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Empowering English as a Foreign Language Education With the Production-Oriented Approach: A Systematic Review

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Abstract: The field of English as a Foreign Language (EFL) instruction has gained recognition worldwide, particularly in non-native English-speaking countries. However, traditional teaching methods fall short of meeting the needs of today's EFL learners. In response, the Production-Oriented Approach (POA) has emerged as a new pedagogical approach to address these challenges. Despite its significant impact on EFL education, there is a lack of reviews on the POA. This study conducted a systematic review to explore the POA's effectiveness, challenges, and future trends. Using the PRISMA framework, 31 articles from reputable databases (Web of Science, Education Resources Information Center, Scopus, and Google Scholar) were analyzed, covering the years 2018 to 2023. The study's comprehensive analysis, employing Nvivo, revealed that the POA has immense potential for enhancing English learners' language skills, particularly in reading, speaking, writing, and translating. Moreover, the study highlighted the POA's positive influence on learners' affective factors, including motivation, confidence, critical thinking, and self-directed learning abilities. Nonetheless, the POA faces challenges for both teachers and learners, particularly during the transition from traditional methods and the associated increase in workload. Despite these challenges, this study unequivocally establishes the POA as an effective pedagogical approach for teaching EFL. Additionally, it identifies research gaps that must be addressed to sustain and improve EFL education in the future through further development of the POA.

Keywords: *English as a foreign language, language education, language skills, production-oriented approach, systematic review.*

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Introduction

The domain of teaching English as a Foreign Language (EFL) has garnered considerable global attention, piquing the interest of educators in diverse regions where English is acquired as a non-native language. Unlike English as a Second Language (ESL), where English is taught and practiced as a secondary language in an English-speaking milieu, EFL learners often encounter a relative dearth of opportunities for spoken English engagement compared to their ESL counterparts. Consequently, this poses distinctive challenges for EFL education. Over the years, teaching methodologies in the realm of EFL have undergone significant evolution. Each innovation has been crafted with the explicit goal of not only enhancing language learning but also promoting effective language usage among English learners. As the field of education grapples with contemporary sustainability challenges, there is an escalating emphasis on transformative processes, tangible outcomes, pedagogical approaches, learning content, and a fundamental reevaluation of existing learning contexts. This dynamic landscape underscores the need for EFL education to adapt and address the unique challenges posed by the limited opportunities for spoken English practice, ensuring a holistic and effective language learning experience.

Nevertheless, traditional EFL education often exhibits characteristics such as being "text-centered" and "input-based," leading to a disconnection between learning and practical usage, resulting in the production of what has been referred to as "dumb English" (Dai, 2001; Wen, 2018). Some innovative EFL teachers then have experimented with task-based

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teaching (Ellis, 2003) or project-based teaching (Markham, 2011) and have reported positive outcomes in students' English ability. However, researchers Wu and Pan (2012) pointed out the weaknesses of these approaches in over-focusing on using language without a full command of the linguistic forms, and they fail to adequately broaden students' knowledge base, language system, and discourse patterns (Wen, 2018). The traditional EFL teaching in China focus too much on input-based learning, inculcating learners in absorbing language through reading and listening, resulting in passive language acquisition, where learners understand the language but struggle to speak fluently. Furthermore, since the emphasis of traditional EFL is on comprehension rather than production, students may lack confidence and proficiency in actual conversation situations, with few opportunities for learners to practice using the language in authentic communication scenarios. As a result, students may find it challenging to apply their knowledge in real-life situations such as conversations, presentations, or interviews. Thus, as Wen (2015) pointed out, traditional EFL teaching failed to integrate language learning and using. In response to this limitation, the Production-Oriented Approach (POA) has emerged as an innovative pedagogical approach, revolutionizing EFL education by replacing the conventional "input-output" English learning with a novel process of "output-driven-input facilitated-output assessment" (Wen, 2015), bridging language learning and using with motivation and more opportunities for language using. POA theory also covers the advantages and makes up for the weaknesses of both task-based learning and project-based teaching by a design of production-Oriented approach with an enabling process for a master of language systems (Wen, 2018).

The POA theory was proposed by Chinese linguist Qiufang Wen together with her research team. It has undergone a development span of over fifteen years, commencing in 2007. The initial iteration of the POA centered on an output-Oriented theory, suggesting that output holds greater motivational power than input in encouraging university students to enhance their English proficiency and academic performance. The subsequent updated version evolved into a hypothesis that emphasized output as the driving force while acknowledging the enabling role of input. This revision aimed to delineate how input facilitates learning when output acts as the primary motivator (Wen, 2016). By October 2014, the POA had been fully developed into a comprehensive system. Since then, the POA was spread in international conferences, receiving positive feedback, constructive suggestions, and criticisms (Wen, 2014b, 2015), which subsequently led to further revisions. After a continuous process of experimentation, research, and revision. The culmination of these efforts resulted in the establishment of the final version of the POA in 2018, as depicted in Figure 1.

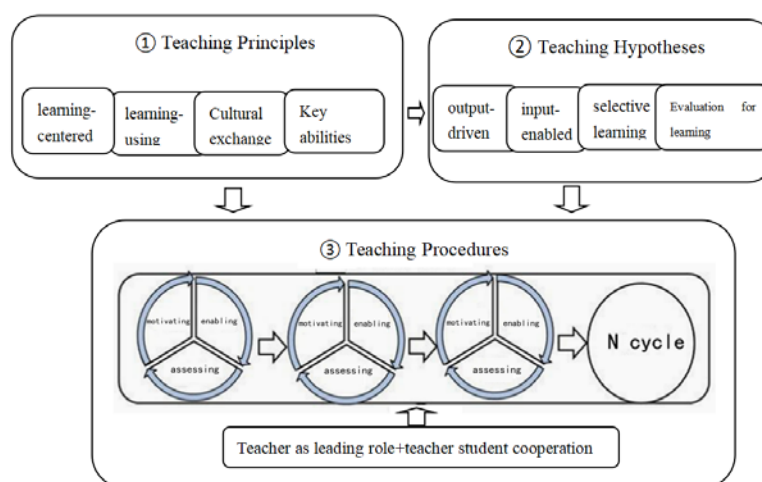


Figure 1. The Theoretical System of POA in 2018 (Wen, 2018)

The theoretical foundation of the POA is built upon four guiding teaching principles and four theoretical hypotheses. These principles serve as the fundamental concepts that inform the overall pedagogical framework, while the hypotheses provide the theoretical underpinnings upon which the teaching process is meticulously designed (Wen, 2018). The POA operates through a concise three-step process. Initially, in the "motivating" phase, students are presented with a production blueprint to ignite their interest. Subsequently, in the "enabling" phase, they acquire essential knowledge and skills. Finally, through peer collaboration and teacher-student assessment, students enhance their overall abilities and language skills. Throughout this process, the teacher serves as a guide, facilitating student motivation and aiding them in achieving the production goal.

