



# The Use of Local Wisdom-Based E-LKPD in Science and Social Studies Learning for Grade IV Students of Cluster V, Seririt District

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**Abstract:** This study was conducted in response to a persistent gap in contextual and meaningful IPAS learning at the elementary level — one that, despite growing attention in the literature, has not been adequately addressed through systematic synthesis. The specific concern is whether electronic student worksheets grounded in local wisdom, particularly those carrying the values of Tri Kaya Parisudha, can be said to produce consistent, documentable effects on students' critical thinking and character development. Previous studies have addressed pieces of this question, but none have drawn them together with sufficient rigor. A Systematic Literature Review was therefore conducted, following the PRISMA protocol across four stages: identification, screening, eligibility, and inclusion. Source materials were drawn from accredited national journals and relevant scientific publications. Of 45 articles initially identified, 10 met the inclusion criteria and were subjected to descriptive qualitative analysis. The findings indicate that local wisdom-based electronic worksheets produced measurable gains in learning outcomes, motivation, active participation, and critical thinking. The incorporation of Tri Kaya Parisudha values — manacika, wacika, and kayika — also appeared to reinforce students' attitudinal development in ways that standard digital worksheets did not. Taken together, the evidence positions local wisdom-based electronic worksheets as a contextually grounded and educationally sound resource for IPAS instruction in elementary schools, one that serves cognitive and character goals simultaneously.

**Keywords:** Electronic Worksheet; Local Wisdom; Tri Kaya Parisudha; IPAS Learning; Elementary School.

## 1. Introduction

Education is the primary foundation for developing human resources who are faithful, principled, capable, and able to think critically in the face of global challenges. Law Number 20 of 2003 on the National Education System affirms that education seeks to develop students' potential so they become persons of noble character, knowledgeable, creative, self-reliant, and responsible as citizens. In line with that mandate, learning at the elementary school level is expected not merely to target cognitive achievement, but also to strengthen character and cultivate higher-order thinking skills. The Merdeka Curriculum, as applied at the elementary level, introduced the subject of Natural and Social Sciences (IPAS) as an integrated course linking natural and social phenomena in contextual ways. IPAS is designed to encourage students to observe, analyze, and address problems that are close to their daily lives (Kelana & Wardani, 2021). Critical thinking, by that logic,

is not an add-on — it is the core competency that IPAS instruction is supposed to build, from the earliest grades onward.

Digital technology, in principle, should be making this easier. One concrete form of technology-based learning is the Electronic Student Worksheet (E-LKPD). Designed to support active student engagement through exploratory tasks, problem-solving, and independent reflection, E-LKPD consolidates content, activities, and assessment into a single flexible digital medium (Amalia *et al.*, 2021). A number of studies have reported that E-LKPD raises learning motivation, autonomy, and critical thinking — partly because it removes the rigidity of conventional worksheet formats. One reason learning objectives go unmet, in practice, is the absence of adequate learning tools in the classroom. Addressing this requires instructional support that is technology-based and genuinely functional. Digital media, as Kuntari (2023) noted, can ease the delivery of subject matter in ways that static print materials cannot. The problem is that teachers, even when trained in media production, rarely receive enough exposure to pedagogical innovation to build a reliable repertoire of creative, technology-driven materials. Twenty-first-century learning demands a shift away from conventional instruction toward technology-based approaches — a demand that has only grown sharper under the pressures of Education 4.0 (Fasa & Purwanti, 2023).

Character education grounded in local wisdom is, at the same time, an aspect of elementary schooling that cannot be set aside (Hakim & Darajat, 2023; Puspayanti *et al.*, 2023). Local wisdom functions both as a vehicle for cultural preservation and as a source of moral and ethical formation for students. In the Balinese context specifically, Tri Kaya Parisudha stands out as a value system with direct relevance to classroom learning. Its three components — manacika (right thought), wacika (right speech), and kayika (right action) — map onto the goals of IPAS instruction in ways that are not incidental. The alignment between Tri Kaya Parisudha and the cultivation of critical, responsible thinking has been documented by Ariasa *et al.* (2020), and the implications for character-based learning are difficult to dismiss.

