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Analysis of Teacher Creativity in Media Development for Pancasila Education in the Digital Era at State Senior High School 9 Ambon

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Abstract
The transformation of 21st-century learning necessitates the integration of digital media to enhance students' cognitive engagement; however, its utilization in Pancasila Education at regional schools remains predominantly conventional due to disparities in infrastructure and technological literacy. The novelty of this study lies in the empirical mapping of teacher creativity dimensions in contextually designing audio, visual, and audio-visual media within an archipelagic region characterized by infrastructural constraints a context rarely examined in civic education literature. This study aims to analyze the level of teacher creativity in developing these three types of digital instructional media in Pancasila Education at SMA Negeri 9 Ambon. Employing a descriptive quantitative approach with a survey method, data were collected from the entire population of 44 eleventh-grade students (total sampling) using a closed-ended four-point Likert scale questionnaire and analyzed through descriptive statistics. The findings reveal that student agreement regarding teacher creativity reached 90% for audio media development ($M = 29.84$; $SD = 3.26$), 84% for visual media ($M = 30.89$; $SD = 3.24$), and 80% for audio-visual media ($M = 28.84$; $SD = 2.66$). These results indicate that teachers are more adaptive in developing standalone audio and visual media, whereas the utilization of audio-visual media is impeded by limited projectors, unstable internet connectivity, and preparation time constraints. Theoretically, this study enriches the Technological Pedagogical Content Knowledge (TPACK) discourse in resource-constrained settings, while practically recommending continuous training in interactive media production and the equitable distribution of school ICT infrastructure.

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Introduction

Digital transformation has become a global phenomenon reshaping educational paradigms worldwide. The emergence of digital literacy and blended learning marks a fundamental shift in 21st-century pedagogical strategies. UNESCO (2021) emphasizes that digital technology must be utilized judiciously to strengthen human interaction and support participatory, creative learning processes. In alignment with this perspective, the OECD (2020) asserts that education systems require comprehensive innovation, not only in curricular content but also in the pedagogical methods and instructional media employed. Innovation in digital instructional media is therefore crucial to fostering relevant, adaptive learning experiences oriented toward future skill development (Suyatna & Putri, 2021). Amidst the global push to integrate technology into classrooms, the utilization of digital media by senior high school (SMA) teachers in Indonesia continues to face complex structural challenges. Data from the Center for Data and Information Technology (Pusdatin) of the Ministry of Education, Culture, Research, and Technology reveal that approximately 87.5% of senior high school students still predominantly receive conventional text-based assignments without innovative digital media integration; meanwhile, online learning resources such as educational videos and digital modules reach only 59.7% of students, and interactive learning platforms are utilized by merely 41.7% (Suharwoto, 2020). This disparity is exacerbated by interregional digital infrastructure gaps. A report by the SMERU Research Institute (2022) notes that internet penetration in Eastern Indonesia including archipelagic regions such as Maluku and Papua. It remains between 30% and 40%, with over 70% of areas experiencing weak signal connectivity. These geographical conditions and limited Information and Communication Technology (ICT) facilities in regional schools demand adaptive strategies from teachers to maintain instructional quality (Widiansyah et al., 2024).

These empirical challenges are evident in the teaching of Pancasila Education at SMA Negeri 9 Ambon. Based on preliminary observations and initial interviews with teachers and students, three primary indicators emerged. First, the instructional process remains dominated by lecturing and text-based assignments without digital media variations such as interactive infographics, educational podcasts, or contextual instructional videos. Second, students reported declining interest and cognitive engagement because abstract Pancasila values are delivered verbally without visual illustrations relatable to their lived realities. Third, several teachers cited limited technical skills, insufficient preparation time, and a scarcity of classroom hardware, such as LCD projectors and stable internet access as primary barriers to independently producing digital media. To examine this phenomenon systematically, this study constructs a conceptual framework integrating the Technological Pedagogical Content

Knowledge (TPACK) theory by Mishra and Koehler (2006) and the Creative Teaching Framework developed by Jeffrey and Craft (2004). Within this conceptual model, the effectiveness of Pancasila Education in the digital era results from the dynamic intersection of mastering national civic values (*content knowledge*), humanistic delivery strategies (*pedagogical knowledge*), and the capacity to utilize digital tools (*technological knowledge*). As asserted by Henriksen et al. (2021), teacher creativity within a digital educational ecosystem does not rely solely on the availability of high-tech hardware, but rather on the teacher's pedagogical flexibility in adapting available resources to create meaningful learning experiences. Accordingly, the creative teaching framework positions teacher creativity as a mediating variable bridging digital infrastructure constraints with the need to develop contextual audio, visual, and audio-visual instructional media in regional schools.

