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Pancasila and Civic Education in Elementary Students' Digital Ethics Awareness

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ABSTRACT

Digital technologies shape how elementary students communicate, evaluate information, and interact with others, creating a need for digital citizenship grounded in ethical and civic values. However, how students connect everyday digital-ethical reasoning with Pancasila and Civic Education remains underexplored. This study examined students' digital-ethical understandings and contextual factors shaping their responses within Pancasila and Civic Education. A descriptive qualitative design was the primary approach, complemented by paired pretest-posttest data. Participants were 27 fourth-grade students. Data came from semi-structured interviews, a 10-item true-false test, and contextual learning notes. Interview data were analyzed thematically, while quantitative data were examined descriptively and using the Wilcoxon signed-rank test. Students demonstrated ethical reasoning related to information verification, reparative responsibility, privacy and photo consent, empathy, and data security, with family and peer contexts shaping their responses. Quantitative scores showed no meaningful overall improvement. The findings reveal an ethical repertoire-curricular attribution gap: students expressed relevant digital-ethical understandings but did not consistently identify them as part of Pancasila or Civic Education. The study contributes a Pancasila-based digital citizenship framework linking civic values with ethical reasoning and intended digital behavior. Pedagogically, explicit connections between Pancasila values and concrete digital situations may strengthen recognition of digital ethics as civic learning.

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1. INTRODUCTION

Digital life has become part of children's everyday social experience, making digital citizenship an increasingly important dimension of civic development in elementary education. Civic competence therefore no longer concerns only physical spaces but also how children communicate, share information, protect data, and treat others online. Digital

citizenship encompasses safe, responsible, ethical, critical, and participatory uses of technology rather than mere operational skill [1]–[3]. For elementary students, this broad understanding is particularly important because digital practices are increasingly embedded in everyday communication, learning, and peer interaction.

¹⁵ The need for digital citizenship education begins early. A national survey of K–5 teachers found that privacy, safety, cyberbullying, digital drama, and hate speech are already addressed in elementary settings, although with uneven intensity [4]. Systematic reviews similarly show that primary-school practice often emphasizes digital literacy while leaving other citizenship dimensions less developed, indicating the need for more comprehensive and developmentally appropriate integration [5], [6]. These findings suggest that the central educational challenge is not simply whether children use digital technologies, but whether they can apply ethical principles when making decisions in concrete digital situations.

This distinction becomes especially relevant to Pancasila and Civic Education, which provides a curricular context for connecting digital practices with civic values. Human dignity, responsibility, respect, deliberation, justice, and social harmony can be contextualized as online communication ethics, photo consent, information verification, anti-cyberbullying, and personal data protection. In Indonesia, Pancasila can serve as a source of digital ethics because its values provide a moral orientation for citizenship in digital spaces [9]. Recent elementary-school studies also show that digital citizenship can be integrated contextually into Pancasila Education by connecting civic values with students' digital experiences [10], [11]. Thus, Pancasila values can be understood not merely as curricular content but as an ethical frame through which students interpret digital situations, consider the consequences of their actions, and determine appropriate responses.

Previous research has identified several interconnected dimensions of this ethical process. Critical digital literacy requires more than operational competence, as school-level reviews emphasize the need to connect digital practices with critical interpretation, social responsibility, and contextual judgment [12]. For elementary learners, this distinction is important because ethical awareness may first emerge through practical reasoning about a situation before students can explicitly identify the formal civic or curricular principle underlying their response. Security and privacy are similarly central to digital citizenship. Witsenboer et al. [13] reported that students often learn cyber-secure behavior from experience and family when school curricula provide insufficient attention. Su and Yang [14] emphasize that children's digital competence should include critical, safe, and responsible dimensions, while Li and Abdul Rahman [15] show that parental involvement operates through ¹⁰ monitoring, organization, and instruction. Evidence from Indonesia also indicates that privacy awareness is an important component of broader digital citizenship literacy, strengthening the rationale for examining privacy, consent, and personal-data protection together in elementary education [16].

Information credibility represents another dimension in which ethical reasoning must be applied to concrete digital experiences. McGrew [17] demonstrated that evaluation strategies adapted from professional fact-checkers can improve students' ability to assess online sources and evidence. Curriculum-embedded civic online reasoning lessons likewise improve online evaluation [18], while national evidence shows that many students still

struggle to judge digital information quality [19]. Contextual gaming and formative assessment can also support digital citizenship behavior [20], and fact-checking games can complement direct instruction [21], [22]. These studies establish the importance of critical evaluation but leave room to examine how elementary students themselves explain and justify their responses when encountering familiar misinformation in everyday school-related contexts.

