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Community-Based Learning Model to Support Environmental Sustainability and Community Empowerment in Sukamakmur Regency

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Abstract: This research aims to develop a social change-based learning approach that supports environmental sustainability and community empowerment in Sukamakmur District, Bogor Regency. The region faces challenges related to social inequality and environmental degradation caused by urbanization and socio-economic changes. A mixed-methods approach was used, utilizing quantitative analysis through Exploratory Factor Analysis (EFA) to identify the factors influencing social change, along with in-depth interviews to explore the needs and potential of community-based learning. The results show that social equality and social innovation are key factors driving change, while ideological conservatism is the main obstacle. The designed learning strategies, such as blended learning and project-based learning (PBL), focus on improving community skills in natural resource management, environmental literacy, and the adoption of environmentally friendly technologies. This approach effectively encourages the active participation of the community in maintaining the balance of the ecosystem while improving their quality of life. This research contributes to the development of sustainable, inclusive, and adaptive learning practices and serves as a guide in designing learning programs that are relevant to the needs of the community. These findings are expected to be the basis for implementing educational strategies that encourage social transformation, community empowerment, and environmental conservation in the future.

Keywords: Community empowerment, Community learning, Environmental sustainability, Learning strategies, Social change.

Introduction

National infrastructure development has brought positive impacts, such as increased connectivity and economic growth, as well as negative impacts, including environmental degradation and social changes in society (Kustiawan et al., 2023). In Sukamakmur District, Bogor Regency, this change is very felt due to infrastructure development, urbanization, and various social and economic dynamics (Yasin & Suhaeb, 2023). Although this development has provided certain benefits, such as increased accessibility through the construction of the Puncak II alternative road, the development also poses significant challenges, especially in the form of substantial social and economic inequality. Natural resources, including the agricultural sector, which is the mainstay of society, have not fully addressed critical issues such as low education levels and high poverty levels. (Efrendy, 2017)

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In addressing these challenges, community-based learning emerged as a relevant approach. This type of learning emphasizes lifelong education, allowing individuals and groups to learn through everyday experiences and interactions with their environment (David A. Kolb, 2014) . With its flexibility and focus on real societal needs, community-based learning offers adaptive solutions (Faatin et al., 2024). This approach not only aims to increase knowledge but also empower communities to become active and self-reliant agents of social change. (Laksono et al., 2019)

The community-based learning model in this study is designed to support environmental conservation and community empowerment in Sukamakmur District with a more adaptive, participatory, and sustainable approach compared to similar studies. Different from previous models which are often generic and lack consideration of local contexts, this study adapts learning strategies to local socio-economic and cultural conditions, making them more relevant in overcoming social inequality and economic challenges due to infrastructure development. In addition, this model not only focuses on individual capacity building but also on collective empowerment so that communities can become independent agents of social change, especially in protecting the environment and utilizing local resources sustainably. With an experiential approach, this model allows for more contextual learning through direct interaction with the social environment and surrounding ecosystems, different from the more theoretical traditional approach. This study fills a gap from previous studies that still face effectiveness constraints, such as lack of integration with local contexts, dependence on external support, and low program sustainability. Therefore, the model developed not only aims to provide short-term skills, but also to build learning mechanisms that can continue to evolve according to social dynamics, strengthen community cohesion, and encourage environmental conservation through more independent and long-term oriented initiatives.

Through the proposed learning model, the community is expected to better overcome the challenges of social change. The focus is on upskilling, mastery of technology, and strengthening local cultural values to build a more inclusive and competitive community. (Kasman, 2024)

This research is important because social inequality and environmental challenges in Sukamakmur District hinder efforts to empower the community and preserve the environment. Many previous programs have lacked consideration of the local context and focused on short-term solutions, resulting in uneven benefits and difficult to sustain. In addition, the low awareness and participation of the community in environmentally friendly practices and local resource-based economic development shows the need for more adaptive and participatory learning strategies. Therefore, this research aims to develop a social change-based learning model that supports environmental conservation and community empowerment. Specifically, this study aims to: (1) identify social factors that affect environmental awareness and community independence, (2) design learning strategies to encourage environmental and local economic sustainability, (3) analyze social dynamics that affect the effectiveness of community empowerment, and (4) develop adaptive, inclusive, and sustainable learning models to improve community welfare and environmental management. responsible in Sukamakmur District.

