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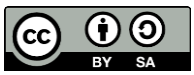

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Research Trends on Creative Thinking Skills in Indonesian Applied Linguistics Journals: Insights from Research Designs to Data Analysis

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Abstract

Fostering creative thinking skills is a crucial objective within 21st-century education. This research applied content analysis to several articles published in Indonesian Applied Linguistics journals between 2014 and 2024, focusing on creative thinking as the central theme. The findings indicate a notable increase in the number of publications emphasizing creative thinking over the past four years, with qualitative research being the predominant methodology. Undergraduate students were the most frequently studied population, and a variety of materials were utilized in the research spanning the last decade. Questionnaires were the most commonly employed data collection tool, while thematic analysis was the most frequently used method for data interpretation. Based on these findings, several recommendations are offered for future research on creative thinking skills, including expanding the range of research designs and employing more refined data analysis techniques.

Keywords: *Applied Linguistic Journals; Creative Thinking Skills; Data Analysis*

Introduction

In the modern era, education is recognized as a vital tool for cultivating competent societies in the 21st century (Jackman et al., 2021). These competencies are essential in various fields, including language learning, where creativity plays a key role in mastering linguistic skills. Students are expected not only to achieve conceptual understanding to navigate this century successfully (Ashley et al., 2021), but also to move beyond rote memorization of concepts towards developing skills in creative thinking and practical life skills (Alkhateeb & Milhem, 2020). Collaborative and communicative abilities are also essential competencies that

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should be honed (Chau et al., 2020). Additionally, scientific process skills are seen as critical for success in today's scientific and technological landscape (Fortunato et al., 2018). Moreover, several types of thinking skills, including metacognitive (Perry et al., 2019), creative (Mumford & McIntosh, 2017), and critical thinking (Strauss, 2016), are highlighted as indispensable for graduates to remain competitive in the rapidly evolving 21st-century job market.

Among all mentioned competencies, creative thinking is consistently regarded as a vital competence for 21st-century education (Bulut et al., 2022). Howard Gardner, in his work *Frames of Mind: The Theory of Multiple Intelligences* (1983), introduced the theory of multiple intelligences, which includes both linguistic and creative intelligences. According to Gardner, creativity is a form of intelligence that can be expressed across various domains, including the linguistic domain. In the context of psycholinguistics, linguistic intelligence enables individuals to think creatively through language, allowing for innovative and flexible use of linguistic structures in communication.

Alongside critical thinking, collaboration, and communication, creative thinking has become a foundational element of contemporary educational frameworks, particularly within the widely recognized 4Cs model (Körtvelyessy et al., 2021). This competency is also identified as one of the ten essential skills evaluated in the assessment and teaching of 21st-century skills (ATC21S) (Gonzalo et al., 2022). Moreover, the Learning Metrics Task Force (LMTF) highlights creative thinking as a key sub-domain in the Global Framework of Learning Domains, which is part of UNESCO's 21st-century skills framework (Chaudhuri et al., 2022). This growing emphasis reflects the increasing demand for graduates who possess creativity, critical thinking, and innovative problem-solving abilities, making them well-prepared to navigate and address the complex challenges of the modern world.

Despite the growing emphasis on the importance of creative thinking skills, research consistently reveals that these abilities remain underdeveloped among students across different countries. For instance, Parhamnia et al (2022) highlighted that Iranian students exhibited low levels of creative thinking, suggesting inefficiencies within the educational system. Likewise, Kennedy & Sundberg, (2020) pointed out that U.S. high school students did not receive sufficient support to develop these skills. In Southeast Asia, studies have similarly indicated that students' creative thinking in countries such as Vietnam (Hang & Van,

2020) and Malaysia (Azid & Md-Ali, 2020) has yet to reach its full potential.

The limited focus on fostering creative thinking within educational systems can be linked to the strict structure of curricula that emphasize rote learning and standardized assessments. This approach restricts students from engaging in activities that promote innovative problem-solving and the generation of new ideas (AYTEKİN & TOPÇU, 2024). Essential tasks like open-ended projects, teamwork, and creative challenges are key to nurturing creative minds (Duval et al., 2023). However, the current educational priorities in many nations impede the cultivation of these abilities, underscoring the need to adopt more creativity-oriented teaching methods.

Educational advancement must prioritize the enhancement of students' creative thinking abilities (Yu & Zhao, 2024). A wide range of studies has significantly contributed to ongoing debates about improving the quality of teaching and learning processes (Huneety et al., 2023). Numerous investigations have also been dedicated to assessing students' creative thinking capacities, aiming to identify effective strategies for fostering creativity in educational settings (Li et al., 2024). Insights gained from these studies often serve as a key foundation for shaping government policies and instructional frameworks designed by educators.

In Indonesia, there is a growing body of research on creative thinking skills, particularly in the field of applied linguistics. Several investigations have centered on evaluating students' levels of creative thinking (Suherman & Vidákovich, 2022), while others have assessed the influence of particular instructional strategies aimed at improving these skills (Sunardi et al., 2022). Furthermore, studies have examined the connection between creative thinking abilities and various dimensions of learning outcomes (Supena et al., 2021). Despite this extensive research, no comprehensive review or synthesis of the existing findings on creative thinking has yet been conducted.