Cyberbullying adds a relational dimension to digital ethics. ³² Affective and cognitive empathy are negatively associated with cyberbullying involvement among elementary students [23], whereas repeated bystander exposure may reduce empathic responding over time [24]. Schools therefore need to move beyond the statement that bullying is wrong and teach perspective-taking, safe support for victims, reporting, and regulation of aggressive responses. Digital etiquette research further suggests that structured learning experiences can improve respectful online conduct and related ethical literacy, supporting the pedagogical value of practice-based scenarios rather than rule memorization alone [25]. This relational dimension also highlights that children's digital ethical reasoning does not develop in isolation: family guidance, peer interaction, and everyday social experiences can shape how students interpret responsibility, harm, respect, and appropriate action.

A further issue concerns ¹⁹ the extent to which ethical knowledge is reflected in intended behavior. Evaluation of the Be Internet Awesome curriculum found that digital citizenship education may improve knowledge and efficacy without automatically changing all privacy, civility, and cyberbullying behaviors [26]. This suggests that digital ethics research should not rely solely on test scores but should also examine students' reasons, narratives, and intended actions. The concept of cyber-wisdom similarly emphasizes the capacity to know and do the appropriate thing in digital situations and provides a useful conceptual bridge between ethical knowledge, reasoning, reflection, and action [27]. Accordingly, examining students' responses to concrete digital situations can provide a more differentiated picture of digital citizenship than measuring declarative knowledge alone.

²⁶ Despite this growing body of research, an important empirical gap remains. Studies have examined digital literacy, privacy and security, information evaluation, cyberbullying, and digital citizenship education, but elementary students' digital ethical reasoning has received less attention when interpreted explicitly through Pancasila values and situated within their everyday social environments. This gap matters because knowledge does not always translate into behavior, and young learners need concrete language and situations to make sense of digital citizenship [5], [26], [28]. The present study addresses this gap by examining how students connect Pancasila-related values with ethical judgments in concrete digital situations and by considering how family and peer environments may support or constrain such awareness. Rather than treating digital citizenship as a single measurable competence, the study distinguishes among what students know, how they reason about ethical situations, and what actions they consider appropriate.

The originality of this study lies in bringing these elements together within an interpretive examination of elementary students' digital ethics. Specifically, the study connects (1) Pancasila values as a civic and moral reference, (2) students' digital ethical reasoning as the process through which they interpret concrete situations, (3) intended or

potential digital behavior as the practical expression of that reasoning, and (4) family and peer influence as the social context in which digital norms are learned and practiced. This framework enables the study to move beyond the question of whether students possess digital-citizenship knowledge toward understanding how they construct ethical judgments in context.

Conceptually, the study therefore views Pancasila values as an ethical orientation that can inform students' interpretation of digital situations; digital ethical reasoning as the process connecting values to judgments; and student behavior as the potential behavioral expression of those judgments. Family and peer influence are positioned as contextual factors that may reinforce, negotiate, or constrain the development and enactment of these ethical orientations. This conceptualization does not assume a direct causal relationship among the elements but provides an interpretive lens for examining their connections in students' accounts and responses.

Accordingly, ² this study aims to examine how Pancasila and Civic Education contribute to elementary students' digital-ethics awareness, identify the digital ethical values evident in students' reasoning, and explore the factors that support or inhibit such awareness. The study asks: (1) how Pancasila and Civic Education contribute to elementary students' digital-ethics awareness; (2) which digital ethical values appear in students' reasoning; and (3) what factors support or inhibit such awareness? By combining paired scores with student voices, the study contributes an empirically grounded interpretation of the relationship between curricular attribution, situational ethical reasoning, and potential behavior. ⁷ The findings are expected to contribute to the development of more contextually grounded digital citizenship education in elementary schools, particularly approaches that connect Pancasila values with children's everyday digital experiences and the social environments in which those experiences occur. ¹⁰

⁶ 2. METHOD

2.1. Research Design

This study employed a descriptive qualitative research design as the primary approach, complemented by paired quantitative pretest-posttest data as supporting evidence. The quantitative component was not intended to constitute an experimental test of intervention effectiveness but to provide complementary evidence for triangulation and to identify tendencies in students' knowledge change. Quantitative results were used to enrich triangulation and identify tendencies in knowledge change, while semi-structured interviews served as the primary source for understanding students' experiences, reasons, and ethical reasoning. This multidata approach was appropriate because digital citizenship is multidimensional, involving knowledge, attitudes, actions, participation, safety, and online respect [1], [2]. ⁷

2.2. Research Setting, Participants, and Sampling

The study was conducted in a fourth-grade class at SDN 1 Tukmudal, Indonesia. The study involved all 27 students in the participating class, and all students experienced the same educational activities and data-collection procedures. ²⁰ The participants consisted of 27

fourth-grade students who were identified using anonymized codes S01–S27. All 27 students had complete interview data covering 15 questions and complete paired pretest-posttest scores. A class-level inclusion approach was used because the study focused on interpreting the digital ethical reasoning of students who participated in the same learning context. The participants were included in the analysis because they provided complete data across both the qualitative and quantitative components of the study.