Previous studies have highlighted the importance of digital media innovation in Pancasila and Civic Education (PPKn). Sulkipani and El Faisal (2021) demonstrated that developing audio-visual media grounded in local wisdom significantly enhances students' conceptual understanding, while Nurfaidah (2020) proved the effectiveness of animation-based media in concretizing the internalization of Pancasila values. Furthermore, Yusnidar and Tanjung (2022) and Astuti (2023) underscored the urgency of technical training to overcome barriers in teacher digital literacy. Internationally, recent research by Trust et al. (2022) revealed that unequal access to technology often compels teachers to innovate through *frugal digital pedagogy*. The utilization of low-cost yet high-impact media to sustain active student participation. Nevertheless, most prior studies have focused on the effectiveness of a single media product in urban schools equipped with adequate infrastructure, leaving a research gap regarding the comparative mapping of teacher creativity in simultaneously designing audio, visual, and audio-visual media within resource-constrained archipelagic secondary schools.

This study offers scientific novelty by empirically exploring the dimensions of teacher creativity in developing all three digital instructional media modalities (audio, visual, and audio-visual) based on student perceptions within an archipelagic school context in Eastern Indonesia. Theoretically, the findings enrich the literature on integrating TPACK and creative pedagogy under infrastructural constraints; practically, they provide an empirical foundation for policymakers to design contextual and sustainable digital media development training programs. Based on this background and identified research gap, this study addresses two primary research questions: (1) What is the level of teacher creativity in developing audio-, visual-, and audio-visual-based instructional media in Pancasila Education at SMA Negeri 9 Ambon? (2) Which digital media modality is most predominantly developed by teachers in Pancasila Education, and what contextual factors influence disparities in its utilization?

Method

This study employed a quantitative approach with a descriptive-comparative survey design to examine students' perceptions of teacher creativity in developing instructional media for Pancasila Education and to identify differences in perceived teacher creativity across three digital media modalities: audio, visual, and audio-visual media at SMA Negeri 9 Ambon. The study population consisted of all 44 eleventh-grade students enrolled at the school during the academic year in which the research was conducted. Given the relatively small and accessible population, a saturated sampling technique (total sampling) was employed, involving all 44 students as research respondents. Eleventh-grade students were selected because they had experienced Pancasila Education instruction using various instructional media over the preceding two semesters, enabling them to provide informed evaluations of their teachers' media development practices. Data were collected using a closed-ended questionnaire comprising 30 statement items, with 10 items allocated to each media modality. Responses were measured using a four-point Likert scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The four-point scale was adopted to encourage respondents to express a clear position rather than select a neutral response. The questionnaire indicators were adapted from the creative teaching framework proposed by Jeffrey and Craft (2004), the perspectives on creativity in education discussed by Beghetto and Kaufman (2014), and the Technological Pedagogical Content Knowledge (TPACK) framework developed by Mishra and Koehler (2006). These indicators were operationalized into four dimensions: (1) fluency and variation, (2) flexibility and contextualization, (3) originality and appeal, and (4) technological-pedagogical integration. Data were analyzed using SPSS through descriptive and inferential statistical procedures. Descriptive analysis was conducted to determine frequency distributions, percentages, means, standard deviations, and minimum and maximum scores for each media modality. The resulting percentage scores were interpreted using four categories of teacher creativity: highly creative, creative, moderately creative, and less creative. Inferential analysis was subsequently performed to examine differences in students' perceptions of teacher creativity across the three media modalities. Since the same respondents evaluated all three modalities, a One-Way Repeated Measures ANOVA was selected when the assumptions of normality and sphericity were satisfied. Normality was assessed using the Shapiro–Wilk test, while sphericity was examined using Mauchly's test. If the sphericity assumption was violated, an appropriate correction, such as the Greenhouse–Geisser adjustment, was applied. Alternatively, if the data did not meet the assumptions required for parametric analysis, the non-parametric Friedman test was employed, followed by Wilcoxon signed-rank tests for

pairwise comparisons when significant differences were identified. A significance level of .05 was adopted for all inferential statistical tests.

Results and Discussion

Results

To obtain an empirical overview of teacher creativity in developing digital instructional media for Pancasila Education at SMA Negeri 9 Ambon, data were gathered from all eleventh-grade students ($n = 44$) across three media modalities: audio, visual, and audio-visual media. With 10 statement items per sub-variable, a cumulative total of 440 responses (44 respondents × 10 items) was obtained for each media type.

Teacher creativity in audio media development. The distribution of student responses regarding teacher creativity in designing and utilizing audio-based instructional media is presented in detail in Table 1.

