

BIBLIOMETRIC ANALYSIS OF THE DEVELOPMENT OF LOCAL CULTURE-BASED ELEMENTARY SOCIAL STUDIES E-MODULES FOR PGSD STUDENTS

ANALISIS BIBLIOMETRIC PENGEMBANGAN E-MODUL IPS SD BERBASIS BUDAYA LOKAL BAGI MAHASISWA PGSD

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Submitted

September 10, 2025

Accepted

September 15, 2025

Revised

October 3, 2025

Published

October 30, 2025

Kata Kunci:

Bibliometril,
Budaya Lokal,
E-Modul

Keywords:

Bibliometric;
Local Culture;
E-Modules

Abstract

Pemahaman dan pengenalan budaya lokal merupakan hal penting yang perlu diberikan kepada calon guru sekolah dasar sebagai bagian dari pembelajaran kontekstual. Salah satu upaya yang dapat dilakukan adalah melalui pengembangan e-modul pembelajaran IPS berbasis budaya lokal. Penelitian ini bertujuan untuk menganalisis tren dan arah penelitian terkait pengembangan e-modul pembelajaran IPS SD berbasis budaya lokal dengan menggunakan analisis bibliometrik terhadap artikel yang diterbitkan pada tahun 2018–2022. Data penelitian diperoleh dari Google Scholar melalui aplikasi Harzing's Publish or Perish (PoP) dengan total 300 artikel yang teridentifikasi. Setelah proses penyaringan (screening) berdasarkan kata kunci "e-modul pembelajaran IPS", diperoleh 35 artikel yang relevan dan dianalisis menggunakan VOSviewer untuk memetakan keterkaitan antar topik dan tren penelitian. Hasil analisis menunjukkan bahwa penelitian tentang pengembangan e-modul pembelajaran IPS SD cukup banyak dilakukan, namun belum terdapat publikasi yang secara khusus membahas pengembangan e-modul berbasis budaya lokal, terutama yang ditujukan bagi mahasiswa PGSD. Temuan ini mengindikasikan adanya kesenjangan penelitian (research gap) dalam integrasi nilai-nilai budaya lokal ke dalam pengembangan e-modul IPS SD. Oleh karena itu, penelitian selanjutnya perlu diarahkan pada pengembangan e-modul IPS SD berbasis budaya lokal, terutama yang berakar pada budaya Melayu Riau, untuk memperkuat kompetensi pedagogik dan wawasan kontekstual mahasiswa PGSD.

Abstract

The crucial role of fostering an understanding and appreciation of local culture must be emphasized for pre-service elementary school teachers as an integral component of contextual learning. A viable approach to achieving this is through the development of e-modules for Social Studies (IPS) instruction rooted in local culture. This research endeavors to analyze the bibliometric trends and trajectory of studies concerning the development of local culture-based IPS e-modules for primary schools, focusing on articles published within the period of 2018–2022. Data were sourced from Google Scholar utilizing the Harzing's Publish or Perish (PoP) application, initially identifying 300 articles. Following a rigorous screening process based on the keyword "IPS learning e-module," a final set of 35 relevant articles was selected and subjected to analysis using VOSviewer to visually map the interconnections among topics and emerging research trends. The analytical findings reveal that while the development of IPS e-modules for elementary education is a relatively frequent research subject, no dedicated publications were found that specifically address the development of local culture-based e-modules, particularly those tailored for students in the Elementary School Teacher Education (PGSD) program. This outcome signals a notable research gap in the scholarly literature regarding the systematic integration of local cultural values into the design of elementary school IPS e-modules. Consequently, future research should be strategically oriented towards the development of local culture-based IPS e-modules, especially those drawing upon Riau Malay culture, with the aim of bolstering the pedagogical competence and contextual insights of PGSD students.

Citation:

Guslinda, et al. (2025). Bibliometric Analysis of the Development of Local Culture-Based Social Studies E-Modules for Pgsd Students. *Journal of Educational Progress*, 4(4), 816-828. DOI: <https://doi.org/10.33578/kpd.v4i4.p817-827>.