2.3. Data Sources and Research Instruments

The study used two primary sources of data: semi-structured interview responses and paired pretest-posttest scores. Contextual learning notes were also used as supplementary data during the interpretation and triangulation process. The interview protocol explored students' digital experiences, recollection of Pancasila and Civic Education learning, content responsibility, online civility, information verification, empathy, privacy, personal-data security, tolerance, value internalization, and supporting and inhibiting factors.

The semi-structured interview consisted of 15 core questions. The questions were designed to elicit students' experiences, explanations, reasons, and responses to concrete digital situations, allowing the analysis to examine ethical reasoning rather than only students' ability to recall definitions.

The pretest and posttest consisted of ten true-false items aligned with equivalent indicators. The indicators included privacy and respect for others, misinformation awareness, information verification, anti-cyberbullying, concern for victims, communication ethics, tolerance, privacy and security, digital responsibility, and Pancasila character in digital spaces. Posttest wording was varied to reduce recall while maintaining comparable constructs.

Each correct answer was assigned one point and each incorrect answer zero points, resulting in a total possible score of 0–10. Higher scores represented a greater number of correctly identified digital-ethics statements. Because true-false items allow guessing and have limited sensitivity to the depth of ethical reasoning, the scores were not treated as the sole measure of digital ethics. Instead, the quantitative results were interpreted together with students' responses to concrete digital scenarios [17], [19], [26].

2.4. Educational Activities

All 27 students participated in the same educational activities before the posttest and interview-based interpretation. The learning activities were conducted over four weeks, with approximately 35 minutes allocated to each session. The activities addressed Pancasila and Civic Education in relation to digital ethics, including digital communication ethics, privacy and personal data protection, information verification and misinformation, cyberbullying, empathy, tolerance, and responsible behavior in digital spaces.

Learning activities used concrete digital situations to connect Pancasila values with students' everyday digital experiences. Students were encouraged to discuss situations, identify appropriate and inappropriate actions, consider possible consequences, and explain how their decisions related to respect, responsibility, empathy, fairness, tolerance, and protection of others.

The teacher acted as a facilitator by introducing relevant concepts, presenting contextual situations, guiding classroom discussion, clarifying misconceptions, and connecting students' responses with Pancasila and Civic Education values. The learning process therefore emphasized contextual understanding and ethical decision-making rather than memorization of rules.

29 2.5. Data Collection Procedure

Data collection followed four sequential stages: pretest, educational activities, semi-structured interviews, and posttest. The pretest was administered before the learning activities, followed by educational activities related to Pancasila and Civic Education and digital ethics. The same 27 students participated in the learning activities and subsequent data-collection stages.

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Semi-structured interviews were then conducted to explore students' understanding, experiences, reasoning, and responses to concrete digital situations. All students responded to the same 15 core questions, while follow-up probes were used to encourage elaboration when necessary. The posttest was administered after the learning activities and interviews.

During the interviews, the interviewer used probes to encourage students to explain their reasons, provide examples, and describe possible consequences. The interviewer avoided directing students toward predetermined or presumed correct answers. Concrete scenarios were used because digital citizenship can become more meaningful when students are asked to make decisions in contextual situations rather than merely define abstract concepts [6], [20].

2.6. Qualitative Data Analysis and Trustworthiness

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The qualitative data were analyzed through a systematic thematic analysis procedure. The analysis consisted of four linked stages. First, interview responses were read repeatedly to develop familiarity with the data and identify relevant excerpts. Second, provisional codes were assigned to responses that represented particular forms of digital ethical reasoning or contextual experience. Third, similar codes were grouped into broader categories, including information verification, responsibility, privacy, empathy, data security, family support, and social-media barriers. Fourth, the categories were compared across all 27 students to identify recurrent patterns, similarities, and contrasting responses.

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The final themes were interpreted in relation to Pancasila values, digital citizenship constructs, and the distinction between knowledge and action. Particular attention was given to responses in which students explained an action, identified a consequence, referred to another person's rights or feelings, or described a source used to verify information.

Trustworthiness was strengthened through triangulation of interview responses, paired quantitative scores, and contextual learning notes. Responses were compared across participants to identify recurrent patterns as well as contrasting or less common perspectives. The analysis also emphasized students' explanations and reasoning rather than treating isolated statements as representative of the entire group.

2.7. Quantitative Data Analysis

Quantitative data were analyzed descriptively and inferentially. Pretest and posttest scores were summarized using the ¹⁴number of participants (N), mean, standard deviation, minimum, and maximum values. Individual score changes were also categorized as increased, unchanged, or decreased.