Table 1. Frequency and Percentage Distribution of Student Responses to Teacher Creativity in Audio Media Development ($n = 44$)

Code	Audio Media Creativity Assessment Indicator	SA (%)	A (%)	D (%)	SD (%)	Total
X1_1	Variation in using sound-based media for material delivery	10 (22.73)	29 (65.91)	5 (11.36)	(0.00)	44 (100)
X1_2	Novelty of voice recording formats or Pancasila educational podcasts	13 (29.55)	29 (65.91)	2 (4.55)	0 (0.00)	44 (100)
X1_3	Contextualization of audio narratives with local civic issues	12 (27.27)	28 (63.64)	4 (9.09)	0 (0.00)	44 (100)
X1_4	Flexibility in presenting Pancasila case examples via audio media	7 (15.91)	28 (63.64)	9 (20.45)	0 (0.00)	44 (100)
X1_5	Relevance of audio content to students' comprehension needs	7 (15.91)	27 (61.36)	10 (22.73)	0 (0.00)	44 (100)
X1_6	Intonation clarity and engaging delivery of teacher's audio narration	11 (25.00)	29 (65.91)	4 (9.09)	0 (0.00)	44 (100)
X1_7	Originality of voice recording materials independently produced by the teacher	4 (9.09)	29 (65.91)	10 (22.73)	1 (2.27)	44 (100)
X1_8	Ability of audio media to stimulate student focus and attention	9 (20.45)	21 (47.73)	14 (31.82)	0 (0.00)	44 (100)
X1_9	Ease of accessibility of audio files via students' digital devices	4 (9.09)	16 (36.36)	21 (47.73)	3 (6.82)	44 (100)
X1_10	Alignment of audio media usage with learning objectives	13 (29.55)	25 (56.82)	5 (11.36)	1 (2.27)	44 (100)
TTotal	Cumulative Overall Responses ($N = 440$)	90 (20.45)	261 (59.32)	84 (19.09)	5 (1.14)	440 (100)

Note: SA = Strongly Agree (score 4); A = Agree (score 3); D = Disagree (score 2); SD = Strongly Disagree (score 1).

Based on Table 1, out of 440 cumulative responses regarding teacher creativity in developing audio media, 90 responses (20.45%) indicated strong agreement, 261 (59.32%) indicated agreement, 84 (19.09%) indicated disagreement, and 5 (1.14%) indicated strong disagreement. Cumulatively, 351 responses (79.77%) reflected positive evaluations (combining strongly agree and agree), whereas 89 responses (20.23%) fell into negative categories (combining disagree and strongly disagree). Item X1_2 (novelty of voice recording/podcast formats) garnered the highest agreement at 95.45%, while item X1_9 (ease of device accessibility) recorded the highest disagreement at 54.55%.