INTRODUCTION

Culture-based learning is an effort made in promoting 21st century skills where the rapid development of technology and the influence of globalization have an impact on the implementation of learning. 21st century skills demand an acceleration in adapting, especially to technology. Responding to the characteristics of prospective teachers who are in the multi-generation groups Y and Z are very close to technology, in learning it is necessary to have technology-based learning in order to increase learning experience and satisfaction (Yawson & Yamoah, 2020). The ability of prospective teachers in the use of digital to access information in life that can be used in their development. Strengthening cultural knowledge through technology that highlights digital literacy skills so that cultural transfer from generations can be conveyed (Kömeçoğlu, 2019). Students are people whose lives cannot be separated from the use of smartphones, the development of e-modules for learning can be developed on smartphone-based materials and subjects. (Laili et al., 2019). The existence of e-modules will be able to create interactive conditions so as to increase the value of communication between students (Ricu, & Najuah, 2020).

The existence of technological innovations that are increasing today, can have an influence on learning, where interactive media used in universities will be able to make a significant contribution to student learning outcomes and will also create good cultural integration (Baafi, 2020). Media as an element in learning can influence and condition the learning process, where the relationship between teachers and students, the adequacy of space, duration of activities, control systems and teachers' performance in carrying out learning can be improved, for this reason learning media based on cognitive psychology considerations and students' internal processes can improve the teaching and learning process. (Kabha, 2019) The use of digital media in students' lives is not only used for learning at school but also used to do student homework, where there is a relationship between other people, society, and socio-cultural ecology in the implementation of learning. So the use of technology by prospective teacher students is an inseparable need because it is integrated into the lives of students who are always used in their daily lives (Tuwoso et al., 2021)

In addition to the use of digital media in learning, a teacher also needs to pay attention to cultural intelligence (CQ). Remembering today that there are learning demands that must pay attention to a cross-cultural approach. With the teacher's understanding in the design of learning that increases the cultural intelligence of their students. (Peng & Kueh, 2022). In line with this, it is very important for prospective teachers to understand the relationship between the cultural dimension and creative teaching that can motivate students with a multicultural approach in the teaching and learning process through the use of technology-based learning media. So that the development of the skills, knowledge, and values needed to form graduates of the education system who will integrate into the global labor market in the future (Amzaleg & Masry-Herzallah, 2022). In line with this, a prospective teacher still experiences difficulties in the use and design of Information Technology (IT)-based learning. The use of social media for online learning such as WhatsApp, Google Classroom and Zoom can help the implementation of teaching, but there are also still obstacles, namely the limited ability of teachers to design learning media, operate learning media and incomplete facilities and infrastructure. This is due to the weak ability of teachers in the use of IT (Winda & Dafit, 2021).

In social studies learning, students must be able to solve problems and make decisions about problems that occur in their lives (Afifah et al., 2022). With the use of learning media that can improve student learning outcomes, this shows that the use of media is quite effective in improving social studies learning outcomes of students. (Fajrianti & Meilana, 2022). As a learning that is very close to social and cultural problems, in the implementation of learning it is necessary to use technology, in order to be able to face the modern era of new information and technology, new

competencies and qualities in overcoming real-life problems, thus innovation is a must. (Chen et al., 2018).

Given the importance of media development in learning, including in social studies learning based on local culture, it will certainly be able to bring many benefits both for students and prospective teachers, besides that it can also be instilled in cultural values and character values for students. The development of learning can be in accordance with the use of culture-based applications, so that it can develop students' character, especially tolerance and responsibility. This shows that the use of digital media has an impact on students' character values. (Nurasiah et al., 2022). The use of technology in learning design is needed, especially mobile media. Learning can be presented in the form of games that are entertaining and foster student motivation and involvement in the learning process so that there is an increase in student participation in learning (Troussas et al., 2020).

Today's learning can be said to be inseparable from the involvement of digital media which has an important role in education, which can open up direct involvement in teaching and learning. (Manca, 2021). Therefore, it is important to describe the development of culture-based digital learning in social studies learning for prospective elementary school teachers. This is necessary to be carried out as a preliminary study and meta-analysis to obtain an overview of media design or E-modules that can facilitate prospective elementary school teachers in cultural understanding for social studies learning.

METHOD

This research is based on a review of the systematic literature (Chen et al., 2018). The method used is the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method (Riyadi et al., 2022). Through searching and collecting data from google scholar using the Harzing's Publish or Perish application, the publication limit is from 2018 to 2022. By using the keywords for the development of the Social Studies Education e-module, data was found on 300 articles consisting of publications through journals and proceedings. This literature review is used as preliminary study material for the development of social studies learning e-modules for prospective elementary school teachers. Especially e-modules based on local wisdom. For more details, you can see the PRISMA procedure in figure 1.