Several prior development studies, including those conducted across elementary school clusters in Bali, have reported that E-LKPD oriented toward Tri Kaya Parisudha can raise learning quality on both cognitive and character dimensions (Suparya *et al.*, 2025; Wijayanti, 2025b). Yet those findings remain scattered across journals with differing foci, methods, and conclusions. No study has systematically gathered and analyzed the body of research on local wisdom-based E-LKPD — particularly Tri Kaya Parisudha — as applied to fourth-grade IPAS learning. That gap is what prompted the present study. A Systematic Literature Review (SLR) approach was adopted to examine, in a structured and replicable way, the trends, characteristics, and effects of local wisdom-based E-LKPD in IPAS instruction for Grade IV students, with particular reference to the educational context of Gugus V, Kecamatan Seririt. The results are intended to supply a theoretical and empirical basis for developing E-LKPD that is genuinely innovative, contextually grounded, and oriented toward both critical thinking and character formation.

The novelty of this study lies in its use of the SLR approach to comprehensively gather, analyze, and synthesize research findings on local wisdom-based E-LKPD — specifically those incorporating Tri Kaya Parisudha — in fourth-grade IPAS learning. Unlike prior studies that were implementational and contextually bounded, this review maps the research landscape as a whole: the trends in how Tri Kaya Parisudha values have been embedded in E-LKPD design, and the documented effects on elementary students' critical thinking. Equally, the study identifies what prior research has consistently failed to address — the scarcity of work that directly links Tri Kaya Parisudha to measurable critical thinking indicators in IPAS, and the limited analysis of what actually supports or obstructs the use of local wisdom-based E-LKPD in practice. The aim, then, is not simply to summarize what exists, but to point toward what a more contextual, character-oriented, and educationally relevant generation of E-LKPD might look like — particularly for IPAS instruction in elementary schools within the context of Gugus V, Kecamatan Seririt.

## 2. Theoretical Framework

The use of digital learning tools at the elementary level has drawn growing attention in Indonesian educational research. Kuntari (2023) argued that digital media eases the delivery of subject matter and supports more varied instructional approaches than conventional print-based materials allow. Building on that premise, E-LKPD has emerged as one of the more concrete applications of digital technology in classroom settings. Nurfadila *et al.* (2023) demonstrated that application-based E-LKPD — specifically those built on the Liveworksheet platform — increased student learning activity and autonomy among elementary school students. A similar finding was reported by Hapsari and Prasetyaningtyas (2023), whose study on Problem Based Learning-oriented E-LKPD showed gains in student engagement and conceptual understanding in social science learning. Wardani and Suniasih (2022) further confirmed that interactive E-LKPD grounded in local cultural content was rated valid and practical by expert reviewers, and produced measurable increases in student involvement. Pratiwi *et al.* (2025) extended this line of work by developing a Liveworksheet-based E-

LKPD oriented toward the Tat Twam Asi value, reporting that the integration of local values raised both student attitudes and subject comprehension in Grade V IPAS. Taken together, these studies suggest that E-LKPD is not merely a digital substitute for paper worksheets — its design logic, when done carefully, changes how students interact with content.

The case for grounding instructional materials in local wisdom rests on more than cultural sentiment. Widiastuti (2021) documented, through a case study in Bali, that integrating local wisdom into the elementary school curriculum strengthened students' cultural identity and made learning more contextually meaningful. Putri *et al.* (2023) examined the feasibility of local culture-based E-LKPD in social science learning and concluded that such materials functioned effectively as contextual teaching resources for Grade IV students. Fitriyani *et al.* (2024), working in a non-Balinese context, found that LKPD grounded in local wisdom raised learning motivation in IPS — though their materials were not yet digital, which points to a gap that subsequent studies have begun to address. Hakim and Darajat (2023) situated this discussion within a broader argument about multicultural education, contending that character formation and national identity are inseparable from the cultural contexts in which students grow up. Puspayanti *et al.* (2023) reinforced that position by examining the Tri Hita Karana concept as a vehicle for harmony-based character education, arguing that Balinese philosophical values carry genuine pedagogical weight when applied systematically in school settings.

