Article

Embracing the Disrupted Language Teaching and Learning Field: Analyzing YouTube Content Creation Related to ChatGPT

Belle Li [1,*], **Xiaojing Kou** [2] **and Curtis J. Bonk** [3]

1   Department of Curriculum and Instruction, Purdue University, West Lafayette, IN 47907, USA
2   Center for Language Technology, Indiana University Bloomington, Bloomington, IN 47405, USA;
     xkou@indiana.edu
3   Department of Instructional Systems Technology, Indiana University Bloomington, Bloomington, IN 47405,
     USA; cjbonk@indiana.edu
*   Correspondence: li4808@purdue.edu

Abstract: Since late 2022, dozens of YouTube channels focusing on a diverse array of topics related to language learning with generative AI tools such as ChatGPT have rapidly emerged. This study explores the implementations and perspectives of YouTube content creators who now constitute an increasingly important segment of the ecosystem of language teaching and learning. A mixed methods netnographic approach was employed, combining qualitative and quantitative techniques. A total of 140 videos were identified and analyzed, and an in-depth content analysis was conducted to uncover underlying themes. Four main categories of creators were identified: educators, learners, technology professionals, and e-learning providers. Educators, especially English and Japanese teachers, were the majority, followed by learners and technology field professionals. This study highlights the benefits, drawbacks, and concerns associated with the integration of AI tools in language learning. By examining this rapidly evolving phenomenon, the study contributes towards an understanding of the role and impact of generative AI tools in language education.

1. Introduction

ChatGPT (OpenAI 2022) is an artificial intelligence (AI) chatbot that generates human-like text with impressive sophistication and usability (Haque et al. 2022; Zhai 2022). Impressively, the launch of ChatGPT on 30 November 2022 attracted over 1 million users in its first week (Sier 2022). Since that time, the potential positive and negative impacts from generative AI on education have been the subject of intense debate (Susnjak 2022; Zhai 2022).

Most of the current discussions about ChatGPT's implication for education focus on the accuracy and the quality of the content it provides (Rudolph et al. 2023). As a large language model, ChatGPT is trained with massive amounts of data for the model, which was originally designed to predict words that come next in a sequence (Cooper 2021). Despite the recent emergence of ChatGPT and other generative AI tools, there is already a research base to build upon, since studies of chatbots as intelligent tutors in language education began before the emergence of ChatGPT. For instance, Huang et al. (2022) conducted a review of 25 articles on the topic of chatbot-supported language learning. Their study revealed three technical affordances of chatbots: timeliness, ease of use, and personalization; and five pedagogical uses: interlocutors, simulations, transmission devices, helplines, and recommendation systems. Chatbot challenges were also revealed in the study by Huang et al. (2022), including technological limitations, novelty effects, and dealing with cognitive loads.

In the field of education, Kohnke et al. (2023) explored the affordances of ChatGPT for language teaching and learning, and discussed the digital competencies required to use it. In contrast, Hong (2023) focused on the functions and misconceptions surrounding ChatGPT, emphasizing the importance of discussing its usage and limitations in education. Although these recent explorations provided initial ideas on how ChatGPT can support language teaching and learning, they are mostly lacking in innovation and specificity. Accordingly, there is a need to explore the affordability of ChatGPT for different languages, respectively, as well as how teachers and learners can utilize its potential in diverse linguistic contexts.

2. Purpose

Disruptive technologies like ChatGPT are not created for a specific application; rather, they offer a wide range of possibilities for users to discover and utilize in innovative manners. However, prior to the widespread availability of AI chatbots like ChatGPT, access to such technology was limited, and there remains a lack of understanding about how ChatGPT is perceived and used by early adopters in the field of education and learning. Content creators who facilitate learning on YouTube are often deemed digital pioneers (Chao 2022; Zavyalova and Galvin 2022). As such, they may play a key role in shaping the ways in which the newly emerging learning tools are perceived and used.

Unfortunately, most practitioners in education tend to focus on policies and frequently raise cautionary flags about the potential for misuse (e.g., Yurkevich 2023). Such educators often provide guidance (e.g., Cox Communications 2023; McAfee 2023) and education on ethical use (e.g., Baidoo-Anu and Owusu Ansah 2023; Mhlanga 2023). As a result, the perspectives of students, or the people who will benefit most, typically have not been included. It is vital, therefore, to study the content generators who explain and show the possibilities of generative AI tools. YouTube, as a platform for disseminating information, has been instrumental in aiding learners' understanding of instructional content delivered remotely as well as in compensating for missed opportunities for gaining knowledge in times of the COVID-19 pandemic (Trabelsi et al. 2022).

In response, this study will investigate the multitude of content creators who have gained many followers, viewers, or subscribers on YouTube for their discussions and demonstrations of generative AI tools like ChatGPT for language learning and instruction. While it is necessary to be aware of its potential pitfalls and challenges, we explore the following research questions in the hopes that the potential benefits are not buried in worry, mistrust, and skepticism:

1. What is the focus of the discussion and demonstrations by the YouTube content creators of ChatGPT in language education?
    a. How has the discussion around ChatGPT and related AI technologies evolved during their brief history as tools for language education on YouTube?
    b. Who is producing videos about ChatGPT in language education on YouTube?
    c. What are the common topics and themes present in these discussions and demonstrations?
2. How do content creators describe their current practices of using ChatGPT in language education?
    a. How do they perceive the potential benefits and drawbacks of incorporating ChatGPT in language learning?
    b. What strategies do they use to mitigate any drawbacks and ensure that ChatGPT is effectively used in language education?

3. Methods

A mixed methods netnographic approach was adopted for this study combining qualitative and quantitative techniques, including online observations, content-publishing tracking, and a systematic thematic analysis of online videos. Notably, Kozinets (2002) referred

to seminal studies from the turn of the century that initiated research on netnography and described communication-related behaviors in cyberspace. In building on Kozinets, Hine (1994) proposed an alignment of different terminologies such as netnography, virtual ethnography, webnography, cyberanthropology, and digital ethnography. Netnography drives the researcher to understand the kind of stakeholders who are engaged in networks and platforms and how they behave with different knowledge production dynamics.

3.1. Video Sampling

To ensure the comprehensiveness and reliability of the study, the research team employed a systematic approach to identify and include all eligible videos. The process of identifying eligible videos began by performing a search query using keyword combinations related to ChatGPT and language education, such as "ChatGPT AND language learning", "ChatGPT AND language education", and "ChatGPT AND (Chinese OR Japanese OR Spanish OR French OR English OR German OR additional languages here)". Only those videos that directly discussed or represented ChatGPT in the context of language education were included in the sample. Additionally, to ensure that the research focus remained specific to the representation and discussion of ChatGPT in language education, videos that did not have a primary focus on language education, but rather covered topics such as academic writing, were excluded from the sample. To ensure the quality and relevance of the sample, we excluded videos that were shorter than a certain duration (e.g., less than 2 min) from the analysis.

To maintain a current and comprehensive sample, the research team utilized a video crawler to collect all YouTube videos that were tagged with ChatGPT and relevant search keywords in the title, description, and tags. The team cross-checked these results with their existing Google spreadsheet of identified videos searched by hand to ensure that no eligible videos were missed.