Method

The study uses Sequential Transformative Strategies, combining quantitative and qualitative methods to obtain complementary data (James et al., 2022). The approach begins with a quantitative phase to identify key patterns and factors, followed by a qualitative phase to explore meaning and context in more depth (Barroga et al., 2023). This strategy is designed to provide a more comprehensive understanding of the phenomenon of social change and the learning needs of the community.

Figure 1. Research Methods

This research was carried out in three main stages. The first stage involves quantitative research that aims to identify the factors of social change using the Exploratory Factor Analysis (EFA) method. At this stage, data was collected through a closed questionnaire distributed to 381 respondents selected from a total population of 56,739 residents in Sukamakmur District. Respondents were selected using Accidental Sampling, allowing anyone who met the research criteria and happened to meet with the researcher to be included as a sample. (Hariputra et al., 2022)This method is applied with a comprehensive strategy including inclusion criteria based on village proportions and demographic representation, representation of community layers, and homogeneity tests for sample validation. Data analysis was carried out using SPSS software to examine the

relationship between variables through descriptive and factor analysis.

The second stage involves qualitative research designed to deepen the findings from the quantitative phase. At this stage, in-depth interviews were conducted with seven informants who were deliberately selected based on their experiences with social change. Informants include individuals who are active in the local community, have first-hand experience with significant social change, or have a deep understanding of the learning needs of the community. The interviews are guided by a structured in-depth interview protocol to explore their perspectives, experiences, and needs in coping with social change. In addition to interviews, researchers make observations on the social environment of informants to gain more contextual insights. Qualitative data were analyzed using thematic analysis with the help of NVivo 12 software to identify relevant key themes.

The third stage involves the integration of quantitative and qualitative research findings. The data from the two approaches are systematically combined to formulate social change-based learning strategies. At this stage, the results of the factor analysis of the quantitative phase are compared and synthesized with the themes that emerge from the qualitative interviews (Qu & Li, 2014). This process aims to identify the relationship between quantitative findings and qualitative narratives, thus building a solid foundation for designing adaptive and sustainable learning strategies and models.

The research instruments used in this study include questionnaires for the quantitative phase and interview guidelines for the qualitative phase. The questionnaire was designed to measure the factors that accelerate, hinder and drive social change, using the Likert scale to assess respondents' perceptions of various indicators. Interview guidelines are used to dig deeper into the informant's views on social change, learning needs, and relevant learning approaches.

This methodology is designed to ensure that the research findings provide comprehensive and meaningful insights into the phenomenon of social change while supporting society through relevant learning approaches.

Results and Discussion

Factors of Social Change

Factors of social change were identified using factor analysis, in which the Kaiser-Meyer-Olkin (KMO) test was used to assess the adequacy of sampling methods for factor analysis, determining whether the data met the criteria for further analysis (Gie Yong & Pearce, 2013). Meanwhile, the Bartlett test is used to check if there is a correlation between variables. If no correlation is found, a factor analysis cannot be carried out (Marino & and Li, 2017). The results of this test are presented in Table 1.

Table 1. KMO and Bartlett Test Results on Social Change Factors

Categories of Social Change Factors	Measures of Adequacy of KMO Sampling	Kira-kira Chi-Square Bartlett	Degree of Freedom (df)	Significance (Sig.)
Social Change Accelerator	0.576	18.195.198	2485	0.0
Inhibitors of Social Change	0.566	43.575.869	4005	0.0
Drivers of Social Change	0.73	22.181.255	1653	0.0

The results of the KMO and Bartlett tests showed that the data for each category of social change factors met the requirements for factor analysis. For the Social Change Accelerator category, the KMO value obtained of 0.567 indicates that the data is at the minimum acceptable threshold, while the Bartlett test confirms a significant correlation between variables ($p < 0.05$).