Since its emergence, the Production-Oriented Approach (POA) theory has been a focal point for EFL researchers, capturing attention since its inception. In the past five years, there has been a notable upsurge in POA research, drawing interest from scholars worldwide. While existing literature attests to the positive effectiveness of POA in EFL teaching, it is crucial to note that previous review articles have predominantly analyzed related literature from Chinese databases. However, as the literature shows, POA was powerful in enhancing EFL learners' language-using ability, it has potential for EFL education in a worldwide scope, hence a systematic review is essential for all the stakeholders in

language education. Consequently, there remains a significant research gap, as there is no comprehensive systematic review of POA across international databases.

This paper addresses this lacuna by conducting a systematic analysis of relevant POA literature sourced from four key databases: Web of Science (WoS), Education Resources Information Center (ERIC), Scopus, and Google Scholar. The analysis encompasses various facets of POA, including its development, application, effectiveness, drawbacks, and more. Given the sophistication of the POA theory since 2018, the study's temporal scope is limited to the years 2018 to 2023.

By providing a comprehensive panorama of POA research, this paper is poised to be of significant interest to EFL educators seeking to sustain the development of EFL education. Additionally, it serves as a valuable guide for EFL researchers, offering insights and perspectives that extend beyond the confines of regional literature. Furthermore, this paper can be a valuable reference not only for those involved in EFL education but also for researchers exploring language education in broader contexts. The research questions are as follows:

RQ1: What are the application fields involved in POA in EFL?

RQ2: What are the targeted language skills or abilities in POA applications?

RQ3: What is the effectiveness of POA for EFL?

RQ4: What are the challenges in POA teaching?

Methodology

Research Design

This systematic review was conducted by adhering to the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA). This review follows the PRISMA 2020 checklist which is a guide for a systematic review with 27 items for a checklist to improve clearness and transparency (Page et al., 2021). Abiding by the methods of the PRISMA checklist, this research has used the PRISMA 2020 flow diagram as shown in Figure 2 with four phases, namely identification, screening, eligibility, and included. The PRISMA is commonly used and preferred by review researchers because of its comprehensiveness and adaptability. Figure 5 shows the process of the systematic review.

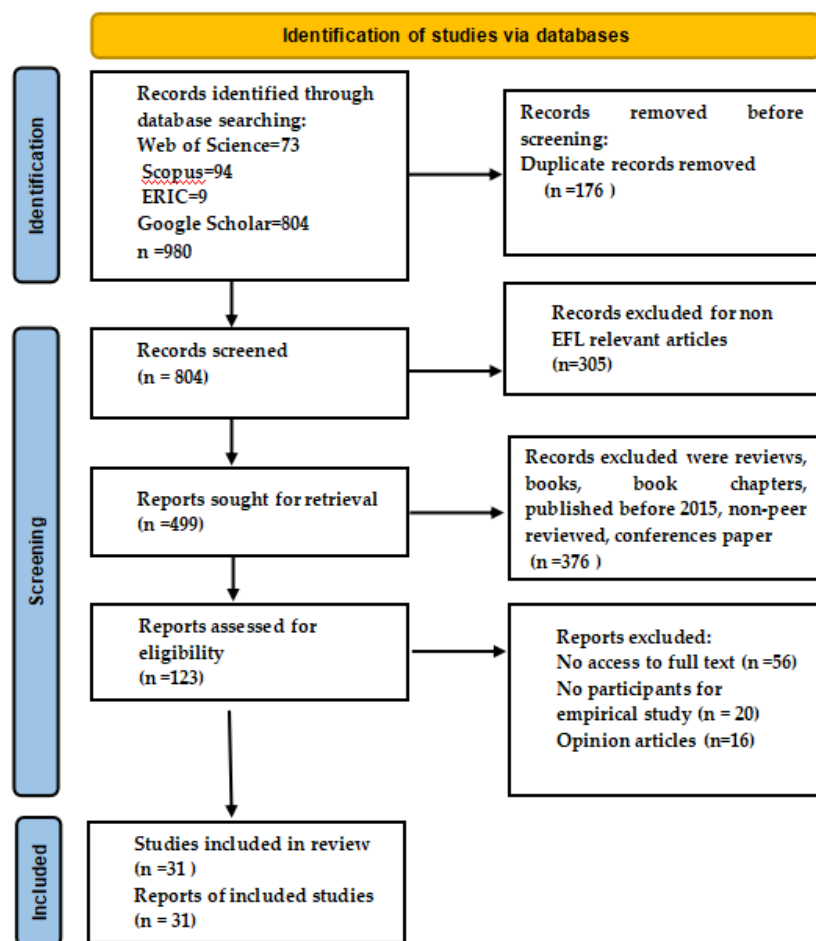


Figure 2. PRISMA Diagram for This Study

Identification

Adhering to the PRISMA 2020 checklist, the first step of data collection is the identification of the PRISMA diagram. Four databases were chosen as they were comprehensive and recognized for systematic reviews: Web of Science, ERIC, Scopus, and Google Scholar. Relevant publications of POA were identified through the following strings from 2018 to 2023, as these years witnessed a growing amount of POA publications since the last revision of POA theory.

Table 1. Search Strings Used in the Study

Database	Search String
WoS	"Production-Oriented Approach" AND ("EFL" OR "English" OR "English learning" OR "English Teaching" OR "English education" OR "language teaching")
ERIC	"Production-Oriented Approach"
Scopus	"Production-Oriented Approach" AND ("EFL" OR "English" OR "English learning" OR "English Teaching" OR "English education" OR "language teaching")
Google Scholar	"Production-Oriented Approach" AND ("EFL" OR "English")

Screening

The screening process comes after the identification phase, whereby duplicate articles ($n = 176$) were excluded. The rest 804 articles were then screened by the title, keywords, and abstracts with the notion that they were relevant to English as a Foreign Language teaching or learning. A total of 305 articles were then excluded as they were irrelevant to the aim of this study. The rest articles sought for retrieval ($n=499$) were screened for excluding records such as reviews, books, book chapters, articles published before 2018, non-peer reviewed, and conference papers. As a result, 123 articles were left for eligibility assessment. Among these, 56 articles were excluded for no access to the full texts, 20 articles were excluded in that they did not have any participants for the empirical study, and 16 opinion articles were excluded as they serve no significance for the aim of the study. After careful selection with the screening criteria for inclusion and exclusion shown in Table 2, 31 articles were included in this systematic review.