3.2. Video Coding

Following the above criteria, a total of 140 videos were identified that directly discussed or represented ChatGPT in the context of language education by 10 April 2023. The selected videos were organized in a Google spreadsheet by their publication date, video title, description, channel name, and "About" page. The researchers independently coded the videos using a set of codes or labels that were created to categorize the different topics, perspectives, and types of content creators. The coding process was iterative, and the authors discussed any discrepancies until they reached a consensus.

3.3. In-Depth Content Analysis

After conducting an initial analysis, we discovered several videos in our sample that exhibited high similarity, suggesting that they were likely produced by ChatGPT; those videos were eliminated. To ensure that our analysis drew insights from innovative, original, and reliable content, we refined our criteria to conduct an in-depth content analysis aimed at uncovering underlying themes in a rigorous manner.

The lead author undertook manual coding, initially crafting a coding guideline. Subsequently, this guideline underwent a meticulous process of revision and expansion, marked by extensive discussions among the research team. In instances where differing interpretations of themes emerged, a collaborative effort was initiated among the researchers to establish a consensus.

Additionally, in tandem with the manual analysis, a new YouTube plugin, YouTube Summary with ChatGPT, was employed to extract the video transcripts and facilitate the appropriate summaries. The integration of this technological component not only infused supplementary insights into our dataset but also expedited the pace of our analytical process.

4. Results

4.1. RQ1a: How Has the Discussion around ChatGPT and Related AI Technologies Evolved during Their Brief History as Tools for Language Education on YouTube?

The rapid adoption and integration of ChatGPT as a tool for language education on YouTube is evident in the trends that can be observed in Figure 1. The video published by Tom Gally on 5 December 2023 served as the earliest example of the growing interest and recognition of ChatGPT's potential in language education among educators and researchers. Figure 1 displays the trends in video releases related to ChatGPT in language education during the period from 30 November 2022 to 10 April 2023. The upward trends revealed in Figure 1 indicate a rising level of interest and engagement among relevant individuals and communities regarding the uses of ChatGPT for language learning.
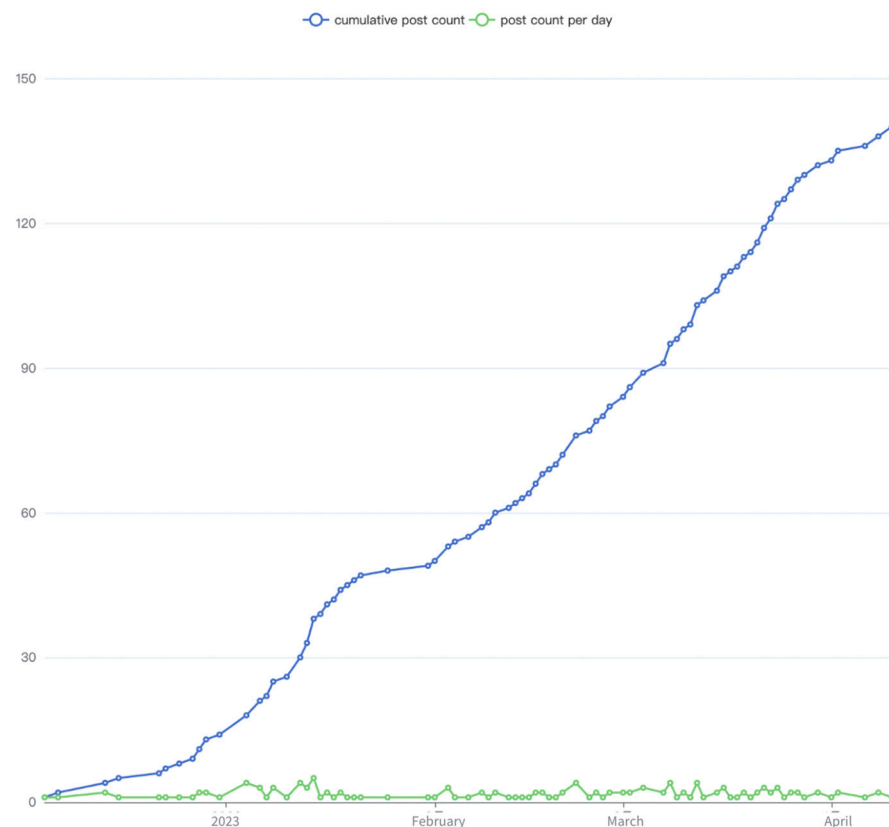

Figure 1. Trends in video releases from 30 November 2022 to 10 April 2023.

The frequency of video releases varied throughout the observed timeframe, with certain dates showing multiple video releases. Notable peaks in video releases occurred on 14 December 2023, 28 December 2023, and 14 January 2023, indicating periods of concentrated activity and heightened interest in exploring the application of ChatGPT in language education. These findings suggest that ChatGPT has gained significant attention and traction within the language education community on YouTube. The upward trajectory of video releases demonstrates an increasing focus on, and exploration of, ChatGPT's potential as an instructional tool and its potential implications for language teaching and learning.

Figure 2 shows that, out of the 140 total videos posted in that timeframe, 113 focused on ChatGPT's use for a specific language. Of all the languages featured, English had by far the highest overall posting volume, making up nearly 30% of all videos. This substantial focus on the English language is not surprising, considering its status as the lingua franca of the Internet. ChatGPT's use was explored in 10 other languages, with Japanese and French having the highest posting volume following English. Several other videos discussed multiple languages.
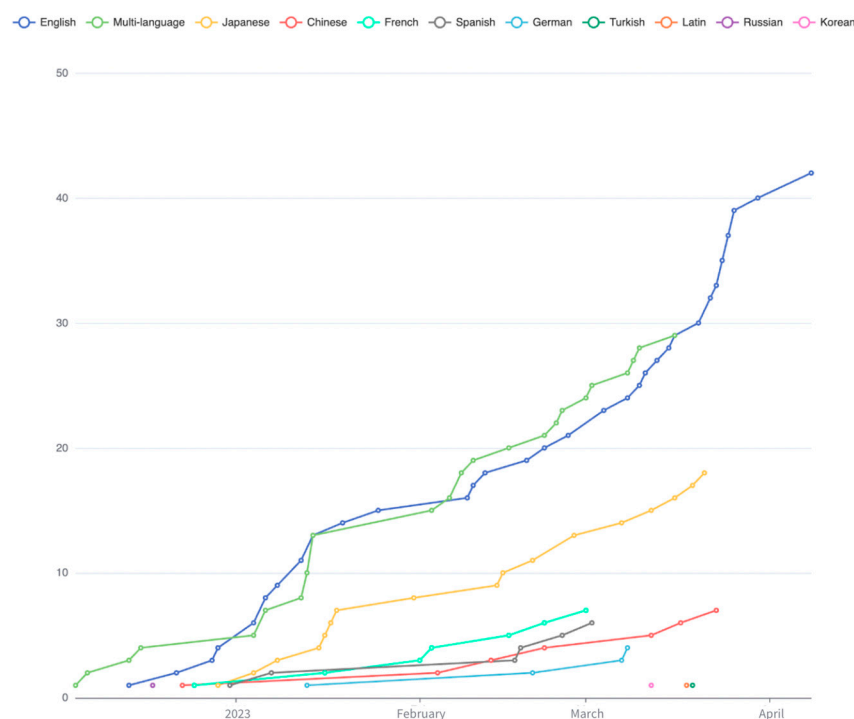
Figure 2. Trend of videos posted in different languages.

