Research Development on Management of Child-Friendly Schools (CFS) in Elementary School: A Bibliometric Analysis Using VOSviewer

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Abstract. The developments in child-friendly school research include inclusive school models, child-centeredness and democratic participation. Analyzing the development of child-friendly school research is very important to find research novelty. The purpose of this study was to analyze the research trends development of management on child-friendly schools (CFS) management at the elementary school. The research method used is bibliometric analysis. Data was obtained from the Google Scholar database in the form of papers published in international journals from 2017-2022. Data processing was carried out in three stages, 1) data collection, 2) data selection and 3) data analysis using VOSviewer. The results showed that the trend of research development on management of child-friendly school was highest in 2017 with 162 publications. The results of the overlay analysis shown in yellow circles indicate research topics that are often used in recent research, namely young child, early childhood education, children, appropriate education, need, school closure, learning, pandemic, covid, parent and home. While topics that are rarely used are clinician, school climate, school closure, disability, anxiety, autism spectrum disorder, women. The results of this study illustrate that the research topic for management of child-friendly school can be developed towards the term model of friendly schools for women and disabilities, development of a child-friendly school climate, and friendly schools for children with special needs.

Keywords: child-friendly school, inclusive school, management, VOSviewer

1. Introduction

Child-friendly schools (CFS) are a rights-based school management concept developed by UNICEF. The framework for a CFS is illustrated by a school that carries out its functions focusing on the interests of the child and respecting the uniqueness of the child; a safe and healthy educational environment, having sufficient (tangible and intangible) school resources according to student needs (Sugiyati & Siswanto, 2023; Hamdi, et. al, 2023; Muakhirin, 2022; Fitriani & Qodariah, 2021).

Since the 1990s, the concept of child-friendly schools (CFS) has been widely developed in Asia. Through the signing of Zimbabwe, the basic principle of developing CFS is oriented towards fulfilling children’s rights (Mandudza, 2013). The child-friendly school framework is also the basis for education reform in Central and Eastern European (CEE) countries (Clair, et. al, 2012). Sekolah Ramah Anak (SRA) is a term used by Indonesia in developing the concept of child-friendly schools. SRA management principles include the principle of non-discrimination, the best interest for children, life, survival and development, respect for the views of children, good management (guide book of Sekolah Ramah Anak (SRA), 2015).

1.1. Problem Statement

The development of research on child-friendly schools (CFS) has occurred in many parts of the world. It is not only done by developing countries, even developed countries have made many innovations that lead to the concept of CFS (Cobanoglu & Sevin, 2019). The three principles of implementing child-friendly schools that have been successfully applied in various conditions
are: 1) inclusiveness, 2) child-centeredness dan 3) democratic participation (Osher, et. al, 2009).

Knowing the development of research trends on child-friendly schools, especially at the elementary school level, is very important. Elementary school is the lowest level of education which has a strategic role for the future development of children (Alpian, et. al, 2019). Research topics that are in line with the theme of child-friendly schools that are currently developing, such as inclusive schools and the independent learning policy in Indonesia (Rasmitadila, et. al, 2022; Rahmadayanti & Hartoyo, 2022).

Research on CFS as a solution to cases of violence (bullying) in educational institutions, but problems of violence against children (bullying) and discrimination in schools still occur (Basilici, et. al. 2022). In an effort to overcome these problems, child-friendly school researchers need to accurately map research trends so as to get a clear picture of the relationship between CFS research topics and other fields using bibliometric analysis.

1.2. Related Research

Many studies on child-friendly school management in elementary schools (Sugiyati & Siswanto, 2023; Hamdi, et. al, 2023; Muakhirin, 2022). Environmental characteristics and the CFS model change according to the socio-economic level of the school, the sex of the students and the grade level (Cobanoglu, et. al. 2018; Jansson, et. al. 2022; Gaddis and Jeon, 2020). Most research leads to child-friendly schools as a model, characteristics and impact on education. However, research that leads to an analysis of the development of research trends on child-friendly school management in elementary schools is still very limited. This is the difference between existing research and this research.

1.3. Research Objectives

The purpose of this study was to analyze the development of research trends on child-friendly school management at the elementary school level. The description in this study includes:

1. An overview of topics related to the child-friendly school research theme (network visualization).
3. Visualization of research topics that are rarely used in child-friendly school management research.