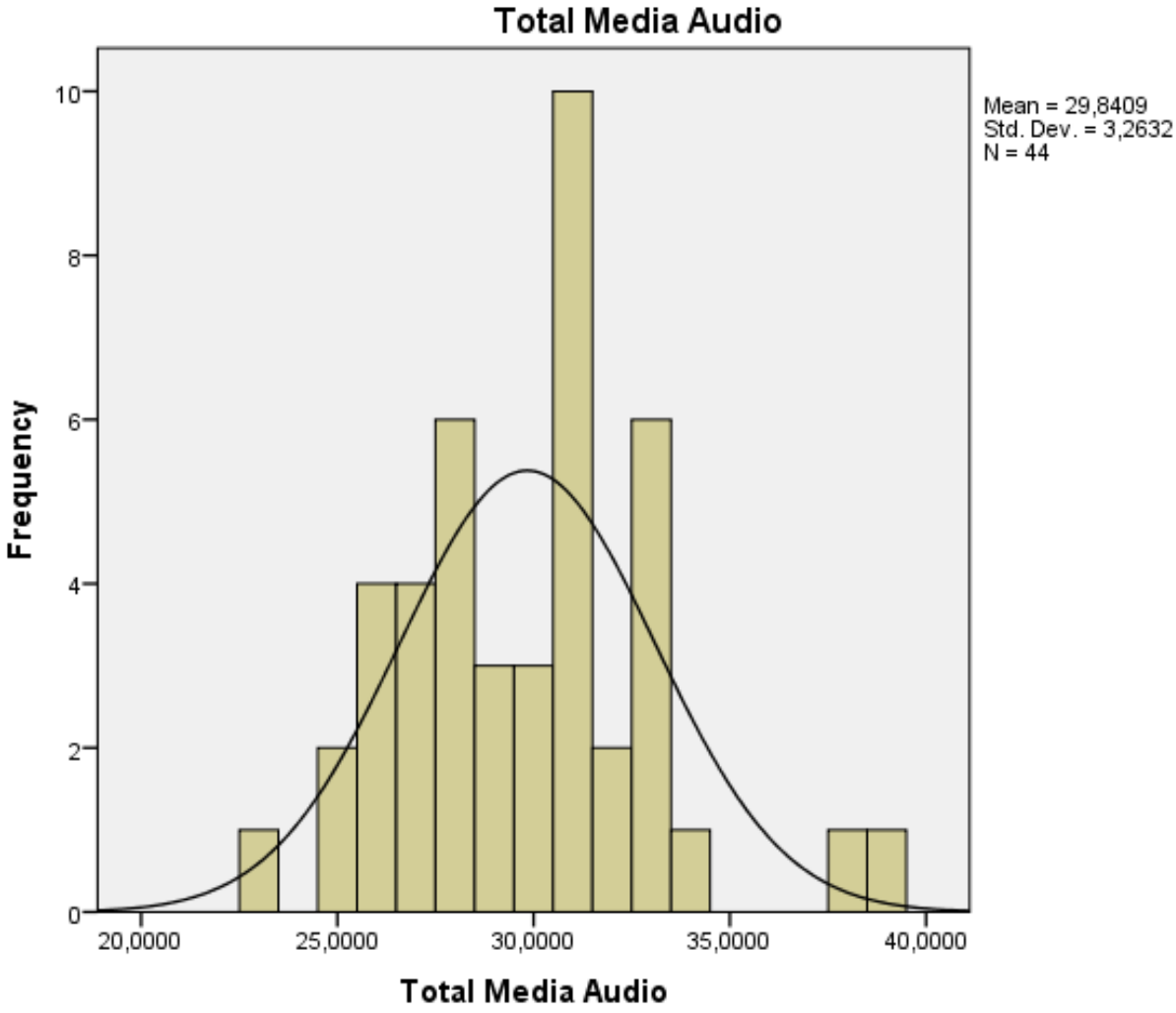

Figure 1. Score Distribution of Teacher Creativity in Audio Media Development

According to the descriptive statistics in Figure 1, the total score for teacher creativity in audio media development yielded a mean (*M*) of 29.84 with a standard deviation (*SD*) of 3.26, a minimum score of 23.00, and a maximum score of 39.00 out of a maximum ideal score of 40.00. Teacher creativity in visual media development. Eleventh-grade student responses regarding teacher creativity in designing and utilizing visual-based media in Pancasila Education are presented in Table 2.

Table 2. Frequency and Percentage Distribution of Student Responses to Teacher Creativity in Visual Media Development ($n = 44$)

Code	Visual Media Creativity Assessment Indicator	SA (%)	A (%)	D (%)	SD (%)	Total
X2_1	Variation in using visual media (images, charts, presentation slides)	18 (40.91)	26 (59.09)	0 (0.00)	0 (0.00)	4 (100)
X2_2	Innovation in presenting material using infographics and visual illustrations	15 (34.09)	29 (65.91)	0 (0.00)	0 (0.00)	44 (100)
X2_3	Visualization of abstract Pancasila value concepts into concrete forms	16 (36.36)	27 (61.36)	1 (2.27)	0 (0.00)	44 (100)
X2_4	Contextualization of images and illustrations with students' social realities	12 (27.27)	26 (59.09)	6 (13.64)	0 (0.00)	44 (100)
X2_5	Teacher flexibility in linking visual displays with classroom discussions	17 (38.64)	26 (59.09)	1 (2.27)	0 (0.00)	44 (100)
X2_6	Novelty of layout design and color composition in instructional slides	9 (20.45)	27 (61.36)	7 (15.91)	1 (2.27)	44 (100)
X2_7	Originality in creating graphic media rather than merely copying text	12 (27.27)	27 (61.36)	5 (11.36)	0 (0.00)	44 (100)
X2_8	Visual appeal in enhancing students' reading interest and attention	10 (22.73)	31 (70.45)	2 (4.55)	1 (2.27)	44 (100)
X2_9	Appropriateness of visual media selection to instructional material characteristics	8 (18.18)	27 (61.36)	9 (20.45)	0 (0.00)	44 (100)
X2_10	Adequate availability of visual display hardware (LCD/screens)	4 (9.09)	4 (9.09)	25 (56.82)	11 (25.00)	44 (100)
Total	Cumulative Overall Responses ($N = 440$)	121 (27.50)	250 (56.82)	56 (12.73)	13 (2.95)	440 (100)

As shown in Table 2, out of 440 cumulative responses on visual media, 121 responses (27.50%) indicated strong agreement, 250 (56.82%) indicated agreement, 56 (12.73%) indicated disagreement, and 13 (2.95%) indicated strong disagreement. Thus, total student agreement reached 371 responses (84.32%), while total disagreement stood at 69 responses (15.68%). All students (100.00%) agreed on the teacher's variation and innovation in visual presentation on items X2_1 and X2_2; however, a large majority (81.82%) highlighted the scarcity of classroom visual display devices on item X2_10.