Table 2. Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Articles related to EFL	Not related to EFL
Articles from journals	Reviews, books, book chapters, conference papers
Articles published after 2018	Articles published before 2018
Full texts access	no access to the full texts
Empirical studies with participants	Empirical studies with no participants, opinion articles

Included

After the screening process, 31 articles from 2018 to 2023 were included as eligible for this systematic review. These articles revolving around the POA theory and EFL presented trenchant empirical evidence of POA research for EFL education. Among those included articles, six articles were from ERIC, twelve from Scopus, ten from WoS, and the rest from Google Scholar. They were included with the criteria to answer the current research questions. Hence the 31 articles demonstrate a variety of application fields in different levels of education, the different focus of language skills in EFL, and multiple effectiveness of POA, as well as certain challenges of POA.

However, there still exists some risks of bias because of some potential limitations of the selected articles. For one thing, most of the articles have been based on a limited sample size or specific population in China, potentially leading to sample bias that the findings may not be representative of the broader population. For another, the articles may be primarily sourced from English-language journals, potentially overlooking relevant research published in other languages. This language bias can limit the diversity of perspectives included in the analysis. To ensure the robustness and validity of our systematic review, several measures were taken to address potential sources of bias. Strict inclusion and exclusion criteria were established a priori, guided by the research question, to minimize selection bias. These criteria were applied consistently across all stages of study selection to ensure that only relevant studies meeting predefined criteria were included.

Data Analysis

The final samples were reviewed carefully with full text to identify the research aims, samples, and findings. Then a thematic analysis was conducted through a software program, Nvivo. The themes of the 31 articles were coded in Nvivo to answer the following four research questions:

- (1): What are the application fields involved in POA in EFL ?
- (2): What are the targeted language skills or abilities in POA applications?
- (3): What is the effectiveness of POA for EFL?
- (4): What are the challenges in POA teaching?

The first step was to code the data using NVivo software. This involved identifying keywords or phrases relevant to the research questions and applying appropriate codes to them. For example, for the first research question, keywords representing the application fields were identified and coded. Similarly, keywords related to the second research question were coded accordingly. After coding, word cloud or word frequency queries were utilized to visualize the data. This helped to identify prominent themes or patterns within the coded data. By examining the word cloud or frequency query results, researchers could gain a clear understanding of the key concepts or topics related to each research question. For the third and fourth research questions, which were deemed more complex and comprehensive, a more intensive thematic analysis approach was employed. This involved carefully reading through the full texts associated with these questions to gain a deeper understanding of the data. NVivo was then utilized for thematic analysis of the effectiveness and challenges related to these questions. This involved systematically organizing and analyzing the coded data to identify overarching themes, patterns, and relationships within the data set. Through iterative analysis, themes were developed based on recurring patterns, similarities, and differences identified within the data. This process allowed for a nuanced understanding of the effectiveness and challenges related to the research questions. By employing a combination of coding mechanisms, word frequency queries, intensive reading, and thematic analysis using NVivo, the research team ensured methodological rigor in the analysis process. The findings derived from these analyses were then used to inform the discussion and conclusions of the study.

Results

RQ1: What are the application fields involved in POA in EFL ?

In this systematic review, the application fields involved in POA were classified into postgraduate, university, college, vocational school, senior high school, and junior high school. Through a thematic analysis of the articles' participants, a word frequency query result is reduced as depicted in Table 3. The table illustrates that POA is applied in all kinds of education levels except for primary schools. University applications weighted an absolute proportion with a count of 21 studies, including 20 on undergraduate students and 1 on postgraduate students (Z. Wu & Wei, 2022). 3 studies focused on a college education (Q. Wang, 2022; X. Wang & Yan, 2022; Zhang & Choe, 2020), 3 on senior high schools (X. Liu, 2021; G. Liu & Zhang, 2022; Sun & Asmawi, 2022), 2 on junior high schools (G. Liu & Zhang, 2019; Zhu et al., 2020), and 1 on vocational schools (Shu, 2022). Regarding the places, most were applied in China, with only two in other countries, such as Hungary (Yin, 2019) and Korea (Balázs, 2020).

Table 3. Word Frequency Query Result of Participants' Education Level from Nvivo

Word	Length	Count	Weighted Percentage (%)
university	10	18	43.90
school	6	5	12.20
college	7	3	7.32
high	4	3	7.32
senior	6	3	7.32
universities	12	3	7.32
junior	6	2	4.88
hungarian	9	1	2.44
korea	5	1	2.44
postgraduates	13	1	2.44
vocational	10	1	2.44

This result shows a strong proportion of education level over the high school, which is in accordance with Wen's (2018) suggestion that POA was designed initially for students with a certain foundation of English ability because it is needed for the production activity. Such an attempt at the application in junior school found that the student's English skills were not qualified for successful production (Zhu et al., 2020). The other application in another junior high school conducted by G. Liu and M. Zhang (2019) noted that the drawback of the summative assessment in junior school was inconsistent with the concept of POA (Shu, 2022). Three years later in 2022, G. Liu and M. Zhang applied POA to a senior high school and found a better effect on EFL teaching. Applications in senior high school (X. Liu, 2021; G. Liu & Zhang, 2022) all demonstrate a positive effect of POA in not only improving students' English skills but also promoting students' interests, enthusiasm, and confidence in English learning. However, the amount of research in this field is too

little since most research focuses on the university level; hence the current study calls for more attention from POA researchers on high school.

Regarding application in vocational college, the author (Shu, 2022) reports that POA is suitable for students in vocational schools with the character of a strong need for practical vocational activities because POA's design of the production activity can effectively improve students' practical ability with a set goal of production, drive students' interest in EFL learning and improve students' autonomous learning and motivation in EFL.

The college application shares almost the same effect with universities. In that research in China's tertiary education, POA is generally examined and investigated with experimental studies with various EFL courses. Overall, it presents a positive effect on universities and colleges in China. In Korea, the study investigated the effectiveness of POA by interviewing 18 pre-service EFL English teachers and found that POA helped improve students' writing ability and that teacher-student collaborative work in POA had contributed to positively affecting students' English reading and writing. Whereas in Hungarian university, the author (Yin, 2019) suggests an alternation of POA in the Hungarian context so that it can work better for EFL improvement.

RQ2: What are the targeted language skills or affective factors in POA applications?

This review is conducted in the context of EFL. However, the focus of POA teaching in this review varies from global English proficiency to different micro language skills of EFL. Furthermore, some articles also targeted other abilities of affective factors besides language skills. Generally, POA was examined for its effectiveness on the above-mentioned language skills or affective factors. Table 4 presents the targeted language skills or affective factors focused on POA in EFL.