This research utilized content analysis on various applied linguistics journals published in Indonesia between 2014 and 2024, with the goal of gathering insights into studies that examined creative thinking skills in the country. Specifically, the study sought to address the following questions: (1) What was the trend in the number of studies on creative thinking skills over the years? (2) What types of research designs were employed to explore creative thinking skills in Indonesia? (3) Which topics were most frequently explored in relation to students' creative thinking skills? (4) What interventions did researchers apply to enhance students'

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creative thinking skills? (5) What instruments were utilized by researchers to assess creative thinking skills? (6) What data analysis techniques were used in the examination of creative thinking skills? (7) How were the studies on creative thinking skills collectively characterized?

This research presents several distinctions from earlier studies on creative thinking skills. First, it examined a complete set of articles published from 2014 to 2024, all of which were recognized by the Science and Technology Index (SINTA). Second, the study specifically aimed at analyzing articles with a primary emphasis on creative thinking skills. Finally, various criteria were employed as the basis for conducting the content analysis.

Method

Research Design

This research followed the content analysis approach, concentrating on the results from a variety of studies that have been featured in Indonesian scientific journals. The methodology employed was consistent with the techniques applied by Fauzi & Pradipta (2018), with some adaptations to fit the context of creative thinking skills research in Applied Linguistics. The process involved detailed selection, coding, and analysis of the articles based on predefined and emergent categories.

Data Source

The data for this research were gathered through a content analysis of articles within the domain of Applied Linguistics. The articles were extracted from Applied Linguistic journals that are indexed in the Science and Technology Index (SINTA) as of September 2024. SINTA is a platform developed by Indonesia's Ministry of Research, Technology, and Higher Education to evaluate the progress of science and technology. The SINTA database comprises a total of 21 journals focused on applied linguistics. Accordingly, articles that specifically addressed the skills associated with creative thinking were collected from each of these journals. The articles included in this study were published online before September 2024. Out of hundreds of articles reviewed, 52 met the inclusion criteria. The inclusion process was based on relevance to creative thinking in applied linguistics, while exclusion criteria involved articles that lacked focus on this area. Articles were reviewed by multiple raters to ensure consistency in inclusion, with discrepancies resolved

through discussion. The coding process was done by two independent researchers to improve inter-rater reliability.

Research Instrument

The current research utilized a content analysis guideline as its primary instrument, encompassing various relevant aspects for observation, as detailed in Table 1. This study focused on seven key dimensions for content analysis, which included: (1) annual publication counts, (2) research types, (3) research subjects, (4) topics within Applied Linguistics addressed in the studies, (5) treatments implemented, (6) instruments for data collection, and (7) methods of data analysis. Notably, the categories for aspects (1), (4), and (5) were not predetermined due to a lack of prior studies that could inform the categorization process, which raised concerns about the potential for overly generalized classifications during the content analysis of certain articles. In contrast, the categories for aspects (2), (3), (6), and (7) were established prior to data collection. These categories, which have been adapted from the work of Fauzi and Pradipta (2018), are presented in Table 1. Furthermore, aspect (2) was further segmented into three subcategories: (2a) general types of research, (2b) quantitative research design, and (2c) qualitative research design.

Table 1. The Aspects and Categories used for Content Analysis in the Study

Aspects	Categories	
Type of research (2a)	A.1-R and D A.2-CAR	A.3-Qualitative Research A.4-Quantitative Research
Types of Quantitative Research (2b)	B.1-Observation Studies (OS) B.2-Correlational Research (CR) B.3-Survey Research (SR) B.4-Pre-Experimental Designs (PED)	B.5-True Experimental Designs (TED) B.6-Quasi-Experimental Design (QED) B.7-Ex Post Facto Designs (EPFD)
Types of Qualitative Research (2c)	C.1-Biographical Research (BR) C.2-Case Study (CS) C.3-Content Analysis (CA) C.4-Critical Discourse Analysis (CDA) C.5-Ethnography (E)	C.6-Grounded Theory (GT) C.7-Historical Research (HR) C.8-Narrative Research (NR) C.9-Participatory Research (PR) C.10-Phenomenology (P)
Research	D.1-V Grade ES Students	D.8-Undergraduate Students

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Subject	D.2-VII Grade JHS Students	D.9-Postgraduate Students
	D.3-VIII Grade JHS Students	D.10-JHS teacher
	D.4-IX Grade JHS Students	D.11-SHS teacher
	D.5-X Grade SHS Students	D.12-Lecturer
	D.6-XI Grade SHS Students	D.13-Others
	D.7-XII Grade SHS Students	
Data Collection Instruments	E.1-Questionanaire Sheet	E.4-Interview Sheet
	E.2-Observation Sheet	E.5-Coding Sheet
	E.3-Test Sheet	E.6-Unidentified
Data Analysis Methods	F.1-Mean	F.7-Correlation
	F.2-Percentage	F.8-Thematic Analysis
	F.3-N-gain	F.9-Narrative Analysis
	F.4-T-test	F.10-Unidentified
	F.5-ANOVA	F.11-Others
	F.6-ANCOVA	

Data Analysis

Each article was categorized into a specific group based on criteria that aligned with the defined parameters. The categorization decision was made using information provided by the authors in the abstract, method, and discussion sections. The coding process involved two independent researchers to minimize bias, with regular discussions held to address any inconsistencies in coding Additionally, the collected data were presented in the form of a bar chart.

