



Exploring Role Play in Early Childhood Education: A Bibliometric Analysis Based on Scopus Data

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ABSTRAK. Penelitian ini mengkaji tren dan perkembangan studi mengenai metode bermain peran dalam pendidikan anak usia dini melalui analisis bibliometrik berbasis data Scopus. Fokus utamanya adalah pemetaan sistematis literatur akademik yang membahas kontribusi bermain peran terhadap perkembangan kognitif, sosial-emosional, dan bahasa anak. Pendekatan yang digunakan adalah analisis bibliometrik deskriptif-kuantitatif, mencakup proses identifikasi, penyaringan, evaluasi kelayakan, dan inklusi terhadap publikasi ilmiah dari tahun 2015 hingga 2024. Sebanyak 42 dokumen (35 artikel dan 7 buku) yang memenuhi kriteria inklusi dianalisis menggunakan perangkat lunak VOSviewer, Microsoft Excel, dan Publish or Perish. Hasil menunjukkan bahwa puncak publikasi terjadi pada tahun 2022, sebelum mengalami penurunan pada tahun-tahun berikutnya. Dalam hal kolaborasi, penelitian didominasi oleh negara seperti United Kingdom dan Australia, yang tercatat paling sering muncul dalam afiliasi penulis. Analisis kluster tematik mengungkap beberapa fokus utama dengan kata kunci dominan seperti “role play”, “child language,” dan “play.” Selain itu, ditemukan sejumlah kata kunci baru yang mencerminkan arah perkembangan riset di masa mendatang. Studi ini menyajikan gambaran menyeluruh tentang lanskap ilmiah terkait bermain peran, dan dapat dijadikan rujukan penting bagi peneliti, praktisi pendidikan, serta pembuat kebijakan dalam merancang intervensi pendidikan anak usia dini berbasis pendekatan bermain.

Kata Kunci : Analisis Bibliometrik; Bermain Peran; Pendidikan Anak Usia Dini; VOSviewer

ABSTRACT. This research examines trends and developments in the study of role play in early childhood education through a bibliometric analysis based on Scopus data. The main focus is a systematic mapping of academic literature that addresses the contribution of role-playing to children's cognitive, social-emotional and language development. The approach used was descriptive-quantitative bibliometric analysis, which included identification, screening, eligibility evaluation and inclusion of scientific publications from 2015 to 2024. A total of 42 documents (35 articles and 7 books) that met the inclusion criteria were analyzed using VOSviewer, Microsoft Excel, and Publish or Perish software. The results showed that the peak of publications occurred in 2022, before experiencing a decline in the following years. In terms of collaboration, studies were dominated by countries such as the United Kingdom and Australia, which were noted to appear most frequently in author affiliations. Thematic cluster analysis revealed several major foci with dominant keywords such as “role play,” “child language,” and “play.” In addition, a number of new keywords were found that reflect the direction of future research developments. This study provides a comprehensive overview of the scientific landscape related to role play, and can serve as an important reference for researchers, educational practitioners, and policy makers in designing play-based early childhood education interventions.

Keyword : Bibliometric Analysis; Role Play; Early Childhood Education; VOSviewer

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INTRODUCTION

Early childhood refers to the golden period in a child's life, spanning from birth to approximately six years old. During this stage, the brain undergoes rapid development, enabling children to learn quickly and absorb new skills with ease [1]. Maximizing the development of early childhood through providing stimulation and teaching that is appropriate to their age is very important. Effective and developmentally appropriate stimulation significantly contributes to the optimal physical, cognitive, and emotional development of children. The golden age represents a critical phase for cultivating children's character and essential skills, necessitating focused support and guidance from both parents and educators. Teachers, in particular, play a pivotal role, as the effectiveness of the educational process largely depends on their initiative and engagement [2]. Consequently, enhancing the quality of education should prioritize the development of teachers' competencies. Their role is essential, particularly in recognizing and responding to the developmental stages of children within early childhood education.