¹²The Wilcoxon signed-rank test was used to determine whether the paired pretest-posttest scores demonstrated evidence of systematic change. This non-parametric procedure was selected because the score differences slightly deviated from normality and the data were based on discrete scores. The test was interpreted as an assessment of whether the paired scores showed systematic change rather than as evidence of intervention effectiveness.

The statistical findings were interpreted conservatively ¹⁷because the study did not include a control group and the ten-item true-false instrument was not designed as a comprehensive psychometric measure. Consequently, the quantitative results were treated as complementary evidence and were interpreted alongside the qualitative findings.

2.8. Data Integration and Triangulation

Integration occurred at the interpretation stage rather than through the creation of a single combined score. The quantitative and qualitative data were first analyzed separately and subsequently compared to identify convergence and divergence between declarative knowledge and situational ethical reasoning.

Quantitative stability was interpreted as evidence that the pretest-posttest instrument did not demonstrate a broad score gain. Interview findings were subsequently examined to determine whether students nevertheless demonstrated context-specific ethical reasoning. Convergence was considered when quantitative patterns and interview themes indicated similar tendencies. Divergence was treated as analytically meaningful because it could indicate differences between students' declarative knowledge and their ability to apply ethical principles in concrete situations.

Trustworthiness was strengthened through triangulation among interview responses, paired quantitative scores, and contextual learning notes. The analysis also compared responses across students to identify recurring and contrasting patterns. This integration enabled the study to distinguish between students' declarative knowledge as reflected in test scores and the more differentiated ethical reasoning evident in their explanations of concrete digital situations.

2.9. Ethical Considerations and Data Confidentiality

Student identities were protected throughout the research process by using anonymized codes S01–S27 rather than students' names. Only information relevant to the research objectives was included in the analysis and reporting. The qualitative findings were presented in aggregated form, while individual quotations were attributed only to anonymized participant codes.

The study treated students' responses as research data concerning their digital experiences and ethical reasoning. Particular care was taken to avoid reporting personally

identifying information or unnecessary details about individual students. Participation data and interview responses were handled confidentially, and anonymized participant codes were used throughout the analysis and reporting.

3. RESULTS

This section presents the quantitative pretest-posttest pattern and the qualitative themes identified from interviews with 27 fourth-grade students. The results are organized according to the study questions, beginning with the overall quantitative pattern, followed by students' digital-ethical reasoning and the contextual factors associated with that reasoning.

3.1. Quantitative Pattern: Stable Scores Rather Than a Uniform Gain

Table 1 presents the paired descriptive results. The mean score increased from 73.70 to 74.44, producing a mean gain of 0.74 points. The standard deviation increased from 6.88 to 10.86, indicating greater dispersion at posttest. The Wilcoxon signed-rank test was not significant ($W = 70.00$; $p = .750$).

Table 1. Descriptive Statistics and Paired Pretest-Posttest Analysis

Statistic	Pretest	Posttest/Change
N	27	27
Mean	73.70	74.44
SD	6.88	10.86
Minimum	60	60
Maximum	90	100
Mean gain	—	0.74 points
Wilcoxon	—	$W=70.00$; $p=.750$

The posttest mean increased by only 0.74 points, from 73.70 to 74.44. Eight students (29.6%) increased, ten (37.0%) remained unchanged, and nine (33.3%) decreased. The Wilcoxon test was not significant ($p = .750$). Thus, the quantitative data indicate score stability rather than a systematic increase across students.

The distribution is more informative than the mean difference alone. The posttest maximum reached 100 while the minimum remained at 60, and the increase in standard deviation from 6.88 to 10.86 indicates greater variation in posttest performance. The score pattern therefore shows that students did not respond uniformly, with some moving toward higher scores while others remained unchanged or decreased.

Figure 1 presents the mean pretest and posttest scores. Because the mean difference is small, the figure should be presented using an appropriate vertical scale and should function as a visual aid rather than as the primary evidence of change.

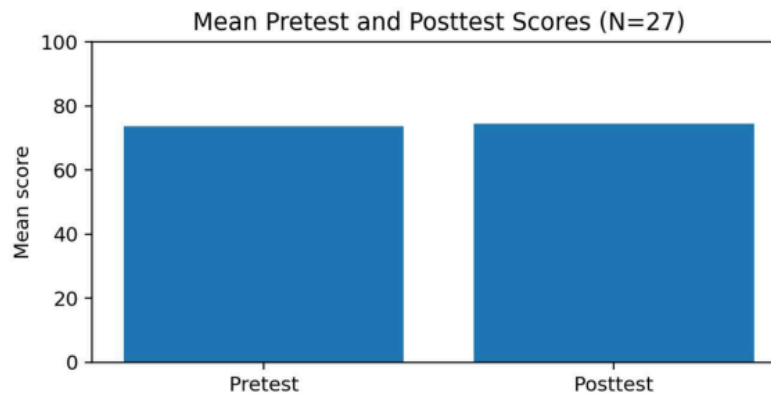


Figure 1. Mean Pretest and Posttest Scores (N = 27)

