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**AN ANALYSIS OF INTERNATIONAL TRENDS IN
PSYCHOLINGUISTIC RESEARCH ON CODE SWITCHING**

Abstract: *During this period of globalization, code-switching is being studied in depth to understand the specific characteristics of the modern sociolinguistic environment by identifying the specific characteristics of two or more languages being used within a single utterance. It provides insight into the major trends and directions in linguistic change in the era of globalization by examining major trends and directions in linguistic change. In this analysis, it was found that code-switching mechanisms are prevalent hot topics in the field of code-switching research. These include the ability to switch between English and other languages, the role of inhibition ability, and the processing mechanisms of highly proficient bilinguals. Researchers continue to be intrigued by code-switching from a linguistic point of view, as they strive to figure out the grammatical structure of the exchangeability of multiple languages in a single sentence from a grammatical viewpoint. As we live in an evolving multicultural world where language is constantly changing, code-switching is an essential skill that every individual needs to develop. The ability to shift from one social group to another while changing the aspects of our speech enables us to advance in our professional and personal lives while avoiding potentially*

awkward situations and finding common ground through language as we progress in our professional and personal lives.

Key words: *code-switching, psycholinguistic, analyse, collaboration, periodicals.*

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KODLARNI ALMASHTIRISHGA DOIR PSIXOLINGVISTIK

TADQIQOTLARNING XALQARO TRENDLARDAGI TAHLILI

Annotatsiya: *Globallashuv davrida bir so‘z doirasida qo‘llanilayotgan ikki yoki undan ortiq tillarning o‘ziga xos xususiyatlarini aniqlash orqali zamonaviy sotsiolingvistik muhitning o‘ziga xos xususiyatlarini tushunish uchun kod almashtirish masalasi olimlar tomonidan chuqur o‘rganilmoqda. Ushbu holat globallashuv davridagi til o‘zgarishlarining tilshunoslikning asosiy tendensiyalari va yo‘nalishlarini o‘rganish orqali yoritishga imkon beradi. Ushbu maqolada kodni almashtirish mexanizmlari kodni almashtirish bo‘yicha tadqiqotlar sohasida keng tarqalgan dolzarb mavzular ekanligi ko‘rsatilgan. Bularga ingliz va boshqa tillar o‘rtasida almashish qobiliyati, yashovchanlik qobiliyatining roli va yuqori malakali ikki tillilarni qayta ishlash mexanizmlari kiradi. Tadqiqotchilarning lingvistik nuqtai nazardan kod almashtirish bilan bog‘liq masalalarga bag‘ishlangan tadqiqotlari hanuz dolzarb sanalib, ularning grammatik jihatdan muayyan jumlada bir nechta tillar almashinuvining grammatik tuzilishidagi ifodasi orqali tushuntirishga harakat qilingan. Doimo o‘zgarib turuvchi rivojlanayotgan turli madaniyatli dunyoda til ham doimiy harakatda bo‘ladi, zotan til kodlarini almashtirish har bir shaxs uchun rivojlanishi kerak bo‘lgan muhim qobiliyat sanaladi. Muayyan ijtimoiy*

guruhdan ikkinchi bir nutqqa o'tish, qolaversa, umumiy til topish orqali kishilar orasida potentsial noqulay vaziyatlardan holi bo'lish imkonini beradi, shu bilan birga kasbiy va shaxsiy hayotimizda rivojlanishga ta'sir ko'rsatadi.