4.2. RQ1b: Who Is Producing Videos about ChatGPT in Language Education on YouTube?

To identify the role of content creators, we began by reading the "About" page of the channel and viewing the first video of this YouTuber, as some creators explicitly used the first video as an introduction. If the initial inquiry proved inadequate, we conducted an additional cursory search on Google. However, if the content was too diverse to identify a clear focus or if the channel involved too much content, we categorized them as "Cannot Specify". Content creators who produced videos about ChatGPT in language education on YouTube fell into four main categories:

1. Educators (n = 58): This category included language teachers (n = 53), teacher trainers (n = 2), educational program directors (n = 1), and professors (n = 2);
2. Learners (n = 14): This category was mainly language learners, including polyglot language learners (n = 10), Japanese learners (n = 3), and a Spanish learner (n = 1);
3. Technology Professionals (n = 22): This category included individuals who were employed in technology-related fields. Some worked as project managers (n = 1), data engineers (n = 1), software developers (n = 5), and game developers (n = 1). Others may not have explicitly stated their profession but, nonetheless, created videos based on their specialized skills and knowledge in areas such as coding tutorials (n = 3), emerging technologies (n = 6), and artificial intelligence (n = 4);
4. e-Learning Providers (n = 8): This category included organizations, institutions, or companies that developed, designed, or provided e-learning solutions and services. These were publishing houses for language teaching materials (n = 1), language learning podcasts or talk shows (n = 2), or any other type of organization that provided e-learning solutions (n = 4).

Figures 3 and 4 show that the majority of content creators were identified as Educators, primarily language teachers (91.4%). This highlights their interest in using ChatGPT in language education and their active search for innovative tools. Some YouTubers did not directly teach students but provided e-learning content on various languages (7.1%). In effect, they introduced ChatGPT with either language instructors or learners in mind. Learners (12.5%) also played a significant role in creating content on this topic, suggesting that learners also find value in this AI-based tool for language learning.
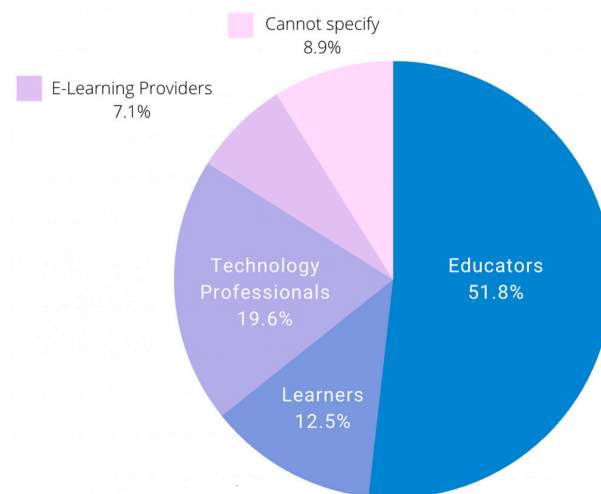
Figure 3. Distribution of content creators producing videos about ChatGPT in language education on YouTube.
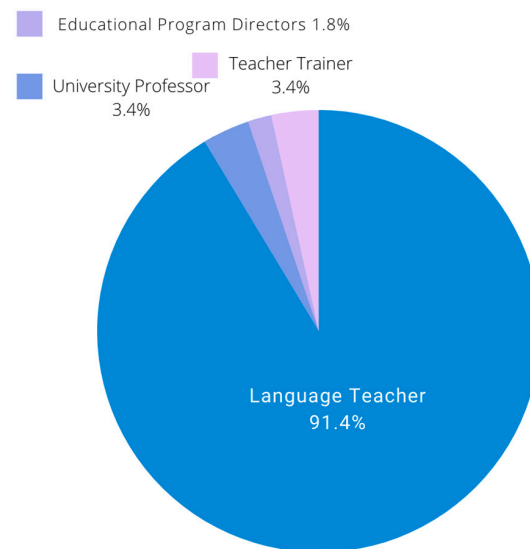

Figure 4. Distribution of educators producing videos about ChatGPT in language education on YouTube.

Additionally, the results demonstrate that ChatGPT is also recognized by technology professionals (19.6%) as having the potential to impact language learning. This finding indicated that technical professionals who also learn languages recognize ChatGPT as a promising tool for language learning. Some of these professionals were native speakers of languages other than English, and they especially discussed using ChatGPT's to translate English (i.e., the language of most of the Internet resources), such as by coding examples and explanations into their native languages (e.g., Urdu and Hindi). We excluded videos that were apparently created by AI and lacked useful input but included those from technical professionals who deeply explored ChatGPT as a learning tool and provided valuable methods and strategies (e.g., [5] and [40]).

Figure 5 illustrates the distribution of language teachers and learners by language. The majority of content creators who produced videos about ChatGPT in language education on YouTube were language educators (51.8%), with English teachers being the predominant subgroup (*n* = 26). Japanese language teachers also demonstrated considerable engagement with ChatGPT, with nine individuals actively creating content related to its application in language instruction. This analysis highlights the diverse linguistic backgrounds and interests of educators who were exploring the potential of ChatGPT in

language education. Their sharing has revealed several language-specific factors when utilizing ChatGPT as a tool for language learning and teaching.
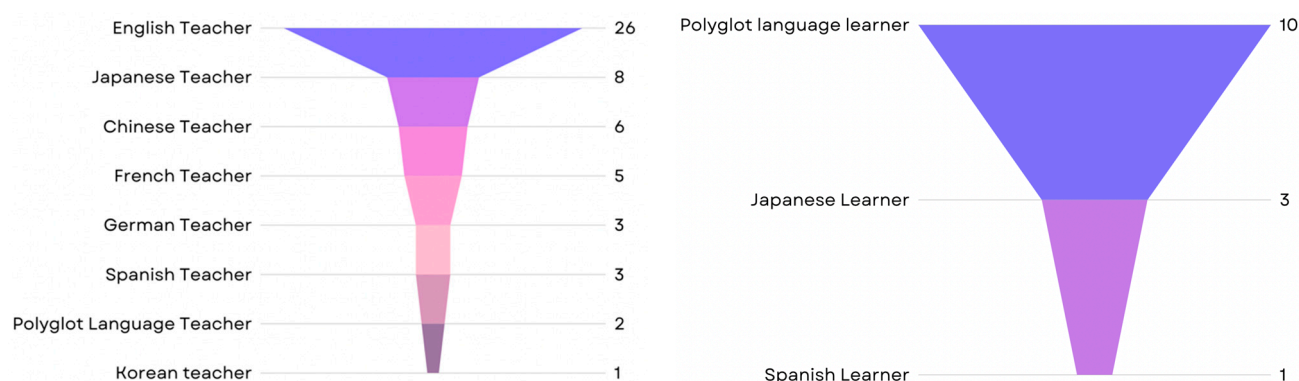

Figure 5. Distribution of language teachers and learners by language.

Learners represent a smaller proportion of the videos in our sample compared to teachers. Most of the learners identified in the analysis were polyglot language learners (*n* = 10), indicating their interest in utilizing ChatGPT to support their language learning journeys across multiple languages. There are also three Japanese learners and one Spanish learner.

Notably, 15 of the content creators posted more than one video about ChatGPT in language education. This indicates a sustained engagement and continued exploration of the topic by these individuals, providing valuable insights and perspectives through their repeated contributions.