Zaini and Dewi highlight six main developmental domains that can be fostered through early childhood education: moral and religious values, physical and motor skills, language skills, social-emotional competencies, cognitive development, and artistic expression [3]. Children show individual variation in the development of these six domains of development, so it is important for educators to have a thorough understanding of each domain. These aspects especially cognitive, social-emotional, and language development are interrelated and influence each other throughout the growth process. One effective approach to developing these skills is through play-based learning activities, such as role-playing, which provide meaningful opportunities for observation and development.

One approach that is considered effective in developing these aspects is the role play method. Role playing allows children to explore the world around them through symbolization and imagination, by pretending to be a character or experiencing certain situations [4] [5]. In practice, this method involves role-taking by learners in certain scenarios, social interaction between children, and reasoning in solving problems and understanding the perspectives of others. Through this symbolic play, children not only develop social and emotional skills, but also improve critical thinking, communication, and language and reasoning skills. In fact, this method allows for a natural transfer of values, emotional understanding, and ethical reflection through meaningful experiences. Thus, the application of role-playing methods in early childhood education not only enriches the learning process, but also integrates various dimensions of child development.

The role-playing method has several important components that support the learning process, including: 1) Students take on certain roles or characters in predetermined situations, be they real or fictional characters. This allows them to explore various aspects of life; 2) Simulated scenarios or situations can vary from simple to more complex. This scenario sets the context and purpose of the game, providing direction for students in role-playing; 3) Social interaction, students interact with each

other in the roles taken, communicate, cooperate, and resolve conflicts. Through this interaction, they develop social, emotional, cognitive, and language skills. This game not only teaches them about other people's perspectives but also encourages them to think critically and solve problems [3].

Although the benefits of role-playing methods have been widely outlined in studies, to date there is no systematic review available that analyzes the trends, directions and global literature map related to this topic. Many previous studies have focused on the effects of role-playing on specific aspects of development such as social skills or language in isolation e.g. Khadijah & Amalia's 2021 study examined the cognitive development that can be stimulated by role-playing [6], but there is no comprehensive review that maps how, where and by whom this topic is researched across countries and time. This creates gaps in the literature that make it difficult for researchers and practitioners to understand methodological developments, scientific collaborations, and potentially new, unexplored areas of research [7].

Based on the background and literature gaps that have been described, this study aims to analyze the trends and development of studies on role-playing methods in early childhood education through a bibliometric analysis approach based on Scopus data. This research was conducted to fill the gap in the literature by presenting a bibliometric analysis of studies on role-playing methods in early childhood education during the period 2015-2024. This research is different from previous studies because it uses a bibliometric-based quantitative approach, utilizes the Scopus database, and is supported by analysis tools such as VOSviewer, Microsoft Excel, and Publish or Perish. Unlike previous studies that were descriptive-qualitative or experimental in a local context, this study is global and longitudinal. We aim to uncover publication trends, topic clusters, key authors, international collaborations, and future research directions. The findings of this study are expected to be a reference source for researchers, educators, and policy makers in formulating more appropriate and evidence-based early childhood education development strategies.

METHODS

This study uses bibliometric analysis combined with bibliometric visualization techniques. Visualization methods are applied to describe the structural framework of a particular research domain. This methodology consists of four sequential phases: identification, screening, eligibility evaluation, and inclusion [8]. In this study, descriptive bibliometrics is used to characterize the attributes of the literature. Bibliometric analysis has various purposes, including identifying emerging trends in articles and journals [7]. The documents used in this study are documents published on Scopus, namely 42 documents that meet the criteria consisting of 35 articles and 7 books. Scopus monitors more than 24,000 scientific journals from various fields, allowing for a more comprehensive and accurate analysis. In addition, Scopus's reputation as a trusted source of scientific data and the international standards applied in indexing articles are also advantages. In the initial identification stage, the researcher

entered the keyword "role play" that corresponds to the research theme into the Scopus database, by filtering metadata from the period 2015 to 2024. This search produced a total of 4,310 documents.