Kalit so'zlar: *kod almashtirish, psixolingvistik, tahlil, hamkorlik, davriy nashrlar.*

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АНАЛИЗ МЕЖДУНАРОДНЫХ ТЕНДЕНЦИЙ В
ПСИХОЛИНГВИСТИЧЕСКИХ ИССЛЕДОВАНИЯХ
ПЕРЕКЛЮЧЕНИЯ КОДА

Аннотация: *В период глобализации кодовые переключения изучаются всесторонне, чтобы понять особенности современной социолингвистической среды путем выявления специфических характеристик двух или более языков, используемых в одном высказывании. Он позволяет понять основные тенденции и направления языковых изменений в эпоху глобализации, изучая основные тенденции и направления языковых изменений. В ходе анализа было установлено, что механизмы кодового переключения являются преобладающими «горячими» темами в области исследований кодового переключения. К ним относятся способность переключаться между английским и другими языками, роль способности к торможению и механизмы обработки информации у высокопрофессиональных билингвов. Исследователи продолжают оставаться заинтригованными кодовым переключением с*

лингвистической точки зрения, поскольку они стремятся выяснить грамматическую структуру взаимозаменяемости нескольких языков в одном предложении с точки зрения грамматики. Поскольку мы живем в развивающемся мультикультурном мире, где язык постоянно меняется, переключение кодов — это важный навык, который необходимо развивать каждому человеку. Способность переходить из одной социальной группы в другую, меняя при этом аспекты своей речи, позволяет нам продвигаться в профессиональной и личной жизни, избегая потенциально неловких ситуаций и находя общий язык с помощью языка по мере продвижения в нашей профессиональной и личной жизни.

Ключевые слова: *переключение кода, психолингвистика, анализ, сотрудничество, периодическая печать.*

Introduction

The study of code-switching, a phenomenon that occurs in written text and in conversation, has been studied by the natural language processing (NLP) research community for several decades. To begin with, code-switching has been extensively explored by drawing on linguistic theories to develop models, while, in recent years, a greater emphasis has been given to machine-learning based approaches to do so. In this study, we present a comprehensive and systematic survey of research related to code-switching in natural language processing in order to understand the progress made in the past decades and to conceptualize the challenges and tasks on this topic in terms of code-switching research. Our final objective is to provide a summary of the findings and trends and conclude with a discussion regarding future directions and open questions that deserve further investigation.

The research into code-switching was so dominated for several decades by the search for "universal constraints" on combining the grammars of two or more languages that it dominated most code-switching research since the 1960s. There is no doubt that CS is not a free-for-all in the sense that any combination of words and morphemes in a sentence has an equal possibility of occurring.

However, all constraints and principles that have been proposed so far have counterexamples. According to Muysken one of the factors contributing to the difficulty faced by researchers working on grammatical constraints has to do with the variability in code-switching patterns that are linked to both sociocultural variables and processes. By examining the diversity of code-switching patterns within the articles, the authors in this Special Issue confirm the significance of this observation.[1]

In this study, we present a comprehensive and systematic survey of research related to code-switching in natural language processing in order to understand the progress made in the past decades and to conceptualize the challenges and tasks on this topic in terms of code-switching research. Our final objective is to provide a summary of the findings and trends and conclude with a discussion regarding future directions and open questions that deserve further investigation. It is vital to be able to switch codes effectively and efficiently in a multicultural society, as it is ever-evolving and becoming more complex. As we advance in our professional and personal life, we are able to make effective transitions between social groups and change aspects of our speech as we move from one to another, thus avoiding awkward situations and allowing common ground to be found through language while progressing in both areas. There is a phenomenon known as code switching in sociology which occurs when someone perceives their cultural or identity as unacceptable by others, due to their cultural or identity. In addition, they may also think that doing so will be less effective in helping them achieve their objectives. In this way, they are able to avoid negative outcomes by altering their speech to match the dominant group in a closer manner.

In this work, we report on the first large-scale comprehensive survey of code-switching research in a structured manner that is compiled from a large number of research papers published online in open repositories. As well as this, it is noteworthy that fields such as linguistics, sociolinguistics, and related fields, have conducted extensive studies on the subject of CSW based on research

papers in those fields. This article focuses on a couple of sources of speech and language processing publications, because we think that they are the top venues for publishing in the field. Additionally, we look at CSW-related papers that are available in personal repositories that are maintained by members of the community, along with a curated list of CSW-associated papers.