3.2. Qualitative Themes: Digital-Ethical Repertoires Across Contexts

Table 2 summarizes the main themes identified from the interviews. Theme frequency was calculated at the student level: a theme was counted when at least one segment of a student's interview response contained evidence relevant to that theme. The percentage was calculated as $n/27 \times 100$. Because the themes were not mutually exclusive, one student could contribute to more than one theme. Consequently, the frequencies and percentages should not be summed across themes.

Table 2. Main Themes from Student Interviews (N = 27)

Theme	n	%	Empirical pattern
Information verification	25	92.6	Asking trusted adults, checking, seeking evidence/truth
Reparative responsibility	24	88.9	Apologizing and/or deleting harmful content
Photo consent/privacy	22	81.5	Requesting permission; recognizing privacy
Family support	20	74.1	Parents/family remind students about internet use
Empathy/anti-cyberbullying	19	70.4	Defending, helping, reporting, stopping mockery
Data security	18	66.7	Password, address, phone number, private photos/data
Social-media barriers	16	59.3	Peers, habits, games/TikTok, negative content

The most frequently identified theme was information verification (25/27, 92.6%), followed by reparative responsibility (24/27, 88.9%) and photo consent/privacy (22/27, 81.5%). Family support was identified by 20 students (74.1%), empathy/anti-cyberbullying by 19 (70.4%), data security by 18 (66.7%), and social-media barriers by 16 (59.3%). These frequencies indicate that students' ethical repertoires were particularly visible when they were asked to respond to concrete situations involving information, interpersonal harm, privacy, and responsibility.

3.3. Ethical Reasoning in Concrete Digital Situations

Interviews revealed an important pattern in the relationship between students' practical ethical reasoning and their explicit attribution of that reasoning to Pancasila and Civic Education. When asked whether Pancasila and Civic Education teachers had discussed good behavior on the internet, students' recollections were fragmented: some remembered such discussion, some forgot, and some said it had not occurred. In contrast, when presented

with concrete situations, most students generated responses involving verification, responsibility, privacy, empathy, or protection of others.

When discussing the relationship between Pancasila and Civic Education and digital life, students frequently referred to mutual respect, avoiding hurtful behavior, civility, and being wise online. These responses demonstrate that students could articulate a practical moral vocabulary even when their recollection of its curricular source was inconsistent.

The interview data therefore provide a differentiated picture of digital-ethical awareness: students demonstrated ethical reasoning in specific situations, but the explicit curricular attribution of those responses was less consistent.

3.4. Reparative Responsibility, Privacy, and Digital Consent

The strongest interpersonal behavioral pattern was reparative responsibility: 24 of 27 students mentioned apologizing and/or deleting content when their actions made a peer uncomfortable. S12 described a sequence of apologizing, promising not to repeat the action, and deleting the video or photo. The response indicates that responsibility was expressed not only as preventing harm before posting but also as taking action after harm had occurred.

For photo privacy, 22 students mentioned permission, privacy, or the need not to upload immediately. S26 explained that permission was necessary because the image was “their privacy,” indicating recognition of another person’s autonomy. The responses show that students distinguished, at least in practical terms, between simply possessing or creating an image and having the right to share it.

Data-security awareness was somewhat weaker: 18 students identified passwords, addresses, telephone numbers, private photos, or other sensitive information. This pattern suggests that recognition of personal-data risks was present but less widespread than reasoning about information verification and interpersonal responsibility.

3.5. Misinformation, Verification, and Civic Online Reasoning

Twenty-five of 27 students showed a verification orientation when confronted with a message claiming that school would be closed. The dominant strategy was to ask teachers or parents, while some students referred to checking, determining whether the message was false, seeking further information, or requesting evidence. S25 asked, “Where is the evidence?”, while S20 expressed doubt before believing the message.

The responses ranged from reliance on trusted adults to more explicit evidence-oriented verification. This variation indicates that students did not use a single verification strategy. Instead, their responses reflected different levels of independence in evaluating the credibility of digital information.

3.6. Empathy, Cyberbullying, and Digital Civility

Nineteen students showed prosocial responses to cyberbullying by defending, helping, reporting, or stopping mockery. S21 anticipated that a victim could feel sad, stressed, and continue remembering the event. These responses demonstrate both recognition of emotional consequences and willingness to consider supportive action.

However, some students proposed “fighting back,” “scolding,” or retaliating. Thus, recognition of harm did not always correspond to safe response regulation. Students could identify the victim’s emotional experience while still proposing confrontational responses.