Table 4. Targeted Language Skills or Affective Factors in POA Applications

Targets	Studies
English writing	(Yin, 2019; Du, 2022; Liu, et.al., 2020; W. Zhang, 2020; Z.Wu & Wei, 2022; X. Wang, 2022; X. Liu, 2021; G. Liu & Zhang, 2019)
English speaking	(Asmawi & Sun, 2023; Li, 2018; G. Liu & Zhang, 2022; Sun & Asmawi, 2022)
English Reading	(J. Zhang, 2019), (Wang & Yan, 2022)
English translation	(Qi, 2022)
English interpreting	(Guo, 2020)
English grammar	(Zhang & Choe, 2020)
Global English proficiency	(Balázs, 2020; Li et al., 2022; Qiu, 2020; Sun, 2020; Xie, 2021; Yang, 2022)
"Autonomous learning"	(J. Shu, 2022)
"Students' motivation"	(Li et al., 2022; Ren & Wang, 2018)
"Enthusiasm for English learning"	(X.Wang, 2022)
"Critical thinking skills"	(Lei & Mokhtar, 2023; X. Liu, 2021)

A majority of studies targeted micro English skills such as reading, writing, speaking, translation, interpreting, and grammar. Writing is the most frequently focused skill in these studies since eight of them are targeted at improving students' English writing skills (Yin, 2019; Du, 2022; Liu et al., 2020; W. Zhang, 2020; Wu & Wei, 2022; Wang, 2022; X. Liu, 2021; Liu & Zhang, 2019). Du (2022) reported that POA can effectively increase EFL students' writing levels in ideological content, organizational structure, and language. Liu and Zhang (2019) noted that POA enabled students to enhance their language quality in English writing because students can get more opportunities to use language in POA teaching. X. Liu (2021) claimed that under the guidance of POA teaching, students can get to know their shortcomings in English writing which facilitates a more purposeful writing practice. It was also noted by W. Zhang (2020) that POA helped students use language more effectively in writing. Wu and Wei (2022) reported that the POA helps students generate writing ideas, cultivate in-depth analysis abilities, and boost students' motivation and self-confidence in academic English writing. Interestingly, while Liu, et al. (2020) noted that POA improved students' accuracy in English and significantly increased targeted connectives, no significant difference was identified in writing scores caused by POA. Four Research targeted oral English or English-speaking skills with a POA application. Asmawi and Sun (2023) examined POA's influence and reported a positive effect on students' oral English in terms of vocabulary, pronunciation, and fluency, which is similar to Li (2018) research that focuses on POA's influence on fluency, expressions, and use of advanced words in spoken English. Liu and Zhang (2022) and Sun and Asmawi (2022) didn't note any specific pattern of oral English but discussed an overall change in English speaking ability caused by POA. Regarding English reading, J. Zhang (2019) focused on literature reading, and Wang & Yan (2022) emphasized reading comprehension. The other studies targeted English translation (Qi, 2022), interpreting (Guo, 2020), and grammar (Zhang & Choe, 2020) in a general view without a specific description of each skill. Five studies (Balázs, 2020; Li et al., 2022; Qiu, 2020; Sun, 2020; Xie, 2021; Yang, 2022) targeted students' global English proficiency by designing POA modules. Most of them examined the effect of pre-post tests on students' English level and generally reported a positive effect of POA on students' EFL academic level.

The other research targeted improving other abilities apart from language dimension in the application of POA, most of them affective factors. The current review identified six studies designing a POA teaching aiming at developing students' level of "autonomous learning" (J. Shu, 2022), "students' motivation" (Li et al., 2022; Ren & Wang, 2018; "enthusiasm for English learning" (Wang, 2022), and "critical thinking skills" (Lei & Mokhtar, 2023; X. Liu, 2021). J. Shu (2022) conducted a POA teaching in SPOC mode to examine its effect on vocational college students' autonomous learning, as a result, students have developed their autonomous learning with more interest and enthusiasm in EFL. Research (Ren & Wang, 2018) examined POA's effect through an experiment to identify students' changes in intrinsic and extrinsic motivation. The data proved that students' intrinsic motivation had generally increased while extrinsic motivation had declined. This demonstrated that, as the authors put it, students had come to enjoy learning English instead of relying on the extrinsic benefits of EFL learning. Consequently, Ren and Wang concluded that POA is of great significance in promoting EFL students' motivation. Li et al. explored the effectiveness of POA and found the key attractor basin lay in POA's "output tasks, group discussion, teacher guidance, and peer assessment", which promotes learners' belief in achieving language acquisition and thus enhance their confidence and boost their motivation. Wang (2022) experimented with advanced English teaching and reported that POA theory is feasible in creating a positive classroom atmosphere, motivating students to be active in EFL, and therefore boosting students' enthusiasm for EFL. Lei and Mokhtar used the Critical Thinking Disposition Questionnaire to examine POA's effects and found a significant development in students' critical thinking skills. X. Liu reported similar results, but it highlighted the intermediary role of the teacher that facilitated independent and critical thinking for the students.

RQ3: What is the effectiveness of POA for EFL?

Most research focused on examining or investigating the effectiveness of POA. Overall, the current study identified a positive impact of POA on EFL teaching. The effectiveness was expounded in different dimensions such as academic improvement and affective factors. To be more specific, academic improvement was explored in different language skills as mentioned in the above section. The affective factors, however, are more diverse and nearly sprayed in all the studies. In other words, the studies show an extensive scope of POA's effectiveness.

As for English academic influence, a majority of research proved that POA had a positive impact on developing learners' language skills. What is worth mentioning is that the studies used a variety of ways to conduct the POA and investigate its effectiveness. Some studies used comparative methodology to prove that POA is more effective. For example, Li (2018) conducted an experimental study comparing a PPP (Presentation, Practice, Production) teaching group and a POA teaching group. The result shows that learners in the POA group ended up with more fluent speaking with the use of advanced words and expressions. Liu et al. (2020) compared POA teaching with PWA (product writing approach) teaching in experimental research and found that POA is more capable of motivating learners in commanding English writing strategies. W. Zhang (2020) compared the effect of POA with that of the IRA (Intensive Reading Approach) and revealed POA's comparative advantage in supporting students' language-using ability. Other studies have conducted POA research with the facilitation of other models. For instance, Zhao & Li (2021) combined POA with a flipped classroom teaching model and testified to POA's effect on enhancing EFL learners' oral production ability. Asmawi and Sun (2023) reported that POA positively increased learners' oral English learning based on OTL (online teaching and learning). Qi (2022) applied POA and DLM (deep learning model) to English translation teaching and claimed that POA had raised learners' translation ability by more than 30%. Wang and Yan (2022) present an innovative combination of POA with AI, it turned out that "the POA under AI is more effective in improving the English reading level of college students". Although the studies generally share a positive effect from POA, it should be noted that Liu et al. (2020) reported no significant difference in English writing scores caused by POA, though it claimed that POA is more capable of promoting learners' language accuracy and significantly manifold the output of connectives in English writing.