Method

The concept of bibliometric analysis arose from the idea that it was a computer program used to identify major research and to collect numerical data from the famous journal articles in order to get an idea of the scope of the field. While quantitative analysis of data collected from credible surveys on the topic of code switching is being conducted simultaneously with qualitative analysis. Also, the citations from different parts of the world were downloaded and estimated in order to gain a better understanding of the gratitude of individuals from various parts of the world for engaging in the research process. To clarify the way the data was collected and to reach the conclusion we used all the famous journals as a recorded method in order to clarify the attitude towards data collection and also to reach the conclusion. According to Singh et al. (2021) Web of Science (WOS) and Scopus are the two most used bibliographic databases for bibliometric analysis. WOS indexes around 99.11% of the journals that are also indexed in Scopus, with a greater level of stringency than Scopus (Singh et al., 2021). Consequently, the WoS Core Collection was consulted in order to compile a list of published papers on code switching from 1968 to 2022 (the first paper was published in 1968). This list includes the Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts and Humanities Citation Index (A and HCI), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index Social Science and Humanities (CPCI-SSH), and Emerging Sources Citation Index and Science (ESCI). Each of the bibliographic record that had been collected was written in English. As a result, a set of published papers on code switching from 1968 to 2022 (the first paper was published in 1968) was gathered from the WoS

Core Collection, which comprises the following indexes: Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts and Humanities Citation Index (A and HCI), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index Social Science and Humanities (CPCI-SSH), and Emerging Sources Citation Index (ESCI). Each of the bibliographic record that had been collected was written in English. [2]

Results and Discussion

Annual publications and citations could provide substantial information into whether the profession of code twirling continues to develop over time. The biannual publications on code switching between 1968 to 2022 demonstrated a fluctuating a downward trend, displayed in Figure A. More specifically, there's was a considerable upswing in research activity throughout 2011 and 2020, with a yearly median of more than fifty papers generated achieving a high of 133 in 2020. There are quite an assortment of contributing factors to this increase in research output, including the growing interest in bilingualism and multilingualism research alongside the increasing recognition of code switching as a substantial area of study in linguistics. In a comparable manner, code-switching research's annual citations expanded progressively eventually culminating at 3,870 citations.[3]

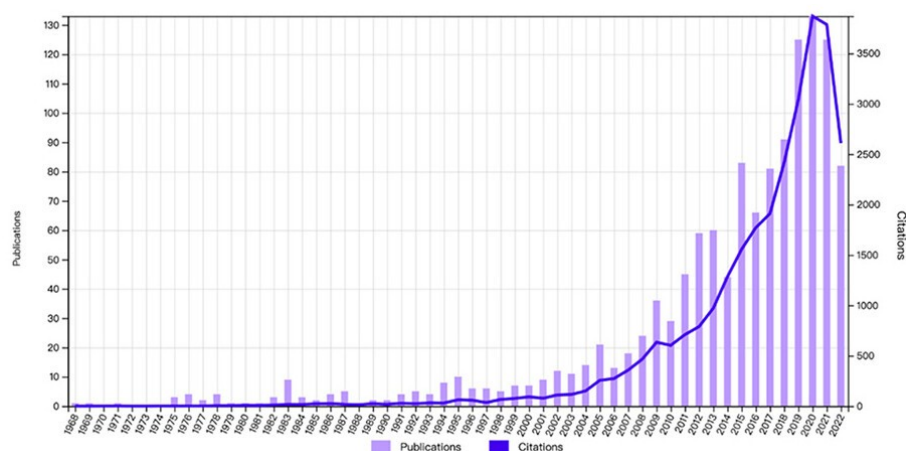


Figure 1.

