

SYSTEMATIC REVIEW

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An analysis of the empirical research on SL/FL teaching and learning based on positive psychology: a systematic literature review

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Abstract

Despite the growing attention received by research on second language or foreign language (SL/FL) learning from the perspective of positive psychology (PP), a crucial gap persists. Over the past decade (2013–2022), scholars have yet to comprehensively elucidate how PP affects SL/FL learning outcomes. Specifically, the full - scale impact of PP on various aspects of language learning, such as different language skills (listening, speaking, reading, writing) and learners at diverse educational levels, remains unclear. Additionally, the underlying psychological and educational mechanisms through which PP exerts its influence on SL/FL learning have not been thoroughly explored. In the present study, a systematic literature review was conducted to review and analyze the empirical studies on SL/FL teaching and learning from the perspective of positive psychology. By analyzing 45 studies, the research objects, language and psychological dimensions and the research design were collected systematically. The findings showed that: (1) as a relative new research field, the number of publications is increasing rapidly, and the future development momentum is strong; (1) the research topics focus on the relationship between PP and SL/FL learning, the intervention and moderating effects of PP on SL/FL learning; (2) about research design, the research objects are mainly college students with a wide distribution of majors; the research method is mainly quantitative research, and mixed research is constantly developing; (3) the research results showed that PP is associated with students' language performance and can predict performance. PP can also increase students' English learning engagement and well-being. The present study provided a comprehensive review and also gave some suggestions for future research.

Keywords Positive psychology, SL/FL learning, Systematic literature review

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Introduction

Psychological research ushered in a major turning point in the early 2000s. Humanistic-based PP research was firstly developed in the United States with the publication of Seligman and Csikzentmihalyi's book: *Positive Psychology: An Introduction* [1]. After the first development, several nations swiftly sparked an explosion in PP study within a short period of time, and this trend spread to other countries gradually [2–5]. PP research was originally used to explain and help medical, sociological, military and other issues such as disease treatment, depression, suicide etc. Because of the rise of PP, its radiation extended to the relationship with human well-being, optimism, wisdom and other positive psychological experiences and personality traits [6–8]. With the development of PP and educational psychology, the Well-being Theory [9–54], the Broaden-and-Build Theory [10], and Control Value Theory [11] are emerging and developing. Research on PP has advanced at a previously unheard-of rate across a variety of areas. This study introduces several innovative elements that distinguish it from existing literature. Firstly, it offers a systematic literature review that consolidates a decade of research (2013–2022) on the intersection of PP and SL/FL learning, which has been a rapidly evolving field with scattered findings. Secondly, by analyzing a comprehensive set of 45 studies, this research uncovers the underlying themes and patterns that have not been previously synthesized, providing a more cohesive understanding of the topic. Thirdly, the study extends beyond mere review by offering a critical analysis that identifies gaps in the current research and proposes new avenues for future investigation. These innovative aspects ensure that this study not only contributes to the theoretical framework but also has practical implications for educators and policymakers aiming to enhance language learning experiences through the application of PP principles.

The study of SL/FL teaching and learning has roughly gone through three stages of development, they are emotion avoidance phase, anxiety prevailing phase, and positive and negative emotions phase [12]. MacIntyre & Gregersen [13] and Dewaele & MacIntyre [12] are two representative researches which initiated the empirical research on PP and SL/FL learning. Since then, a series of positive qualities, such as enjoyment, resilience, curiosity, perseverance, self-efficacy, etc., sprung up gradually [3, 15–17]. Many researchers carried out a lot of researches on specific objects, language and psychological dimensions through specific research design. Researchers found that PP can promote English learning performance, therefore they started looking into the impact of PP on language learning from different perspectives [17–19].

The current researches on SL/FL teaching and learning under PP have made some tentative progress.

Positive psychological experiences can enhance learners' enthusiasm, motivation and expectation for future achievement and reduce the experiences of negative emotions such as stress and anxiety. Positive psychological experiences enable learners to engage more of their cognition and behavior in language learning [20]. Students are more optimistic about their challenges with language learning when positive emotional interventions are included in language teaching process. They can enhance their sense of well-being and make them enjoy the learning process [17]. Positive psychological experiences act as a continuum of moderating variables that contribute to the conversion of emotions into language learning achievements [21–24]. Thus, PP has a significant impact on both the process and performance of language learning. It is evident that the combination of PP with research on SL/FL learning is significant for improving teaching and learning and enhancing performance [25–29]. Current researches are in the development stage, so summarizing current research and indicating suggestions for future development are important for both research and practice in language learning.