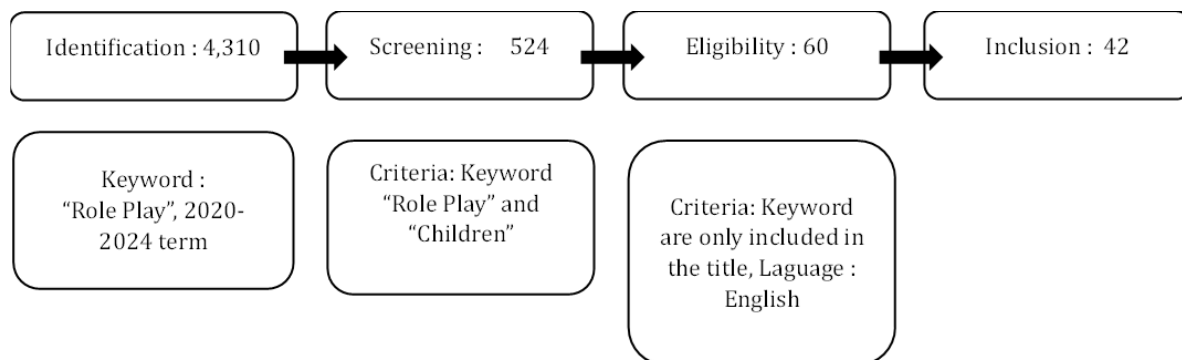


Figure 1. Data refinement stages

Screening was the second stage, in which researchers screened the 4,310 publications obtained from the previous stage. In this process, specific criteria were set based on the research requirements. Publications had to be articles published in reputable journals and related to the subject of children. Of the initial 4,310 documents, 3,786 failed to meet these criteria and therefore could not be considered further. Consequently, 524 publications that met the screening criteria proceeded to the next stage.

Eligibility represents the third stage, during which the researcher assesses whether the 524 publications qualify for inclusion in the final phase. To determine eligibility, the researcher applies the criterion that the publication must be written in English. Publications not meeting this language requirement are excluded from further consideration. Following this evaluation, 60 publications remain eligible for progression to the final stage.

The final stage, inclusion, involved selecting articles that were relevant to the research focus. A total of 42 publications met the established criteria. This study aimed to investigate trends and developments in research on role play in early childhood education. Therefore, these 42 publications were included to maintain the objectivity of the research findings.

The data analysis techniques used are deductive, progressing from general findings to more specific insights. This includes analyses such as country-bibliography pairs, institution-bibliography pairs, journal-bibliography pairs, publication-bibliography pairs, author-bibliography pairs, and co-occurrence of author keywords, allowing the reader to follow the flow of information from a broader level to a more detailed level [9], [10]. In performing the analysis, researchers utilize various software tools to assist in processing and visualizing the collected data. Microsoft Excel is employed for data entry and to generate tables illustrating publication and citation trends. Vosviewer is used to visualize the relationships between countries and research focus areas within the studied field. Additionally, the PoP application is utilized to calculate citation metrics such as NCP, C/CP, h-index, and others.

RESULTS AND DISCUSSION

This section examines several key trends: citation patterns, international research collaborations, and key research focuses related to role-play in children. Publication trends reflect the development of the number of scientific papers published in this domain from 2015 to 2024, offering insight into the growth of interest and scholarly activity among scholars and academics studying role-play in early childhood education. Citation trends highlight the extent to which this research has influenced subsequent research and served as a reference for other scholars. Increased citations signal greater recognition and acceptance of role-play research within the scientific community. Furthermore, trends in international research collaborations reveal the extent of cooperation among researchers from different countries in this field. Such collaborations often produce higher-quality and more impactful results by integrating diverse perspectives and expertise. Finally, research focus trends identify specific areas in the study of role-play in children that have attracted attention during the period 2015–2024.

Trends in Publication, Publication trends are presented by categorizing the number of publications according to the year of publication. Figure 2 illustrates the publication trend related to role-playing games for children from 2015 to 2025.