Research on code swapping is published annually and often cited. (The image has been downloaded from the research desk)

Assessment of Authors Affiliations, and States

Below table highlights the top ten countries exhibiting the greatest efficiency of research in code switching. The United States of America is the top-ranking country with a stupendous 660 periodicals, or approximately 51% of all written content that was retrieved. China comes in second with 273 publications, overtaking the UK with 193. A world-wide map of the entire nation collaboration appears in Figure B, which further demonstrates the amount of times various countries lend a hand. The United States of America is the nation with the broadest network of citations, highlighting its substantial effect on international collaboration and widespread scholastic the relationships in the discipline of code-switching research. Additionally, cooperative frequency investigation illustrates that the USA and China work hand in hand the most most frequently (28 times), followed by the USA and Canada (23 times) and the USA and the Netherlands (20 times).[4]

Rank	Country	Articles
1	USA	660
2	China	273
3	UK	193
4	Spain	180
5	Germany	113
6	Netherlands	112
7	Canada	109
8	France	77
9	Australia	63
10	Italy	61

Table 1.

**This table shows the top ten countries with the highest performance
in code-switching research**

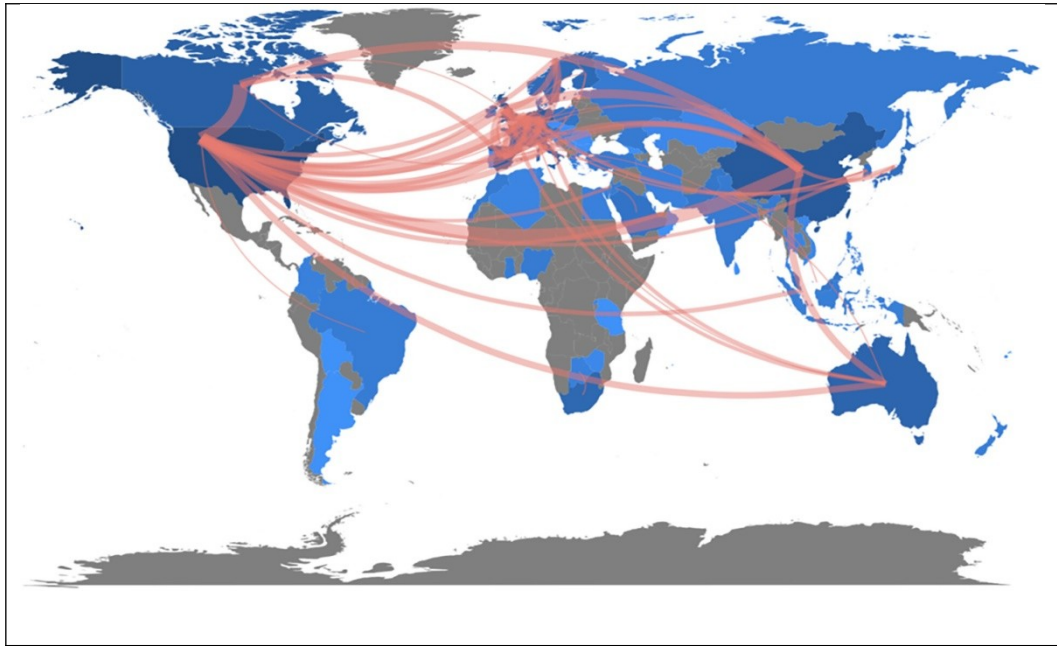


Figure 2.

Research on code switching by country collaboration (The image has been downloaded from the research desk)

The top five journals and the most cited journals in code switching. The most fruitful journal is Bilingualism - Language and Cognition, resulting in has brought out an unprecedented 85 papers on code switching. These prestigious periodicals are important venues that have helped to spread research on code swapping. Moreover, Bilingualism - Language and Cognition is the most influential journal in terms of citation frequency—it has an incredible 2,666 citations. With 1,799 citations, Journal of Memory and Language comes in second, and Journal of Experimental Psychology - Learning Memory and Cognition shows notable.[5]

Rank	Journal	Publicatio ns	Cited journal	Citation s
1	Bilingualism - Language and Cognition	85	Bilingualism - Language and Cognition	2666
2	International Journal	78	Journal of Memory and	1799

	of Bilingualism		Language	
3	Frontiers in Psychology	46	Journal of Experimental Psychology - Learning Memory and Cognition	1170
4	International Journal of Bilingual Education and Bilingualism	45	Cognition	831
5	Journal of Pragmatics	33	International Journal of Bilingualism	822

Table 2.