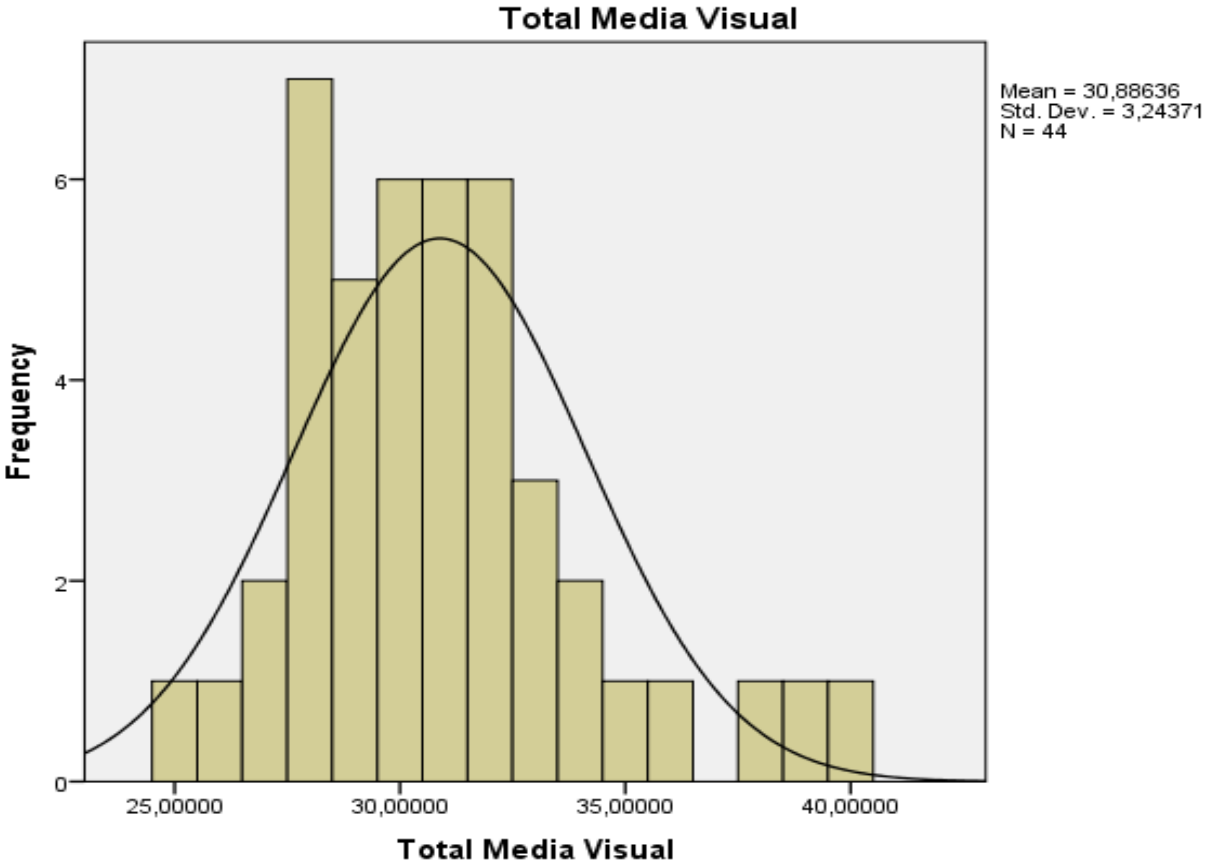

Figure 2. Score Distribution of Teacher Creativity in Visual Media Development

Based on the data distribution presented in Figure 2, teacher creativity in developing visual media obtained the highest mean score among the three instructional media modalities (M = 30.89; SD = 3.24). The scores ranged from a minimum of 25.00 to a maximum of 40.00, reaching the ideal maximum score. This finding indicates that, from the students' perspectives, visual media represents the modality in which teachers demonstrated the highest level of creativity. Meanwhile, teacher creativity in developing audio-visual media was also examined to assess students' perceptions of teachers' ability to combine visual and auditory elements in instructional delivery. This modality involves the integration of multiple sensory elements to support the presentation of Pancasila Education content. The measurement results of students' perceptions regarding teacher creativity in developing and integrating audio-visual instructional media are presented in Table 3.