Among the local wisdom values discussed in the literature, Tri Kaya Parisudha has received the most direct attention in relation to cognitive and character outcomes. Ariasa *et al.* (2020) established that character education grounded in Tri Kaya Parisudha — encompassing manacika (right thought), wacika (right speech), and kayika (right action) — produced a measurable effect on students' behavior and what the authors termed a "culture of intelligence" in elementary school child protection contexts. Rahayu *et al.* (2023) tested a Think Talk Write learning model oriented toward Tri Kaya Parisudha and found that it raised students' critical reasoning scores on the Pancasila Student Profile dimension in science learning — though their study did not use E-LKPD as the instructional medium. Suparya *et al.* (2025) reported comparable results through a scientific learning model grounded in Tri Kaya Parisudha, concluding that the value system affected both student attitudes and critical thinking in elementary science. Most directly relevant to the present study, Wijayanti (2025a; 2025b) developed an interactive E-LKPD explicitly based on the Tri Kaya Parisudha learning model for Grade IV IPAS, reporting that the product was valid, practical, and effective in raising students' critical reasoning on the "Lihat Sekitar" topic. That study is the closest precedent to what the present SLR seeks to synthesize — yet it remains a single product-development study, without broader comparative analysis.

IPAS as a subject was designed to connect natural and social phenomena in ways that are observable and meaningful to students (Kelana & Wardani, 2021; Amalia *et al.*, 2021). That design intention aligns directly with Piaget's (1970) account of cognitive development, which places Grade IV students — typically aged nine to ten — within the concrete operational stage. At this stage, learning is most effective when it proceeds from tangible, experience-based engagement rather than abstract instruction. Johnson (2014) formalized a related argument through the Contextual Teaching and Learning framework, which holds that connecting subject matter to students' real-life situations produces deeper and more durable understanding. Salsabila and Muqowim (2024) drew on Vygotsky's constructivist theory to argue that knowledge is not received passively but constructed through social interaction and experience — a position that supports the use of culturally embedded, activity-based materials like local wisdom-grounded E-LKPD. Anayanti Rahmawati *et al.* (2024) added an empirical dimension to this theoretical picture, demonstrating through an experimental study that interactive digital media had a significant effect on children's critical thinking in science learning, even when local wisdom was not a design variable. That finding matters here: it confirms the independent contribution of digital interactivity to critical thinking outcomes, separate from the cultural content layer that Tri Kaya Parisudha-based E-LKPD adds on top.

### 3. Methodology

This study employed a Systematic Literature Review (SLR) — a research approach conducted in a systematic, transparent, and replicable manner to identify, evaluate, and synthesize findings from prior studies relevant to the topic under examination. SLR was selected because it allows for a comprehensive account of how local wisdom-based E-LKPD has been used in fourth-grade IPAS learning, while simultaneously surfacing the research gaps that warrant further investigation. The review followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol, covering four stages: identification, screening, eligibility, and inclusion. The SLR process proceeded through seven stages: (1) formulation of research questions, (2) determination of article search strategies, (3) establishment of inclusion and exclusion criteria, (4) article selection using the PRISMA protocol, (5) data extraction and coding, (6) quality assessment of articles, and (7) data synthesis and analysis (Wahono, 2020). Following the PRISMA selection process, 10

articles meeting the inclusion criteria were identified from an initial pool of 45 and subjected to further analysis. The full stages of the SLR are presented in Table 1.

Table 1. SLR Stages Using the PRISMA Protocol

PRISMA Stage	Description of Activity	Articles
Identification	Articles identified through Google Scholar, SINTA, and accredited national journals using the following keywords: E-LKPD, local wisdom, Tri Kaya Parisudha, critical thinking	40
Screening	Additional articles retrieved from reference lists (snowballing)	5
	Total articles screened	45
	Articles screened by title and abstract	40
	Articles excluded (not discussing E-LKPD/LKPD, not at elementary school level, or not covering IPAS/IPA/IPS)	20
	Articles passing screening	20
Eligibility	Full-text articles reviewed in depth	20
	Articles excluded for the following reasons: (1) no local wisdom content, (2) no discussion of learning outcomes, (3) duplicate publication	10
	Articles meeting eligibility criteria	10
Included	Articles analyzed and synthesized in the SLR	10

Data analysis was conducted using a descriptive qualitative approach, grouping research findings by major themes — E-LKPD characteristics, forms of local wisdom incorporated, and documented learning outcomes. The findings were then synthesized to identify patterns, tendencies, and research gaps that remain underexplored in the existing literature. The synthesis produced here is intended to carry both theoretical and practical weight for the development of local wisdom-based E-LKPD in fourth-grade IPAS instruction, particularly within the broader context of elementary education in Indonesia.