The significant increase in publications on the intersection of positive psychology and SL/FL learning since 2018 indicates a growing interest in this field [30–32]. This trend not only highlights the emerging importance of positive psychology in linguistic research but also signals a need for a systematic review [33]. With the increasing number of studies, there is a lack of a comprehensive synthesis of the scattered findings, and it is unclear how positive psychology influences SL/FL learning outcomes. Thus, this study aims to fill this gap through a systematic literature review.

Current research on the combination of PP and SL/FL learning is growing rapidly. Within the context of PP, numerous researchers are actively examining the effects of each unique psychological experience on various aspects of language learning (listening, speaking, reading, and writing) [34–37]. There is agreement in some areas, such as the fact that English learning is more effective when it is enjoyable while it is less effective when anxious; and several studies have simultaneously shown that persistence, which is a sub dimension of grit is a better predictor of English learning. However, because of the intricacy of psychological dynamics, there are also some discrepancies. By conducting a systematic literature review of the current researches, This study can give a clear image of how current research is progressing and aid in the advancement of in-depth research [38]. Therefore, the purpose of this study is to conduct a systematic literature review of SL/FL learning under PP in the past

decade. It provided the current research status and put forward suggestions for future research.

Research design

Research method

Systematic literature review is a widely - recognized and established approach in academic research. According to Kitchenham and Charters [39], this method offers a structured and comprehensive way to analyze existing research in a particular field. It has been successfully applied in numerous disciplines, including education and psychology, to synthesize knowledge, identify research gaps, and guide future research directions. This study was conducted using a systematic literature review approach, which is a more established method used to conduct a comprehensive analysis of the current state of a research field [40]. The whole process is transparent, objective and verifiable. A systematic analysis of current studies can clearly show the similarities and differences in research methods, data collection and analysis, and research results etc. Thus, the systematic literature review can paint an overall picture of current research and provide suggestions for future research through a holistic analysis. A systematic literature review can be subdivided into two types: qualitative, which is a narrative review of existing research results, and quantitative, which is a secondary analysis of data from existing research using meta-analysis. Because of the diversity of research subjects and specific research topics in this study, the data could not be handled centrally, so a qualitative analysis was used to describe the existing research. As noted by Denyer and Tranfield [41], when dealing with diverse research subjects and topics where data cannot be easily integrated for quantitative meta - analysis, qualitative systematic review provides a flexible and in - depth alternative. It allows researchers to explore complex relationships and themes in the literature, which is highly relevant to our study on the multifaceted intersection of positive psychology and SL/FL learning. The qualitative and quantitative systematic reviews are very essential and significant here. For instance, Snyder further elaborated on the differences between qualitative and quantitative systematic reviews [42]. Qualitative reviews focus on narrative synthesis, which is suitable for our study as it can effectively summarize and interpret the rich and diverse findings from various empirical studies on positive psychology and SL/FL learning. Quantitative reviews, on the other hand, rely more on statistical analysis of numerical data. Given the nature of our research questions and the data at hand, the qualitative approach is more appropriate.

Data analysis

In this study, the data analysis involved several key steps to ensure a thorough and systematic review of the literature. The analysis process included:

Categorization of studies

The selected studies were categorized based on their primary focus areas, such as the relationship between PP and SL/FL learning, interventions of PP in SL/FL learning, and other topics related to PP and SL/FL learning.

Thematic analysis

The findings from the studies were analyzed thematically to identify common themes and patterns across the literature. This involved coding the data extracted from the studies into predefined categories and identifying new themes that emerged from the data.

Quantitative synthesis

Although primarily qualitative, the study also involved a quantitative synthesis of data where possible. This included counting the number of studies that supported particular findings or trends and calculating percentages to describe the prevalence of certain research designs or outcomes.

Critical evaluation

Each study was critically evaluated based on its research design, methodology, and the robustness of its findings. This evaluation helped in assessing the quality and reliability of the evidence presented in the literature.

Synthesis of results

The results from the analysis were synthesized to provide a comprehensive overview of the current state of research on PP and SL/FL learning. This synthesis included a discussion of the strengths and limitations of the existing research and suggestions for future research directions.

By explicitly mentioning the data analysis part, the methodology section now provides a clear and detailed account of how the data from the literature review was processed and interpreted. This addition enhances the transparency and replicability of the study, which is crucial for methodological rigor in systematic literature reviews.

Research questions

By systematic literature review, the present study aims to answer the following questions:

Q1 What are the major research topics of the current studies on SL/FL learning and PP??

Q2 What are the research designs of the current studies on SL/FL learning and PP?