4.3. RQ1c: What Are the Common Topics and Themes Present in These Discussions and Demonstrations?

The 140 videos in our sample covered a wide range of topics, including hands-on demonstrations; innovative ways of using ChatGPT for language learning; implications for language education, learning, and teaching tips and techniques; examples of using GPT-Chat for different languages; pros and cons; tryouts of the affordance of learning languages; comparisons with other language learning/translation tools; and integration into classroom teaching or with other language learning tools and resources (e.g., DeepL, Youglish, and Duolingo). Table 1 provides additional details. The number in the square brackets indicates the unique reference number for each video.

Typically, the videos begin with an introduction to ChatGPT. The main content of the videos is often focused on demonstrating the practical use of ChatGPT; providing examples; strategies for prompting; best practices; and testing its ability to support language learning and teaching. Some videos provide perspectives on ChatGPT's specific advantages and limitations, as well as broader discussions on the benefits, drawbacks, concerns, and implications of generative AI in language education. The majority of the videos convey very positive sentiments for this tool, e.g., "a game changer for language learning" [91]. In contrast, when being interviewed, Noam Chomsky [47] described ChatGPT as "high-tech plagiarism".

A polyglot YouTuber, Dr. Yebra López, who calls himself "the hyperpolyglot activist", tested ChatGPT with a very critical eye in terms of its language ideologies, and received mixed results. Language educators were extremely curious as to whether ChatGPT could eventually replace them and their jobs. In a test conducted by a French teacher [65], Chat-GPT was asked to make a plan for learning French in 30 days. The teacher concluded that it was not the best plan she had seen for learning French. She added: "I don't think you'll be able to do without me". [English translation]. A Chinese teacher also asked ChatGPT several questions, compared her own answers with those of ChatGPT and reached similar conclusions [102].

Table 1. Coding scheme of the common topics and themes.

Theme	Codes
Introduce ChatGPT	• Natural/human-like conversation; • Ask it questions and it gives you answers; • Possessing extensive knowledge.
Roles of ChatGPT	• Virtual Assistant; • Tutor [122] [26]; • On-demand English teacher [19]; • Personal writing assistant; • Research assistance [46]; • Virtual friend; • Multi-language support [107]; • Language genius [89]; • Language coach [89]; • Teacher's toolkit [85].
Hands-on Demonstration	• Techniques, tips and strategies for learners; • Technique, tips and strategies for teachers; • Common mistakes to avoid when using ChatGPT for language learning; • The innovative way of using ChatGPT; • Testing ChatGPT's ideology on language learning.
Attitudes toward ChatGPT	• A game changer for language learning [91]; • High-tech plagiarism [47]; • Cannot replace language teachers [65] [102].
Solutions	• Integrated with other tools (e.g., DeepL, Youglish, and Duolingo); • Need for empathy and assistance; • Pedagogy considerations.

Finally, some videos concluded by offering potential solutions to mitigate the drawbacks of ChatGPT and maximize its efficacy in language education. See Figure 6 for the typical structure of a YouTube video that discusses the use of ChatGPT in language education.
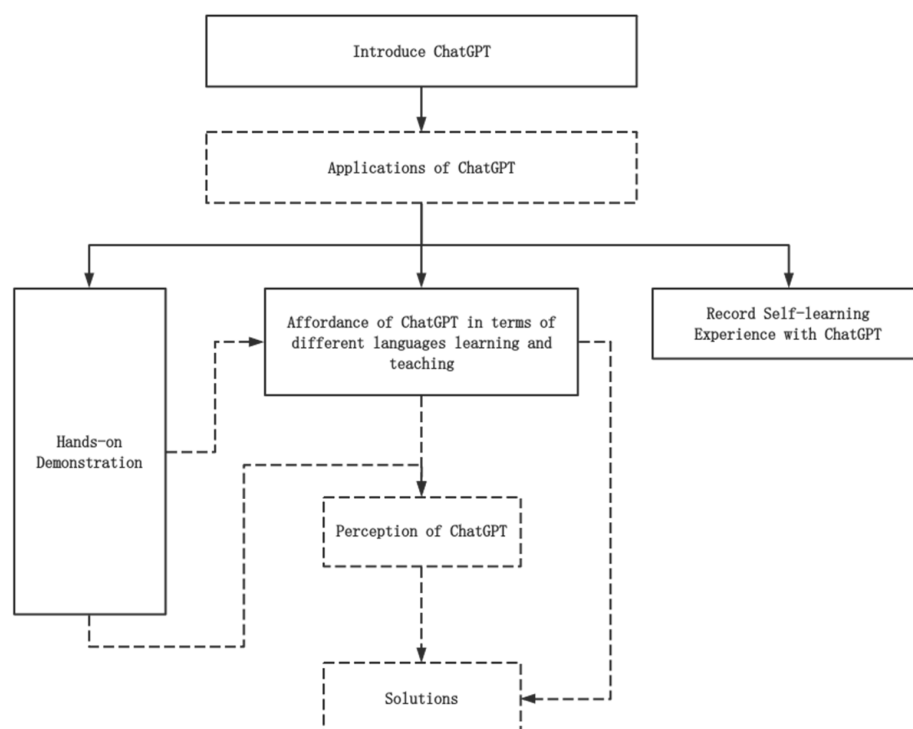

Figure 6. The structure pattern of videos about ChatGPT in language education on YouTube.

4.4. RQ2a: How Do YouTube Content Creators Perceive the Potential Benefits and Drawbacks of Incorporating ChatGPT in Language Learning and Teaching?

The potential benefits and drawbacks of incorporating ChatGPT in language learning and teaching are complex and multifaceted. These assorted perspectives are presented in Table 2.

Table 2. Benefits, drawbacks, and concerns of ChatGPT.

Benefits of ChatGPT
1. Providing optimization and enhancement of language learning platforms as an augmentative learning device;
2. Assistance with general questions, vocabulary building, writing tasks, language practice, test preparation, annotating texts, translations, and personalized learning;
3. Acting as an accessible and affordable 24/7 tutor providing relevant information to users as it learns from their interactions;
4. Engaging in conversations and practicing the language in a safe and comfortable environment without fear of judgment or mistakes;
5. Being especially beneficial for students who struggle with traditional teaching methods or have special learning needs;
6. Creating bespoke content such as learning texts, worksheets, and lesson plans;
7. Helping with job interviews in a foreign language and practicing conversation by generating responses to questions;
8. Providing highly tailored content and transforming how individuals learn languages;
9. Enhancing the language learning experience by fostering learner motivation, improving efficiency, and promoting attentiveness and observation skills;
10. Creating an engaging and accessible learning environment that makes language education more enjoyable and readily accessible for learners;
11. Reducing the workload of language teachers.
Drawbacks of ChatGPT
1. Lack of emotional or empathetic responses;
2. Limited creativity;
3. Lack of context awareness;
4. Potential of generating inaccurate or inappropriate responses;
5. Incomplete information;
6. Repetition of information;
7. Potential for bias;
8. Inability to learn beyond its training data which goes up until 2021;
9. Potential misuse for malicious purposes;
10. Syntax and grammatical errors;
11. Does not provide much opportunity for speaking practice.
Concerns of ChatGPT
1. The danger of being too dependent on ChatGPT for writing essays and creative writing;
2. Potentially replacing human workers;
3. Creating competition, insecurity, and fear;
4. Data privacy;
5. No connection between the rapid development of AI and the growth of human language faculty;
6. Challenge for teachers as well as organizations and institutions to detect plagiarism;
7. Many replicate countless previous failed attempts to introduce new technology to language education, such as printed books and LP records.