For the Inhibitor of Social Change category, the KMO value increased to 0.566 after adjustment, indicating that the data was sufficient for further analysis. The correlation between the variables in this category remains significant, as confirmed by the Bartlett test.

The Social Change Driver category showed the strongest results, with a KMO value of 0.73, indicating good sample sufficiency. The Bartlett test further supports this sufficiency with a significant correlation between variables ($p < 0.05$). Thus, all categories meet the criteria for factor analysis, providing a solid basis for further research.

Total variance explained

Total Variance Explained refers to the percentage of total variance that can be accounted for by the factors derived from the analysis. It shows how much total variance in the dataset is explained by the factors extracted through exploratory factor analysis (Raykov & Calvocoressi, 2020). The results of the calculations for each factor influencing social change are presented in Table 2.

Table 2. Total Variance Explained for Factors Accelerating Social Change

	Initial Egenics			Amount of Extraction from Quadratic Loading			Number of Square Load Rotations		
Component	Entire	% of variance	Cumulative %	Entire	% of variance	Cumulative %	Entire	% of variance	Cumulative %
1	16.011	17.790	17.790	16.011	17.790	17.790	7.672	8.525	8.525
2	8.532	9.480	27.270	8.532	9.480	27.270	5.118	5.686	14.211
3	5.183	5.759	33.029	5.183	5.759	33.029	3.813	4.237	18.448
4	4.348	4.831	37.860	4.348	4.831	37.860	3.726	4.140	22.587
5	3.654	4.060	41.920	3.654	4.060	41.920	3.468	3.854	26.441
6	3.443	3.825	45.745	3.443	3.825	45.745	3.465	3.850	30.291
7	3.259	3.622	49.366	3.259	3.622	49.366	3.462	3.847	34.138
8	2.874	3.193	52.559	2.874	3.193	52.559	3.458	3.842	37.980
9	2.520	2.800	55.360	2.520	2.800	55.360	3.412	3.791	41.771
10	2.293	2.548	57.907	2.293	2.548	57.907	3.333	3.704	45.475
11	2.189	2.432	60.339	2.189	2.432	60.339	3.164	3.516	48.991
12	2.069	2.299	62.638	2.069	2.299	62.638	2.960	3.289	52.279
13	1.993	2.214	64.852	1.993	2.214	64.852	2.816	3.129	55.408
14	1.851	2.056	66.909	1.851	2.056	66.909	2.645	2.939	58.346
15	1.691	1.879	68.788	1.691	1.879	68.788	2.606	2.896	61.242
16	1.603	1.781	70.569	1.603	1.781	70.569	2.373	2.636	63.878
17	1.466	1.629	72.198	1.466	1.629	72.198	2.299	2.555	66.433
18	1.450	1.611	73.809	1.450	1.611	73.809	2.248	2.497	68.931
19	1.347	1.497	75.305	1.347	1.497	75.305	2.142	2.380	71.311
20	1.276	1.418	76.723	1.276	1.418	76.723	2.102	2.336	73.647
21	1.184	1.316	78.039	1.184	1.316	78.039	2.062	2.291	75.937
22	1.079	1.199	79.238	1.079	1.199	79.238	2.038	2.265	78.202
23	1.050	1.167	80.405	1.050	1.167	80.405	1.983	2.203	80.405

Extraction method: Analysis of the main components.

The factors accelerating social change consist of 23 indicators that can be grouped into eight main categories: social equality, social dissatisfaction, dynamic curriculum, creativity development, technology-based learning, future orientation, individualism, and pluralism. Among them, the most dominant factor is social equality, which represents a condition in which everyone has equal opportunities in different aspects of life. This includes equitable access to cultural appreciation, economic opportunities, and social rights without discrimination. Because of its significance, these social change accelerators are identified as "social equality".