In disagreements, several students used deliberative and respectful language such as “Sorry, but I disagree...”. This provides an additional example of how civic values appeared through students’ practical language for managing disagreement rather than through formal definitions alone.

3.7. Family, Peers, Media, and the Social Context of Digital Ethics

Family was the most prominent supporting factor: 20 students identified parents or other relatives as people who reminded them about appropriate internet use. Students therefore frequently located digital-ethical guidance within everyday family interactions rather than exclusively within formal classroom learning.

Conversely, 16 students identified peers, social habits, games/TikTok, negative content, or other social-media influences as barriers. The interviews consequently identified both supportive and constraining social contexts surrounding students’ digital behavior.

Taken together, the qualitative findings answer the first three research questions by showing that students demonstrated digital-ethical awareness in concrete situations; that the most prominent values involved verification, responsibility, privacy, empathy, and security; and that family support, peers, habits, and digital-media exposure shaped the context in which these values were understood and potentially enacted.

4. DISCUSSION

4.1. From Declarative Knowledge to Situational Ethical Reasoning

The principal finding is that quantitative score stability coexisted with a relatively rich qualitative repertoire of digital-ethical reasoning. The mean increased by only 0.74 points, and the Wilcoxon test was not significant ($p = .750$), while interviews showed that most students could respond ethically to concrete situations involving misinformation, privacy, interpersonal harm, and responsibility.

²⁷ This pattern is consistent with findings that digital citizenship interventions can affect knowledge, efficacy, attitudes, and behavior differently [21], [26]. It also supports the distinction between digital literacy, digital citizenship, and the capacity to apply ethical judgment in context [1], [3], [27].

Several alternative explanations should therefore be considered for the non-significant quantitative result. First, the ten-item true-false test may have had limited sensitivity to nuanced ethical reasoning because students could respond correctly without demonstrating how or why they would act in a real situation. Second, the relatively high pretest mean of 73.70 may have limited the room for observable improvement. Third, the learning period may have been insufficient to produce measurable change in declarative scores. Finally, the increase in posttest variability indicates that students responded differently to the learning experience. These explanations should be interpreted cautiously because the present design does not allow the relative contribution of each factor to be isolated.

The distribution therefore provides a more useful interpretation than the mean difference alone. The finding should not be read as evidence that no learning occurred; rather, it indicates that measurable change on this particular instrument was limited. Stable true-false scores do not prove that no learning occurred; they show that such tests capture only a limited part of internalization [1], [26].

4.2. The Ethical Repertoire-Curricular Attribution Gap

A central conceptual finding is an ethical repertoire-curricular attribution gap. Students often demonstrated practical ethical responses but did not consistently identify Pancasila and Civic Education as the source of those responses. This suggests that ethical understanding may develop through multiple environments even when its curricular attribution remains implicit.

The frequency pattern reinforces this interpretation. Information verification and reparative responsibility were mentioned by more than four-fifths of the students, while recollection of explicit curricular treatment was less consistent. Children may therefore encounter and internalize digital norms through family, peers, media, and classroom experience without organizing those norms under a single subject label. This supports an ecological understanding of digital citizenship in which school learning is one contributor within a broader social environment [8], [15], [29].

From a Pancasila perspective, students' references to mutual respect, avoiding harm, civility, responsibility, and wise online behavior can be connected to humanity, unity, deliberation, and justice. Pancasila and Civic Education should therefore move beyond norm transmission toward explicit value-to-situation reasoning: students can be asked who may be affected, which rights are involved, what responsibilities arise, what evidence is required, and which Pancasila value supports a particular decision [3], [9].

4.3. Reparative Responsibility as a Distinct Dimension of Digital Ethics

The prominence of reparative responsibility provides one of the study's more specific conceptual contributions. Twenty-four students referred to apologizing and/or deleting harmful content, indicating that responsibility was understood as more than avoiding inappropriate behavior.

This extends the notion of online respect [2] from preventive civility toward relational restoration after a digital mistake. The finding is also consistent with the broader emphasis on responsibility and ethical action within digital citizenship.

Photo privacy provides a related but distinct dimension. Twenty-two students recognized the need to request permission before sharing another person's image. Privacy and safety are appropriate K–5 digital citizenship competencies [4], and consent in taking and sharing photos can be modeled even with younger children [28].

The distinction between privacy and consent deserves explicit pedagogical attention. Privacy concerns control over personal information and exposure, whereas consent concerns whether another person has authorized an action that affects their privacy. The Indonesian evidence reported by Iskandar et al. [16] strengthens the relevance of privacy awareness to broader digital citizenship literacy.