Through demonstrations, the content creators on YouTube recognized the potential benefits of using ChatGPT in language learning. The model is powerful and capable of facilitating language learning in various tasks and aspects. Listed below are nine highlights from the videos included in this study.

1. ChatGPT is highly accurate in producing language output. It produces text that is grammatically correct and natural sounding in various languages;
2. Correction of mistakes: ChatGPT can help correct grammar mistakes, spelling errors, and any kind of typo in input text;
3. Quizzes and Language Games: ChatGPT can provide quizzes and other forms of assessment, including playing language games to help with learning and reinforce vocabulary and grammar rules;
4. Vocabulary learning: ChatGPT can be used as a dictionary and can produce a list of words related to a particular topic, as prompted. ChatGPT is especially useful in providing explanations of words in a context and in providing more examples with that specific meaning;
5. Personalized learning: ChatGPT can provide reading materials that are customized to users' preferred topics and reading proficiency levels;
6. ChatGPT is very often found to be useful in practicing conversations in various scenarios as specified by the learner when the prompt is properly engineered;
7. Writing skills: ChatGPT can generate essay outlines and provide writing prompts, and can improve writing styles by simplifying sentences and paraphrasing the provided text into multiple alternatives, which is especially helpful for non-native speakers;
8. Writing models: ChatGPT can write in different literature genres, such as in Shakespeare's style, especially for English writing, thereby providing useful models, examples, and instructional scaffolds;
9. Exam preparation: ChatGPT can help with preparation for language exams by providing model answers, correcting mistakes, and providing graded reading materials and quizzes.

Multiple YouTubers pointed out one drawback or weakness of ChatGPT for language learning: ChatGPT is not reliable enough in explaining grammar and rules for language learning purposes [2] [41]. In some cases, while ChatGPT is able to correct typical learner mistakes, it may provide inaccurate or incomplete explanations and examples about grammar rules and syntax. This flaw is worth noting since it occurs across all languages, and was specifically mentioned for English and French, for example, in the videos we analyzed.

4.5. RQ2b: What Strategies Do They Use to Mitigate Any Drawbacks and Ensure That ChatGPT Is Effectively Used in Language Teaching and Learning?

1. The need for empathy and assistance for those who cannot use ChatGPT.

We believe in the crucial importance of adopting a mindset that acknowledges our responsibility to assist others and demonstrate empathy towards those who may encounter challenges with technological advancements, such as the use of ChatGPT in language education. YouTubers, while not explicitly mentioning this mindset in their videos, assist those who are not yet proficient in using ChatGPT through the act of creating and sharing how-to videos.

2. Overcoming limitations of ChatGPT through using it together with other language learning tools and resources.

ChatGPT was not created specifically for language learning and teaching, despite the various affordances it provides for such goals. A common theme found through analysis is that YouTubers who are experienced language learners often talk about how they use ChatGPT in combination with other tools and resources for language learning.

Plugins and add-ons such as Voice Control, Talk-to-ChatGPT, Naturalreaders.com, and InFluency can be integrated into ChatGPT to practice speaking and listening. Lan-

guage practice communities like HiNative and LangCorrect also offer opportunities for learners to practice speaking with native speakers and receive feedback on their writing. In addition, Duolingo is a language learning platform that can be used in tandem with ChatGPT for any questions, while Youglish is a platform that can read text out loud.

There are many other such language learning tools and applications. For instance, Nationalreaders.com offers a personal tutor-like experience, allowing learners to practice their English language skills through chat conversations with ChatGPT. Also mentioned in this study is LingQ which is an online language learning platform with courses and resources in over 20 languages. Steve Kaufmann [66] [105] uses ChatGPT to practice writing and receive feedback.

For teachers, Word Wall is a valuable tool for organizing high-frequency words in a classroom to aid student learning and retention. The Word Wall can be a bulletin board or a designated space where words are displayed alphabetically or by category, and it can be utilized in various subjects such as math, science, and social studies. The display can include vocabulary words, sight words, and other essential words and phrases.

3. Double-checking the answer received from ChatGPT and using other resources such as native speakers or online checking tools.

It is important for language learners to appreciate that ChatGPT, like any language tool, may not be perfect and can make mistakes. In other words, learners should not blindly trust ChatGPT. Instead, they should exercise their judgment and double-check the answers and feedback generated by ChatGPT. It is especially critical for beginner learners to be aware of potential inaccuracies in the ChatGPT responses and not take them as gospel. One practical suggestion is to use other resources to verify responses, such as consulting with native speakers or utilizing online checking tools like LangCorrect. It is recommended that users have at least a basic understanding of the language before using ChatGPT. This is also one of the reasons why language teachers remain indispensable.

4. Integrating effective methods of learning and pedagogy before using ChatGPT in language learning and teaching.

Methods should come before technology. Instead of randomly exploring ChatGPT, users who start with designing an effective learning/teaching approach would benefit most from using this tool (and any other tools).

5. Emphasizing the importance of a learner's motivation and efforts.

ChatGPT can be a useful tool in language learning; but ultimately, success depends on the learner's attitude and how consistent their efforts are in seeking real-world practice opportunities and focusing on the most critical areas of language learning, such as grammar, vocabulary, and pronunciation.

6. What you get depends on what you ask—users need to learn how to write effective prompts.

Many content creators mentioned the importance of writing a good prompt. Learners should provide specific and detailed prompts to ChatGPT, as this will increase the likelihood of receiving a useful response. If the response from ChatGPT is not satisfactory, learners should evaluate and adjust the prompt.

5. Discussion

YouTube is an invaluable platform for accessing educational content pertaining to ChatGPT in the context of language education. The platform offers a diverse array of content creators who consistently produce high-quality videos on this particular topic.

During our analysis of the 140 videos, one video that stood out was titled "What do we mean by language in the age of GPT?" presented by Professor Tom Gally on 27 March 2023. In this thought-provoking video, Professor Gally explored the multifaceted nature of language models such as ChatGPT, emphasizing their embodiment of both cognitive and

social perspectives. Notably, he underscored ChatGPT's impressive capacity to produce grammatically accurate responses while serving practical purposes.

As we delved into our research, Professor Gally's (2023) insights continued to resonate, prompting us to reflect on the evolving landscape of language education in the context of AI technology. The juxtaposition of cognitive and social perspectives within ChatGPT raises intriguing questions about the interplay between linguistic accuracy and the practical application of language skills. We realize that to effectively utilize ChatGPT in language education, users, both teachers and learners, need to possess a set of competencies. These competencies include technical proficiency to navigate the ChatGPT interface; language skills to formulate clear prompts and evaluate responses; contextual awareness to provide relevant context and instructions; critical thinking to evaluate the model's output; instructional/learning design skills for choosing effective learning tasks; an understanding of ethical and responsible use; and a commitment to lifelong learning and adaptability. Developing these competencies is crucial for maximizing the benefits of ChatGPT in language education. Of course, professional development and continuous reflection are needed for acquiring these competencies.

The presence of linguistic and cultural bias inherent in the source database and algorithms is a significant factor to consider (Rettberg 2022). Few of the content creators we examined specifically discussed this issue. Despite being a multilingual dataset, ChatGPT's database mainly originates from an English corpus. Some answers were provided through the use of automatic translation, where the user's input is translated into a common language understood by the model, and the response generated by the model is then translated back into the user's original language (Luo et al. 2023). Furthermore, the database predominantly includes words that are written more frequently than they are spoken. These factors raise concerns, particularly in language education settings where learners come from diverse cultural backgrounds and may not be aware of the lack of linguistic and cultural neutrality in ChatGPT and other AI-driven tools (Kohnke et al. 2023).