Regarding the effectiveness of learners' affective factors, application studies of POA also depict a positive impact. The review certified varied affective factors promoted by POA, as is shown in Table 5. Five studies (Guo, 2020; Li, Zhou & Zhang, 2022; Z. Wu & Wei, 2022; Liu & Zhang, 2022; J. Shu, 2022) reported an enhancement in learners' confidence in EFL from POA teaching. Four studies (H. Zhang, 2020; Liu & Zhang, 2022; Zhu et al., 2020; J. Shu, 2022) identified POA's facilitation for students' learning interests. Three studies (Guo, 2020; Li et al., 2022; Wu & Wei, 2022) noted an increased motivation among EFL learners in POA, which is similar to the report of improved "learning initiative" (Du, 2022) and "active participation" (H. Zhang, 2020; W. Zhang, 2020), and "enthusiasm" (Qi, 2022; J. Shu, 2022). Wang (2022), Xie (2021), and Zhao and Li (2021) then claimed a promotion of "autonomous learning or self-regulation" through POA teaching. While Qiu (2020), Ren and Wang (2018), and Liu and Zhang (2019) stated POA's effect by a general saying of driving learners' "positive attitude" and "positive emotional experience". Critical thinking skills are another effectiveness stimulated through POA teaching (Lei & Mokhtar, 2023; L. Zhang, 2020; X. Liu, 2021). The other research highlighted POA's positive effects on "self-recognition" (Guo, 2020), "a stronger sense of achievement" (W. Zhang, 2020), "arousing students' learning potentials" (Wang, 2022), and boosting "ability of in-depth analysis and innovation" (Z. Wu & Wei, 2022). Interestingly, J. Shu examined the effect of POA by implementing it in a SPOC mode and found improvement in students' enthusiasm, practical application ability as well as learning interest.

Table 5. Improved Affective Factors From POA Research

Improved affective factors	Studies
"learning initiative"	Du, 2022
"self-recognition"	Guo, 2020
"Motivation"	Guo, 2020; Li, Zhou & Zhang, 2022; Z. Wu & Wei, 2022
"positive emotional experience"	Liu & Zhang, 2019
"learning interests"	H. Zhang, 2020; Liu & Zhang, 2022; Zhu et al., 2020; J. Shu, 2022
"enthusiasm"	Qi, 2022; J. Shu, 2022
"positive attitude"	Qiu (2020), Ren & Wang (2018)
"arouses students' learning potentials"	Wang, 2022
"ability of in-depth analysis and innovation"	Wu & Wei, 2022
"autonomous learning or self-regulation"	Wang (2022), Xie (2021), and Zhao & Li (2021)
"Critical thinking skills"	Lei & Mokhtar, 2023; L. Zhang, 2020; X. Liu, 2021
"confidence"	Guo, 2020; Li, Zhou, & Zhang, 2022; Z. Wu & Wei, 2022; Liu & Zhang, 2022; J. Shu, 2022
"active participation"	H. Zhang, 2020; W. Zhang, 2020
"a stronger sense of achievement"	(W. Zhang, 2020)

RQ4: What are the challenges in POA teaching?

Since POA is such a young and novel theory, educators or learners may encounter some challenges in POA teaching. The reviewed studies in this current research revealed certain challenges for both teachers and students. For teachers, challenges for POA teaching lie in the relatively complex design of POA, which has higher demand and workload and few references. Guo (2020) noticed that when implementing POA, all the production activities, such as designing, teaching material selection, and off-hand comments on production activities, are very challenging. More importantly, he pointed out that the biggest challenge is "the transition of the teaching idea" (p44), during the process, teachers must strike a balance "between teachers' function of scaffolding and students' independence". Several studies (Asmawi & Sun, 2023; Zhao & Li, 2021) reported the challenges of the workload of POA as it demands a large amount of time to prepare the teaching material, update pedagogical practice, and customize assessment criteria. H. Zhang (2020) pointed out that teachers need to refresh their methods and tailor them to the needs of students, designing varied activities to suit different students' characteristics. Wang (2022) emphasized that POA challenges teachers' teaching ability in promoting students' production. In addition, Liu and Zhang (2019) pointed out POA's challenge as few teaching practices and scarce textbooks to be referenced by the teacher before the application. Balázs (2020) called for an alternation of the POA-based textbook to fit the characteristics of Hungarian education.

On the other hand, students also faced some challenges in POA learning. H. Zhang (2020), Zhao & Li (2021), and Wu & Wei (2022) all highlighted the transformation role of students from traditional teaching. It is reported by H. Zhang (2020) that students had to step out of their comfort zone and transit their mindset about English learning, which coincides with Zhao & Li (2021) that highlighted students' transition to the new assessment criteria in POA. Z. Wu & Wei (2022) noted the importance of students' subjective initiative in POA which is a challenge for students who are accustomed to traditional learning.

Conclusion

The current systematic review attempted to provide a panorama of related POA research within the EFL education field in terms of its application fields, targeted skills, effectiveness, and challenges. Overall, transparent reporting of the systematic review methods and findings was ensured following established guidelines such as PRISMA. These measures were undertaken to minimize bias and enhance the credibility and reliability of the systematic review findings. The findings showed a substantial interest over the last five years of EFL researchers in POA. The review depicted a wide scope of application fields of different educational levels, as well as a diverse focus on language skills and affective factors. More importantly, it is safe to say most researchers in this review agree that POA is effective in EFL teaching, though there may be some challenges for teachers and students in POA.

In terms of application fields, university applications were identified to be the most dominant research. This is because the POA initiator Wen highlighted that the POA will better suit young adult learners with intermediate English proficiency who have already acquired more than 2,000 high-frequency English words and basic English grammar (Wen, 2018). Therefore, it's more feasible to conduct POA in universities or colleges. Hence there are three college studies and one vocational application on it. However, there are still attempts in senior high schools and junior high schools. Senior high school applications reported a feasible and effective POA teaching, but junior high indeed noted the problems of students' poor production ability and summative assessment that may hinder the smooth implementation of POA (J. Shu, 2022). Consequently, POA can better suit EFL education above the senior school level. However, since

there are few applications in senior high schools and vocational colleges, this study calls for more POA research at these education levels.

Next, regarding the targeted language skills and affective factors. Concerning targeted language skills, the review identified the two most frequently focused language skills are English writing and English speaking. This could be explained by the fact that writing and speaking skills are the basic output of English learning, which is compatible with the POA's intention for an output of language especially in language use (Wen, 2018). Other output skills such as English translation and interpretation skills were targeted as well but only were identified in two studies in this review, hence leaving a research gap for more related research. On the other hand, the research found interesting targets of POA research at learners' affective factors. Factors such as learners' English learning motivation, confidence, interests, and enthusiasm are pervasive among the reviewed studies. These factors are all common positive affective factors in EFL learning, which are very possible to be promoted through POA's process because motivation and interests could be encouraged during its "motivating phase", while confidence can be enhanced through "the enabling phase" and "assessing phase", thereby enthusiasm can be stimulated by the production activities (Schaller-Schwaner, 2018). In addition, autonomous learning and critical thinking were also covered as a target of the POA research, this is because POA has the principle of "key abilities" as in autonomous learning and critical thinking (Wen, 2008). For one thing, through the POA theory's teaching hypothesis and teaching process, a demand for students to overcome their sluggishness and dependency on EFL and form a habit of self-directed learning to accomplish the production activities in POA, thus provoking students' autonomous learning or self-directed learning. For another, critical thinking ability can be developed through the assessing phase in POA whereby students are required to do critical thinking about their production performance (L. Zhang, 2020; X. Liu, 2021). However, few studies targeting these two factors were identified.