Table 3. Frequency and Percentage Distribution of Student Responses to Teacher Creativity in Audio-Visual Media Development ($n = 44$)

Code	Audio-Visual Media Creativity Assessment Indicator	SA (%)	A (%)	D (%)	SD (%)	Total
X3_1	Variation in utilizing instructional videos in Pancasila Education	11 (25.00)	28 (63.64)	5 (11.36)	0 (0.00)	44 (100)
X3_2	Teacher's ability to combine sound elements and moving images	15 (34.09)	27 (61.36)	2 (4.55)	0 (0.00)	44 (100)
X3_3	Contextualization of video case studies with local Moluccan culture	4 (9.09)	13 (29.55)	27 (61.36)	0 (0.00)	44 (100)
X3_4	Teacher flexibility in integrating video screenings into discussions	3 (6.82)	36 (81.82)	4 (9.09)	1 (2.27)	44 (100)
X3_5	Routine frequency of utilizing audio-visual media in every meeting	2 (4.55)	2 (4.55)	35 (79.55)	5 (11.36)	44 (100)
X3_6	Appeal of videos in facilitating comprehension of Pancasila values	17 (38.64)	26 (59.09)	1 (2.27)	0 (0.00)	44 (100)
X3_7	Originality of independent video production by the teacher (not merely downloaded)	3 (6.82)	14 (31.82)	23 (52.27)	4 (9.09)	44 (100)
X3_8	Novelty of interactive features in instructional video screenings	8 (18.18)	27 (61.36)	9 (20.45)	0 (0.00)	44 (100)
X3_9	Alignment of audio-visual content with curricular learning outcomes	18 (40.91)	26 (59.09)	0 (0.00)	0 (0.00)	44 (100)
X3_10	Infrastructure support (projector, speakers, internet) during screenings	6 (13.64)	27 (61.36)	10 (22.73)	1 (2.27)	44 (100)
Total	Cumulative Overall Responses ($N = 440$)	87 (19.77)	226 (51.36)	116 (26.36)	11 (2.50)	440 (100)

Referring to Table 3, out of 440 cumulative responses on audio-visual media, 87 responses (19.77%) indicated strong agreement, 226 (51.36%) indicated agreement, 116 (26.36%) indicated disagreement, and 11 (2.50%) indicated strong disagreement. Total positive responses for this sub-variable reached 313 (71.14%), while total negative responses were 127 (28.86%).

Although all students (100.00%) acknowledged the alignment of video content with learning outcomes (X3_9) and 97.73% rated video screenings as highly helpful for understanding the material (X3_6), 90.91% of respondents stated that audio-visual media was not used routinely (X3_5), and 61.36% assessed the videos as generic and not independently produced by the teacher (X3_3 and X3_7).