6. Limitations and Future Research Recommendations

The present study, while providing valuable insights into ChatGPT in language learning and teaching, has several limitations that should be acknowledged. First, the reliance on YouTube as the primary source of data introduces potential biases, as content creators may favor certain topics over others. This overreliance on YouTube videos may overlook important perspectives and resources present on other platforms. Additionally, the quality of these videos is not consistent, which requires the authors to critically evaluate each of them. Finally, the analysis was restricted to a specific set of 140 videos, which were all published before ChatGPT-4 was released and used.

To address these limitations, we recommend several approaches to future research on this topic. First and foremost, a more comprehensive investigation should be undertaken to encompass a wider range of platforms and sources beyond YouTube.

Furthermore, qualitative research methods, such as interviews or surveys, could be employed to gather rich insights from language educators and learners. By soliciting their experiences, perspectives, and perceptions of using ChatGPT in language education, a more nuanced and multifaceted understanding of its impact and potential could be achieved.

An important future direction would be to delve into the cultural aspects of ChatGPT's language generation. Examining its performance in languages characterized by complex grammar, syntax, idiomatic expressions, and cultural nuances would shed light on its suitability and effectiveness in diverse linguistic and cultural contexts.

Moreover, future research endeavors could explore the efficacy of incorporating ChatGPT into specific language learning activities, such as writing exercises, pronunciation practice, and interactive dialogues. A systematic investigation into the pedagogical implications and practical benefits of integrating ChatGPT as an instructional tool in language classrooms would provide empirical evidence and guidance for educators. With-

out a doubt, the myriad opportunities for language learning today with such generative AI tools and systems will only accelerate in the next few years.

Appendix A. Video List

No	Video Title	YouTuber
1	ChatGPT and Language Education	Tom Gally
2	Using ChatGPT for Language Learning	Tom Gally
3	ChatGPT Teacher Tutorial: AI for your ESL class!	Charlie's Lessons
4	ChatGPT and the Future of Language Learning	Tom Gally
5	Can Chatgpt Teach You a Foreign Language?	Dustin Schermaul
6	Chat GPT—learning English—1	wonder
7	Will AI change the future of language learning?	ChatGPT	Grace Mandarin Chinese
8	A Storytelling Adventure	Learn French with Chatgpt	Dustin Schermaul
9	Aprendendo Japonês com IA—Inteligência Arificial OpenAi ChatGPT	Suki Desu—Japonês Club
10	Can chatGPT help you with studying a language?	Language Teacher Family
11	ChatGPT is a fantastic language learning tool	JaysCoolThings
12	ChatGTP for language learning	English at University—Learning English with Pros
13	Japanese language learning with ChatGPT using Duolingo	Matthew Nolan-Cintron
14	AI Just KILLED Traditional Language Learning (ChatGPT)	Jerry Registre
15	Use ChatGPT by OpenAI to self-teach Japanese (and other languages)	ryūnuck
16	2 Ways You Can Use Chat GPT to Supercharge Your Language Learning	NiJohnGo
17	How to Use ChatGPT for English Self-study	La Mansion del Ingles—Improve your English
18	12 Ways You Can Use Chat GPT to Supercharge Your Language Learning	NiJohnGo
19	How to Use ChatGPT as a Free AI English Teacher	Cloud English
20	How to Learn a Language with ChatGPT l Using AI for Language Learning	Grayson Arabia
21	How to Learn a Language with ChatGPT l Learn a Language in 2023	Grayson Arabia
22	Can you Learn a Foreign Language with ChatGPT?! 🤖 (examples, pros & cons, etc.)	LingoKev
23	Integrate ChatGPT in your class! AI for Language Learning	Educraft
24	AI for EFL—5 ways to integrate ChatGPT into your class today!	Educraft
25	Transforming ChatGPT-Generated Dialogues into Natural Japanese from Robot-Like to Human-Like	Sayuri Saying

No	Video Title	YouTuber
26	Plan Lessons in Record Time with ChatGPT	Charlie's Lessons
27	Chat GPT for Teachers | How to Teach languages with Chat GPT	Teach with A I
28	How to Really Learn English: Everything You Need to Know—ChatGPT	Britlish—British English Lessons
29	Master English in Record Time with ChatGPT 's Proven Method	ChatGPT in Hindi
30	Chat GPT For Language Learners 6 Identifying the Differences Between 2 Words	NiJohnGo
31	Chat GPT For Language Learners 7 What does this sentence mean?	NiJohnGo
32	Language Learning with Chat GPT: Intensive Reading in Japanese, Spanish, Chinese & French	NiJohnGo
33	An Interactive Text Adventure | Learn German with ChatGPT	Dustin Schermaul
34	Chat GPT For Language Learners 8 Writing Model Answers for IELTS, TOEFL, DALF, DELF, DELE etc.	NiJohnGo
35	Chat GPT超级简化了外语精读的过程	NiJohnGo
36	Chat GPT で外国語を簡単に読むことができます	NiJohnGo
37	Polyglot Language Goals 2023 (but it's ChatGPT setting them)	LingoKev
38	ChatGPT: The Future of English Language Learning|4 Easy Ways to Improve Fast	Your Favorite English Teacher
39	Japanese Study with ChatGPT, Duolingo, Wanikani and Minato: My Personal Experience	Matthew Nolan-Cintron
40	ChatGPT Tutorial—How to learn Japanese with ChatGPT	Halil Zabun
41	How to learn French with an AI (Chat GPT-3)?	Ohlala French Course
42	Leveraging ChatGPT to Master Japanese—My Story	QuHarrison Terry
43	Comparing ChatGPT with a Real Japanese Teacher: Which is Better?	QuHarrison Terry
44	Noam Chomsky on Artificial Intelligence, Language and Cognition	Institute of Philosophy & Technology
45	ChatGPT: The Future of Language Learning Revealed!	English with Dan
46	10 Innovative Ways for Teachers to Incorporate ChatGPT in the Classroom	Flippin' Sweet Gear
47	Chomsky on ChatGPT, Education, Russia and the unvaccinated	EduKitchen
48	ChatGPT Tutorial—How to use Chat GPT for Learning and Practicing English	Accent's Way English with Hadar
49	I tried learning Japanese with ChatGPT and here's what happened…	Eric Williams
50	How to learn French using ChatGPT | A DEMO of its possibilities and limits	My Polyglot Life Cathy Intro
51	ChatGPT pour apprendre le français, l'anglais ou n'importe quelle langue 💪 (c'est fou!!! 😵)	Français avec Pierre
52	5 ChatGPT Prompts to SPICE UP your Language Exchanges🌶 (Language Learning w/ChatGPT)	LingoKev
53	Chat GPT tutorial for teachers	Russell Stannard (Teacher Training Videos)
54	How to use ChatGPT to study Chinese? 如何用ChatGPT学中文? 利用AI Tech学汉语	Dashu Mandarin
55	Does ChatGPT Reproduce or Challenge Language Ideologies?	The Hyperpolyglot Activist—Dr Yebra López
56	Chat GPT for Language Teachers	Leah Rogstad
57	Asking ChatGPT Some Language Questions	A Language Learning Tale
58	Master English with ChatGPT | A Step-by-Step Guide to Language Learning	Meta Lingua
59	ChatGPTで英語学習が激変する! 効果的な使い方 ChatGPT for your English learning	Rika's English Cafe
60	ChatGPT: Your Secret Weapon to Master Foreign Languages	My Germanized Life
61	How to use Chat GPT for Learning and Improving English	English Lessons with Kate
62	Can ChatGPT Replace a Cantonese Teacher? How to Use ChatGPT to Learn Cantonese|Dope Chinese	Dope Chinese with Gloria
63	How to LEARN JAPANESE Language USING ChatGPT|Learn Katakana Hiragana Kanji #japanese #chatgpt	Pushkar Sharmaa