Q3 What are the research results of the current studies on SL/FL learning and PP?

Sample collection

Literature search strategy

In order to obtain comprehensive and accurate literatures on this topic, three databases, Web of Science, Scopus, and Taylor & Francis, were selected for literature search. “Positive Psychology” & “Language Learning” or “Language Acquisition” or “Language Teaching” or “Language Education” was used as terms for the search, and the time span was set from January 1, 2013 to April 20, 2022. A total of 2023 articles were searched.

Literature selection criteria

The initial literature search ensured that as many relevant studies as possible were collected, but in order to make the final analysis more relevant and thematically accurate, the authors negotiated and unanimously developed the following screening conditions and screened 2023 articles according to the following screening criteria.

- 1) Research topics: linguistics, education and psychology.
- 2) Languages: papers written in English.
- 3) Document types: journal paper and conference paper.
- 4) Research method: empirical study.
- 5) Availability of the full text.
- 6) Research participants: students of all ages.
- 7) Research content: clear research objectives, research questions and research methods.

Literature screening process

The systematic literature review used the flow chart of PRISMA to clearly present the process of literature screening. The 2023 retrieved articles were first imported into EndNote Literature Manager for initial deduplication, and finally 1848 documents were entered into the later screening. After the first screening, the researchers discussed and exchanged ideas and renegotiated any discrepancies. Each screening process was carried out round by round by title, abstract, keywords, research questions, research design, article type, and other factors to clarify the specific reasons for inclusion and exclusion. Forty five papers were finally identified as the final review literature, and the specific screening process can be seen in Fig. 1.

Results and analysis

The results of the systematic literature review are presented and analyzed in accordance with the research questions outlined in the study. Each research question is addressed separately to provide a clear and structured overview of the findings.

What are the major research topics of the current studies on SL/FL learning and PP?

The major research topics identified in the current studies can be categorized into three main areas:

The relationship between PP and SL/FL learning

Positive emotional experiences and psychological traits show certain correlations and regressions with the results of language learning. The results of the participants' self-assessment and language tests' quantitative analysis revealed that psychological traits and positive emotional experiences were positively correlated with test results and could predict language performance. A questionnaire survey of 787 Korean college students was conducted to investigate the relationship between students' buoyancy and their language academic performance and GPA [43]. A study investigated the relationship between motivation, grit and the English performance of Chinese university students and found that motivation and grit levels were positively related to students' English performance, with grit being the most significant [27]. It was discovered that the classroom atmosphere and language enjoyment played significant roles in the relationship between grit and language performance. They made grit a better predictor of language learning results [44, 45]. The positive psychological traits, as well as classroom enjoyment, were significantly associated with students' willingness to communicate in language class and well-being in language learning process [46–49]. Research showed that the greater resilience in the foreign language learning process, the greater the autonomy of students in learning [49]. In the context of the global pneumonia epidemic and online delivery, researchers explored the relationship between enjoyment and learning achievement among Chinese-speaking second language students, but no significant correlation was found in the short-term study [50]. According to a study, the enjoyment and anxiety of learning a foreign language did not significantly differ between low- and medium-level participants [24], and several studies showed that foreign language enjoyment is more influenced by the teacher and the classroom, while anxiety is more related to the students themselves [24, 49, 50]. Current researches generally agreed that various elements of PP are significantly and positively correlated with language learning and are effective in predicting foreign language learning achievement.