Results

Number of Publications

The frequency of research activity over a given period can be inferred from the number of published articles. As illustrated in Figure 1, studies on creative thinking skills have been documented since 2014. There is no distinct trend or shift in the annual publication rates. However, Figure 1 demonstrates that the number of publications has seen a notable rise since 2021, surpassing those of previous years. This upward trend in publications suggests a growing interest among researchers in exploring higher-order creative thinking skills.

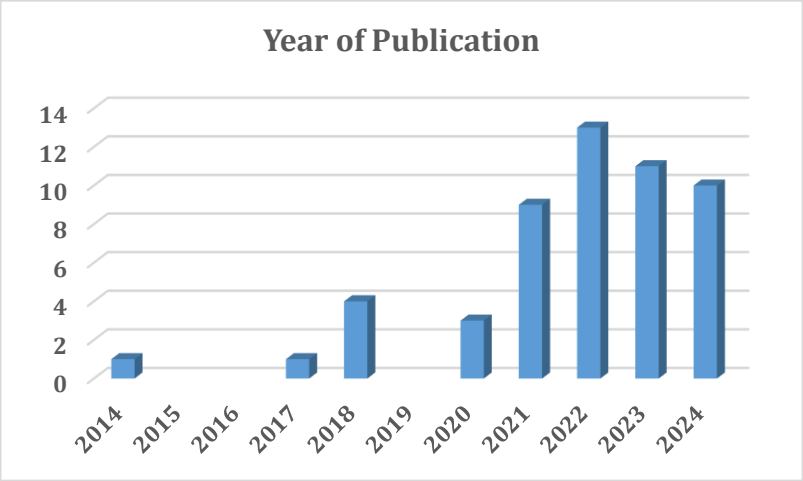

Figure 1. The Improvement Trend of the Number of Educational Research with Creative Thinking Skills as the Main Concern in Indonesia in 10 Years

Many studies have emerged from researchers' awareness of recurring issues in their surroundings. One of the prevalent concerns today pertains to the perceived low levels of creative thinking skills among Indonesian students. As a result, research is regarded as the most effective means of addressing and resolving this problem. Through research, scholars can determine the most suitable instructional designs or media that have the potential to enhance students' creative thinking abilities.

A greater number of studies examining creative thinking skills is expected to exert a more substantial positive effect on the progress of Indonesia's educational system. This perspective is rooted in the belief that the ultimate purpose of research is to improve educational practices (Thompson, 2021). Additionally, the research contributes to educational advancements for several reasons: (1) it offers reliable data that teachers can implement; (2) it forms the basis for educational policy-making at various levels, whether national, local, or institutional; and (3) it influences the way educators think and approach teaching.

Types of Research

The selection of research types and designs significantly influences the focus of a study. As illustrated in Figure 2, qualitative research emerged as the predominant design utilized by researchers to examine creative thinking skills. The prevalence of qualitative studies over other research types aligns with previous

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findings indicating that researchers tend to favor qualitative designs in applied linguistics over quantitative methods (Riazi & Farsani, 2024). Moreover, the quantitative approach is relatively novel within the field of applied linguistics (Chong & Plonsky, 2024). Nonetheless, there has been a noticeable increase in the use of quantitative designs, particularly in social research, which includes various topics within applied linguistics. This trend is closely associated with the advantages of quantitative methodologies, which facilitate the measurement and objective analysis of linguistic phenomena. Therefore, the limited presence of quantitative research presents a valuable opportunity for future researchers to adopt quantitative techniques and focus their investigations on creative thinking skills within the context of applied linguistics.

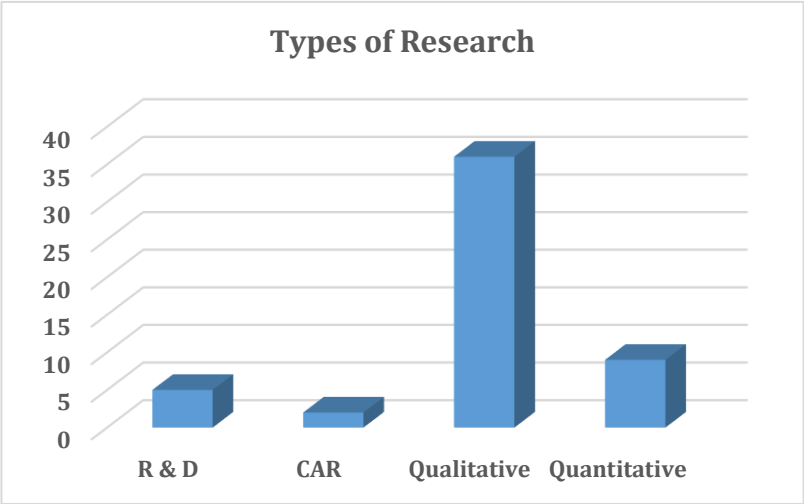

Figure 2. The Distribution of Researches with Creative Thinking Skills as the Main Concern based on Types of Research