No	Video Title	YouTuber
64	Study Japanese with ChatGPT 02 15	김준석 영어
65	Je teste le ChatGPT pour apprendre le français. #learnfrenchwithAI	Learn French with Elisabeth—HelloFrench
66	ChatGPT, AI & Language Learning with @LucaLampariello	Steve Kaufmann—lingosteve
67	11 Ways to Boost Your Spanish with ChatGPT AI Chatbot	PolyglotPanda—Learn Spanish with TV Series
68	What do we mean by language in the age of GPT?	Tom Gally
69	A Debate with My AI Language Teacher (ChatGPT)	Jerry Registre
70	利用ChatGPT免费练习英文口语和听力，练就流利英文｜AI 即将改變整個學語言的方式！3 個使用 ChatGPT 來學語言的方式	Amber TV 說英文看英國
71	Can ChatGPT really teach you German?	Learn German with Herr Antrim
72	Can CHATGPT Teach You Japanese!? (w/Game Gengo)	Game Gengo ゲーム言語
73	Learn FRENCH for FREE at home with CHATGPT—Guide to practice your speaking and writing	French with Lucie
74	Learn English with ChatGPT｜How to use ChatGPT for Learning and Practicing English	Wizcabin
75	Language Learning with ChatGPT: Exploring Opportunities and Risks	Joe Dale
76	【日中字幕】ChatGPTで言語学習/Learning language with ChatGPT/如何用ChatGPT学语言/ChatGPTで中国語	米粒ミリ (millichinese)
77	Language Lounge #52-ChatGPT with Joe Dale	Wayside Publishing
78	ChatGPT for Language Learning-5 MISTAKES to AVOID!⚠️	LingoKev
79	ChatGPT Voice Just KILLED Traditional Language Learning	Jerry Registre
80	LIFE Changing Ways to English Learning ChatGPT guide 能令你英文好10倍?! 寫文案 報告 電郵 不懂就落伍了!	瑪姬英文 English with Maggie
81	Secrets of the Japanese language learning revealed: Tips and tricks from ChatGPT	JLPT MARATHI
82	Learn Japanese with ChatGPT【Live】	Japanese Language & Culture
83	How to LEARN FRENCH VOCABULARY and GRAMMAR with CHATGPT	French with Lucie
84	ChatGPT Examples On Learning New Languages	Ctrl-Shift-Run
85	ChatGPT Tutorial in the language learning classroom—Must Know TIPS https://www.youtube.com/watch?v=-QXvWk2_oGU (accessed on 10 May 2023).	Educraft
86	5 WAYS to Learn Spanish with this FREE supersmart AI TOOL (Chat GPT)	Spring Spanish—Learn Spanish with Chunks
87	Maximizing Your Language Learning with ChatGPT: Simple Tips and Tricks	빙구밭 Being9Garden
88	CHAT GPT: How does it help language learners?｜CHAT GPT is future｜languagefy	languagefy
89	How to Use ChatGPT for English Learning & Skyrocket Your English	Zenfluent Maria
90	Revolutionize Your Japanese Language Learning with Chat GPT: Tips and Tricks for Success	Learning Japanese with Taka
91	How to use ChatGPT to accelerate language learning	Malika Yunus
92	Use ChatGPT to learn niche languages	HalfGēk
93	ChatGPT for Learning a Foreign Language - How to Use Chat GPT for Engish Practice	English with Alona
94	Introduction to using ChatGPT for language learning	AI Mastery
95	Tips and Ideas for learning and practising German with ChatGPT｜AI｜Learn German｜A1 - C1	Learn German
96	I tested ChatGPT in Language Learning... and it FAILED//AI, chatbots & learning potential	Polyglot Secrets
97	ChatGpt, AI and Language Learning/German/French/Spanish	The Language Lake

No	Video Title	YouTuber
98	Mastering English with ChatGPT Your Ultimate Language Learning Companion! Improve English by ChatGPT https://www.youtube.com/watch?v=syofrFBV5oI (accessed on 10 May 2023).	Mohsin Ali
99	Practice the present perfect- Using Chat GPT EFFECTIVELY for language learning https://www.youtube.com/watch?v=wxaFjL_-dG8 (accessed on 10 May 2023).	elttraining
100	HOW to learn KOREAN with ChatGPT and youtube https://www.youtube.com/watch?v=FijXOoZ9Mj8 (accessed on 10 May 2023).	alananita
101	I let chatGPT be my Japanese teacher for a day. Here's what happened.	Ty's Take
102	Asking ChatGPT Tricky Chinese-Learning Questions! Am I Replaced?!	Rita Mandarin Chinese
103	How To Learn Languages Extremely Fast with ChatGPT|Using ChatGPT To Learn Languages (2023)	Learn & Do
104	How to use Chat GPT for learning English?|learn English with Chat GPT|#openai #chatgpt	English with Bilal
105	What Is ChatGPT & How Can It Be Used for Language Learning?	Steve Kaufmann—lingosteve
106	CHATGPT and Learning ENGLISH- Learn a language with CHATGPT	EMI-PD Academy
107	Using ChatGPT-3 for Language Learning Conversations (Japanese, Brazilian Portuguese, French)	Mark Bacon
108	211. How to Use AI and ChatGPT to Study English?	Thinking in English Podcast
109	Can ChatGPT Teach You Natural Japanese?	That Japanese Man Yuta
110	Struggling with a Foreign Language? Can ChatGPT's AI Tutor be the Solution You've Been Looking For!?	Jacob A 艾远航
111	AI baffles Latin teacher 🧑‍🏫 ChatGPT speaks Latin	polýMATHY
112	3 Steps to Reach Japanese Fluency with ChatGPT!	TaiseiJP
113	HOW i tried Learning Turkish Using CHATGPT (Mind blowing) Learn NEW LANGUAGES USING CHATGPT	Turkkenya Lifestyle
114	ChatGPT—THE END of English TEACHING?	RealLife English
115	Learn Japanese with Chat GPT-4 and a Japanese guy part1 #GPT-4 #japanese #chatgpt #nihongo	Japan TV
116	Introducing ChatGPT|What is ChatGPT|You're AI Language Companion	Upskill
117	ChatGPT: The Revolutionary Natural Language Processing Model with Limitations and Promising Future	Crypto BETA
118	Learn English with Chat-Gpt||Chat-Gpt in Pashto	The UL English
119	Using ChatGPT for learning English—Video 34	EasewithEnglish2022
120	Using ChatGPT for LANGUAGE LEARNING—This Video Will Save You HOURS!!!	Andrew
121	Why You Should Learn Chinese Despite ChatGPT? How Learning Foreign Language Can Upgrade Your Brain?	ChineseWei
122	Learn English with ChatGPT—Use Artificial Intelligence as your English teacher for free	Aleena Rais Live
123	Using ChatGPT for Language Learning	AI For Freedom
124	How to set language learning goals with ChatGPT	AI Mastery
125	Learn English with ChatGPT|5 Ways to Improve English with ChatGPT	English with Shivangi Gupta
126	learn English with chatGPT|Master English with Chatgpt|Tips and Tricks for Fluent Communication	Star Diggly
127	How chat GPT can help learning English	Armando Severino New Technologies
128	Can ChatGPT become your English Teacher|Learn English with ChatGPT|AI Artificial Intelligence	English with Shivangi Gupta