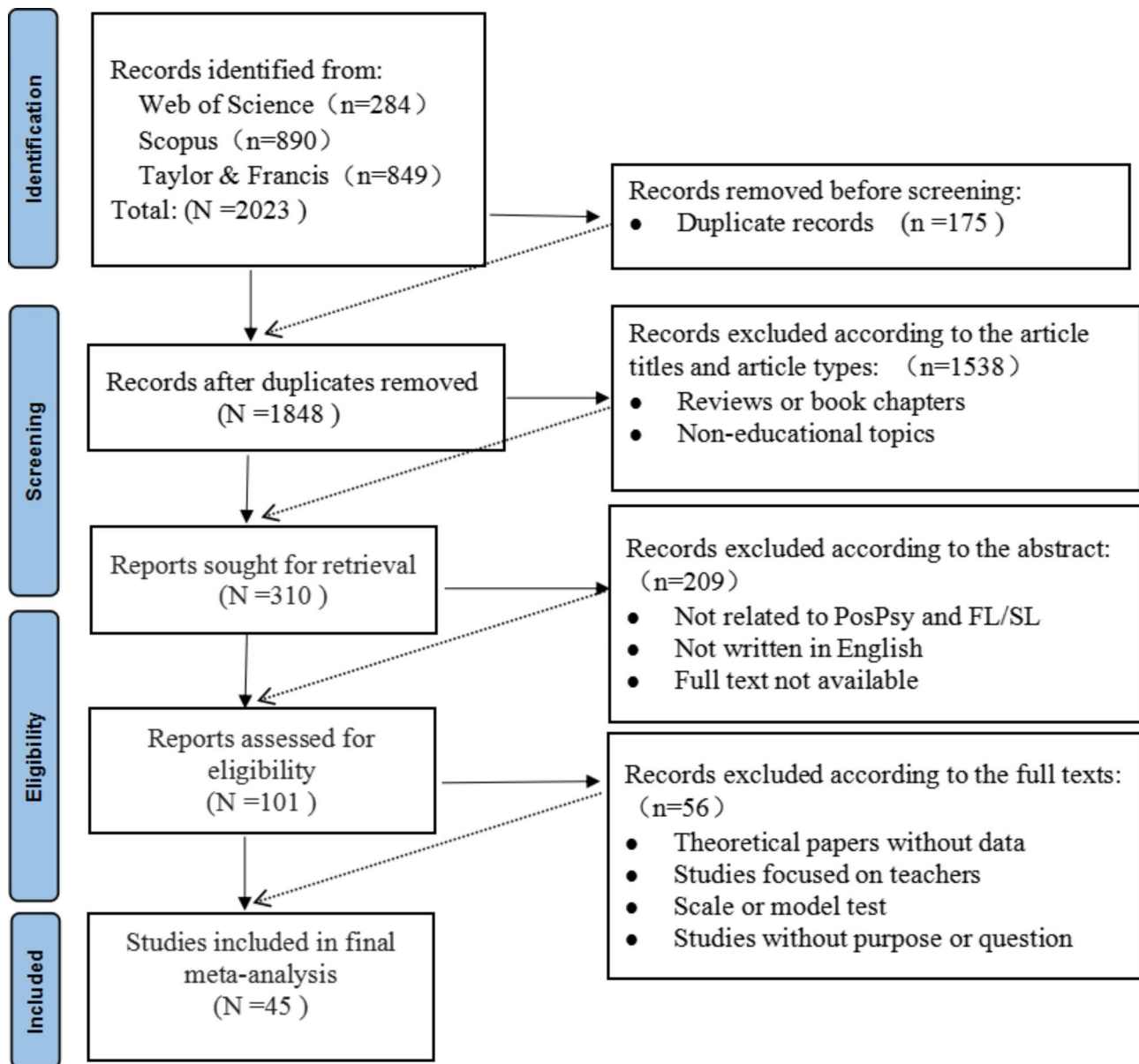


Fig. 1 Flowchart for study inclusion

The intervention of PP in SL/FL learning

Interventions from PP were used in the classroom by some researchers. By comparing the post-test scores of the experimental and control groups, it was found that there was a significant difference in the scores of the two groups in the post-test. In one study, students were given a 30-day experimental intervention during which they were instructed to reflect on their language learning successes and write down their memories of the process. This reflection was associated to a range of positive feelings, which significantly decreased the students' anxiety about language learning [50]. During the language development of young children in the early years, the researchers used illustrated books containing Oxford's

EMPATHICS (E: emotion and empathy. M: meaning and motivation. P: perseverance, including resilience, hope, and optimism. A: agency and autonomy. T: time. H: hardiness and habits of mind. I: intelligences. C: character strengths. S: self-factors (self-efficacy, self-concept, self-esteem, and self-verification and self-verification) model for the instructional intervention and found that students in the experimental group showed significant improvements in vocabulary and syntactic complexity [18]. In another study, a 14-week intervention using Seligman's five-dimensional model, PERMA (P: positive emotion. E: engagement. R: relationship. M: meaning. A: accomplishment), on students' listening and speaking. The result showed significant improvements compared to

traditional teaching methods [18, 51, 52]. Trait Emotional Intelligence has been found to be significantly associated with students' performance in foreign language learning, the researchers continued to use the "ARGUER" (A: awareness of feelings and emotions in self and others. R: recognizing emotions. G: generating positive emotions that facilitate thinking. U: understanding causes and consequences of emotions in self and others. E: expressing emotions appropriately) training model for intervention, and the results helped to promote positive emotions and reduce negative emotions [52]. Researchers conducted a 45-minute short-term activity intervention and found that students' growth mindset and other positive emotions improved rapidly in the short term [53]. The results of a five-week positive psychological intervention with students' confidence-building diaries showed that students' feelings of positive experiences increased and continued to motivate them to maintain their motivation for language learning [30]. Currently, researchers have been exploring positive psychology interventions for students' language learning, but more researchers developed language learning as a whole, lacking targeted module teaching research and practicable suggestions for language teachers.