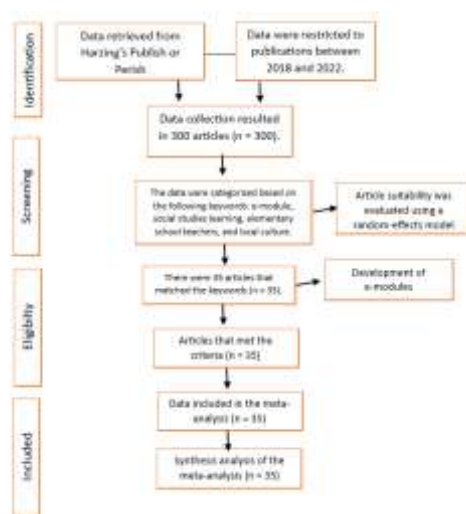
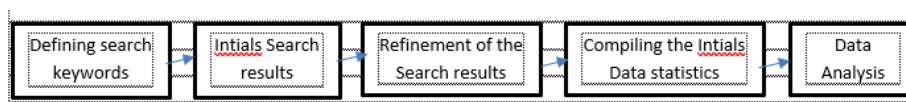


Figure 1. Modification (Riyadi et al., 2022)

The data analysis of this study used the bibliometric analysis of Co-word (Farida & Firmansyah, 2020). As for bibliometric analysis, there are five stages that function first, positioning the required contributions; second, obtaining new ideas for investigation, third, identifying knowledge gaps, fourth, displaying stage by stage, and analyzing data (Donthu et al., 2020) Several literature reviews



explain that there are five steps to conducting bibliometric analysis (Muhammad et al., 2022). These steps can be seen in Figure 2.

Figure 2. Adaptation Bibliometric Analysis Steps (Muhammad et al., 2022)

1. Defining search keywords

The literature search was carried out by determining the keywords, keywords set by yairu about the development of social studies learning e-modules based on local culture for prospective elementary school teachers. The article search process is carried out using the Google scholar database. To help with article searches, it is done through Harzing's Publish or Perish search engine. The first search selects the document, using the keyword "development of IPS e-modules" taken from the subheading. To find a lot of literature added the format" article titles and keywords in the Google Scholar database are selected to find a lot of literature.

2. Initials Search Results

After conducting a search, 300 articles were found published in the 2017-2022 period. The results obtained are then checked, compiled and stored in the Research Information Systems (RIS) format. The RIS format is used to include all the important information of the article, such as the title of the article, the author's name, the year of publication and affiliation, the abstract, the keywords, and references (Nur et al., 2020).

3. Refinement of the Search Results

Articles that are already appropriate and indexed in the Google Scholar database are filtered by category. Repositories, books, newspapers, and book chapters are not included in this data. The selected data are articles and proceedings. Then repairs are made accordingly and stored in the form of RIS files. Furthermore, the generated RIS file is used to further analyze the data.

4. Compiling the Initial Data Statistics

The data that has been collected stored in RIS format is used to check the completeness of the documents of journal articles and proceedings about: year of publication, volume, number and page as well as other information needed if incomplete data is found. Data analysis is carried out so that articles can be classified based on year, publication source (journal) and publisher.

5. Data Analysis

At this stage, the analysis is carried out using Publish or Perish (PoP) software. Next, to analyze and visualize the bibliometric network, VOSviewer software is used

(Martínez-López et al., 2020) (Donthu et al., 2020). The use of VOSviewer is based on its ability to work effectively with large data sets and provide interesting visualizations and investigations. In addition, VOSviewer can also create publication maps, author maps or journal maps based on shared citation networks and can also create keyword maps based on shared networks (Nur et al., 2020).

RESULTS AND DISCUSSION

Descriptive Analysis and Publication Trends

The research was conducted by searching for articles published in 2018 – 2022. Data was taken from the Google Scholar database using the Publish or Perish (PoP) search engine. This initial search was carried out using the keyword "Social Studies Education e-module" From the search page, 300 articles were obtained. Identification is carried out by conducting an investigation of the articles obtained through separation by keyword. Then the data is sorted again by looking at the citation level of the article. From the results of the investigation based on the level of citations, 35 articles were obtained that were close to the keyword, namely "e-module development" with 1234 citations, while documents that were in accordance with the keyword, namely "Social Studies Education Development" had not been Based on the data collection obtained, it can be seen that the development of research conducted on development articles has increased since 2020. As can be seen from table 1.