No	Video Title	YouTuber
129	President Obama: ChatGPT, AI, and the Future of Language Learning	Language Boost
130	Information Talks—Using ChatGPT for Learning	Sigma Technology Group
131	Use ChatGPT to learn english—Improve your english with ChatGPT	English Solo
132	how to learn any country language using chatGPT	Drop School_tz
133	Language Instructor Assistant Tutorial: ChatGPT Prompt Expert Tips|Webcafe Prompts	Webcafe AI
134	Using ChatGPT to Learn Japanese—Translation Practice	The Japanese Page
135	how can chatGPT help us with language learning?	İclal
136	Using ChatGPT 4 to Practice Japanese Translation—Learn Japanese with AI Chatbots	The Japanese Page
137	How to Translate English Language in Urdu/Hindi using ChatGPT	Code With BZ
138	Use ChatGPT to be fluent in English Language #learnenglish #improvinglish	Improvinglish
139	Revolutionizing Education: How Chat GPT is Changing the World's Learning Landscape	Ai Revolution
140	Which is better for learning Japanese? ChatGPT 4 or Bing Chat?	The Japanese Page

References

Baidoo-Anu, David, and Leticia Owusu Ansah. 2023. Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4337484 (accessed on 10 August 2023).

Chao, Chin-chi. 2022. Being a YouTuber that language learners recognize: A study on constructing language teacher identities in social media community of practice. *System* 109: 102860. [CrossRef]

Cooper, Kindra. 2021. OpenAI GPT-3: Everything You Need to Know. *Springboard*, November 1. Available online: https://www.springboard.com/blog/data-science/machine-learning-gpt-3-open-ai/ (accessed on 10 August 2023).

Cox Communications. 2023. Guide to ChatGPT for Parents and Caregivers. Cox Communications—Residential Articles. Available online: https://www.cox.com/residential/articles/guide-to-chatgpt-for-parents-and-caregivers.html (accessed on 10 August 2023).

Gally, Tom. 2023. *Close Enough to Human: Artificial Intelligence and the Future of English Education*. Komaba: Department of English Language, The University of Tokyo, pp. 35–44. Available online: https://www.gally.net/writings/2023_Close_Enough_to_Human.pdf (accessed on 10 August 2023).

Haque, Mubin Ul, Isuru Dharmadasa, Zarrin Tasnim Sworna, Roshan Namal Rajapakse, and Hussain Ahmad. 2022. "I think this is the most disruptive technology": Exploring sentiments of ChatGPT early adopters using Twitter data. *arXiv* arXiv:2212.05856. Available online: https://www.researchgate.net/publication/366212084_I_think_this_is_the_most_disruptive_technology_Exploring_Sentiments_of_ChatGPT_Early_Adopters_using_Twitter_Data (accessed on 10 August 2023).

Hine, Christine. 1994. The virtual objects of ethnography. Paper presented at 3rd International Conference on Public Communication of Science and Technology (PCST), Montreal, QC, Canada; pp. 10–13. Available online: https://perpus.filsafat.ugm.ac.id/wp-content/uploads/sites/230/2017/11/Virtual-Ethnography-.pdf (accessed on 10 August 2023).

Hong, Wilson Cheong Hin. 2023. The impact of ChatGPT on foreign language teaching and learning: Opportunities in education and research. *Journal of Educational Technology and Innovation* 5. Available online: https://jeti.thewsu.org/index.php/cieti/article/view/103 (accessed on 10 August 2023).

Huang, Weijiao, Khe Foon Hew, and Luke K. Fryer. 2022. Chatbots for language learning—Are they really useful? A systematic review of chatbot-supported language learning. *Journal of Computer Assisted Learning* 38: 237–57. [CrossRef]

Kohnke, Lucas, Benjamin Luke Moorhouse, and Di Zou. 2023. ChatGPT for language teaching and learning. *RELC Journal*. [CrossRef]

Kozinets, Robert V. 2002. The field behind the screen: Using netnography for marketing research in online communities. *Journal of Marketing Research* 39: 61–72. [CrossRef]

Luo, Queenie, Michael J. Puett, and Michael D. Smith. 2023. A perspective mirror of the elephant: Investigating language bias on Google, ChatGPT, Wikipedia, and YouTube. *arXiv* arXiv:2303.16281.

McAfee. 2023. A Parent's Guide to ChatGPT. McAfee Blogs—Family Safety. Available online: https://www.mcafee.com/blogs/family-safety/a-parents-guide-to-chatgpt/ (accessed on 10 August 2023).

Mhlanga, David. 2023. Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. *SSTN Electronic Journal*. [CrossRef]

OpenAI. 2022. ChatGTP: Optimizing Language Models Fordialogue. November 30. Available online: https://openai.com/blog/chatgpt/ (accessed on 10 August 2023).

Rettberg, Jill Walker. 2022. Algorithmic failure as a humanities methodology: Machine learning's mispredictions identify rich cases for qualitative analysis. *Big Data & Society* 9: 20539517221131290.

Rudolph, Jürgen, Samson Tan, and Shannon Tan. 2023. ChatGPT: Bullshit spewer or the end of traditional assessments in higher education. *Journal of Applied Learning and Teaching* 6. [CrossRef]

Sier, Jessica. 2022. CHATGPT takes the internet by storm, bad poetry and all. Australian Financial Review. December 8. Available online: https://www.afr.com/technology/chatgpt-takes-the-internet-by-storm-bad-poetry-and-all-20221207-p5c4hv (accessed on 9 January 2023).

Susnjak, Teo. 2022. ChatGPT: The end of online exam integrity? *arXiv* arXiv:2212.09292. Available online: https://www.researchgate.net/publication/366423865_ChatGPT_The_End_of_Online_Exam_Integrity (accessed on 10 August 2023).

Trabelsi, Omar, Mohamed Abdelkader Souissi, Swantje Scharenberg, Maher Mrayeh, and Adnene Gharbi. 2022. YouTube as a complementary learning tool in times of COVID-19: Self-reports from sports science students. *Trends in Neuroscience and Education* 29: 100186. [CrossRef] [PubMed]

Yurkevich, Vanessa. 2023. Experts Warn about Possible Misuse of New AI Tool ChatGPT. *WSAZ*, January 24. Available online: https://www.kktv.com/2023/01/24/experts-warn-about-possible-misuse-new-ai-tool-chatgpt/ (accessed on 10 August 2023).

Zavyalova, Ksenia, and Conor Galvin. 2022. Teachers as media creators and prosumers: Exploring the reasons & values behind their YouTube pedagogical activity. *Irish Educational Studies* 41: 187–200. [CrossRef]

Zhai, Xiaoming. 2022. Chatgpt User Experience: Implications for Education. December 27. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4312418 (accessed on 10 August 2023). [CrossRef]