2. Theoretical Framework

The child-friendly schools (CFS) is a pattern of school management that is safe, healthy, caring and has an environmental culture. In addition, ensuring the fulfillment of children's rights and protecting children from violence (bullying), discrimination and actions that dichotomize children in the school environment (Mandiudza, 2013; Jansson, et. al, 2022). School is the second home for children, therefore the school environment, facilities, management including the people at school need to create a school that is safe for children. The concept of a child-friendly school does not lead to efforts to build new schools, but an effort to improve the management system and school environment which is far more child-friendly. The term that can be used to describe this is child-friendly school management.

The three principles of implementing child-friendly schools that have been successfully applied in various conditions are: 1) inclusiveness, 2) child-centeredness dan 3) democratic participation (Osher, et. al, 2009). SRA in Indonesia uses the principles of non-discrimination, the best interests of children, life, survival and development, respect for children's views, good management (guide book of Sekolah Ramah Anak (SRA), 2015). These principles are the same as the concept of inclusive schools and the independent learning policy in Indonesia (Rasmitadila, et. al, 2022; Rahmadayanti & Hartoyo, 2022).

The child-friendly school management framework (Saptono, 2022) includes: 1) service standards, 2) anti-violence policies, 3) education management code of ethics, 4) safe and healthy facilities, 5) a safe, comfortable and healthy environment, 6 ) child participation, 7)
having good cultural values, 8) teachers and professional staff, 9) healthy living habits program at home and school and 10) community participation. The establishment and development of Child Friendly Schools in Indonesia consists of 5 categories, including (see table 1).

3. Method

3.1. Research Design

In this study, the method used was bibliometric analysis, which is an analysis of a database of articles published in international journals on child-friendly school management in elementary schools (Gan, et. al. 2022). There are many reports regarding bibliometrics (Rojas-Sanchez, et. al. 2023; Nandiyanto, et. al. 2023; Al Husaeni, 2022). Bibliometric analysis leads to mapping research topics related to child-friendly school management and research trends. The description of the stages of the research is as follows:

(i) Data collection on international publications were taken from the Google Scholar database from 2017-2022 with the help of Publish or Perish.

(ii) Data selection, namely the publication is a journal article and has been cited.

(iii) Data analysis using VOSviewer to see three things, namely Network, Overlay, and Density Visualization.

3.2. Data Collection

Research data from the Google Scholar database, namely papers published in international journals from 2017-2022 totaling 500 papers. Google Scholar is a database that is easily accessible without using access permissions. Research data collection uses the Publish or Perish application. The keywords used to collect data are management, child-friendly schools, and elementary school. Data selection was carried out using criteria, namely the paper is a journal article and has been cited. Based on these criteria, 492 papers were obtained.

Table 1. Category of Child Friendly Schools (CFS) in Indonesia

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Policy</td>
<td>√</td>
</tr>
<tr>
<td>Team of CFS administrator</td>
<td>√</td>
</tr>
<tr>
<td>Following the National CFS standard</td>
<td></td>
</tr>
<tr>
<td>Integration of CFS with RKAS</td>
<td></td>
</tr>
<tr>
<td>Child participation</td>
<td>√</td>
</tr>
<tr>
<td>School facilities</td>
<td>√</td>
</tr>
<tr>
<td>Human resources (teacher and staff)</td>
<td>√</td>
</tr>
<tr>
<td>Alumni participation</td>
<td></td>
</tr>
<tr>
<td>Society participation</td>
<td></td>
</tr>
<tr>
<td>CFS Model to other school</td>
<td>√</td>
</tr>
</tbody>
</table>

Note: School Budget Work Plan (RKAS)

3.3. Data Analysis

Data analysis with bibliometric analysis approach was carried out using VOSviewer to see three things, namely Network, Overlay, and Density Visualization. In addition, to see research trends, a mapping of the research number using Ms. Excel (Suherman, et. al. 2023; Fauziah, et. al. 2023). The description of the data analysis of the research is as follows (see figure 1):
4. Findings

The research results are described in three ways, namely 1) network visualization, 2) overlay visualization and 3) density visualization. Network visualization analysis describes the pattern of relationship between child-friendly school research themes and other themes, the level of strength of the relationship and the level of accuracy, overlay visualization to see trends in the development of child-friendly school research by year and density visualization shows research themes that are rarely used in child-friendly school research.