Nevertheless, The finding that R&D research on creative thinking skills is rare was challenged by Gustiani's study, which indicated that R&D was the most popular research type published in 2019 (Gustiani, 2019). R&D research has become a notable trend in Indonesian educational studies, often leading to the development of educational products grounded in Applied Linguistics research previously conducted by the researchers. These products typically include books, modules (Sharma & Sharma, 2021), or instructional materials (Dagienė et al., 2021).

However, despite the prevalence of R&D studies, it was found that creative thinking skills have not been sufficiently incorporated as a foundational element in the development of these research projects.

According to the data presented in the graph, Classroom Action Research (CAR) encounters a significant challenge due to the lack of emphasis on promoting creative thinking within teaching methods. The incorporation of creative thinking in CAR has not been adequately prioritized. Although the structured cycle of CAR, which involves planning, implementation, observation, and reflection, aims to enhance educational outcomes (Jatmoko et al., 2021), creative thinking is still not fully integrated as a central focus. To overcome this limitation, CAR must actively embed creative thinking skills within its process, ensuring that educational interventions not only enhance effectiveness but also cultivate innovation and problem-solving skills in students, which are vital for thriving in today's rapidly evolving educational environment.

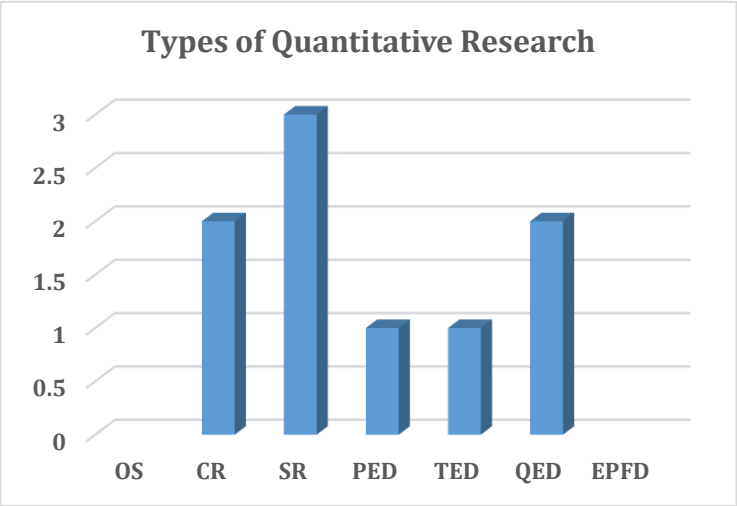

Figure 3. The Distribution of Quantitative Research with Creative Thinking Skills

This study also sought to examine the distribution of quantitative research methodologies selected by researchers. As illustrated in Figure 3, survey research design emerged as the most frequently used approach in studies on creative thinking skills. The preference for surveys over other quantitative designs highlights the need for researchers to select methodologies that align with their specific educational objectives (Hollin et al., 2020). Surveys are particularly favored due to their cost-effectiveness, time efficiency, and ability to gather extensive data

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on attitudes, beliefs, thoughts, and capabilities of the target population (Rea & Parker, 2014). In contrast, observation and ex post facto designs were among the least utilized, with no publications recorded. Experimental designs, including pre-experimental, true, and quasi-experimental, were noted as being more challenging to implement in applied linguistics contexts, with only 1, 1, and 2 publications respectively focusing on creative thinking skills. Additionally, two studies in Indonesia employed correlation research to investigate creative thinking skills. The findings of this study are expected to contribute to future research endeavors aimed at exploring creative thinking skills in the Indonesian context.

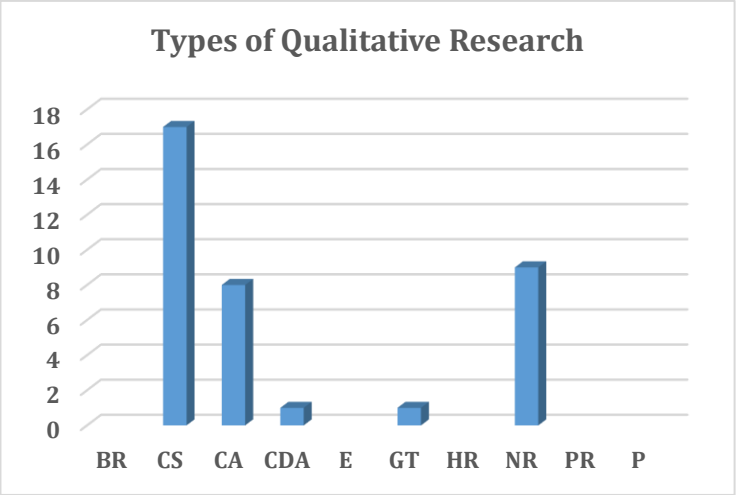

Figure 4. The Distribution of Qualitative Research with Creative Thinking Skill as the Main Concern in Indonesia