Perhaps the most concerned issue of this review is the effectiveness of POA. In general, this systematic review reported a broad scope of POA's effectiveness in either language skills or affective factors. Most of these studies conducted experiments with random sampling method, minimizing selection bias in the studies. A vast majority of the studies conducted experimental research of POA, demonstrating an improvement of students' language ability in details, such as language accuracy, language use, vocabulary, etc. (Du, 2022; Wang, 2022; Asmawi & Sun, 2023; Li, 2018). In the meantime, students' affective factors were found to have been promoted as well. Researchers surprisingly noticed POA's positive influence on boosting students' motivation, confidence, learning interests, enthusiasm, positive emotions, learning initiatives, autonomous learning, and critical thinking. The reason may lie in the attractor basin including POA's production activities, teacher guidance, group discussion, and peer assessment (Li et al., 2022). It is noteworthy that several new models have emerged to enhance the effectiveness of the POA method. These include the SPOC model, DLM, Flipped Classroom model, and AI integration, indicating a growing trend of combining POA with technology-based learning models. However, it is important to acknowledge the potential for publication bias in studies evaluating these models. Studies with statistically significant results or positive findings are often more likely to be published than those with null or negative results. This tendency can result in an overestimation of treatment effects in the published literature and may lead to an incomplete representation of the evidence base. Consequently, it is essential to consider this bias when analyzing the effectiveness of the POA method.

These findings were consistent with previous literature reviews from Yang (2021) and Li & Zang (2021) in proving the effectiveness of POA in EFL teaching and learning. However, this study had identified distinct findings about the challenges in POA teaching from the perspective of both teachers and students. The most common challenge is the transition of their roles from traditional teaching to POA. For teachers, the POA demands a more comprehensive pre-class preparation, a more extensive design to suit different learner characters, a better teaching ability for POA implementation, and a heavier workload over the three phases of POA teaching. Furthermore, few references and immature POA-based textbook design are other drawbacks for POA researchers. As for students, they are required to push themselves out of their comfort zone in traditional learning and become more self-directed in the process of POA. The production activity and assessing criteria are also challenges for students to achieve. Nevertheless, challenges for both sides were not widely explored with only a little research attention. Yet there may be challenges on other perspectives that haven't been discussed in the studies.

Overall, this systematic review has identified research gaps of POA related study. First of all, more application fields of POA are recommended for researchers to explore, and for educators to investigate its effectiveness, especially in schools below the level of higher education such as high school and vocational school. Secondly, it is recommended that POA be applied in a wider scope of language skills such as translating and interpreting. Thirdly, although many studies have identified POA's effectiveness on learners' affective factors, this review found that current studies didn't precisely explore POA's influence on each affective factor, hence leaving a research gap for future studies. Finally, little attention has been paid to the challenges faced by educators and learners in POA implementation, calling for more related research in the future.

In summary, this study embarked on a meticulously crafted systematic review, delving into the realm of Production-Oriented Approach (POA) research in English as a Foreign Language (EFL) from the vantage point of four distinguished international databases. This endeavor seamlessly filled a conspicuous gap in the current landscape of systematic reviews on POA. The review meticulously curated 31 final articles sourced from esteemed repositories such as WoS, Scopus, ERIC, and Google Scholar, bringing forth a nuanced understanding of POA within the EFL context.

In navigating the trends within POA, the research uncovered four pivotal dimensions that warrant scholarly attention. While POA predominantly finds its application at the university level, the findings provocatively suggest its untapped potential in lower educational echelons, namely colleges and senior high schools. This insight beckons future explorations into the application of POA at these levels, albeit with a judicious caution against its application in junior high schools or below, considering the foundational requisites imposed on EFL learners.

Furthermore, the study elucidates the transformative impact of POA on enhancing EFL learners' language skills and affective factors. However, it illuminates a noticeable void in research on POA's influence on higher English language levels, such as translation and interpreting. It extends an invitation for further inquiry into the effectiveness of POA in cultivating students' self-directed learning and critical thinking abilities. The research also unveils avant-garde modes for POA, signaling a burgeoning trend in blended learning-based POA research.

While discussions on the challenges associated with POA were discernibly present, our research emphasizes their predominantly teacher-centric focus. We advocate for future investigations that pivot towards understanding challenges from the students' perspective, delving into aspects like the practical implementation of the POA, its feasibility, and challenges at each stage of the POA process.

This review stands as a significant contribution to the scholarly discourse on POA, offering profound insights into its application, targeted skills, effectiveness, and attendant challenges. Yet, it is imperative to acknowledge certain limitations. The predominantly quantitative nature of the included studies underscores a notable dearth of qualitative research on POA in EFL, creating an exciting avenue for future explorations into the acceptance of POA from both teachers' and students' perspectives. Additionally, the constrained geographical scope, centered mainly on three countries with a primary focus on China, presents a unique opportunity for researchers to widen their lens and scrutinize POA's application in diverse educational landscapes globally. Next, the inadequate research beyond Chinese database limits the generalizability of findings and calls for more comprehensive cross-cultural investigations. This gap highlights the necessity of incorporating perspectives from various cultural contexts to enrich our understanding of how POA operates across different educational systems. Moreover, the temporal aspect of the reviewed studies warrants attention. The majority of research in this area appears to be concentrated within a relatively narrow timeframe, potentially overlooking the evolving dynamics of EFL education and technology integration. As such, longitudinal studies could offer valuable insights into the sustained impact of POA on language learning outcomes and pedagogical practices over time.

In essence, while the existing research on the use of POA in EFL classrooms offers valuable insights, it also highlights several areas for future exploration and refinement. By addressing these limitations and embracing a more holistic and inclusive approach to research, scholars can contribute to a deeper understanding of the role of POA in enhancing language learning outcomes and pedagogical practices on a global scale.

Authorship Contribution Statement

Liu and Nasri: conceptualization, methodology, editing. Liu: data curation, writing—original draft, editing. Nasri: validation, review, and editing, supervision. Norman: Supervision/review.

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Appendix

Table A1. Analysis of the 31 studies included for this review.

