



Javanese-Sundanese Culture-Based Comics (JASUN) for Tolerance in Elementary Multicultural Education

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Abstract

Background: Indonesia's cultural diversity constitutes vital social capital that must be nurtured through education from an early age. Elementary school is a strategic level for instilling tolerance, mutual respect, cooperation, and appreciation of diversity. However, multicultural education in Indonesian schools still faces obstacles such as limited contextual learning media, memorization-oriented teaching, and minimal integration of local cultural values.

Objective: This study aims to develop and test the effectiveness of a Javanese-Sundanese culture-based educational comic (JASUN) as a multicultural learning medium for elementary school students.

Methods: This study used the Research and Development (R&D) method following Reeves' Design-Based Research (DBR) model, combined with a quasi-experimental pretest-posttest control-group design. Data were collected through observation, interviews, questionnaires, and tests, then analyzed descriptively and inferentially using validity, reliability, normality, homogeneity, and independent-samples t-tests.

Results: The JASUN comic was declared valid for use by media, content, and language experts, the tolerance-attitude instrument showed strong reliability (Cronbach's Alpha = 0.835), and the experimental class's tolerance score rose from 29.57 to 34.80, significantly higher than the control class ($t = 5.008$, $p = 0.000 < 0.05$), confirming that the comic effectively improved students' tolerance attitudes.

Conclusion: These findings provide conceptual, methodological, and empirical contributions to the development of culturally responsive learning media and to strengthening multicultural education practice at the elementary school level.

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INTRODUCTION

Globally, rising intolerance and social fragmentation remain a central concern for education systems: UNESCO's Global Education Monitoring Report highlights that technological disruption, conflict, and intolerance continue to widen social inequalities and threaten social cohesion, underscoring education's role in building inclusive, tolerant societies (Burak et al., 2026; UNESCO, 2020).

Indonesia is known as one of the countries with the largest level of cultural diversity in the world. This diversity is reflected in the existence of hundreds of ethnic groups, regional

languages, religions, beliefs, customs, and traditions that live and develop in various regions of the archipelago (Antara & Yogantari, 2018; Febriani et al., 2025). This condition makes Indonesia a nation that has the character of a multicultural society, where individuals from different backgrounds coexist in a single country. This diversity is not only a national identity, but also a cultural wealth that has strategic value in strengthening unity, enriching social life, and building the nation's character.

Indonesia's diversity is a very valuable social capital for national development. Through diversity, people can learn to respect differences, build cooperation, strengthen social solidarity, and create a harmonious life (Sayuti et al., 2024). Education has a very important role in shaping the character of students to be able to live in a pluralistic society. The cultivation of multicultural values is not enough only through the delivery of learning materials, but also needs to be integrated into the learning experience that is contextual and appropriate to students' daily lives. At the elementary school level, students are in the phase of character development so that it is the right time to foster mutual respect, empathy, cooperation, and the ability to accept differences (Sholehah & Latipah, 2025). These values are the foundation for the formation of a generation that has a tolerant character and is able to maintain unity in community life.

At the national level, survey data from the Center for the Study of Islam and Society (PPIM) at UIN Syarif Hidayatullah Jakarta indicate that a substantial proportion of Indonesian students hold intolerant attitudes toward groups perceived as different, with roughly three in ten respondents showing low religious and social tolerance, confirming that intolerance among Indonesian students remains a pressing national problem (Nasir et al., 2026; PPIM, 2021).

Consequently, it is essential to implement multicultural education effectively by utilizing a variety of innovative and engaging learning strategies that resonate with students' lives. One viable method is to incorporate local culture-based learning materials, such as educational comics that highlight Javanese and Sundanese cultural values. By employing media that aligns with students' characteristics, the internalization of values such as tolerance and respect for diversity is anticipated to occur more effectively, enabling students to not only grasp the cognitive aspects of multiculturalism but also to apply it in their everyday attitudes and behaviors.

Although multicultural education has become part of national education policies and integrated into various subjects, its implementation in primary schools still faces a number of challenges. One of the main obstacles is the limited learning media that is able to package multicultural material in a contextual, interesting, and in accordance with the characteristics of student development. Most of the media used still focus on conveying concepts theoretically through textbooks or lectures, so students tend to understand diversity only as knowledge, not as values that need to be applied in daily life.