Therefore, the graph in figure 4 above provides a detailed examination of qualitative research focused on Creative Thinking Skills from 2014 to 2024, categorizing various research methodologies and quantifying the number of studies within each type. A notable observation is the absence of biographical research, which suggests a significant gap in understanding how individual life experiences and narratives influence the development of creative thinking. This lack of exploration could hinder a comprehensive understanding of the personal dimensions of creativity. Conversely, case studies dominate the landscape with 17 entries, indicating a robust interest in practical applications and real-world examples of creative thinking. This methodology allows researchers to delve deeply

into specific instances, providing rich, contextual insights that can inform educational practices and policy-making. Content analysis, with 8 studies, underscores the importance of examining existing texts and media to uncover how creative thinking is articulated and represented in various contexts, revealing critical themes that shape public discourse on creativity.

However, the limited engagement with critical discourse analysis and grounded theory—each represented by only one study—highlights a missed opportunity to explore the interplay between language, power, and creativity, as well as to develop theoretical frameworks grounded in empirical findings. The absence of ethnographic and historical research further indicates a lack of exploration into the cultural contexts that shape creative thinking and the historical evolution of these skills over time. Meanwhile, narrative research, with 9 studies, plays a crucial role in capturing personal experiences and stories related to creative thinking, offering nuanced insights into how individuals perceive and articulate their creative processes. The lack of participatory research suggests a need for greater involvement of stakeholders in the research process, which could enhance the relevance and applicability of findings. Additionally, the absence of phenomenological studies points to a gap in understanding the lived experiences of individuals regarding their creative thinking processes.

Overall, the analysis reveals a diverse yet uneven landscape of qualitative research on Creative Thinking Skills, with a strong emphasis on case studies and narrative approaches. To further advance the field, it is essential for researchers to diversify their methodologies, incorporating ethnographic and participatory approaches to gain richer contextual insights. Interdisciplinary collaborations could also enhance the depth of research findings, fostering a more holistic understanding of creativity. Furthermore, conducting longitudinal studies would provide valuable insights into the development and transformation of creative thinking skills over time. By addressing these gaps and expanding the methodological repertoire, scholars can contribute to a more comprehensive and nuanced understanding of creativity across various contexts, ultimately enriching the discourse surrounding Creative Thinking Skills.

Research Subject

The research presents a comprehensive analysis of creative thinking skills across various educational levels from 2014 to 2024, encompassing a diverse array of subjects. The study categorizes participants into distinct groups, including

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elementary, junior high, and senior high school students, as well as undergraduate and postgraduate students, alongside educators.

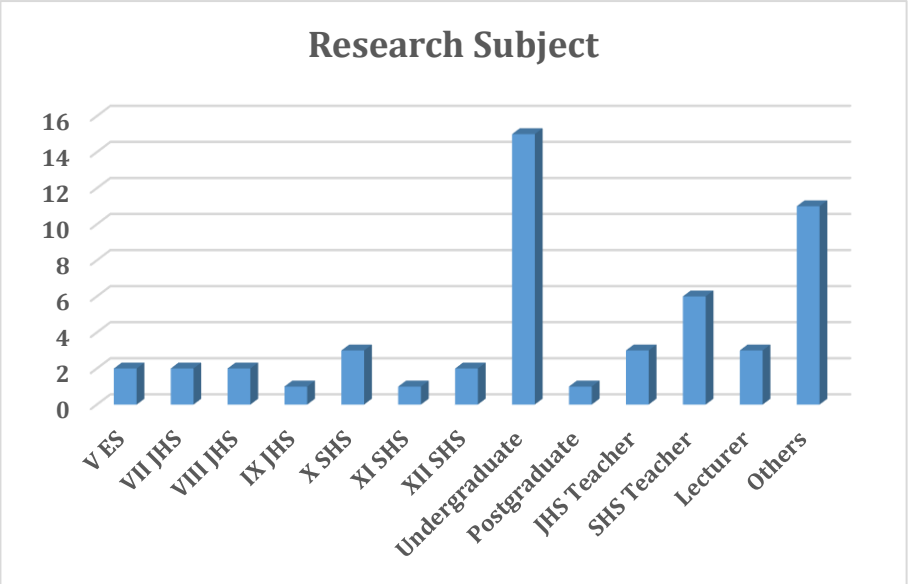

Figure 5. The Distribution of Research Subjects in Some Applied Linguistic Research with Creative Thinking Skill as the Main Concern in Indonesia

Notably, based on the data in figure 5, the largest cohort comprises undergraduate students, with a total of 15 participants, indicating a significant focus on higher education's role in fostering creative thinking. The distribution of subjects reveals a balanced representation across different grades, with junior high school students (VII, VIII, IX) and senior high school students (X, XI, XII) collectively contributing to the research, thus highlighting the critical developmental stages where creative thinking can be nurtured.