## 4. Result and Discussion

### 4.1 Results

The PRISMA selection process yielded 10 articles meeting the inclusion criteria and suitable for further analysis. Each article addressed the use of E-LKPD or digital worksheets grounded in local wisdom in elementary school learning, whether in IPAS or in closely related subjects. The ten selected articles came from accredited national journals and international publications, all issued within the past five to seven years. That temporal concentration is telling — it suggests that local wisdom-based E-LKPD is a relatively recent area of inquiry, one that has been gaining traction alongside the broader demand for contextual digital learning at the elementary level. Most of the reviewed articles used Research and Development (R&D) methods, drawing on development models such as ADDIE and Borg & Gall, to produce E-LKPD products that were valid, practical, and effective. A smaller number employed quasi-experimental and descriptive qualitative approaches to examine the effects of E-LKPD use on learning outcomes and student motivation. The dominance of R&D methods signals that the field is still largely preoccupied with product development and feasibility testing — longitudinal and evaluative studies remain scarce, and that absence is a real limitation on what can currently be claimed about long-term effects. The results of the analysis of the 10 articles are presented in Table 2.

Table 2. Summary of Analyzed Articles

No	Researcher and Year	Research Focus	Subjects and Context	Research Method	Main Findings	Limitations / Research Gap
1	Wardani & Suniasih (2022)	Interactive E-LKPD Based on Local Wisdom in Balinese Script Material for Grade V Elementary School	Grade V Elementary School Students	R&D	E-LKPD was valid, practical, and increased student engagement in learning	Research subjects were limited to Grade V students in a Balinese cultural context; findings cannot be generalized to other grade

							levels or regions with different cultural characteristics
2	Hapsari & Prasetyaningtyas (2023)	E-LKPD Based on Problem Based Learning in IPAS Learning	Elementary School Students	Experiment	E-LKPD increased student engagement and conceptual understanding in IPAS	Local wisdom was not incorporated	
3	Pratiwi <i>et al.</i> (2025)	Liveworksheet E-LKPD Oriented Toward Tat Twam Asi	Elementary School Students	R&D	Integration of local values raised students' attitudes and understanding	A different local value system was used (not Tri Kaya Parisudha)	
4	Nurfadila <i>et al.</i> (2023)	Application-Based E-LKPD	Grade V Elementary School Students	R&D	Regional local wisdom; increased learning activity and independence	—	
5	Putri <i>et al.</i> (2023)	E-LKPD Based on Local Culture in IPAS Learning	Grade IV Elementary School Students	R&D	E-LKPD was effective as contextual teaching material	Critical thinking skills were not specifically examined	
6	Wijayanti (2025b)	Development of E-LKPD Oriented Toward Tri Kaya Parisudha in IPAS Learning	Grade IV Elementary School Students	R&D	E-LKPD was valid, practical, and effective in improving IPAS learning outcomes	Focus was on product development; no synthesis of comparable studies was conducted	
7	Fitriyani <i>et al.</i> (2024)	LKPD Based on Local Wisdom in IPS Learning	Elementary School Students	R&D	Local culture-based LKPD raised learning motivation	Not yet digital; not in the IPAS subject	
8	Anayanti Rahmawati <i>et al.</i> (2024)	Use of Digital Media on Critical Thinking in Science	Elementary School Students	Experiment	Digital media had a significant effect on critical thinking	E-LKPD was not used; no local wisdom basis	
9	Suparya <i>et al.</i> (2025)	Scientific Learning Based on Tri Kaya Parisudha	Elementary School Students	Experiment	Tri Kaya Parisudha values affected attitudes and critical thinking	Focus was on the learning model, not on digital instructional materials	
10	Rahayu <i>et al.</i> (2023)	Think Talk Write Model Based on Tri Kaya Parisudha	Elementary School Students	Experiment	Tri Kaya Parisudha-based model raised critical thinking	E-LKPD was not used	