Equality can encourage positive social change, especially in economic aspects. This is shown from the results of research that show a significant relationship between equality and economic development. It is proven that countries with higher equality experience sustainable growth, with a 10-point reduction in Gini, can extend the growth period by up to 50%. Social equality works through three mechanisms: increasing socio-political stability for long-term investment, encouraging investment in education and human capital, and creating a social consensus for reform (Ostry et al., 2014).

Furthermore, this indicator can be categorized into two main clusters. The first is the Education and Development Cluster, which includes indicators such as a dynamic curriculum, creativity development, and technology-based learning. These elements emphasize the role of education in encouraging adaptability and innovation to support social change. The second cluster is the Social and Personal Orientation Cluster, which consists of social equality, social dissatisfaction, individualism, pluralism, and future orientation. This cluster highlights the importance of social harmony, individual aspirations, and inclusivity in driving transformative change. Together, these clusters form a comprehensive framework for understanding the factors that accelerate social change.

The factors that inhibit social change consist of 21 indicators that can be grouped into 19 main indicators, with the dominant factor being ideological conservatism. Therefore, this category of social change inhibitors is referred to as "ideological conservatism", which reflects resistance to new ideas, adherence to traditional values and norms, and efforts to maintain the status quo in various aspects such as policy, technology, and culture.

Table 3. Total Variance Explained for Factors Hindering Social Change

	Initial Egenics			Amount of Extraction from Quadratic Loading			Number of Square Load Rotations		
Factor	Entire	% of variance	Cumulative %	Entire	% of variance	Cumulative %	Entire	% of variance	Cumulative %
1	15.625	17.361	17.361	5.774	6.416	6.416	10.607	11.785	11.785
2	11.269	12.522	29.883	11.385	12.650	19.066	8.347	9.275	21.060
3	6.516	7.240	37.123	11.283	12.536	31.603	6.137	6.819	27.879
4	5.101	5.668	42.791	5.985	6.650	38.253	5.109	5.676	33.555
5	4.261	4.735	47.526	4.683	5.204	43.456	3.750	4.167	37.722
6	4.008	4.453	51.979	3.499	3.888	47.345	3.458	3.842	41.565
7	3.340	3.711	55.689	3.444	3.827	51.171	3.284	3.648	45.213
8	2.797	3.108	58.797	2.558	2.842	54.013	3.098	3.443	48.656
9	2.348	2.609	61.406	2.336	2.596	56.609	2.960	3.289	51.944
10	2.169	2.410	63.816	1.998	2.220	58.829	2.403	2.671	54.615
11	1.930	2.144	65.960	2.022	2.247	61.076	2.304	2.560	57.175
12	1.804	2.005	67.965	1.894	2.104	63.180	2.207	2.452	59.627
13	1.562	1.736	69.701	1.623	1.803	64.983	2.105	2.338	61.966
14	1.520	1.689	71.389	1.312	1.458	66.441	1.934	2.149	64.114
15	1.343	1.492	72.882	1.262	1.403	67.844	1.840	2.045	66.159
16	1.295	1.439	74.320	1.115	1.238	69.082	1.781	1.978	68.137
17	1.266	1.407	75.727	1.088	1.209	70.291	1.391	1.546	69.683
18	1.229	1.366	77.093	.888	.987	71.278	1.143	1.270	70.954
19	1.095	1.217	78.310	.961	1.068	72.346	1.067	1.186	72.139
20	1.035	1.151	79.460	.965	1.072	73.418	1.010	1.122	73.261
21	1.000	1.111	80.572	.712	.791	74.208	.853	.947	74.208

xtraction Method: Maximum Possibility.

The indicators of ideological conservatism are grouped into four main clusters. The first is the Conservatism and Traditionalism Cluster, which includes ideological, cultural, and social conservatism, value traditionalism, normativity, and intellectual conservatism. The second is the Social Problem and Disparity Cluster, which includes exclusive culturalism, disparity of social values, social inequality, and disparity of social values and status. The third is the Cluster of Access and Collaboration Constraints, which includes lack of cultural interest, limited access to cross-cultural information, limited associations, limited institutional support, isolation of cross-cultural information, and limited scientific collaboration. Finally, the fourth is the Conflict and Domination Cluster, which includes group hegemony, ideological conflicts, and disagreements about ideology.