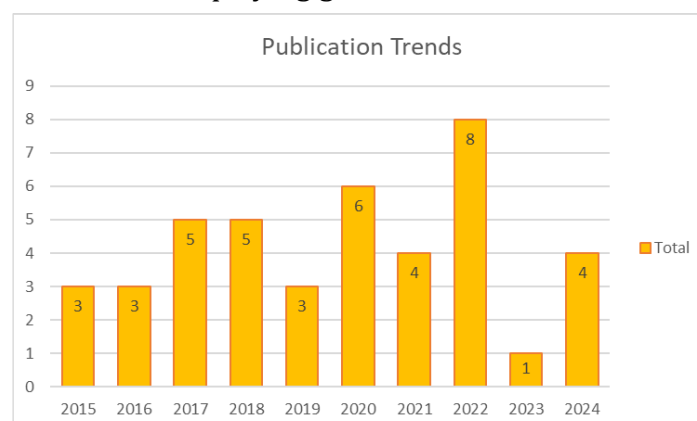


Figure 2. Trends in Publication

As illustrated in Figure 2, 2022 recorded the highest number of publications, with 8 documents. The most significant growth occurred between 2021 and 2022, with an increase of 4 publications. However, in the following year, 2023, the number of publications decreased to only 1 document. In 2022 to 2023, there was a drastic decrease, namely, there was only 1 publication. In 2024, there was a slight increase to 4 documents published. Next, we will look at the citation trend related to role play in early childhood from 2015 to 2024. Overall, the number of publications on role play in children tends to be unstable over the past ten years. The number of publications varies each year, influenced by factors such as changes in the educational curriculum, which have led to a decline in interest in role-play research in early childhood education. This publication trend can be a motivation for researchers, educators, and teachers to improve the application of role-play learning in early childhood environments.

Tabel 1. Trends in Citations

Years	TP	NCP	Tc	H	G
2024	4	1	1	1	1
2023	1	1	2	1	1
2022	8	7	34	4	5
2021	4	2	4	1	2
2020	6	4	17	2	4
2019	3	2	22	2	3
2018	5	4	48	4	5
2017	5	4	62	3	5
2016	3	3	44	2	3
2015	3	3	19	3	3

TP refers to the total number of publications; NCP indicates the number of citations received by a paper; TC represents the total citations; H indicates the h-index; and G corresponds to the g-index.

As shown in Table 1, the highest number of citations per paper (NCP) occurred in 2022. Although there were only 5 publications in 2017, the total citations reached 62. The lowest total citation was in 2024 with 1 citation, and the highest total citation was in 2017 with 62 citations. In 2018, the h-index and g-index values reached their peak, then the second position was in 2017, with a difference of 1 h-index point. This shows that 2017 and 2018 had a major impact on research on role-playing in children. This indicates that the articles have been widely cited by other researchers, highlighting their substantial contribution to the advancement and understanding of the subject. This shows that the 2020 research made an important contribution and had a major influence in advancing knowledge and understanding of role-playing in early childhood. Table 2 presents the top ten studies based on the number of citations in 2022.

Tabel 2. Publications from 2018 and 2017 with the highest total citations

Authors	Title	Journal	Years	Cites	Refs
Marilyn Fleer	Digital Role-Play: The Changing Conditions of Children's Play in Preschool Settings	Mind, Culture, and Activity	2017	34	[11]
Rachel L Severson and Shailee R Woodard	Imagining Others' Minds: The Positive Relation Between Children's Role Play and Anthropomorphism	Frontiers in Psychology	2018	26	[12]
Kris Kalkman and Alison Clark	Here we like playing princesses – newcomer migrant children's transitions within day care: exploring role play as an indication of suitability and home and belonging	European Early Childhood Education Research Journal	2017	22	[13]
Zenna Kingdon	Young children as beings, becomings, having beens: an integrated approach to role-play	International Journal of Early Years Education	2018	13	[14]
Toni L. Fallon, Ruth Aylett,	Investigating social vulnerability in	Computer and Education	2018	5	[15]