In addition, the learning process in many schools is still dominated by a teacher-centered approach. Teachers emphasize mastery of academic material more than character formation and meaningful learning experiences. As a result, students lack opportunities to develop social skills, such as respecting differences, working with friends from diverse backgrounds, being empathetic, and resolving conflicts peacefully. In fact, these values are the main competencies that must be developed in multicultural education (Treve, 2024).

Another problem is that the integration of local cultural values in the learning process has not been optimal. Indonesia has a rich culture that contains various noble values, such as mutual cooperation, deliberation, mutual respect, and tolerance. However, this potential has not been utilized to the fullest as a learning resource. Learning materials still tend to be general and do not associate concepts with cultures that are close to students' lives. This condition causes students to not know, appreciate, and appreciate their own regional cultural values as part of national identity.

The lack of utilization of local culture also results in the internalization process of multicultural values becoming less effective. In fact, learning that is associated with the real experience and cultural environment of students will be easier to understand and remember. Through the introduction of characters, folklore, traditions, and customs of local communities that contain the value of tolerance, students can learn that diversity is part of life that must be appreciated and maintained.

Therefore, learning media innovations that are not only visually appealing, but also able

to integrate local cultural values with multicultural educational materials are needed. The development of media such as Javanese-Sundanese culture-based educational comics (JASUN) can be an alternative solution because it is able to present learning in the form of stories that are close to students' lives, so that the process of instilling the value of tolerance, appreciation for diversity, and character formation can take place more effectively and fun.

This research is urgent because the growing evidence of intolerance among Indonesian students ([Nasir et al., 2026](#); [PPIM, 2021](#); [UNESCO, 2020](#)) is not yet matched by contextual, culture-based learning media that intervene during the critical elementary-school window in which tolerant attitudes are most effectively formed. Without a locally grounded, empirically tested medium such as JASUN, early-stage prejudice risks persisting into adolescence and adulthood, making the timely development and validation of such media a pressing educational priority.

Previous research by Isnani and Rezania ([2023](#)) found that the results of the feasibility test showed that multicultural education-based e-comic media obtained a very high level of validity. The assessment of the material and illustration aspects reached 91.6%, the linguistic aspect obtained 83.3%, while the media display aspect obtained 100%. Overall, the average percentage of media feasibility reaches 91.5%, so that multicultural education-based e-comic media is stated to be very feasible to be used as a learning medium. However, some improvements are still made according to the input from the validators to optimize the quality of the product before it is implemented in the learning process.

However, this study was limited to feasibility/validity testing and did not measure the medium's actual effect on students' tolerance attitudes, nor did it address a specific regional culture, leaving open the question of whether culturally grounded comics can produce measurable behavioral change.

Another study by Nabila ([2026](#)) found that most students have an interest in learning media that are visual and narrative. As many as 100% of students stated that they prefer learning presented through pictures and colors, 93% admitted that they are more motivated to learn when the material is packaged in the form of stories, 94% like interesting and entertaining books, 91% have read comics, while 59% stated that they do not like comics in digital format. These findings indicate that comic media has great potential to be used as a means of learning that is in accordance with the characteristics of elementary school students. The results of the product validation show that the educational comic media developed has a high level of feasibility. Validation by media experts obtained a percentage of 94.44% with a very valid category, validation by subject matter experts obtained 75% with a valid category, while linguist validation reached 87.51% with a very valid category. These results show that the media has fulfilled the content, design, and language aspects so that it is suitable for use in learning activities. However, this study centered on general validation of comic media preferences and feasibility, without testing effectiveness through a controlled experimental design or grounding the content in a specific multicultural framework, leaving a clear gap that the present study addresses by combining Javanese-Sundanese cultural content with an experimentally tested design.

This research is important because multicultural education requires learning media that is innovative, contextual, and in accordance with the characteristics of elementary school students. Until now, the implementation of multicultural education is still dominated by theoretical approaches and has not optimized the use of local culture as a learning resource. In fact, the noble values of Javanese and Sundanese culture, such as mutual respect, mutual cooperation, and tolerance, have great potential to shape the character of students. Therefore, the development of educational comic media based on local culture is expected to be an effective learning tool in instilling tolerance, increasing appreciation for diversity, and supporting the strengthening of character education in elementary schools.

