self-report and corpus (Chan, 2018; Klapicová, 2017; Klar et al., 2020; Kremin et al., 2022; Lipski, 2014; Meng & Miyamoto, 2012; Ng, 2018; Quirk, 2021; Raichlin et al., 2019; Stell, 2010; Wu et al., 2022).

As for future agenda, more studies are recommended to employ non-empirical studies and non-qualitative approaches as the possibility to utilise them was confirmed by previous studies. Although the included 117 studies applied various kinds of data collection methods to obtain CS data, several underused methods, such as diary, experiment, self-report and corpus, had not been studied extensively. Hence, future studies could explore more potentials in the analysis of CS by using these rarely-used methods.

### *B. Gaps in Research Objectives*

Based on the aforementioned information, previous sociolinguists were prone to explore the factor of CS, followed by other objectives including the practice of CS, attitude towards CS and identity construction in CS. Comparatively, a majority of researchers investigated the factor of CS in the last 13 years. Whereas most studies exploring the language attitude towards CS and identity in CS were published in the recent five years.

In terms of limitations, there were some in the research objectives of the previous studies. Firstly, most studies examined the factor of CS from the pragmatic and pedagogical micro perspectives, compared to the macro-social or both the macro and micro perspectives. Secondly, all studies on identity construction in CS concentrated on the hybrid identities among mature multilingual regions, other regions had been neglected.

Exploring the factor of CS is a tradition of studying conversational CS from a sociolinguistic perspective, hence, future studies could follow the norm to conduct such studies in the less-discussed regions and perspectives. Secondly, future studies could pay more attention to the impact of CS on people's attitude and cultural or ethnic identity transformation, to meet the research trends, especially among regions in the Expanding circle of World Englishes, as these regions may reveal emergent CS patterns and factors.

### *C. Gaps in Research Contexts*

Based on the assessed research contexts, the United States was the most frequently investigated country, while Asia was the continent with the largest number of studies. Among all the research domains, schools, especially universities, were the most preferred research centre, followed by daily settings, family and media.

However, CS study in certain research contexts and domains was still inadequate. According to Table 3 above, more than 40 countries were utilised as research contexts in the past 13 years, while multilingual countries like Burma, Japan,

Thailand, and Turkey were neglected or not included in previous literatures. Meanwhile, continents including Africa, South America and Oceania were under-explored.

Secondly, previous studies did not consider CS practices among countries in the Expanding Circle of World Englishes (Kachru, 1990), instead focusing on the proficient or mature bilingual regions. Among all the 117 articles, only 22 studies were concerned in countries within the Expanding Circle, which manifested new forms of CS.

Although the number of CS studies in China was the largest among all the Asian countries, CS in China had not been fully explored. Seven out of the total 10 studies in China were conducted in mature bilingual regions including Hong Kong, Macao and Taiwan, while only three focused on a majority of the Chinese population, that is Han ethnic majority in China mainland (Botha, 2017; Meng & Miyamoto, 2012; Sun & Lu, 2016). Of the three studies in China mainland, one studied the CS practices of a cross-border, who spend her whole life in China mainland and attend tertiary education in Hong Kong or Macao (Botha, 2017). One examined the CS practices of a bilingual infant with Chinese and Japanese parents (Meng & Miyamoto, 2012). Another study concerned on the CS practices among China mainland people comprising the majority of Chinese population by analysing film conversations (Sun & Lu, 2016). None of the above studies purely focused on the daily interactions among the majority of population.

Lastly, other domains, including family, media, court and hospitals were under-explored because most studies chose schools and daily settings as research contexts. Other unmentioned domains, like churches, offices, restaurants and supermarkets were overlooked. In addition, studies in school domains mainly gathered within universities, CS practices in other education levels, including kindergartens, primary and secondary schools, were less discussed.

In the future, worldwide CS studies are encouraged. Secondly, CS among countries in the Expanding Circle should be discussed more. Next, CS data could be collected in a wide range rather than some specific regions. Lastly, more studies among non-university and non-school contexts can be examined to enrich the CS studies.

## V. Conclusion

This study performed an SLR of conversational CS in multilingual society from a sociolinguistic perspective within the last 13 years (2010-2022). The study aims to gain a comprehensive and less-biased overview to the research trends and gaps in research methodologies, objectives and contexts. Such study has become a necessity before launching further studies by providing an SLR in CS studies.

The results revealed the research trends and gaps in the research methodologies, objectives and contexts. Major findings include 1) the number of studies on conversational CS from a sociolinguistic perspective constantly increased until 2019 and met its setbacks later on; 2) scholars preferred to conduct empirical studies, use qualitative research designs, and apply data collection methods including discourse analysis, observation, interview and questionnaire. Non-empirical studies, non-qualitative designs and other data collection methods such as diary, experiment, self-report and corpus were neglected in the studies published from 2010 to 2022, hence, can be examined in future studies; 3) there is still a dearth of CS studies worldwide, especially among the continents of Oceania, South America and Africa; 4) Asia had become the research centre of CS studies in the past 13 years, with China becoming the most studied Asian country. Whereas more studies are encouraged in the future to cover a majority of Chinese-speaking people and also other Asian countries, such as Burma, Japan, Thailand and Turkey; 5) there is a lack of comparative studies among distinct research contexts; 6) examining the factor of CS is a tradition of studying conversational CS from a sociolinguistic perspective, while of which mostly discussed the micro factors, less about the macro-social factors. Besides that, more studies exploring the impacts of CS on language attitude and identity were published in recent five years. Additionally, multilingual societies in the Expanding Circle were under-examined, hence, require more attention.

As for the limitations of the SLR, only articles from the past 13 years were reviewed in this study. Abundant classic articles from the past that were not included. Secondly, literatures were only retrieved from Scopus and WoS databases, hence, those from other databases such as Google Scholar, ProQuest and CNKI could be added to enrich its coverage. Thirdly, the current research only examined articles published in English. Therefore, articles written in other languages were excluded and could provide more supplementary in the future. The fourth limitation is that this study was restricted to the scope of sociolinguistics. Moreover, CS can be studied from other perspectives, including syntactic, psycholinguistic, neurolinguistic perspectives and some interdisciplinary perspectives in the future.

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