Other topics between PP and SL/FL learnings

A small number of research focused on the function that PP plays in controlling emotions, i.e., during language learning, learners inevitably encounter negative emotions such as anxiety, boredom and tension that are not conducive to facilitating language learning. Researchers believed that the key to studying PP is to use it to regulate and overcome negative emotions. Other studies focused on the mechanisms that occur in the process from positive emotions to improved performance. For example, the relationship between grit and foreign language performance has been studied, with enjoyment as a mediating variable [44]. Positive emotions can overcome negative emotions, reduce anxiety and thus promote learning engagement [30, 55].

What are the research designs of the current studies on SL/FL learning and PP?

The research designs of the current studies can be analyzed from three perspectives:

Research participants

In terms of educational stage, the researches mostly concentrated on the university education, accounting for 76%, while the secondary education only accounts for 13%. Only a few researches paid attention to the preschool children. Students at the secondary and tertiary education stages were carried out with mixed researches, accounting for about 9% (Table 1). The study of PP in SL/FL learning at the higher education level received more attention, and most studies focused on college students. The majority of college students take SL/FL learning as a required course during this time, and the researchers are mostly university front-line foreign language instructors, which is advantageous for the research [24, 47, 56–58]. To investigate the influence of positive psychological factors in foreign language learning, some studies used postgraduate students as subjects and categorized these subject groups as medium- to high-level foreign language learners [55, 56]. Positive psychology among graduates and postgraduates received increasing attention from researchers. Relatively few studies included primary and secondary school students as participants. [15, 22, 53], others studied mixed junior and senior high school students[45, 49]. Few researchers focused on the relationship between PP and language learning in preschool children, only one of the 45 publications included in this study examining children aged 4–5 years in preschool [18]. The role of PP in the process of SL/FL learning at the primary, secondary and preschool levels needs more explanation.

According to the statistical findings, non-target language majors made up about 47% of participants in tertiary education, while target language majors made up about 29%. 21% of the studies included both target language and non-target language majors, while the remaining 3% of the students did not specify their majors (Table 1). Students from a variety of majors study SL/FL when they enroll in college. While there are also specialized in SL/FL majors at the higher education level. In the 45 papers counted in this study, the current researches covered almost all majors, and in almost half of the studies, students with non-target language majors were studied [18, 56, 57]. Nearly 30% of the subjects were target language majors [50, 58]. The difficulties faced by target language students and non-target language students in the process of learning a language are quiet different. Therefore, the researcher's selection of subjects with different majors helps to promote target teaching to students with different majors.

Table 1 The information about research participants

Research Participants	Classifications	Percentage
Educational Stage	Tertiary Education	76%
	Secondary Education	13%
	Preschool Education	9%
	Mixed Stage	2%
Participants' Major	Non Language Major	47%
	FL/SL Major	29%
	Mixed Major	21%
	Unclear	3%
Participants' Gender	Male	37%
	Female	60%
	Unclear	3%

Table 2 The distribution of the participants' native Language and second/foreign Language

1 L			2 L/FL		
1 L	k	Percentage	2 L/FL	k	Percentage
Chinese	23	51.11%	English	43	95.56%
Korean	3	6.67%			
Japanese	3	6.67%			
Iranian	4	8.89%			
Others	12	26.67%	Spanish	1	2.22%
			Chinese	1	2.22%

Table 3 The development of Language skills under the positive psychology

Language Specific:	k	Percentage
Listening	4	8.89%
Speaking	5	11.11%
Reading	3	6.67%
Writing	1	2.22%
Mixed	5	11.11%
Unclear	27	60%

In terms of the gender distribution of the participants, 60% of them were female, 37% were male, and the remaining 3% did not want to specify their gender (Table 1). Analysis of the gender distribution of subjects in the 45 papers showed that there were more women than men in many studies [57, 58], and even several of the study subjects were all female [59, 60]. Teachers of SL/FL students must provide specialized instruction and adapt their teaching strategies. Teachers of SL/FL students must provide specialized instruction and adapt their teaching strategies. According to the gender differences, teachers might help students develop good psychological emotions and traits [61, 62].