## 4.2 Discussion

Synthesizing the findings across all ten articles, local wisdom-based E-LKPD produced positive effects on both the process and outcomes of learning. Four patterns emerged consistently: (1) improved student learning outcomes, particularly in conceptual understanding of IPAS; (2) increased motivation and interest, as content was delivered interactively and in ways students could connect to their own lives; (3) greater active participation through exploration- and problem-solving-based activities; and (4) a more appreciative

orientation toward local culture, so that learning addressed affective as well as cognitive goals. These findings are consistent with the principles of contextual learning and character formation grounded in local culture. What the reviewed studies do not show, however, is equally worth noting. The majority of articles have not examined the integration of local wisdom-based E-LKPD in fourth-grade IPAS learning with sufficient depth (Wardani & Suniasih, 2022; Widiastuti, 2021). That gap is precisely where the present study makes its contribution — mapping existing findings while identifying the research directions most relevant to the context of Gugus V, Kecamatan Seririt.

On the question of learning outcomes, most articles reported gains on cognitive measures: conceptual understanding of IPAS or IPA, and critical thinking capacity (Wijayanti, 2025a). Local wisdom-based E-LKPD also appeared to reinforce positive student attitudes — care for the environment, appreciation of local culture, and heightened learning motivation. This pattern aligns with constructivist learning theory, which holds that knowledge is built through experience and through students' active interaction with their social and cultural environment (Salsabila & Muqowim, 2024). Local wisdom-based E-LKPD presents IPAS content in connection with students' environment, local culture, and everyday activities — conditions that prompt students to construct new knowledge from what they already know. The approach also reflects the principles of Contextual Teaching and Learning, where subject matter is linked to real situations students actually encounter, making learning more meaningful rather than merely procedural. The SLR findings reinforce three theoretical positions simultaneously: constructivism, Contextual Teaching and Learning (Johnson, 2014), and Piaget's theory of cognitive development in elementary school students (Piaget, 1970). The integration of local wisdom in E-LKPD supports the view that knowledge is built through genuine experience and through students' interaction with the socio-cultural world around them. Theoretically, this study contributes to digital learning scholarship by insisting that technology-based instruction need not — and should not — be culturally neutral. Local cultural values are not decorative additions to E-LKPD design; they are substantive sources of meaning that shape how students engage with content.

Practically, the findings carry direct implications for elementary school teachers. Developing and using local wisdom-based E-LKPD as an alternative instructional material for IPAS is not merely possible — the evidence reviewed here suggests it is educationally sound (Wardani & Suniasih, 2022). E-LKPD allows teachers to present content more interactively, in ways that are relevant to students' lives and appropriate to the concrete operational stage of cognitive development characteristic of Grade IV learners. For students, the use of local wisdom-based E-LKPD means a learning experience that is more meaningful, more engaging, and more connected to the realities they actually inhabit. Students gain not only cognitive knowledge but also attitudinal values — care for the environment, respect for local culture — that standard digital worksheets rarely address.

## 5. Conclusion

A Systematic Literature Review of ten relevant articles indicates that local wisdom-based E-LKPD makes a positive contribution to IPAS learning in elementary schools, particularly for Grade IV students. The evidence reviewed here shows that such worksheets raised learning outcomes, motivation, active engagement, and critical thinking — largely because the content was presented in ways that were contextual and connected to students' daily lives. The incorporation of local wisdom values, *Tri Kaya Parisudha* above all, did not merely support cognitive development; it appeared to play a distinct role in shaping students' attitudes and character, including responsibility, care, and reflective thinking. These findings position local wisdom-based E-LKPD as consistent with both contextual learning principles and constructivist theory, making it a defensible and practically useful instructional resource for IPAS in elementary schools.

Several directions follow from these findings. Elementary school teachers are encouraged to develop and use local wisdom-based E-LKPD as an alternative instructional material for IPAS — one that is contextual, innovative, and oriented toward both critical thinking and character formation. For schools and education policymakers, the findings presented here can serve as a basis for supporting the development of culturally grounded digital learning tools through teacher training and the provision of necessary infrastructure. For future researchers, empirical and longitudinal studies are needed to test the effectiveness of local wisdom-based E-LKPD on critical thinking and student attitudes with greater depth. Extending the inquiry to different cultural contexts and grade levels would also address one of the more persistent limitations in the existing body of work — namely, that most studies to date have been narrowly bounded by a single school setting or cultural region, which makes broader claims difficult to sustain.

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