Authors	Title	Journal	Years	Cites	Refs
Helen Minnis, Gnanathusharan Rajendran	children using computer mediated role-play				

A notably influential article in this field is the study by Marilyn Fleeer titled “Digital Role-Play: The Changing Conditions of Children’s Play in Preschool Settings” [11]. This article has been cited 34 times and examines the psychological changes occurring in preschool children’s role-play activities when digital technology, particularly digital animation, is integrated into the learning environment. The study was conducted across three preschools, involving 103 children with average ages of 3 years 8 months, 4 years 2 months, and 5 years, respectively. Data collection consisted of 371 hours of video observations. The findings revealed the emergence of new psychological conditions during digital role-play that affected how children directed their attention and engaged with the learning objectives established by teachers. Notably, there was a divergence in motivation: children were primarily driven by the playful aspect, whereas teachers emphasized learning outcomes. When these motivations did not align, a greater degree of negotiation was required between children and teachers to harmonize their goals. This research highlights the significance of understanding the dynamics of digital interaction in early childhood education and the ways in which technology can transform traditional play practices.

The second most frequently cited study is by Rachel L. Severson and Shailee R. Woodard, titled “Imagining Others’ Minds: The Positive Relation Between Children’s Role Play and Anthropomorphism” [12]. This study explores the connection between children’s role play and their propensity to attribute human mental characteristics to non-human entities, including animals, technology, and natural elements. Involving 90 children aged 5, 7, and 9 years. The results showed that children who often impersonated, pretending to be animals, humans, or machines, were more likely to anthropomorphize. Children with invisible imaginary friends showed the highest levels of anthropomorphism compared to those who only had character toys or only impersonated. This study highlights that more imaginative forms of role play correlate with higher abilities in imagining mental states in non-human entities. The authors conclude that both role-playing and anthropomorphism may be based on similar mental processes, namely the simulation and projection of internal states onto other entities, suggesting an important link between social imagination and children’s cognitive development.

Trends in Cross-Country Collaboration, Figure 3 depicts the research collaboration among countries on the subject of role play in early childhood. The figure features circles representing countries that have contributed to scientific publications in this area. A threshold of a minimum of two documents is applied, so only countries with at least two publications are included in the analysis.

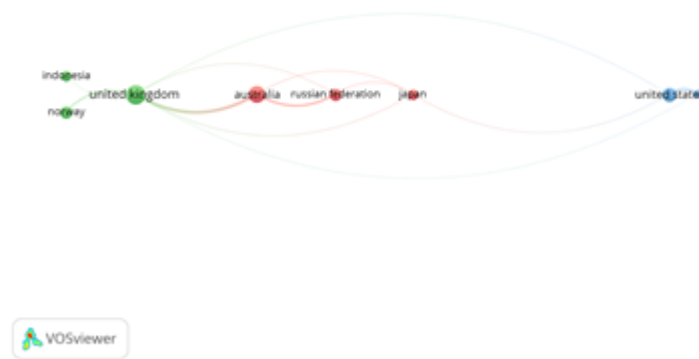


Figure 3. Visualization of bibliographic relationships between countries

Figure 3 shows international collaboration, indicated by the connections or links between the country nodes depicted in the figure. This relationship reflects the research collaboration that occurs between researchers from different countries in studying role-playing in early childhood. Figure 3 shows the existence of three clusters that can be distinguished based on the color of the circles, namely clusters with red, green, and blue circles. This cluster shows that there are groups of countries that have a higher level of collaboration among themselves in the field of role-playing research in early childhood.

Figure 4 provides a more detailed and clear insight into international research collaborations related to role-playing games. This figure provides a more detailed and detailed mapping of the relationship between countries, the level of collaboration, and the clusters formed in the research collaboration. These data offer a more comprehensive understanding of patterns of international research collaboration in the field of role-play in early childhood.