Studies	Database	Aims	Samples	Findings
Balázs, F. (2020)	Google scholar	To provide insights into the effectiveness of the method as well as the coursebook in a non-Chinese context.	54 students at a renowned Hungarian university where all students specialize in a certain aspect of economics.	Under the POA theory, the transferability of the coursebook from the Chinese context to the Hungarian context requires certain alterations in the coursebook in order to make it more suitable for use.
Du, H. (2022)	Scopus, WoS, Google scholar	To design a college English writing teaching based on the output-Oriented approach (POA)	Two classes of first-year English majors in a normal university. 42 people in the control class, and 40 people in the experimental class.	POA teaching can effectively improve the writing level of English majors, it has had a positive impact on the ideological content, organizational structure, and language in students' writing. It can stimulate students' learning initiative.
Guo, X. (2020)	Google scholar	To design a POA teaching in English/Chinese Interpreting course.	36 non-English majors in English/Chinese Interpreting course in ZISU university in China.	Positive emotional experience is the main advantage of POA pedagogy in arousing students' desire for learning, confidence and self-recognition. But the POA is challenging for teachers in material selection, and instant comment of the output links, and transition in the process, and in striking a balance between teachers' function of scaffolding and students' independence.
Asmawi, A., & Sun, L. (2023)	Google scholar	To apply POA to Chinese undergraduates' oral English classes based on OTL during the covid-19 pandemic, specifically focusing on whether POA can increase the effectiveness of oral English learning for undergraduates.	two parallel classes of 60 college students majoring in engineering at Harbin Normal University, at Harbin city in China.	Findings revealed that the online teaching of speaking skills through the POA intervention had positively affected Chinese college students in terms of fluency, vocabulary, and pronunciation. Teachers applying online POA might face some challenges as they need more time to prepare class materials and update their pedagogical practice.
Lei, C., & Mokhtar, M. M. (2023)	Google scholar	To examine POA's effectiveness in developing students' critical thinking ability	49 students majoring in nursing in EFL course at a university	The design of College English teaching based on the POA theoretical framework has helped students to improve their critical English writing skills and to develop their positive thinking disposition.
Li, C., Zhou, C. and W. Zhang, (2022)	Scopus, WoS, Google scholar	To investigate the influence of an Intensive English Reading course based on POA upon the English MSS of Chinese university English majors from the DST perspective.	Two intact classes composed of 50 students were assigned into experimental group (EG) (N = 23) and control group (CG) (N = 27).	The POA model is effective in strengthening MSS among the participants, Ideal English Self and English Learning Experience in particular. Its attractor basin include Output Tasks, Teacher Guidance, Group Discussion, and Peer Assessment, which promotes a belief among the learners in the attainability of language acquisition and nurtures a belief that persistence and effort could contribute to English learning competence, enhance confidence and boost motivation. It enriches the present literature on English motivation in a POA-based context from a DST perspective and indicates the possibility of examining English motivation from a Positive Psychology lens.

Table A1. Continued

Studies	Database	Aims	Samples	Findings
Li, S. (2018)	Google scholar	To explore the impact of POA teaching to non-English majors' spoken English compared with PPP.	students from two pedestrian classes in a Chinese university	The POA teaching method is better than PPP in improving spoken English for non-English majors with a better effect on fluency, use of advanced words and expressions.
Liu, G., & Zhang, M. (2019)	Google scholar	To apply the POA in junior high school English writing teaching and examine its effects.	A class of 50 students in Grade 8 of junior high school	POA can provide students with positive emotional experience; students get more opportunities to use language. POA can improve the quality of students' language output through "enabling". few teaching practices and textbooks can be referenced by the researcher before the experiment. Summative assessment in junior high is inconsistent with the concept of POA.
Liu, G., & Zhang, M. (2022).	Scopus, Google scholar	To construct a teaching model combining POA and flipped classroom teaching model to enhance the oral production ability of high school students.	50 students from a senior high school in central China.	The teaching model can effectively enhance the oral English efficiency of senior high school students, draw students' interests and confidence in English learning.
Liu, X. (2021)	Google scholar	To find out teaching tactics of senior high English writing, aiming at cultivating students' critical thinking skills through English writing classes on the strength of the main teaching process in POA.	The English writing class in senior high school	POA has its obvious advantages in English writing classes with its output-input-output process, students obtain much driven force and realize their drawbacks in writing, so that they can learn what and how to write more purposefully. Students remain independent and critical thinking with the intermediary role of the teacher.
Liu, X., Yingjie, H., Zhen, Z. and Thomps on, J. (2020)	Scopus, Google scholar	To examine the effect of POA in English writing teaching.	110 sophomores of two parallel classes in a university in Ningxia	POA is more effective to help students master English writing strategies than PWA. Meanwhile, POA is more capable to improve students' language accuracy and increase the output of targeted connectives significantly instead of syntactic complexity of clause in English writing. Regarding writing scores, there is no significant difference caused by POA.
Qi, A. (2022)	Scopus, WoS, Google scholar	To verify the feasibility of POA and the EM algorithm for English translation teaching.	90 students in English writing class.	POA can effectively mobilize students' enthusiasm in translation learning, improve the efficiency of internalizing human knowledge into output ability, optimize teachers' teaching and significantly improve students' English translation ability and output application ability by more than 30%.
Qiu, L., (2020)	Google scholar	To explore how to apply theoretical principles of enabling to practice of POA.	72 students from different majors and grades in the course "Advanced English Reading and Writing" in one of the key universities in Beijing.	Enabling in POA instruction resulted in diverse structure, flexible use of language resources, and rich content. Participating students responded positively toward the enabling activities.
Ren, J. and Wang, N., 2018 (a) .	Eric, Google scholar	To investigate students' motivation in college English learning under production-Oriented approach.	Forty students in their first-year study in North China Electric Power University (NCEPU).	Most of the first-year students take positive attitude toward this new teaching approach. They tend to be more motivated in English learning under POA, although their motivation needs to be further strengthened.