Table 1. Publication Development

Year	Number of Publications	Present (%)
2018	12	4
2019	21	7
2020	26	8,67
2021	89	29,67
2022	152	50,66
Total	300	100

Source: Google Scholar

Based on table 1, it can be seen the development of publications on the development of e-modules, which in percentage terms has increased significantly from 2020 to 2022. In 2022, the increase can be seen from the number of percentages per year. The highest percentage occurred in 2022, which was 50.66%, this shows that this year there is a tendency to conduct development research. Especially the research on e-module developers has increased. Which graphically can be seen in figure 3.

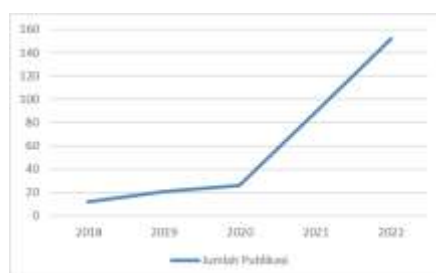


Figure 3. Number of publications

Based on figure 3, it shows that research on the development of e-modules has increased from year to year where in 2018 there were 12 publications with a percentage of 4%, in 2019 there were 21 publications with a percentage of 7%, then tofu in 2020 there were 26 publications with a percentage of 8.67%, and in 2021 the increase was higher, namely there were Starting from 2020 to 2022, where in 2021 there were 89 publications with a percentage of 29.67%, and in 2022 there were 152 publications with a percentage of 50.66%. From this data, it shows that research on the development of e-modules is more trendy.

Based on this trend, it can be seen that the trend of publication development occurs. Furthermore, the publication trend is seen from the comparison metric between article searches with the keyword Social Studies Education e-module based on two searches using PoP on the Google scholar database showing that the first search with the keyword Social Studies Education e-module in publications between 2018 - 2022 can be 300 articles. with citation 1234. Furthermore, an investigation was carried out by adding the keyword "development of Social Studies Education" and 35 articles with 1059 citations. All of the 35 articles obtained by the researcher contributed to the presentation that is most relevant to this study. Of the 35 articles obtained from improving search results by checking articles through sequencing based on the level of citations. As shown in table 2.

Table 2. Data Comparison Metrics

Metrics Data	Initial Search	Refinement Search
Keywords	Development of social studies learning based on local culture	Development of social studies learning based on local culture
Database	Google Scholar	Google Scholar
Language	Indonesia	Indonesia
Publication years	2018-2022	2018-2022
Citation years	4 (2018-2022)	4 (2018-2022)
Papers	300	35
Quotes	1234	1059
Cites/year	300,75	264,75
Cites/paper	4.14	30,26
Authors/paper	1,87	2,09
H-index	14	14
g-index	32	32
hI,norm	13	13
hI,annual	3,25	3,25
hA,index	14	13

Source: Harzing's Publish or Perish

Furthermore, publication trends can also be seen from the top citations of articles obtained through the Google Scholar database. Of the 35 articles designated for research, there are 10 articles with the highest citations. The article with the highest citation is seen from the year of publication, author, article title, journal name and publisher. Data from the top 10 articles can be seen from the highest citations, namely 91 citations in 2020 with the publishing institution Undiksha. And the lowest citation is 19 citations, as seen in table 3.