Table 4. Total Variance Explained for Factors Driving Social Change

	Initial Egenics			Amount of Extraction from Quadratic Loading			Number of Square Load Rotations		
Factor	Entire	% of variance	Cumulative %	Entire	% of variance	Cumulative %	Entire	% of variance	Cumulative %
1	15.695	27.061	27.061	5.701	9.829	9.829	6.040	10.414	10.414
2	6.363	10.971	38.031	12.320	21.241	31.070	4.971	8.571	18.985
3	3.757	6.478	44.510	5.242	9.038	40.108	4.725	8.146	27.131
4	3.185	5.491	50.001	3.359	5.791	45.899	3.917	6.754	33.886
5	2.606	4.492	54.493	2.905	5.008	50.907	3.560	6.137	40.023
6	2.141	3.692	58.185	1.829	3.154	54.061	3.479	5.999	46.022
7	1.896	3.269	61.454	1.613	2.782	56.843	2.543	4.384	50.406
8	1.792	3.089	64.543	1.448	2.497	59.340	2.102	3.624	54.030
9	1.556	2.683	67.226	1.342	2.314	61.654	1.743	3.005	57.035
10	1.422	2.452	69.678	1.215	2.095	63.749	1.698	2.928	59.962
11	1.290	2.223	71.902	1.063	1.833	65.583	1.609	2.775	62.737
12	1.220	2.103	74.005	.941	1.622	67.205	1.545	2.664	65.401
13	1.101	1.899	75.904	.980	1.690	68.895	1.495	2.578	67.979
14	1.017	1.753	77.657	.752	1.296	70.191	1.283	2.212	70.191

Extraction Method: Maximum Possibility.

Contrary to the popular perception that conservatism is inherently resistant to social change, recent research suggests that conservatives can also act as agents of social change. Based on a review of the collective action model, both right-wing liberal and populist groups can engage in collective action for social change, albeit with different motivations and goals (Becker, 2020). One notable example of how conservative ideology drives social change is Vladimir Putin's leadership in Russia. According to social identity theory, the Putin regime implements a strategy of social creativity by promoting a conservative ideology that emphasizes national unity as well as traditional moral values (Evans, 2015). This ideological shift has also been accompanied by increasing hostility towards the West, which is seen as a threat to Russia's identity and security.

The factors that drive social change consist of 14 indicators that can be grouped into 11 main indicators, with a dominant focus on social innovation, so it is called "social innovation". The term encompasses creative efforts to solve social problems, increase equality, improve social conditions, foster collaborative awareness, and create regulations and policies that promote positive change.

These indicators are categorized into five main clusters. The first is the Innovation and Development Cluster, which includes social innovation and sustainable development. The second is the Community Participation and Empowerment Cluster, which consists of community empowerment, inclusive participation, and social solidarity. The third is the Communication and Collaboration Cluster, which includes development communication, innovative social collaboration, and perception alignment. The fourth is the Accessibility and Information Cluster, which consists of information alignment and accessibility. Finally, the fifth is the Globalization and Democracy Cluster, which includes global linkages and democratization. "Social innovation" represents the process and results of these efforts, which aim to create positive change to build a better society.

Social innovation is increasingly recognized as a key driver of social change, enabling communities to address social challenges through innovative approaches. Research shows that social innovation creates transformative impact by empowering individuals and organizations to experiment with new governance models, collaborative networks, and digital tools. Social innovation can create more equitable transportation solutions by balancing formal organizational structures (Bissel & Becker, 2024). In addition, social innovation must be aligned with sustainable development and focus on the well-being of society and the responsible use of resources (Zapata-Aguilar, 2024). These studies collectively show that social innovation is a powerful tool for systemic change, especially when combined with participatory governance, and empowerment through education.