Selected	Country	Documents	Citations	Total link strength
☒	australia	7	88	306
☒	united kingdom	9	71	241
☒	russian federation	4	22	118
☒	united states	5	69	100
☒	ireland	2	38	95
☒	norway	4	28	32
☒	japan	3	9	22
☒	indonesia	3	5	2
☒	brazil	2	0	0
☒	italy	2	1	0
☒	mexico	2	5	0

Figure 4. Bibliographic coupling country

Figure 4 illustrates international research collaboration on role play in early childhood. A threshold of a minimum of two documents was applied, resulting in 11 countries meeting this criterion and being included in the analysis. The United Kingdom stands out with the highest number of publications, totaling nine documents. Australia holds the highest citation count, with 88 citations, indicating strong recognition and influence of its research among scholars worldwide. Furthermore, the United Kingdom possesses the greatest total link strength, amounting to 306, underscoring its significant role in the field of role play research in children. Australia follows with seven publications, making both countries key contributors and focal points in this research area. The substantial number of publications and citations from these nations highlight

their important contributions and recognition within the scientific community. This data provides valuable insight into how international collaboration correlates with the global impact of research on role play in early childhood education.

Research Concentration, Figure 5 presents the main research focuses related to role-playing in early childhood education, while Figure 6 highlights new aspects of the research. Both visualizations were created using the Vosviewer application with a threshold set at 2, indicating that only keywords that appear in at least two different documents are displayed.

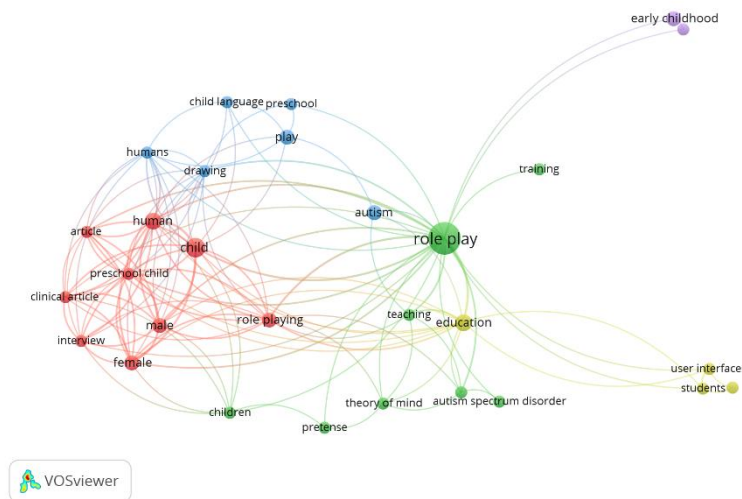


Figure 5. Research focus

Figure 5 displays five different colors: red, green, blue, yellow, and purple that are used to represent clusters that categorize research focuses in the field. The largest cluster, indicated by the keywords circled in red, contains nine items and represents the primary research focus that requires the most attention. The second largest cluster, indicated by the keywords circled in green, contains eight items and indicates a secondary research focus. The third cluster, indicated by the color blue, includes six items and indicates a tertiary research focus. Overall, the figure presents 29 keywords related to role-play in early childhood education. In the red cluster, the keywords “human, child, role-play” are the most prominent and thus serve as the primary research focus. In the green cluster, “role-play” is the largest keyword, making it the second primary area of study. In the blue cluster, the keywords “child language” and “play” are the most prominent, representing the third research focus. These three clusters offer valuable guidance for future research by helping to identify relevant themes in the field.