Table 3. Top Publications with the top 10 articles

Yes	Year of Publication	Writer	Heading	Journal	Number of Citations	Publisher
1	2020	MWA Pramana, IN Jampel	Improving biology learning outcomes through problem-based learning e-modules	Edutech Undiksha Journal	91	ejournal.un diksha.ac.id
2	2018	KR Winatha	Development of interactive e-modules based on digital simulation subjects	Journal of Technology and Vocational Education	78	ejournal.un diksha.ac.id
3	2019	A Gift of Love, Piano	E-Module Ethnoconstructivism: implementation in Class V Elementary School reviewed from perception, interest and motivation	JTP-Journal of Educational Technology	74	journal.unj.ac.id
4	2021	K Sa'diyah	Development of Flipbook-Based E-Modules to Facilitate Distance Learning in High School	Educational: Journal of Education	50	edukatif.org
5	2020	R Muzijah, M Wati, S Mahtari	Development of e-modules using Exec-Learning applications to train science literacy	Scientific Journal of Physics Education	48	scholar.archive.org
6	2018	E.W. Wulansari, S Kantun, P Suharso	Development of e-modules for learning economics of capital market materials for students of class XI IPS MAN 1 Jember for the 2016/2017 academic year	Journal of Economic Education	64	jurnal.unej.ac.id
7	2020	MSA Dewi, NAP Lestari	Project-based interactive e-modules on student learning outcomes	Journal of Education and Learning	44	ejournal.un diksha.ac.id
8	2018	R Aryawan, IGW Sudatha...	Development of interactive e-modules for social studies subjects at SMP Negeri 1 Singaraja	Edutech Undiksha Journal	42	ejournal.un diksha.ac.id
9	2021	A Hamid, H Alberida	The Importance of Developing Flipbook-Based Interactive E-Modules in Senior High School	Educational: Journal of Education	35	edukatif.org
10	2021	K Wijayanti, MA Ghofur	Development of Bank E-Module Learning Media and Android-Based Payment System for Class X Students	Journal of Economic Education	19	journal2.um.ac.id

Source : Google Scholar

Network Mapping and Analysis

To see the network of keyword connectivity established in this study, it is seen from the mapping and analysis of the network through the use of the VOSviewer device with *the Co-word* analysis method to find the keywords that appear frequently, and the most frequently appearing keywords. In addition, it is also to explore existing or future relationships between the topics in the research. The *Co-word analysis* in this study was carried out based on the title of the publication. By setting the keyword, namely "development of social studies education e-modules based on local culture for prospective school teachers". In this analysis, it will be seen from three different visualizations, namely density visualization, network visualization, and overlay visualization.

Based on the results of *the Co-word* analysis, 5 clusters with 39 items were obtained. In cluster 1 there are 10 items, cluster 2 has 9 items, cluster 3 has 7 items, cluster 4 has 7 items and cluster 5 has 6 items. The results of this cluster will reflect from the keywords that are determined and also to see the relevance of keywords or connections between two keywords. The results of the cluster obtained as seen in table 4.

Table 4. Keyword grouping within each cluster

Cluster	Number of keywords	Selected keywords
1	10	And Development, used as, e-module developed, research and development, e-module development, development, R&D, response, besides.
2	9	Results, hot, learning, module-based, Palembang, e-module development, subtheme, stage, X ips.
3	7	Development, engineering, this research is, research, student, technology
4	7	in the State Junior High School, Journal, this research aims to develop e-modules, Singaraja, State Junior High School, Validita.
5	6	Analysis, this, medium, development model, use of e-modules, tek

The collection of terms contained in the cluster shows that there are several items related to the development of the elementary social studies education e-module as shown from the items or terms that appear in the cluster. Which shows the connection between items or terms. It can be clearly seen from the network visualization in figure 4.

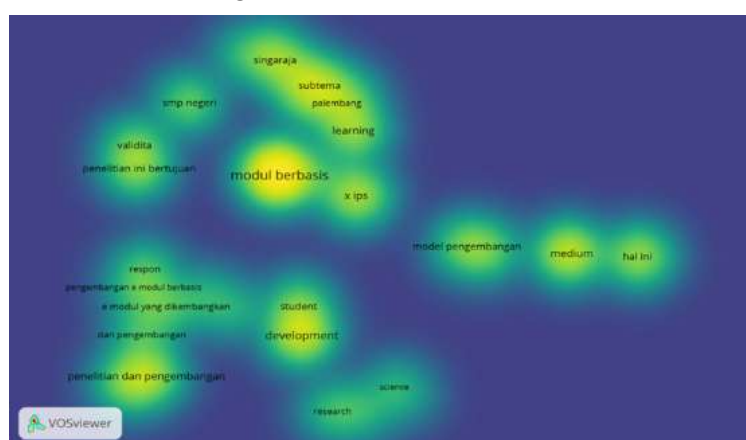


Figure 4. Density visualization

The results of the density visualization in figure 4 show that there are several terms related to the development of culture-based elementary social studies learning e-modules for prospective elementary school teachers. The development of e-modules can be seen from the grouping of terms contained in the red cluster where there are 10 terms. From these terms, it can be seen from the visualization of density showing the development of e-modules as the term appears. The terms that appear in the red cluster are: "research and development", "and development", " developed e-module", "e-module based development", "and response".