Qualitative Phase

The next stage of this study aims to deepen the analysis of quantitative findings, providing a more comprehensive understanding of the dynamics of social change. In this phase, the focus is directed to formulate community learning strategies that are relevant, adaptive, and contextual to the observed social changes. This step is crucial to ensure that the learning approach designed is not only based on empirical data but also able to meet the needs of specific communities, support positive social transformation, and build the capacity of individuals and communities to face emerging challenges and opportunities.

The results of the study show that the approach to education and learning must be in harmony with the social, economic, and cultural challenges faced by modern society. Creativity emerges as a key element in driving innovation and socio-economic well-being, which can be integrated through adaptive learning strategies to create inclusive, productive, and sustainable societies (Corso & Gluth, 2017). Challenges such as digital literacy, limited technological infrastructure, and global issues require collaborative solutions based on cross-cultural understanding, with international collaboration remaining relevant to local needs (Jolly & Shivani, 2024)

Learning strategies such as Project-Based Learning (PBL) and blended learning have proven effective in addressing local challenges by increasing digital literacy, solving community problems, and expanding access to education (Kurniawan et al., 2024). Other approaches, such as integrating global issues and cross-cultural skills training, help communities understand diversity and foster social harmony. In the context of conflict and domination, peace education and critical thinking skills are essential for building inclusive and productive social relationships (Schultze-Kraft, 2022).

Education plays an important role in empowering communities to understand their rights and responsibilities, as well as encouraging active participation in decision-making processes (Peranginangin, 2014; Setianingrum et al., 2016). In sustainable development, social innovation and social entrepreneurship emerge as a strategic approach to balancing economic growth, social welfare, and environmental conservation. Learning designs that combine social entrepreneurship, digital-based learning, local skills training, and financial literacy are created to equip communities with practical knowledge to support sustainability.

Education also plays an important role in shaping character by instilling values such as honesty,

responsibility, and integrity (Pertiwi, 2021; Wardono et al., 2023). The preservation of local traditions, such as mutual cooperation, through approaches relevant to the digital age, as well as multicultural and civic education, forms an important foundation for building inclusive communities. To address economic inequality, social discrimination, and limited access to education, social justice-based approaches, problem-based learning, and digital technologies are needed to increase community participation in education.

Self-development and digital literacy have become important in the modern era, supporting individuals and communities in facing global challenges through online training and learning. With this approach, education is not only a tool for individual transformation, but also a catalyst for sustainable and inclusive social change, addressing local challenges while supporting adaptation to global dynamics.

The following table summarizes community learning approaches that integrate and contextualize methods, objectives, and media to support individual and community capacity building. This approach not only meets local needs but also prepares learners to face global challenges with practical and innovative skills.

Table 5. Community Learning Strategies to Overcome Social Challenges

Issues Addressed	Suitable Learning Approach	Learning Objectives	Main methods	Learning Media
Digital Literacy	Project-Based Learning (PBL)	Equip learners with critical thinking skills and the ability to filter out valid information, avoiding misinformation and deception.	Community projects, group discussions	Laptop, Internet, Module Digital
Information and Communication Technology (ICT)	Blended Learning	Optimizing the use of ICT to promote local businesses, increase productivity, and improve access to education, especially in remote areas.	Online and in-person learning	LMS platform, educational videos
Cross-Cultural Skills	Cross-Cultural Training	Improve interaction skills in a multicultural environment, encourage social harmony and international collaboration.	Cultural simulations, interactive discussions	Educational videos, infographics, training modules
Global Issues (Climate Change, Economy)	Integration of Global Issues	Equip learners with global insights to adapt innovative solutions relevant to local challenges.	Global-local case studies, creative tasks	Articles, documentary videos, digital modules
Conflict and Domination	Peace Education	Develop conflict resolution skills such as mediation and negotiation, and instill values of justice and tolerance.	Mediation simulation, group discussion	Conflict resolution guide, peace leader videos
Political Participation and Democracy	Civic Education	Increasing public understanding of their rights and responsibilities as citizens, encouraging active involvement in the decision-making process.	Lectures, mock assemblies/debates	Political infographics, advocacy modules
Social Innovation	Social Entrepreneurship	Teaching the concept of social entrepreneurship to create innovative solutions that have a positive impact on society.	Interactive discussions, social business simulations	Case studies, video tutorials, infographics
Sustainable Development	Project-Based Learning (PBL)	Improving the ability of communities to implement local projects that support economic, social, and environmental balance.	Collaborative projects, group discussions	Digital modules, practical project tools
Financial Literacy and Management	Financial Literacy and Business Management Training	Provides an understanding of small business financial management, including record-keeping, budgeting, and resource management strategies.	Record-keeping simulations, business case studies	Spreadsheets, financial management apps
Limited Technology Infrastructure	Blended Learning	Overcome infrastructure constraints by combining online and offline learning for time and location flexibility.	Face-to-face and online learning	LMS, print module