Moreover, the inclusion of teachers both junior and senior high school alongside lecturers, underscores the importance of educator perspectives in understanding and enhancing creative thinking skills. The presence of a diverse group of subjects, totaling 45, allows for a multifaceted exploration of how creative thinking is perceived and developed within various educational contexts. This diversity not only enriches the findings but also suggests that creative thinking is a vital skill that transcends age and educational boundaries. The research

emphasizes the necessity for educational frameworks to integrate creative thinking into curricula, thereby equipping students with essential skills for problem-solving and innovation in an increasingly complex world. Overall, the study serves as a pivotal reference for future research and educational practices aimed at cultivating creativity in learners across all levels.

Applied Linguistic Topics

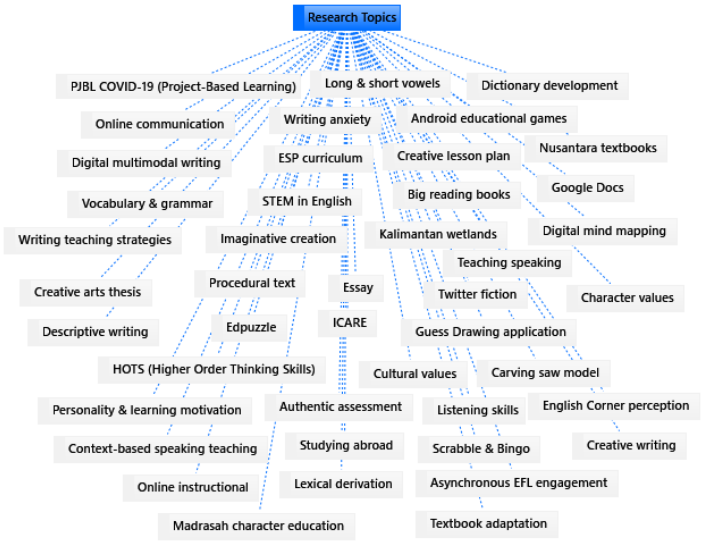

Figure 6. Applied Linguistic Topics with Creative Thinking Skills as the Main Concern in Indonesia

The data from figure 6 offers a comprehensive analysis of various educational themes and methodologies, with a particular focus on enhancing creative thinking skills. It emphasizes the importance of Higher Order Thinking Skills (HOTS) and the ICARE model, both of which foster critical and interdisciplinary learning. In this context, imaginative creation and essay writing are presented as effective strategies for cultivating creativity and analytical capabilities in students. Moreover, the interplay between cultural values and language skills is explored through initiatives such as dictionary development and listening comprehension, along with the benefits of international study experiences. The adaptation of textbooks and the integration of digital multimodal writing tools, like Google Docs, highlight the transformative role of technology in contemporary education.

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Assessment strategies within the document include authentic evaluation methods and specific writing techniques, such as procedural texts and online instructional methods. Innovative approaches, including "Twitter fiction" and asynchronous engagement in English as a Foreign Language (EFL), harness digital platforms to enhance language learning experiences. Particularly noteworthy is the discussion of Project-Based Learning (PJBL), which is recognized for its practical relevance, especially amid the challenges brought on by the COVID-19 pandemic. The incorporation of Nusantara textbooks, online communication tools, and engaging educational games like Scrabble and Bingo is also noted for their effectiveness in enriching the learning environment.

In addition, the data delves into particular language aspects, such as teaching speaking with a focus on vowel differentiation, creative writing exercises, and the use of digital mind mapping techniques. The integration of STEM education with English language learning, as well as the development of character values, are also discussed in detail. Technological tools like Edpuzzle and Canva are highlighted for their contributions to creating interactive and engaging learning experiences that promote creative thinking. Furthermore, the influence of personality traits and learning motivation, as well as the perception of English Corner as a valuable educational space, are examined. Finally, broader themes such as discrimination, humor expression, speaking talent, metaphorical expression, and online autonomous learning are addressed. The integration of Information and Communication Technology (ICT) with the Common European Framework of Reference (CEFR) and digital storytelling is also emphasized for its role in facilitating language acquisition and cultural exchange.

Overall, the document provides a well-structured overview of innovative educational strategies and tools aimed at enhancing both creative thinking and language skills in modern educational contexts, thereby promoting a more holistic approach to teaching and learning.