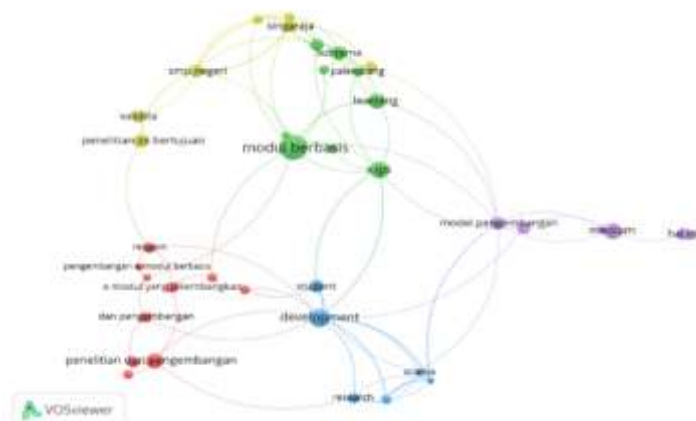


Figure 5. Network Visualization

Furthermore, in the green cluster there are terms that appear, namely: "module-based", "Palembang", "subtheme", "learning" and "X IPS", In this green cluster it shows that the development of the e-module already has a culture-based development indicated by the regional name "Palembang", and also a developer based on learning shown by "subtheme", learning", and "x IPS" which shows the class. The visualization can also be seen from the yellow cluster shown from the density visualization, there are terms "this research is purposeful", "Validita", "State Junior High School", and "Singaraja", and also "Palembang". This cluster shows that there is a valid term which means how far. It can be interpreted that the extent to which research on the development of e-modules has been carried out in the development of e-modules based on regional culture, namely "Palembang", and "singaraja".

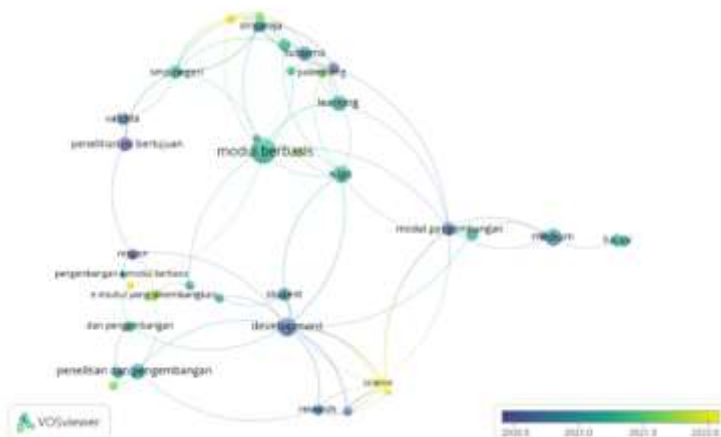


Figure 6. Overlay Visualization

In the blue cluster, there is also a density visualization that shows that there are several terms, namely: "development", "research", "student", and "technology". This shows that there are developments in education related to technology and students or students. This means that e-modules have also been developed based on technology. Furthermore, in the purple cluster, there are terms or keywords, namely "development model", medium and this. In this cluster, it can be seen that the development of e-modules will be able to be used as a medium for learning and learning resources.

CONCLUSIONS AND RECOMMENDATIONS

The results of bibliometric analysis of publications in 2018–2022 show that research related to the development of elementary social studies e-modules has been carried out, but no one has specifically studied e-modules based on local culture, especially those intended for PGSD students. Of the 300 articles identified through Google Scholar with Harzing's Publish or Perish app, only 35 were relevant to the keyword "social studies learning e-module", and none explicitly mentioned aspects of local culture. This confirms the existence of a *research gap* in the development of social studies e-modules based on local culture.

Thus, future research needs to be directed at the development of elementary social studies e-modules that integrate local cultural values and wisdom, especially Riau Malay culture, as an effort to strengthen PGSD students' understanding of contextual-based social studies learning. In addition, these results also provide opportunities for researchers and education practitioners to design learning innovations that are more relevant, adaptive, and rooted in the culture of the local community.

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