In terms of participants' native language and target language, more than 50% of them speak Chinese as their first language, followed by Korean, Japanese, Iranian and other languages. In terms of target language, English accounts for more than 95%. With a few researches set Chinese, Spanish as target language (Table 2). Since English is the current worldwide lingua franca and is taught in all nations' educational systems, many of researchers employ English learning as their language objective. Represented by China, which has the largest population in the world, many researchers studied the role of PP in the

foreign language learning process of Chinese students [20, 28, 42].

In terms of specific aspects of the target language (Table 3), Specific language dimensions were not specified in 60% of the studies. Of the remaining studies, listening and speaking were the primary language dimensions, accounting for approximately 20%. Reading and writing were relatively less studied, accounting for about 10%. Most current researches on PP for SL/FL learning examine language as a whole. There are three out of forty five studies explored the relationship between PP and reading [62–65]. Four studies on the relationship between PP and listening [21.69]. Five studies on the relationship between PP and spoken language [26.70]. Only one study focused on PP and language writing included in this study [50].

Research methods

Present review of the literature revealed that about half of the studies examined the connection between SL/FL learning and PP using quantitative research analysis techniques (Table 4). A combination of measurable language test formats and quantifiable questionnaire formats was used to demonstrate the relationship. One study quantified correlations and regression analyses between the four sub-dimensions of Trait Emotional Intelligence and the results of postgraduate students' test of English proficiency (which includes listening, speaking, reading, and writing) [59]. A study tested the correlations between students' emotional experience and trait emotional intelligence, the study happened in a high pressure environment as part of a formative assessment [3]. In intervention studies, researchers judged the effects of positive psychological interventions by the significant differences in pre-post test scores.

Qualitative studies in the existing literature have been conducted mainly through interviews, classroom observations, and growth records. In one study, language teacher gave students game-based instruction, students were asked to write as many as possible about the functions of this instructional approach. Then some participants were interviewed in depth, and the interviews were sliced and coded to summarize three functions [22]. In one study, researcher employed variety of ways to collect logs of students' emotional experience, study notes and stimulating recall after listening activities. Then they

Table 4 The distribution of research method and sample size

Sample Size	Quantitative Research: 49%		Qualitative Research: 15%		Mixed-Method: 36%	
	k	Percentage	k	Percentage	k	Percentage
1 ≤ N ≤ 100	3	13.6%	7	100%	5	31.25%
100 < N ≤ 500	12	54.5%			5	31.25%
N > 500	7	31.8%			6	37.5%
Sample Span	59-1307		2-39		42-2002	

used deductive and inductive approaches to match the PP framework [34]. One study used Pekrun's achievement emotions framework and designed four specific teaching activities. Then the subjects' feelings about the course were collected at the end of the nine weeks session [53].

Some researchers used mixed research methods. Firstly, collect questionnaires for quantitative analysis, and then select specific subjects for in-depth interviews in a structured or semi-structured manner according to the quantitative results. This enables the researcher to better understand the results of the quantitative study [21.56.60].

Research tools

The data collection ways are mainly questionnaires, semi-structured/open-ended interviews, classroom observations and SL/FL related tests. The questionnaires used in the current studies are Foreign Language Enjoyment Scale, Foreign Language Classroom Anxiety Scale, Happiness Scale, Self-Efficacy Scale, Motivation Scale, Perseverance Scale, Enthusiasm Scale, Well-being Scale, and Grit Scale. Some of studies integrate multiple scales to investigate multiple influences, which can reduce the workload of the participants. Language related tests include listening scores, language proficiency tests, etc. The research tools are mainly SPSS, AMOS, NVivo and R software.

What are the research results of the current studies on SL/FL learning and PP?

Predict and improve SL/FL learning scores

The impact of PP on SL/FL learning is reflected in the predictive effect on performance and the enhancement of psychological interventions on language performance. The study showed that the higher the level of students' enjoyable emotions, the more frequently they used language in the classroom [66]. There are many researchers found that compared with interest, consist perseverance are more predictive to students' willingness to communicate, language proficiency and language performance [26.28.70]. Language enjoyment plays a mediating role in promoting proficiency [41]. Students' pronunciation, oral expression, and listening comprehension have improved after implementing positive psychological intervention in the listening and speaking program [17]. Results of a study on the use of pranayama breathing to enhance positive psychological experiences showed that students' listening and reading comprehension skills were effectively improved [29]. In language output, children who received PP interventions produced more complex expressions [34]. Researchers investigated the effect of buoyancy as a positive psychological factor on students' language

achievement and GPA and found that those with high buoyancy level also had higher learning scores [40].