4.4. Verification as a Developmental Continuum

The finding that 25 students demonstrated a verification orientation is particularly important for elementary digital citizenship. Students most frequently relied on trusted adults, but some also asked for evidence or sought additional information. These responses can be interpreted as a developmental continuum from authority-based verification toward evidence-oriented verification [17], [19].

Reliance on trusted adults is not inherently weak for fourth-grade students; it can function as an appropriate form of social scaffolding. The next instructional step is to introduce simplified lateral reading: Who is the source, gradually? Is there an official source? Is there other evidence? Does the same information appear in a trustworthy channel? Curriculum-embedded civic online reasoning shows that such evaluation strategies can be integrated across subjects [18].

The findings also support the use of games and digital dilemmas. Educational games can improve information discernment, and fact-checking games can complement lectures [21], [22]. Within Pancasila, verification can be framed as epistemic and social responsibility, because forwarding false information can affect other people and the quality of shared public communication [29].

4.5. Empathy Requires Safe Action Scripts

The cyberbullying findings show that empathy and action regulation should be treated as related but distinct competencies. Nineteen students proposed defending, helping, reporting, or stopping mockery, and S21 explicitly considered the emotional consequences for the victim. This is consistent with evidence that affective and cognitive empathy are negatively related to cyberbullying involvement among elementary students [23].

However, some students also proposed fighting back, scolding, or retaliation. Therefore, recognizing another person's suffering does not automatically provide students with a safe behavioral response. Repeated exposure to cyberbullying as a bystander can reduce empathic responses [24], reinforcing the need for explicit bystander guidance

Digital citizenship education should consequently provide short, reusable action scripts: do not redistribute harmful content; support the victim; preserve relevant evidence when necessary; block or disengage; and report to a trusted adult. Evidence from digital game-based learning suggests that structured practice can strengthen digital etiquette literacy and related online ethics, offering a useful pedagogical complement to direct explanation [25].

4.6. Family and Peer Influence as the Social Ecology of Internalization

Family support emerged as the strongest contextual support, with 20 students referring to parents or relatives who reminded them about appropriate internet use. This is consistent with evidence that family and experience are important sources of cyber-security learning [13] and that parental involvement includes monitoring, organization, and instruction [15].

At the same time, 16 students identified peers, habits, games/TikTok, negative content, or other social-media influences as barriers. Digital ethical development therefore

occurs within a social ecology in which school messages interact with family practices, peer norms, personal habits, and platform-mediated content. Digital citizenship education requires the involvement of the broader educational “village,” not individual teachers alone [8].

Reviews suggest that digital citizenship is strengthened ¹³when integrated into core subjects, supported by gamified and collaborative activities, and reinforced by the environment [6], [14]. The present study extends this perspective by positioning Pancasila as a locally meaningful value framework through which these different social experiences can be interpreted.

4.7. A ³⁰Pancasila-Based Digital Citizenship Framework

Based on the combined findings, the study proposes a non-causal conceptual framework comprising four interconnected elements: Pancasila values, digital ethical reasoning, potential student behavior, and social influence. Pancasila values provide the normative orientation; digital ethical reasoning translates those values into judgments about concrete situations; potential behavior represents the action students consider appropriate; and family and peer environments provide the social context that can reinforce or constrain the translation of values into practice.

The proposed framework conceptualizes Pancasila values as a normative foundation for digital ethical reasoning, which is reflected in potential or intended digital behaviors such as verifying information, seeking permission, protecting personal data, supporting others, repairing harm, and reporting harmful content. Family and peer influence operates as a contextual factor that may reinforce or constrain these processes through guidance, social norms, habits, and social-media exposure. The framework is interpretive and conceptual rather than a tested causal model.

The arrows should be interpreted as conceptual and interpretive relationships rather than tested causal pathways. This distinction is important because the present study was not designed to estimate causal effects among these elements.

The first conceptual contribution is therefore the ethical repertoire-curricular attribution gap: students can often choose ethically appropriate actions in concrete dilemmas but cannot consistently attribute those actions to Pancasila and Civic Education learning. The second is reparative responsibility, reflected in students’ willingness to apologize and remove harmful content. The third is a verification continuum, ranging from seeking guidance from trusted adults toward independently considering evidence. Together, these findings suggest that Pancasila-based digital citizenship can be conceptualized through values, situational reasoning, action, and social context.

4.8. Pedagogical Implications

Pedagogically, Pancasila and Civic Education should move from declarative instruction toward decision-based learning. Authentic scenarios can include receiving an unverified school announcement, being asked to share a friend’s photo, witnessing mockery in a class group, encountering disagreement, or deciding whether to reveal personal information. Students should identify affected parties, relevant rights and duties, evidence

needed, possible consequences, and the Pancasila value guiding the response. Evidence from contextual gaming, fact-checking education, and curriculum-embedded civic online reasoning supports practice with authentic situations, feedback, and reflection [18], [20], [22].