Citation statistics for top code-switching journals.

There are several factors that may be contributing to the high publication rates and citation frequencies that are found at these top journals. These journals likely encompass a wide range of topics and methodologies within the code-switching field, which will appeal to a broader audience of researchers and scholars within the field. Moreover, it is likely that these journals have facilitated the dissemination of ground-breaking studies that have added to their visibility and impact within a field by further increasing their visibility.

Our findings indicate two things, both of which are important to consider. It is important to note that, first of all, they give useful advice to scientists who wish to publish their study on code swapping by listing the most productive and prestigious journals that are related to the field. As a result, authors might make a conscious choice about which journals they should submit their work to for publication in order to increase the exposure and significance of their work. The prominence of some publications makes it evident that members of the code-switching community are totally committed to continuous intellectual discourse and collaboration, which is increasing the importance and profile of the code-

switching community. This can be achieved through an encouraging faculty to publish in these highly regarded journals, allowing the flow of knowledge to be facilitated and accelerating future developments in the field.[6]

It can be concluded from this analysis that there have been major players in the field of code-switching research, and that they are the illustrious journals that have played an important role in providing the information necessary for the advancement of the field. By analyzing citation frequencies and publication rates, we offer scholars and practitioners significant insights into the dynamic processes at work in the field, as well as advancing our understanding of the dynamics at play in the field.[7] It is our aim to highlight the value of scholarly distribution and collaboration by acknowledging the importance of these journals in the development of code-switching research globally, as well as the importance of these journals within the development of the field as a whole.[8]

In conclusion, the findings shed light on the significance of key researchers in driving scientific advancements within their affiliations and emphasized the importance of international collaboration in promoting research progress.

Limitations

As a result of the limitation on publications in the ACL Anthology and ISCA Proceedings, only specific papers are included in this survey. Nonetheless, we also included papers from other resources related to the theme that are publically accessible and available as related work. A further limitation of the survey is that, due to the fact that some papers do not include information on the type of code-switching that was used (e.g., intra-sentential, inter-sentential, etc.), the category does not include this information.

Conclusion and the Future Scope of Research

It is clear from this analysis that there have been a number of important figures in code-switching research in order to understand the current issues and jobs in the literature concerning code-switching research in natural language processing and the advances made over the past few decades, we provide an

extensive and methodical assessment of code-switching research in natural language processing. In the final section of the presentation, we discuss future paths for research as well as open-ended questions for future study after summarizing the patterns and findings from the presentation. In our opinion, we hope that we can use the results of this poll to inspire and guide the researchers interested in code switching toward more fruitful research endeavours.

Future code swapping research could expand on the following four areas in order to enhance the existing understanding. The first thing we need to do is expand the scope of the code flipping research and there are two different ways to do that. Due to the fact that most of the current research on code-switching has focused on the lexical code-switching, this may be one reason for this. Clearly, more research needs to be undertaken in order to understand the cognitive processes that underlie the switching of codes at various levels of discourse and sentences. As an example, most previous research focused on how code switches between the L1 and L2 levels are performed in previous studies.

As time goes on, the necessary research may require us to use the third language or perhaps even more than one. In addition, it is still necessary to conduct comparative studies of code flipping across different language kinds in order to make progress. There is a large number of studies that alternate between English and other languages in the current literature. A fusional language is, for example, English, which is one of the most common kinds. I believe that future studies must focus on the mechanisms by which code flipping between other types of languages, such as agglutinative languages like Japanese and isolating languages like Chinese, is processed.

It is worth mentioning that third, readers' variables such as language ability and inhibitory control have also been widely studied in recent years. In the future, research endeavours may be undertaken to investigate the influence of diverse elements on code switching processing and this could later result in new research projects. There is a need for further investigation, especially into

the relationship between the reader and text-based elements in the processing of switch codes, as they relate to reader interactions.

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