In terms of the impact of PP on language learning scores, studies show that the influence varies across different educational levels. At the primary education level, positive psychological interventions like using picture books with positive psychology elements have been found to effectively expand children's vocabulary. For example, Hui et al. [67] found that young children showed significant improvements in vocabulary when exposed to such picture books during English learning. In contrast, at the university level, interventions based on models like PERMA seem to have a more profound impact on complex language skills such as writing and academic language use. Future research could further explore these differences to better understand how to apply PP interventions tailored to different educational stages.

Stimulate SL/FL learning engagement

The impact of PP on SL/FL learning is achieved by promoting student engagement. Positive emotional experiences and psychological traits make students more engaged cognitively, emotionally and behaviorally, thus expanding and constructing more resources to support SL/FL learning. One study showed that in the classroom, student enjoyment moderates both teachers' emotion and students' social and behavioral engagement [52]. Enjoyment emotions can counteract negative emotions while influencing students' engagement in class [42]. Research also demonstrated that PP and engagement are causally related, with both promoting each other [57]. Contracting speaking can effectively reduce students' anxiety and enhance their engagement and self-efficacy [68]. At the same time, resilience as a positive psychological factor can stimulate students' autonomy in language learning, and provide preparation for learning engagement. Unlike enjoyment, researchers believed that love is the driving force that enables students to make continuous progress in and out of the classroom, thereby expanding their cognition and sustaining lasting engagement in SL/FL learning [14]. In the intervention study of the confidence building diary, researchers found that subjects were consistently engaged in activities that produced positive emotions [30].

Enhance students well-being

Related research found that positive psychological traits can increase students' happiness and classroom enjoyment during SL/FL learning and promote students' growth and development. Grit is considered to be one of the key predictors of success. Research found that grit and enjoyment are positively related and predict each other. The rewards achieved due to grit will enhance the

experience of happiness [19]. Persistent passion is one of the factors in grit, and the enthusiasm for SL/FL learning enhances students' personal happiness [21].

Discussion

The findings of this systematic literature review are discussed in three dimensions: (1) stating the research findings, (2) comparing them with related studies, and (3) explaining the significance of these comparisons. This structured approach ensures a clear and logical presentation of the discussion.

The present study reviewed 45 empirical studies on the intersection of positive psychology (PP) and second/foreign language (SL/FL) learning over the past decade (2013–2022). The key findings span across research topics, research design, and research results. Regarding research topics, the emphasis on positive emotions and psychological traits aligns with the growing recognition in the field that these factors play a crucial role in language learning. For example, MacIntyre highlighted the significance of positive emotional experiences in language acquisition [13]. Positive emotions like enjoyment can enhance learners' motivation and engagement, as demonstrated by numerous studies [24, 71–72]. Psychological traits such as grit have also been found to be strong predictors of language learning success [27]. In terms of research design, the predominance of quantitative methods, often relying on self-report questionnaires as noted by Li et al. [52], may be attributed to its ability to efficiently collect data from a large number of participants. However, the increasing use of mixed-method approaches, as seen in our review, indicates a growing awareness of the need to triangulate data and gain a more comprehensive understanding of the complex relationship between PP and SL/FL learning [53]. For research results, the positive impact of PP interventions on language performance, engagement, and well-being is consistent with previous research. Jean-Marc and Chen [12] found that PP-based interventions improved college students' English listening and speaking proficiency. This not only validates the effectiveness of PP in language learning but also implies that educators can leverage these findings to design more effective teaching strategies.

The comparisons between this study and related research have several important implications for theory and practice. Practically, the positive effects of PP interventions on language performance and engagement indicate that teachers should incorporate PP-based strategies into their teaching. For example, teachers can create a positive classroom environment that fosters students' enjoyment and resilience. Moreover, teacher training programs need to be updated to equip educators with the skills to implement PP interventions effectively. Future research should also explore how to adapt

these interventions to different cultural and linguistic backgrounds, as cultural factors may significantly influence the effectiveness of PP in language learning [21]. For practical implications, the findings contribute to the growing body of literature on PP in SL/FL learning by providing a comprehensive overview of the field. The identification of gaps in the literature, such as the limited exploration of PP interventions in primary and secondary education, highlights the need for more targeted research in these areas. Additionally, the study underscores the importance of integrating PP theories (e.g., PERMA model, Broaden-and-Build Theory) into language learning research to better understand the mechanisms through which PP influences learning outcomes. For practical implications, the findings have practical implications for language educators and policymakers. For example, the positive effects of PP interventions on language performance and engagement suggest that teachers should incorporate PP-based strategies (e.g., fostering enjoyment, building resilience) into their teaching practices. Furthermore, the study highlights the need for teacher training programs to equip educators with the skills to implement PP interventions effectively. For future research directions, future studies should explore the impact of PP interventions on primary and secondary school students, as well as learners from diverse cultural and linguistic backgrounds. Researchers should design and test PP interventions tailored to specific language skills (e.g., listening, speaking) and psychological dimensions (e.g., grit, self-efficacy). More longitudinal studies are needed to examine the long-term effects of PP interventions on language learning outcomes and well-being.