A practical instructional sequence emerging from the findings is: value recognition → digital dilemma → evidence and perspective check → decision → consequence analysis → repair or reporting → reflection. This sequence translates Pancasila values into observable reasoning steps without reducing the subject to a list of internet rules. It also corresponds with the broader shift from basic digital literacy toward critical and responsible digital citizenship [12].

School-family collaboration should be treated as pedagogical design rather than administrative supplementation. Schools can provide simple shared guidance on privacy, consent, verification, device use, and help-seeking using the same language employed in Pancasila and Civic Education. Such continuity may help students connect classroom values with everyday digital decisions [15].

The approach can be implemented through blended and activity-based learning. Evidence from primary-school digital citizenship education indicates that blended learning can support digital citizenship, digital literacy, and information-technology skills when instruction is structured and sustained [30]. In the present context, short digital dilemmas, teacher-guided discussion, role play, and home-based reflection can be combined without requiring a separate subject.

Table 3 summarizes how the major empirical themes can be translated into Pancasila-based digital citizenship learning. The mapping is interpretive and pedagogical rather than a direct measurement of students' Pancasila scores.

Table 3. Analytical Mapping of Interview Themes to Pancasila-Based Digital Citizenship Pedagogy

Digital-ethics theme	Relevant civic value orientation	Reasoning focus	Suggested learning action
Information verification	Responsibility, deliberation, justice	Source, evidence, consequence	Compare sources before forwarding
Reparative responsibility	Humanity, responsibility	Who is harmed? How can harm be repaired?	Apologize, remove harmful content, seek help
Photo consent/privacy	Human dignity, justice	Whose rights are affected?	Ask permission before capturing/sharing
Empathy/cyberbullying	Humanity, unity	Perspective and safe bystander action	Support victim, block, report
Data security	Responsibility, self-protection	What information is sensitive?	Use strong passwords; protect personal data
Family support	Shared responsibility	Who can provide guidance?	Use common school-home safety language
Social-media barriers	Self-control, responsibility	How do peers/platforms shape choices?	Reflect on triggers and choose safer responses

4.9. Summary of the Main Findings

Three findings are particularly important. First, the quantitative data showed score stability rather than a uniform gain, with a small mean increase and a non-significant

Wilcoxon result. Second, the qualitative data revealed a substantial ethical repertoire, particularly in information verification, reparative responsibility, photo consent/privacy, empathy, and data security. Third, students' ethical reasoning was embedded in a broader social ecology, with family serving as a prominent source of support and peers, habits, and social-media exposure functioning as potential barriers.

Together, these findings answer the study's research questions by indicating that Pancasila and Civic Education provide a relevant value orientation for digital ethics. In contrast, students' ability to articulate and apply those values depends on concrete situations and the social environments in which digital behavior is learned and practiced. The findings support a shift from measuring digital citizenship primarily through declarative knowledge toward examining how elementary students reason, decide, repair harm, and seek guidance in authentic digital situations.

5. CONCLUSION

This study indicates that elementary students possessed a relatively rich digital-ethical repertoire, particularly in information verification, reparative responsibility, privacy, empathy, data security, and responsible digital behavior. However, these understandings were not consistently recognized as part of Pancasila and Civic Education, revealing an ethical repertoire–curricular attribution gap. The non-significant quantitative change should be interpreted cautiously given the brief learning period, high initial scores, limited sensitivity of the true-false instrument, and individual response variation. The study contributes a Pancasila-based digital citizenship framework that connects civic values with digital ethical reasoning and potential or intended digital behavior, with family and peer influence as contextual factors. These findings suggest that Pancasila and Civic Education can integrate digital ethics through concrete scenarios that develop reasoning about rights, responsibility, evidence, empathy, and consequences. ²⁵ Future studies should employ larger and more diverse samples, more sensitive measures, longer follow-up periods, and comparison groups to examine the development of ethical reasoning and its relationship with actual digital practices.

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DECLARATION

Author's Contribution:

Aris Fadly: Conceptualization, methodology, investigation, data collection, and drafting the initial manuscript. Aiman Faiz: Conceptualization, methodology, data analysis, validation,

and writing—review and editing. Asih Wahyuningsih: Investigation, data collection, validation, and data visualization. Novan Hardiyanto: Investigation, data collection, data analysis, and research administration. Thomas Fadel Abdillah: Investigation, data collection, documentation, and organizing research data. Nabil Haidar Aly: Investigation, data collection, documentation, and organizing research data. Radja Maulana Akbar: Investigation, data collection, documentation, and organizing research data.

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3 Conflict of Interest:

The authors state that there are no conflicts of interest in the conduct or publication of this research.

Additional Information:

Additional data and information related to this research can be obtained from the corresponding author upon reasonable request.

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