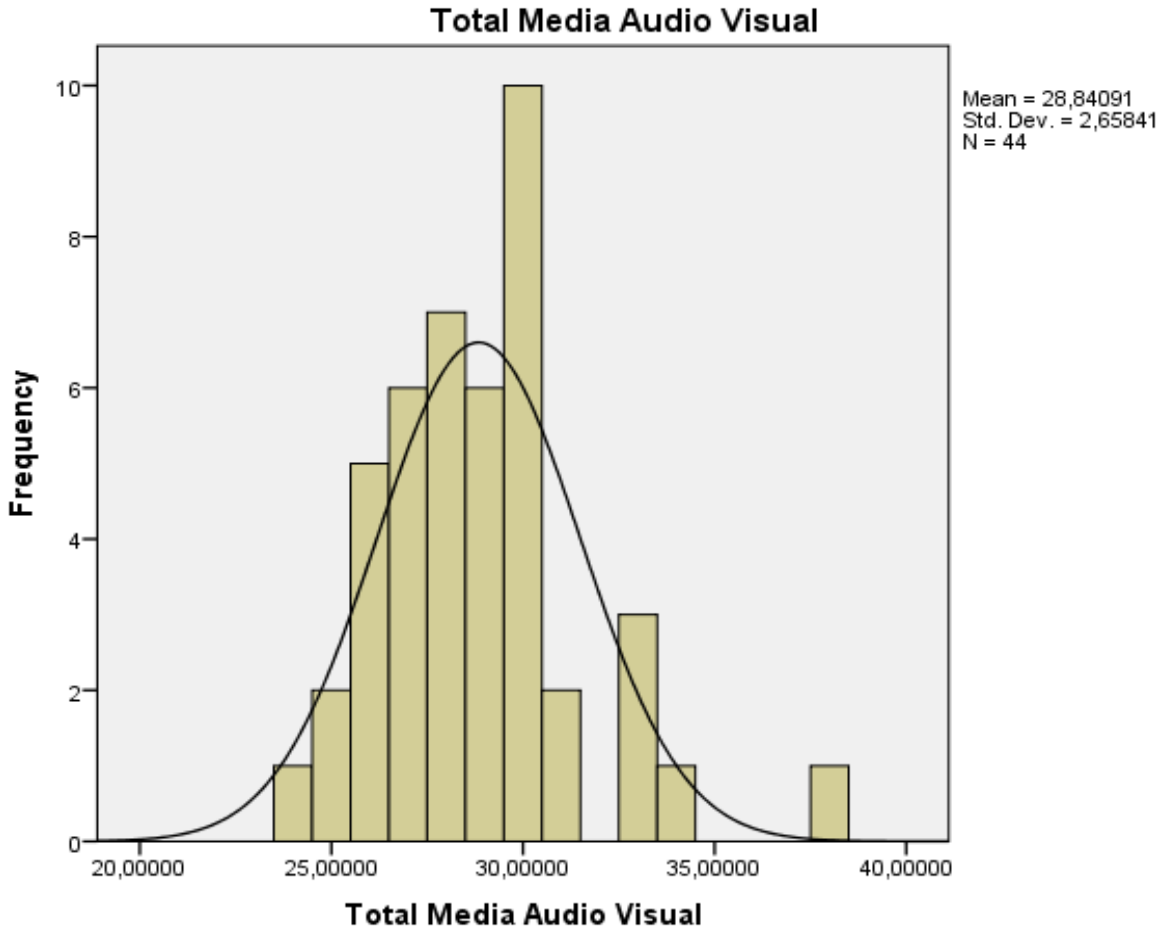

Figure 3. Score Distribution of Teacher Creativity in Audio-Visual Media Development

As illustrated by the histogram in Figure 3, teacher creativity in developing audio-visual media obtained the lowest mean score among the three instructional media modalities (M = 28.84; SD = 2.66). The scores ranged from a minimum of 24.00 to a maximum of 38.00, indicating a relatively lower level of perceived creativity compared to audio and visual media. This finding suggests that, from the students' perspectives, teachers demonstrated comparatively less creativity in integrating audio and visual elements into Pancasila Education instructional media. To provide a comprehensive overview of these findings, a comparative analysis was conducted across all three media modalities. The analysis considers the distribution of student responses and the overall scores obtained for each sub-variable. This comparison aims to identify differences in perceived teacher creativity in developing audio, visual, and audio-visual instructional media. The recapitulation of student response percentages and the comparative distribution of teacher creativity across the three media modalities are presented in Table 4.

Table 4. Comparative Recapitulation of Teacher Creativity Levels by Instructional Media Modality ($n = 44$)

Rank	Instructional Media Modality	Mean	SD	Score Achievement Rate (%)*	Total Item Agreement (%)	Creativity Category
1	Visual Media	30.89	3.24	77.22%	84.32%	Creative
2	Audio Media	29.84	3.26	74.60%	79.77%	Creative
3	Audio-Visual Media	28.84	2.66	72.10%	71.14%	Moderately Creative

**Note: The score achievement rate is calculated as the ratio of the empirical mean score to the maximum ideal score ($\frac{\text{Mean}}{40.00} \times 100\%$). (Note: Original source formula notation preserved).*

The comparative data in Table 4 demonstrate a consistent pattern between mean scores and student agreement percentages. Teacher creativity was most prominent in visual media development ($M = 30.89$; 84.32% agreement), followed by audio media ($M = 29.84$; 79.77% agreement), and lowest in audio-visual media ($M = 28.84$; 71.14% agreement).

Discussion

The primary findings of this study reveal a statistically distinct hierarchy in teacher creativity when developing Pancasila Education instructional media at SMA Negeri 9 Ambon, characterized by the predominance of visual media ($M = 30.89$; 84.32% agreement) and audio media ($M = 29.84$; 79.77% agreement) over audio-visual media ($M = 28.84$; 71.14% agreement). Viewed through the lenses of the Technological Pedagogical Content Knowledge (TPACK) framework and the Creative Teaching Framework, this pattern indicates that teachers have successfully integrated pedagogical knowledge and civic value content adaptively within an accessible technological scope. Teacher creativity is not entirely stifled by infrastructural disparities in archipelagic regions; rather, it manifests as *frugal digital pedagogy* through the selection of technically efficient media modalities capable of stimulating students' cognitive engagement. Cross-modality comparisons confirm that implementation gaps do not stem from low student perception of multimedia benefits, given that 97.73% of respondents acknowledged the effectiveness of videos in facilitating comprehension of abstract concepts. Consequently, variations in achievement across media types reflect teachers' rational strategies in balancing 21st-century instructional innovation demands with operational resource availability in regional school environments.

The dominance of creativity scores in visual media development is rooted in production efficiency and alignment with Dual Coding Theory and the cognitive theory of multimedia learning. Fully 100.00% of students agreed on the teacher's capability to vary presentation slides, charts, and infographics to concretize abstract Pancasila concepts into comprehensible visual representations. According to Mayer (2021),

structured information processing through visual and verbal channels reduces extraneous cognitive load and enhances conceptual retention in humanities and civic subjects. Internationally, Haleem et al. (2022) similarly confirmed that digital visual aids constitute the most practical instruments for teachers in low-connectivity schools to sustain classroom attention without relying on high-speed internet networks. Nevertheless, high student approval of the teacher's visual design quality remains shadowed by classroom hardware constraints, as reflected by 81.82% of students reporting insufficient availability of LCD projectors (item X2_10).