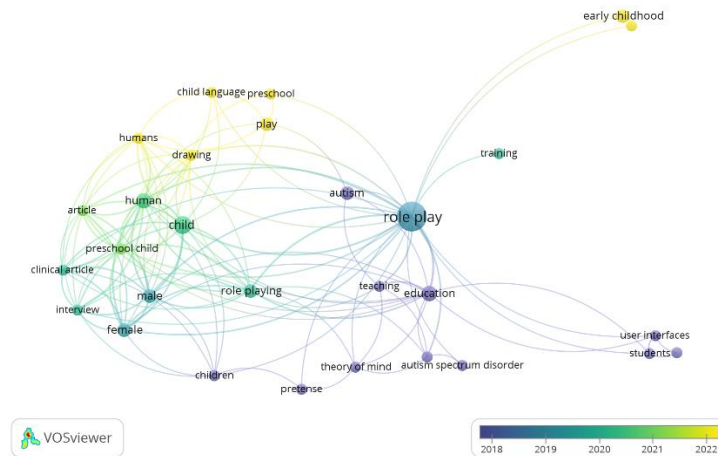


Figure 6. Research novelty

In Figure 6, various colors represent the timeline of keyword usage: purple indicates keywords used between 2018 and 2019, green corresponds to usage from 2019 to 2021, and yellow signifies keywords introduced in 2024. Keywords highlighted in yellow are newly introduced themes in the field, including "child language," "play," "humans," and "drawing." The connections between keywords serve as indicators of the research's novelty; keywords without links to others suggest emerging or unexplored topics. According to Figure 5, the keyword "role play" is directly connected to 28 other keywords, indicating its extensive coverage in the literature. Future researchers might consider exploring less connected keywords, such as the association between "role play" and "teacher education," which remains relatively unexplored and thus represents a promising area for novel research.

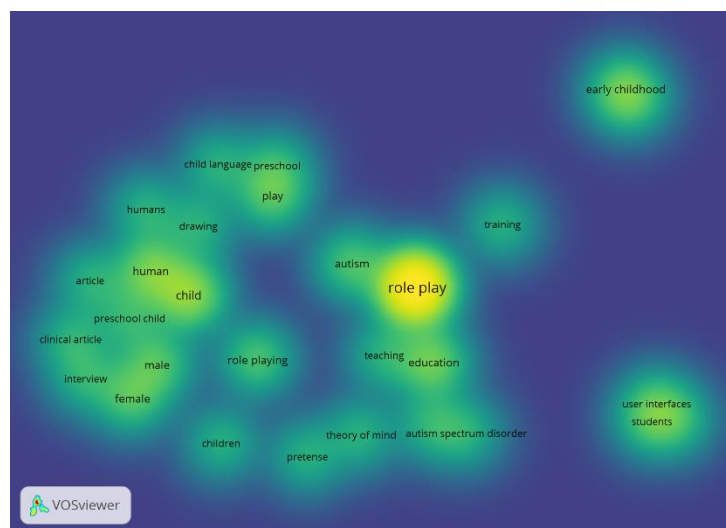


Figure 7. Density visualization

Figure 7 displays a density visualization that illustrates the intensity of keyword occurrence. The bright yellow area indicates keywords that have a very high frequency of occurrence. Meanwhile, the blue to green areas reflect low to medium density levels. This visualization confirms the dominance of the main keywords, such as role play, which appear as centers with high density levels. In contrast, keywords such as child language, preschool, humans, and training are in areas with lower density, indicating that these themes are still relatively rarely discussed in academic literature.

From 2015 to 2024, role play in children has become a significant research subject. This study aims to identify publication trends related to role play in early childhood. To understand the identification of keywords in research on role play in children, this study provides an understanding of content analysis with bibliometric analysis software in the form of VOSviewer. This software has been confirmed to be very useful in obtaining data from the Scopus database. This study produces bibliometrics that observe scientific articles, researchers, and publications that have the most citations. This study focuses on a sample of relevant journals to contextualize the findings through cluster analysis, topic review, authors, objectives, and main findings.