Compared with previous studies, this systematic review not only provides a more comprehensive overview of the relationship between PP and SL/FL learning but also delves deeper into the differences in the impact of PP across various factors. While previous research mainly focused on the overall impact of PP on language learning, this study highlights the importance of considering educational levels, language skills, and cultural backgrounds. This contributes to a more nuanced understanding of the role of PP in SL/FL learning, providing more targeted suggestions for educators and policymakers. For instance, understanding the different impacts of PP on primary and secondary school students can help educators design more suitable teaching strategies for each stage.

Conclusion and limitations

The conclusion of this study is structured around three key dimensions: (1) summarizing the research findings, (2) identifying the limitations of the study, and (3) suggesting future research directions. This structured approach ensures a comprehensive and coherent presentation of the study's contributions and implications.

Research findings

This systematic literature review analyzed 45 empirical studies on the intersection of positive psychology (PP) and second/foreign language (SL/FL) learning over the past decade (2013–2022). The number of publications on PP and SL/FL learning has increased significantly since 2018, indicating a growing interest in this field. The majority of studies focused on the relationship between PP and SL/FL learning, particularly the role of positive emotions (e.g., enjoyment, resilience) and psychological traits (e.g., grit, self-efficacy) in enhancing language learning outcomes. Most studies employed quantitative methods, with a focus on university students as participants. Mixed-method approaches are also gaining traction. PP interventions were found to positively predict language performance, enhance student engagement, and improve well-being in SL/FL learning contexts. These findings highlight the potential of PP to improve language learning outcomes and provide valuable insights for educators and policymakers.

Research limitations

Despite its contributions, this study has several limitations that should be acknowledged: scope of participants, geographical and cultural bias, methodological limitations and lack of longitudinal studies. For scope of participants, The majority of studies reviewed focused on university students, with limited attention given to primary and secondary school students. This limits the generalizability of the findings to younger learners. For geographical and cultural bias, most of the studies were conducted in East Asian and Western contexts, particularly in China, Korea, and the United States. This may limit the applicability of the findings to other cultural and linguistic settings. For methodological limitations, the reliance on self-report questionnaires in many studies may introduce bias, as participants' responses may not always reflect their true psychological states or behaviors. For lack of longitudinal studies, most studies were cross-sectional in nature, which limits the ability to draw causal inferences about the long-term effects of PP interventions on language learning outcomes. These limitations highlight the need for more diverse and rigorous research in this field.

Future research

Based on the findings and limitations of this study, several directions for future research are proposed. According to expanding the scope of participants, future studies should explore the impact of PP interventions on primary and secondary school students, as well as learners from diverse cultural and linguistic backgrounds. This will help to better understand how PP can be applied across different educational contexts. In terms of developing

targeted interventions, researchers should design and test PP interventions tailored to specific language skills (e.g., listening, speaking) and psychological dimensions (e.g., grit, self-efficacy). This will provide more actionable insights for language educators. According to conducting longitudinal studies, more longitudinal studies are needed to examine the long-term effects of PP interventions on language learning outcomes and well-being. This will help to establish causal relationships and provide a more comprehensive understanding of the impact of PP on language learning. In terms of exploring cultural and contextual factors, future research should investigate how cultural and contextual factors influence the effectiveness of PP interventions in SL/FL learning. This will help to develop culturally sensitive approaches to integrating PP into language education. With the burgeoning interest in AI-enhanced EFL learning, it is crucial to explore how PP theory can inform and enhance EFL teaching within the context of AIED (AI in Education) [69–70]. The role of AI in facilitating language learning, particularly in enhancing learner engagement, motivation, and overall well-being, offers a new dimension for PP applications. Future research should consider the following specific directions: AI-mediated learning environments and impact of AI on learner attitudes. AI-Mediated learning environments and generative AI acceptance.

Supplementary Information

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Supplementary Material 1

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Author contributions

Jia Miao and Baolin Zhang did the conceptualization and framework and Xin Tian and Lina Zhang did literature search and Li Ma reviewed the paper.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

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Competing interests

The authors declare no competing interests.

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