4.1. Network Visualization

The results of network visualization analysis on child-friendly school management using VOSviewer are described into 5 clusters (see figure 2).

(i) Cluster 1 is shown in red which consists of 28 items, namely adolescent, age, American academy, approach, appropriate education, assessment, asthma, care, child, childhood, clinician, diagnosis, European guideline, evidence, guideline, health, individual, life, management, nurse, person, prevention, primary care, risk, self-management, symptoms, treatment, and trial. In cluster 1, it was found that management and child topics were items that were frequently used. The topic of management has 90 relationships with other topics, including appropriate education, disability, autism spectrum disorder, anxiety, school, safe school. The strength of the relationship on the management topic is 737 and accuracy is 208. The child topic has 90 relationships with other topics, including teacher, parent, difficulty, need, support. The strength of the relationship on the child topic is 765 and occurrences is 192.

(ii) Cluster 2 is shown in green which consists of 25 items, namely administration, autism spectrum disorder, behavior, case study, childhood education, curriculum, early childhood education, elementary school, evaluation, gender, grade, home, knowledge, learning, level, outcome, preschool, present study, primary school, primary school teacher, problem, quality, school, school administration, and teacher. In cluster 2 it was found that school topics were items that were frequently used. The school topic has 85 relationships with other topics, including school closure, school climate, safe school, classroom management, primary school, abilities, intervention. The strength of the school topic relationship is 524 and occurrences is 126.

(iii) Cluster 3 is shown in blue which consists of 18 items, namely ability, access, analysis, challenge, condition, country, development, effectiveness, emotion, experience, hinger education, literature, manager, policy, practice, safe school, school climate and women. In cluster 3 it was found that development topics were items that were frequently used. The topic of development has 52 relationships with other topics, including experience, analysis, access, effectiveness, administration. The strength of the development topic relationship is 132 and occurrences is 35.

(iv) Cluster 4 is shown in yellow which consists of 14 items, namely anxiety, classroom, classroom management, disability, education, intervention, need, perspective, program, secondary school, strategy, stress, student, and support. In cluster 4, it was found that the topic of education is an item that is often used. The topic of education has 83 relationships with other topics, including childhood education, school closure, manager, intervention, grade. The strength of the education topic relationship is 418 and occurrences is 108.
Cluster 5 is shown in purple which consists of 9 items, namely children, covid, difficulty, effect, family, pandemic, parent, school closure and young child. In cluster 5 it was found that the topic of covid is an item that is often used. The topic of covid has 59 relationships with other topics, including health, care, condition, management, education, teacher, quality. The strength of the relationship to the topic of covid is 213 and accurances is 47.

Figure 2. Network visualization on management of child-friendly schools (CFS) research

4.2. Overlay Visualization

Overlay visualization is an analysis of patterns and trends from research on child-friendly school management. In this study, research trends on this topic were only seen in 2017-2022. The purpose of the visualization overlay analysis is to see the contents, patterns and trends of a collection of article documents on Google Scholar which are published in international journals. The results of the overlay analysis with the help of VOSviewer can be seen from the latest research patterns shown in yellow. The yellow color pattern of visualization overlay shows the most recent research topic, namely young child, early childhood education, children, appropriate education, need, school closure, learning, pandemic, covid, parent and home (see figure 3).

The development trend of research on child-friendly school management from 2017-2022 has decreased every year. the highest number of publications occurred in 2017, namely 162 publications. In 2020 (87 publications) the number of publications has increased from 2019 (64 publications), then after that decreased again until 2022 only 13 publications (see figure 4).
4.3. Density Visualization

Density visualization is an analysis of the density of the keyword: management, child-friendly school and elementary school. The colors that appear in the density visualization image indicate research topics that are often carried out. Bright yellow color is a research topic that is most often used by researchers, including management, school, child, teacher and intervention. The yellow color which is getting dimmer illustrates that this topic is rarely used as
a research topic, namely clinician, school climate, school closure, disability, anxiety, autism spectrum disorder, women (see figure 4).