Table A1. Continued

Studies	Database	Aims	Samples	Findings
Shu,J. (2022)	Scopus, WoS, Google scholar	To examine the effect of a POA based SPOC mode teaching in enhancing the English teaching effect particularly in improving students' autonomous learning in higher vocational colleges.	134 students from three classes in a higher vocational English course	The POA-based online course teaching mode is effective in higher vocational English teaching, students' practical application ability, learning interest, and enthusiasm have been improved, and students are also very satisfied with this teaching mode.
Sun, L. and Asmawi, A. (2022)	Scopus, Google scholar	To apply POA in oral English classes at a senior high school, specifically focusing on whether POA improves these students' oral performance and explores their acceptance of the POA.	Two parallel classes of 50 Chinese senior high school students	the POA can effectively improve senior high school students' oral English performance.POA has the ability to fully arouse students' enthusiasm for learning.
Sun, S. (2020)	Google scholar	To explore how the teacher prepared and implemented TSCA of POA in class, especially with a focus on how she determined the assessing objective and worked collaboratively with her students in class to achieve it, using the students' written and translated texts as examples.	Twenty students aged 18-19 years old English majors in a university in China in an EFL integrated course (Integrated English)	It is suggested that TSCA be used as an alternative to teacher, self-, peer- or computer mediated assessment in POA.
Wang, Q. (2022)	Google scholar	To design a college English reading blended learning based on Production-Oriented Approach to examine its effects on students' reading and writing competences.	experimental group and the control group, with 50 students in each Group of 2020 undergraduate English major in a college (in Henan, China),	English reading blended learning based on POA is practical and feasible. It improves the efficiency of students to transform the knowledge they have learned into application competency. It arouses the students' learning potentials and inherent potentiality. The delicate design of enabling is the key to guarantee the effects of output competences.
Wang, X. and Yan, K., (2022)	Scopus, WoS, Google scholar	To solve many problems in traditional English reading teaching, such as the passive acceptance of students' learning situation, the rigid teaching mode of teachers and the difficulty in taking into account the individual needs of each student, and the forced averaging of students' English learning ability and level by using POA with AI.	120 Non-English major sophomore students.	Compared with the traditional teaching method, the POA under AI is more effective in improving the English reading level of college students. It can accurately and quickly find problems in learning and Teaching.
Wu, Z., & Wei, L. (2022)	Google scholar	To examine the effectiveness of POA'S application in postgraduate EFL education.	Postgraduate students from 2 universities in China, 16 supervisors of the postgraduates	this teaching mode helps to generate students' ideas of writing research papers, cultivates students' ability of in-depth analysis and innovation, and greatly strengthens students' academic English writing motivation and self-confidence.but it calls for fully promoting a dynamic mutual transformation of teachers' role in teaching and students' subjective initiative in learning.
Xie, Q. (2021)	Eric, Scopus,Wo S, Google scholar	To design a production-Oriented teaching procedure and explore students' perception of it.	172 participants from English-major and non English-major programs	The majority of the groups considered the teaching activities, materials, and activities of POA as effective in English learning and enhancing autonomous learning. The groups preferred more practice, simulation, and cases in POA.

Table A1. Continued

Studies	Database	Aims	Samples	Findings
Xinmei, Wang (2022)	Scopus, Google scholar	To apply POA theory to Advanced English Teaching by decomposing the overall goal to sub-goals within a unit task, so as to stimulate students' enthusiasm for learning and willingness to produce.	22 juniors students majoring in Business English.	POA theory improves students' learning autonomy, makes their classroom performance more positive and active, gives full play to their potential, and improves their learning ability.
Yang, H. (2022)	Scopus, WoS, Google scholar	To explore the use of POA to carry out teaching, so as to verify the impact of this method on the English ability training of non-English majors.	178 non-English major students of a normal university in Guangxi.	Applying POA to English classroom teaching can indeed improve the level of domestic college English students and provide a reference approach and method for students' English training, and this method is effective and feasible.
Yin, J. (2019)	WoS, Google scholar	To examine the experiences of pre-service EFL teachers in a reading-to-write class with POA teaching.	18 pre-service EFL English teachers in Korea	The students learned how to read to become a better writer by moving away from decoding as they read and becoming more familiar with mining the text as a result of reading-to-write tasks that encouraged them carry out writerly reading. The teacher's guidance and collaboration were also found to have contributed in positively affecting students to conduct a more focused reflection and effectively connect reading and writing.
Zhang, C., & Choe, M. (2020)	Google scholar	To investigate the effectiveness of the production-Oriented approach (POA) on Chinese college students' acquisition of grammar.	Two groups of first-year college students (N = 92) participated in an intensive English course	POA group gained significantly more than the comprehension group in all the representational and productive accuracy measures. This suggests that the POA not merely helps learners to enhance language production skills but also enables them to be more conscious of grammar and use it accurately.
H. Zhang (2020)	Eric, Google scholar	to examine POA's effects on English learning and explore its implications for English instruction in the EFL context.	Twenty-two second-year students majoring in Applied English in a Sino-US cooperative education program in ZYUFL	under the POA model, students have demonstrated to be more interested and engaged in the learning process. Second, POA can promote students' learning efficiency by integrating learning and using simultaneously. The implementation of POA has also posed challenges for both teachers and students.
Zhang, J., (2019)	Google scholar	To construct a set of feasible ESP teaching mode for the major of textile engineering based on POA	260 undergraduate students in the School of Textile Engineering at Tianjin Polytechnic University.	POA can effectively improve students' literature reading, oral reporting ability under the guidance of textile engineering ESP teaching.

Table A1. Continued

Studies	Database	Aims	Samples	Findings
L. Zhang (2020)	Google scholar	To introduce the theory of POA and its application to College English teaching practice by adopting dialectal research (DR).	59 non-English major freshmen and sophomores in one of the national key universities of science and technology in central China	Some suggestions for motivating design are proposed: 1) In designing communicative scenarios, bi-directional intercultural communication and non native speakers of English as the major audience should be emphasized. 2) More options should be provided in setting productive objectives according to students' English proficiency levels and personal preference. 3) A variety of teaching materials should be prepared for students to select flexibly from to meet their cognitive challenges in knowledge and critical thinking skills. 4) A variety of motivating designs are encouraged in order to keep students constantly motivated and refreshed in language learning.
W. Zhang (2020)	Google scholar	To investigate the effects of the POA on college students' writing and compared its effect with that of the IRA ("Intensive Reading Approach).	Two intact classes, about 71 students in a law school of Chinese college.	POA might have a positive effect on learners' productive mastery of language and a comparative advantage in supporting learners to develop their abilities to use language effectively, learners reported more active participation and a stronger sense of achievement.
Zhao, S.R. and Li, H. (2021)	Eric, Scopus, Google scholar	To design a production-Oriented peer collaboration flipped learning (POPCFL) framework to help ensure the effects of pre-class learning in FL.	48 students of business English major, in their third year of university	POPCFL framework ensured quality pre-class preparation by urging students to finish various tasks, cultivating self-regulation and tackling problem of sense of isolation in online learning through peer collaboration. The "production," task list and final task of each chapter, played an essential role. But the problem of high workload was not settled.
Zhu, Y. X., Gong, X., Zhang, X., Li, R., & Zhang, M. A. (2020)	Google scholar	To examine the effectiveness of POA's application in junior high school.	16 junior high students from a junior school in Shandong, China	students have made progress in speaking and writing skills and have shown a significant increase in English learning interest. Meanwhile, this method has got a favorable reception of teachers and students. This study shows that POA can effectively overcome the weakness of "separation of learning and using", so it is an available method to improve the English ability of junior high school students.