Unlike prior studies that examined multicultural comics either through validity testing alone or through general cultural themes, the novelty of this research lies in its integrated design: a Javanese-Sundanese culture-based comic grounded explicitly in Albert Bandura's ([1986](#)) Social Learning Theory, whose effectiveness is verified through a quasi-experimental pretest-posttest design rather than validation alone ([Al-kfairy et al., 2026](#)).

This research aims to (1) develop a Javanese-Sundanese culture-based educational comic (JASUN) as a multicultural learning medium for elementary school students, and (2) examine its

effectiveness in improving students' tolerance attitudes.

Theoretically, this research enriches the literature on culture-based learning media and social learning theory in multicultural education; practically, it provides teachers and media developers with a validated, ready-to-use comic and a replicable design framework for other regional cultures. The implications of this research extend to curriculum and learning-media policy at the elementary level, encouraging schools to integrate local cultural content into character education and offering a model that can be adapted to other Indonesian regions to strengthen national tolerance education.

METHOD

This study applies the Research and Development (R&D) method using the Reeves model which refers to the Design-Based Research (DBR) approach. The Research and Development (R&D) method is a research approach used to design, develop, test, and improve a product to have a high level of validity, practicality, and effectiveness. Development research also functions as a link between basic research findings and the implementation of applied research, so that research results can be used directly in practice in the field.

The Reeves DBR model in this study was implemented through five systematic stages: (1) Analysis, in which the researcher identified the problem of low tolerance attitudes and the absence of contextual, culture-based learning media through preliminary observation and needs assessment; (2) Design, in which the comic storyline, characters, and multicultural content framework were drafted based on Javanese-Sundanese cultural values; (3) Development, in which the draft comic was produced and validated by media experts, content experts, and language experts, then revised according to their feedback; (4) Implementation, in which the validated comic was applied in the experimental class while the control class received conventional learning; and (5) Evaluation, in which the effectiveness of the comic was assessed through pretest-posttest data and statistical analysis, with results used to refine the final product.

This research was conducted at SDN Kecipir 01 and SDN Cikuning 03, two elementary schools selected purposively because both serve culturally heterogeneous student populations from Javanese and Sundanese backgrounds and had not previously used culture-based comic media, making them representative and relevant sites for testing JASUN. The research subjects consisted of Grade V students at both schools, divided into an experimental class ($n = 30$) and a control class ($n = 30$) using a saturated/total sampling technique due to the limited and intact class-sized population, while a separate group of 25 Grade VI students at SDN Kewingir 01, who were not part of the treatment population, served as the pilot group for instrument (questionnaire) validity and reliability testing prior to data collection.

In this research, the data utilized comprised both primary and secondary data. Primary data was collected directly through observation activities, interviews, and the distribution of questionnaires to students, teachers, principals, and parents at the elementary schools involved in the study. Conversely, secondary data was gathered from documentation results and various literature sources pertinent to the research topic. The data collection process begins with the preparation stage, then continues with the data collection and analysis stage using qualitative and quantitative approaches to obtain comprehensive findings. Observations were carried out to identify the conditions of the learning environment, interaction patterns between students, and students' responses to the learning media used. Observation data sources include elementary school students, classrooms, and learning activities, by applying participatory and non-participatory observation during the teaching and learning process.

In-depth interviews were conducted with teachers, students, principals, and parents to obtain information about the implementation of multicultural education and the need for the use of educational comic media in learning. The interview techniques used include structured and semi-structured interviews so that it allows researchers to obtain more complete and in-depth data. In addition, questionnaires were given to students and teachers to obtain quantitative data on perceptions, attitudes, and responses to multicultural education and the use of educational comic media. The questionnaire instrument was prepared in the form of closed and open-ended questions to be able to produce measurable data while providing space for respondents to express their opinions more broadly.

To guarantee the validity and reliability of the data, this study employs source triangulation along with triangulation techniques. Source triangulation involves comparing information gathered from different respondents, whereas technical triangulation is achieved by contrasting observations, interviews, documentation, and questionnaires, thereby ensuring that the resulting data possesses a high degree of confidence.

To test the effectiveness of the JASUN comic, this study employed a quasi-experimental pretest-posttest control-group design nested within the R&D framework. The experimental class ($n = 30$, SDN Kecipir 01) received learning treatment using the JASUN comic across several meetings covering the My Pride Region material, while the control class ($n = 30$, SDN Cikuning 03) received conventional, lecture-based learning on the same material. Both classes were given an identical pretest before treatment and an identical posttest after treatment using the validated tolerance-attitude questionnaire, allowing the comic's effect to be isolated by comparing the magnitude of change between groups.