![VOSviewer](image)

**Figure 4.** Density visualization on management of child-friendly schools (CFS) research

Table 2 is the 10 papers with the highest number of citations, the number of citations exceeds 1000 citations per paper. Paper written by Rasmitadila, et. al. (2020) has been cited 1063 times by other researchers and the highest number of citations is a paper written by McCrory, P., et. al. (2017) entitled Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016, published in the British journal of sports medicine, has been cited 3783 times by other researchers.

5. Discussion

The development of research on child-friendly school management in elementary schools based on overlay visualization has decreased every year. The trend of this research shows that the topic of child-friendly schools is no longer the main topic in research related to rights-based education (Mandiudza, 2013). Research developments that are in line with the current topic of child-friendly schools are inclusive schools. Many studies are currently being conducted on the theme of inclusive schools (Wray, et. al, 2022; Rasmitadila, et. al, 2022; Miller, et. al, 2022; Lambrecht, et. al, 2022; Woodcock, et. al, 2022; Akbarovna, et. el, 2022; Were, et. al, 2022; Abraham, et. al, 2023).

In addition to the topic of inclusive schools, the topic of the developing independent learning policy in Indonesia is a research topic that is in line with the theme of child-friendly schools. There has been a lot of research on independent learning, namely an educational model that gives children freedom to learn according to their interests and talents (Rahmadayanti & Hartoyo, 2022; Rahayu, et. al, 2022; Nasution, 2022; Indarta, et. al, 2022; Priantini, et. al, 2022).
Table 2. Number of citations per paper

<table>
<thead>
<tr>
<th>Cites</th>
<th>Authors</th>
<th>Title</th>
<th>Year</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1063</td>
<td>Rasmitadila, et. al.</td>
<td>The perceptions of primary school teachers of online learning during the COVID-19 pandemic period</td>
<td>2020</td>
<td>Journal of Ethnic and Cultural Studies</td>
</tr>
<tr>
<td>1224</td>
<td>Bozkurt, A., et. al.</td>
<td>A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis</td>
<td>2020</td>
<td>Asian Journal of Distance Education</td>
</tr>
<tr>
<td>1318</td>
<td>Sicherer, S. H., &amp; Sampson, H. A.</td>
<td>Food allergy: a review and update on epidemiology, pathogenesis, diagnosis, prevention, and management</td>
<td>2018</td>
<td>Journal of Allergy and Clinical Immunology</td>
</tr>
<tr>
<td>1677</td>
<td>Brożek, J.L., et. al.</td>
<td>Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines—2016 revision</td>
<td>2017</td>
<td>Journal of Allergy and Clinical Immunology</td>
</tr>
<tr>
<td>3783</td>
<td>McCrory, P., et. al.</td>
<td>Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016</td>
<td>2017</td>
<td>British journal of sports medicine</td>
</tr>
</tbody>
</table>

The density visualization analysis shows that there are many research topics related to child-friendly schools. For the 2017-2022 period there are at least 5 clusters. In each cluster there are terms that are often used as research topics including management, education, school, covid and development. These terms have a strong relationship with the topic of child-friendly schools. While topics that are rarely used in research related to child-friendly schools include: clinician, school climate, school closure, disability, anxiety, autism spectrum disorder, women.
6. Conclusion

Based on the results of the research and discussion, it can be concluded that from the published data of international journals on the Google Scholar database in 2017-2022 there were 492 papers and analyzed using VOSviewer, the theme most often used in research that has a relationship with child-friendly schools is management, education, school, covid and development. Meanwhile, topics that are rarely used are clinician, school climate, school closure, disability, anxiety, autism spectrum disorder, women. The research implications illustrate that research on child-friendly school management can be linked to inclusive schools, school climates and students with special needs (SSNs).

Limitation

The limitations of this study are only to analyze trends in the development of research on child-friendly school management with the additional keywords elementary school and only describe topics that have a relationship with the theme of child-friendly schools and topics that are rarely used in recent research.

Recommendation

Based on the research results, the following recommendations, namely: (1) The development of research using the bibliometric analysis method on child-friendly school management can be complemented by analysis based on fields of knowledge, research methods, education levels and using more databases, (2) The results of this study can be used as a basis for conducting further research on child-friendly school management in elementary schools (CFS), and (3) Research that can be developed is a model of friendly schools for women and disabilities, development of a child-friendly school climate, and friendly schools for children with special needs.

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Conflict of Interest

The Authors declare that there is no conflict of interest.

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