In the audio media dimension, a mean score of 29.84 with 79.77% agreement demonstrates teacher flexibility in utilizing simple voice-recording tools and educational podcasts to deliver contextual narratives of Pancasila values. This innovation proved well-aligned with student characteristics, as 95.45% of respondents appreciated the novelty of teacher-recorded audio formats accessible flexibly outside face-to-face class hours (item X1_2). These empirical findings corroborate Gunderson and Cumming (2022), and Gultom (2025), who established that educational podcasts in social science instruction significantly foster self-paced learning and deepen critical student reflection on civic issues. However, low agreement regarding ease of student digital device access at 54.55% (item X1_9) indicates that audio material distribution still encounters barriers related to unequal gadget ownership and mobile data quotas among students. This underscores that the success of teacher audio creativity requires offline school distribution ecosystems so auditory benefits can be experienced equitably by all learners.

Conversely, the lower achievement in audio-visual media development (M = 28.84; 71.14% agreement) exposes a critical bottleneck in integrated technology adoption within Pancasila Education. Although all respondents (100.00%) judged instructional video content to be aligned with curricular outcomes (item X3_9), 90.91% of students stated that audio-visual screenings were rarely conducted routinely (item X3_5), and 61.36% noted that videos were not independently produced with local Moluccan cultural content (items X3_3 and X3_7). This phenomenon confirms findings by Akram et al. (2022) that dynamic multimedia content development requires advanced technological literacy, substantial design preparation time, and stable hardware support. When classroom projectors, speakers, and internet networks are inadequate, teachers tend to mitigate technical risks by reverting to static visual media or conventional lecturing. Therefore, strengthening teacher capacity through workshops on lightweight micro-learning video production alongside the modernization of classroom ICT facilities is an essential prerequisite for bridging this audio-visual utilization gap.

Theoretically, this study extends the TPACK discourse by demonstrating that teacher pedagogical creativity in archipelagic regions develops asymmetrically in

accordance with the accessibility of school technological infrastructure. Practically, these findings provide an empirical basis for school management and regional education offices to design contextual digital media training and allocate budgets proportionally for classroom multimedia equipment. Nevertheless, interpreting these findings requires considering three primary methodological limitations inherent in the research design. First, confining the study subjects to a single educational institution ($n = 44$ eleventh-grade students at SMA Negeri 9 Ambon) limits the statistical generalizability of the findings to secondary schools with differing geographical characteristics. Second, relying solely on a closed-ended questionnaire capturing single-perspective student perceptions does not capture the underlying cognitive processes and technical barriers from the teachers' viewpoint; hence, future research is advised to adopt a mixed-methods approach incorporating in-depth interviews and classroom observations.

Overall, this study enriches the scholarship on teacher creativity in digital instructional media development—particularly within resource-constrained regional school contexts—contributing to the literature on teacher innovation and adaptation in addressing educational digitalization challenges at the secondary level. It offers actionable recommendations for schools and educational policymakers to reinforce teacher training programs in effective, contextual digital media development, alongside providing adequate infrastructure to support creative, interactive, and technologically relevant learning processes.

Conclusion

This study concludes that teacher creativity in developing digital instructional media for Pancasila Education at SMA Negeri 9 Ambon falls within the *creative* category for visual and audio modalities, but remains *moderately creative* and suboptimal for the audio-visual modality. Addressing the first and second research questions, descriptive and comparative analyses confirm that visual media is the most predominantly developed modality ($M = 30.89$; 84.32% agreement), followed by audio media ($M = 29.84$; 79.77% agreement), while audio-visual media ranks lowest ($M = 28.84$; 71.14% agreement). Disparities in utilization across modalities are driven by contextual factors characteristic of archipelagic schools, notably limited classroom hardware (LCD projectors and speakers), unstable internet connectivity, constrained teacher preparation time, and low rates of independent, locally contextualized video production. Theoretically, these findings affirm that implementing the Technological Pedagogical Content Knowledge (TPACK) framework in infrastructure-constrained schools necessitates adaptation via *frugal digital pedagogy*, wherein teachers maximize low-cost visual and audio media to concretize abstract Pancasila values. Practically, this study formulates two specific educational policy implications: (1) for regional education

offices and school management, affirmative budgeting policies are required to procure portable classroom multimedia devices and establish offline local servers to overcome internet connectivity gaps; and (2) for teacher professional development forums (MGMP PPKn), hands-on workshops are needed to train teachers in producing lightweight micro-learning videos integrated with local wisdom. To address the limitations of a single-institution sample and unidirectional perceptions, future research is recommended to employ a cross-school mixed-methods design across archipelagic regions, incorporating classroom observations and in-depth teacher interviews to holistically explore cognitive strategies and technical barriers.

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Authors' Note

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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