Various learning approaches such as Project-Based Learning (PBL), Blended Learning, Cross-Cultural Training, Global Issues Integration, Peace Education, and Social Entrepreneurship have been designed to address social, economic, and cultural challenges that are relevant to the needs of society. This approach aims to equip participants with critical thinking skills, multicultural understanding, conflict resolution skills, and innovative solutions based on social entrepreneurship.

The methods used include community projects, group discussions, cultural simulations, and global-local case studies. This method actively engages participants through hands-on experience and contextual interaction. Learning media such as digital modules, educational videos, infographics, and financial management apps support flexibility and accessibility, ensuring that learning reaches diverse societal conditions. This integrative approach makes learning more inclusive, relevant, and effective in meeting contemporary needs.

Integration of Quantitative and Qualitative Phases

The integration of quantitative analysis through Exploratory Factor Analysis (EFA) and qualitative approaches using interviews provides deeper and more comprehensive insights into social, cultural, and educational issues. EFA helps identify key patterns or factors in quantitative data, while interviews explore contexts, perceptions, and experiences that numbers can't fully capture. EFA's results revealed themes such as dynamic curriculum, creativity development, digital literacy, social equity, and pluralism, which were reinforced through interviews that provided in-depth explanations of their impact on learning and people's lives.

The interviews also enriched the EFA results with personal narratives, such as how the dynamic curriculum supports project-based learning and character education, or how creativity development contributes to social innovation and technology-based learning. In addition, interviews reveal challenges such as limited access to cross-cultural information, social inequalities, and inadequate institutional support, which are critical to creating inclusive education.

However, some of the EFA's subcomponents, such as ideological conservatism, limited association, and ideological conflict, did not appear in the interview. This shows the difference in sensitivity between quantitative and qualitative methods in capturing certain dimensions. This absence underscores the importance of careful integration of both approaches to understanding complex dynamics. Overall, the combination of EFA and interviews provides holistic insights that can serve as a basis for designing relevant, inclusive, and sustainable policies and programs.

Conclusion

This study examines and illustrates the social change-based learning design that is tailored to the needs of the Sukamakmur community. These findings reveal that social change factors, such as accelerators through social equality, inhibitors due to ideological conservatism, and drivers through social innovation, have been validly identified using the KMO test, Bartlett test, and exploratory factor analysis. In addition, learning strategies such as blended learning, project-based learning (PBL), and peace-based education are contextual designed to address local and global challenges.

The integrative approach, combining quantitative analysis and qualitative interviews, provides a holistic understanding of social dynamics, ensuring that the resulting strategies are adaptive and inclusive. The learning model developed is not only relevant to support positive social transformation but also sustainable in the long term. This research offers practical contributions in the form of innovative educational strategies and theoretical insights into the development of social change-based learning. Thus, this research not only answers the needs of the community but also serves as a foundation for similar initiatives in the future.

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Author's Contribution

Conceptualization: Jaenal Mutakim and Oong Komar; Methodology and data analysis: Elih Sudiapermana; Validation and investigation: Joni Rahmat Pramudia. All authors have read and approved the final version of the script.

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Conflict of Interest

The author stated that there was no conflict of interest. The funders have no role in the design of the research; in data collection, analysis, or interpretation; in writing scripts; or in the decision to publish the results.

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