This study shows that in 2022, research related to role-playing in children was widely conducted. However, the research trend has decreased in the following years. The bibliometric analysis results indicate a notable decline in the number of publications, particularly in the year 2023. In addition, the trend in the number of citations shows that 2018 and 2017 have the highest number of citations, which has a significant impact on advancing education through role-playing. Research collaboration between countries is also important in role-playing research. There is a collaboration cluster that shows a high level of cooperation between several countries, such as the United Kingdom and Australia. This indicates that international cooperation can produce higher-quality and more impactful research in the field of role-playing. Regarding the novelty of the research, the existence of keywords that have only emerged in recent years, such as children's songs, games, humans, and drawing, indicates that this field continues to grow and there is still room for newer and more innovative research in role-playing research. The role-playing method is a field that continues to develop and has the potential to provide relevant solutions and innovations in facing future challenges.

Within early childhood education, role play serves not only as a form of entertainment but also as a valuable method for promoting children's cognitive, language, social, and emotional development [3], [5], [16]–[22]. The benefits of role play can improve children's cognitive abilities. When children play the role of a certain character, they are required to think creatively and solve problems. This activity helps them understand basic concepts while stimulating their critical and analytical thinking [19], [23]. Through role play, children can practice using new understanding in a practical and fun context. As they interact with peers, they learn to listen, speak, and respond appropriately. More effective way. The activity helps improve communication skills, such as pronunciation and intonation, because children often imitate the way the characters they play speak [1], [24]. Role play is also crucial for children's social and emotional development, as it provides opportunities for them to engage with peers, practice sharing, and collaborate to accomplish shared objectives [16], [25].

Previous studies have indicated a decline in research on role play in early childhood education over the past decade. Consequently, there is a need for future researchers to explore new studies in this area. Additional efforts are also necessary to promote the concept of sustaining role play within early childhood education. The quality of role play can be improved by providing role play materials and through role

play guides [26]. Teachers can design role play models with interesting themes and according to children's needs. This is also in line with research [24] that discusses role-play designed to understand digital transformation. To identify research novelty, the relationships between keywords can be examined, with keywords that lack connections to others representing emerging or novel topics within the field.

Analyzed in terms of research focus, three main clusters were found: first, "human", "child", and "role playing"; second, "role play"; and third, "child language" and "play". The keyword "role play" emerged as the core with extensive linkages to 28 other keywords, confirming its position as a central topic in the literature. In addition, there are new keywords that indicate future research directions, such as "drawing", "child language", and "humans", which have not been studied in depth. These findings confirm that although the topic of role play has been studied for a long time, there are still opportunities for new explorations, especially in relation to digital technology, teacher education and cross-cultural approaches. This research provides a comprehensive overview of research dynamics, identifying important trends, influential countries, and innovative keywords that can serve as a foundation for further research that is more contextual and relevant to today's educational challenges.

CONCLUSION

Based on the findings and discussion, it can be concluded that role play in early childhood has seen notable development over the past decade. The rise in the number of publications in 2022 reflects a heightened interest in exploring this area of research. Several studies have had a significant impact, reflected by the high number of citations, and this influences the direction of future research in role play. Collaboration between countries also plays an important role in the progress of this research, producing quality and broad-impact research. The main research focus involves role play, as well as teaching, which serves as a guide for further research. In addition, the emergence of new keywords shows that this field continues to grow and offers potential for more innovative research. Overall, research on role play in early childhood has an important impact on understanding, developing, and implementing role play, which is very relevant in preparing individuals for an increasingly developing future. The novelty of this study lies in its comprehensive bibliometric approach using Scopus data to map publication trends, citations, cross-country collaborations and thematic keywords over the period 2015-2024. Unlike previous studies that were experimental or localized qualitative in nature, this research offers a global and longitudinal perspective on the development of knowledge in the field of early childhood role play. It also identifies new themes such as "drawing" and "child language" that have not yet been explored, providing a starting point for further research. However, this study has limitations, including the limited data source from only one database, Scopus, so there may be important publications outside Scopus that are not included. In addition, this analysis is quantitative and does not delve deeply into the content of each article, so qualitative understanding of the research methods or results is still limited. Other limitations include not analyzing variables such

as cultural context or the age level of the children in detail, which could potentially affect the relevance and applicability of the findings in different regions.

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