Treatments

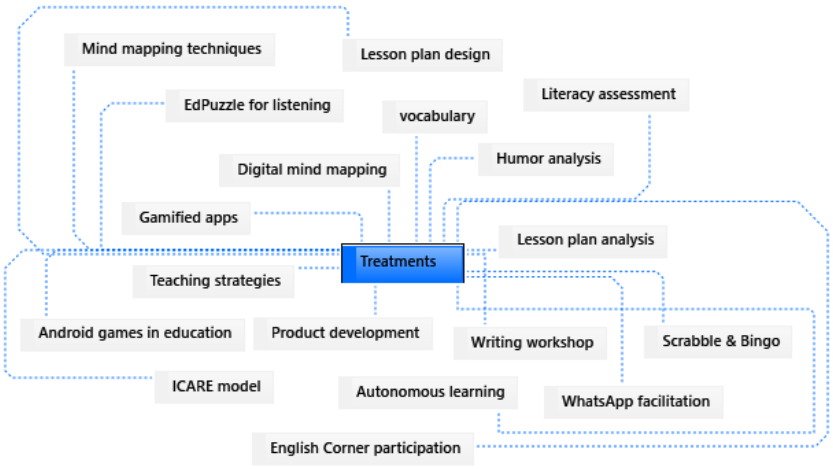

Figure 7. Types of Treatment or Independent Variables in Applied Linguistic Research with Creative Thinking Skill as the Main Concern in Indonesia

The data in figure 7 presents a wide range of educational strategies specifically designed to enhance creative thinking skills through innovative pedagogical practices. A notable method featured is the ICARE model, which provides a structured framework that promotes inquiry, creativity, and reflective thinking among students. Additionally, writing workshops are integrated into the curriculum to develop students' expressive abilities, enabling them to articulate their ideas creatively. The use of gamified applications, such as Scrabble and Bingo, not only fosters vocabulary development but also encourages cognitive flexibility—an essential aspect of creative thinking.

Moreover, digital tools like Puzzle for listening comprehension and digital mind mapping contribute to creating an interactive learning atmosphere that promotes independent learning and critical analysis. The incorporation of platforms like WhatsApp for communication highlights the transition towards digital mediums in education, facilitating collaborative learning experiences that can significantly enhance creative problem-solving skills. Furthermore, the focus on humor analysis within the curriculum represents an innovative approach to stimulate divergent thinking, urging students to consider various viewpoints. In summary, the strategies outlined in the document embody a comprehensive educational framework that emphasizes the development of creative thinking skills

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through diverse and engaging methodologies.

Data Collection Instruments

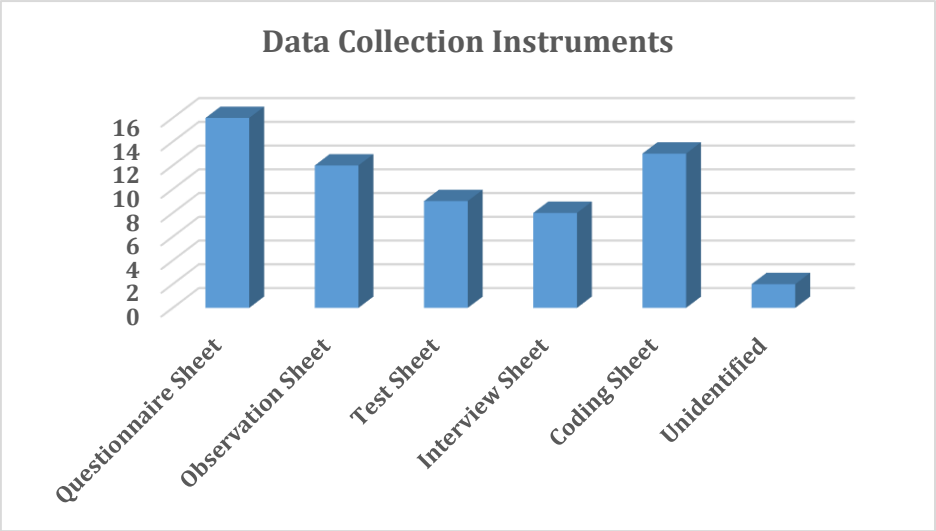

Figure 8. The Distribution of Instrument Selection for Data Collection in Some Applied Linguistic Researches with Creative Thinking Skill as the Main Concern in Indonesia

In the process of conducting research, it is essential for researchers to utilize instruments that facilitate data collection. Numerous tools have been developed by previous researchers to measure students' creative thinking skills. As illustrated in Figure 8, an analysis of data collection instruments used between 2014 and 2024 to evaluate creative thinking skills reveals a wide range of methodologies. These instruments fall into six primary categories: questionnaires, observation sheets, test sheets, interview sheets, coding sheets, and a few unidentified tools. Questionnaires were the most commonly used, with 16 instances, indicating their frequent use in capturing subjective perceptions and self-reported evaluations of creative thinking.

Observation sheets, employed 12 times, underscore the importance of assessing creative behaviors in real-time, allowing for a richer understanding of creativity in natural contexts. Test sheets, which appeared 9 times, demonstrate the use of standardized assessments to measure creative abilities, while the 8 instances of interview sheets highlight the significance of gaining qualitative insights into individual creative processes. The use of coding sheets, with 13 instances, reflects a structured approach to analyzing creative outputs, such as through content analysis or thematic coding. Additionally, the presence of 2 unidentified instruments suggests a gap in categorizing or documenting certain tools, necessitating further investigation. Overall, these findings underscore the complexity of measuring creative thinking skills and the diverse approaches researchers have employed over the past decade to capture this multifaceted construct.

Data Analysis Methods

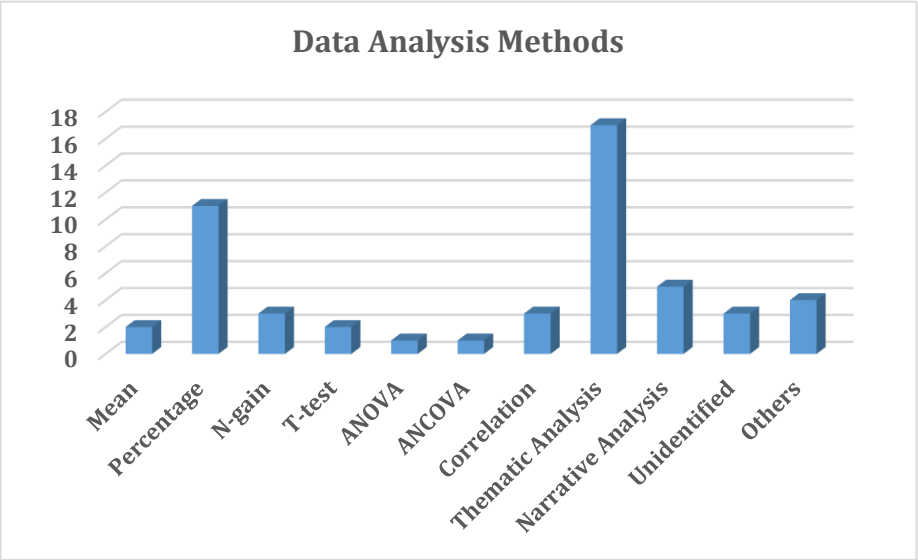

Figure 9. The Distribution of Data Analysis Methods in Some Applied Linguistic Research with Creative Thinking Skills as the Main Concern in Indonesia

The analysis of data collection methods used to assess creative thinking skills between 2014 and 2024 reveals a wide range of analytical techniques applied by researchers. Thematic Analysis emerged as the most frequently used method, appearing in 17 instances, highlighting the preference for qualitative approaches

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that enable the identification of underlying themes and patterns in the data. Its prominence suggests that Thematic Analysis is particularly effective for capturing the nuanced and multifaceted nature of creative thinking, which often eludes purely quantitative evaluation. Beyond Thematic Analysis, other methods such as Narrative Analysis (5 instances) and Correlation Analysis (3 instances) also play significant roles. Narrative Analysis, which examines individual stories and experiences, complements Thematic Analysis by providing deeper insights into the contexts in which creative thinking develops. Meanwhile, Correlation Analysis indicates a focus on identifying relationships between various factors that influence creative thinking skills.

Although quantitative methods are less commonly used, they still contribute to the analysis of creative thinking skills. Techniques such as Mean (2 instances), Percentage (11 instances), N-gain (3 instances), T-tests (2 instances), ANOVA (1 instance), and ANCOVA (1 instance) demonstrate researchers' interest in measuring and comparing the effectiveness of interventions aimed at enhancing creative thinking. The use of these statistical methods underscores the importance of ensuring the reliability and validity of findings through rigorous analysis. Additionally, the presence of unidentified methods (3 instances) and a category labeled "Others" (4 instances) suggests the emergence of novel or unconventional approaches that have yet to be fully classified. This aspect of the analysis reflects the evolving nature of research methodologies in the study of creative thinking, indicating a continual exploration of innovative strategies to better understand this complex phenomenon.

The analysis of data collection methods related to creative thinking from 2014 to 2024 showcases a rich blend of qualitative and quantitative techniques. The dominance of Thematic Analysis, combined with the use of various statistical methods, reflects a thorough approach to investigating the complexities of creative thinking. As research in this field advances, the integration of diverse methodologies will likely lead to deeper insights into creative processes and their broader educational and societal implications.

Conclusion

This study reviewed articles focusing on creative thinking skills, published in Applied Linguistics journals across Indonesia from 2014 to 2024. The analysis revealed an upward trend in publications addressing creative thinking, particularly

in the last four years. Among the numerous studies, qualitative research was the most prevalent, with undergraduate students frequently selected as the primary research subjects. A wide range of topics was explored, with various instructional approaches being the most commonly implemented. Questionnaire sheets and thematic analysis were the most frequently used instruments for data collection and analysis. Based on these findings, several recommendations for future research are proposed. Firstly, there is a need to increase the use of quantitative research to examine the development of creative thinking skills. Secondly, research and development (R&D) studies should focus on creating instructional products aimed at enhancing students' lower levels of creative thinking. Thirdly, researchers should provide clear details about the instruments they use, including their validity and reliability. Lastly, it is advised that researchers carefully select appropriate tests and research designs that best fit their hypotheses and study objectives.

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