Quantitative data were analyzed using SPSS version 22 through the following systematic steps: (1) descriptive statistical analysis to summarize the range, minimum, maximum, mean, and standard deviation of tolerance scores; (2) validity testing of questionnaire items using product-moment correlation, with an item declared valid if the calculated r exceeded the table r (0.396) at $\alpha = 0.05$; (3) reliability testing using Cronbach's Alpha, with a value above 0.60 indicating an acceptable reliable instrument; (4) normality testing using the Shapiro-Wilk method, with data considered normally distributed if the significance value exceeded 0.05; (5) homogeneity testing to confirm equal variances between groups at significance > 0.05 ; and (6) hypothesis testing using an independent-samples t -test, in which the alternative hypothesis (H_a) was accepted if the significance value (2-tailed) was below 0.05, indicating a statistically significant difference in tolerance attitudes between the experimental and control groups.

RESULTS AND DISCUSSION

Results

Effective Comic Development to Teach Multicultural Education in Elementary Schools in Javanese-Sundanese Society

The development of multicultural educational comics in the Javanese-Sundanese community (JASUN) is a relevant learning media innovation to instill the values of tolerance in elementary school students. Multicultural education has an important role in building mutual respect amid Indonesia's cultural diversity, so learning media that can convey these concepts concretely and in accordance with the characteristics of students is needed. Comics were chosen because they were able to combine visual and verbal elements in a storyline that was close to students' daily lives. According to the Cognitive Theory of Multimedia Learning theory put forward (Mayer, 2024), learning will be more effective if information is presented through visual and verbal channels simultaneously (dual channel), thus facilitating the process of selection, organizing, and integrating information in students' memory. Therefore, the presentation of stories that contain interactions between characters from Javanese and Sundanese cultures is an effective means to introduce diversity while instilling the value of tolerance.

The effectiveness of comics as a multicultural educational medium is also strengthened by various previous studies. Research (Isnani & Rezania, 2023) shows that multicultural education-based e-comic media obtains a very high level of feasibility in terms of material, language, illustrations, and appearance and can improve students' understanding of cultural, religious, and racial diversity. These results are in line with research (Anggito & Sartono, 2022) that proves that multicultural educational comics can instill a character of tolerance in elementary school students, as well as research (Aulia & Wuryandani, 2019; Yustanti et al., 2025) that found that the use of multicultural comic strips effectively improves the caring character of students.

In this study, the development of comics uplifts the Javanese-Sundanese society so that multicultural values are conveyed through situations that are close to students' lives. Local values such as *tepa selira*, *andhap asor*, *silih asah*, *silih asih*, and *someah hade ka semah* are integrated into characters, dialogues, and storylines so that students get real examples of behavior that respects cultural differences. The representation of local culture in learning media is important because it can increase students' emotional closeness to the material studied. This is supported in

(Mahfudoh & Sunarso, 2024) which states that comics with Indonesian culture can improve learning outcomes while strengthening students' cultural identities. In addition, (Hines & Rodríguez-Astacio, 2024; McCloud & Martin, 1993) explains that students are more likely to build emotional connections when characters in comics represent the social and cultural environment they are familiar with.

In addition, the use of comics has been proven to have a positive influence on increasing students' tolerance attitudes. These findings are in line with the results of a study that shows that students who learn to use diversity-themed comics have a higher level of empathy and tolerance compared to students who use conventional learning media (Yani & Kawuryan, 2025). Exposure to visual narratives can support a child's social-cognitive development, including the ability to understand other people's perspectives and develop empathy.

The characters in the comics serve as role models of behavior that show mutual respect, cooperation, and peaceful conflict resolution so that students gain learning experience through the process of observing and imitating positive behavior. Therefore, the comics developed make conceptual, methodological, and empirical contributions in the development of learning media based on local wisdom to strengthen the tolerance attitude of elementary school students.

Comic Story Presentation Strategy

The strategy of presenting stories is one of the important factors in the development of multicultural educational comics because it determines the success of conveying the values of tolerance to elementary school students. Stories need to be designed with characters that represent Javanese and Sundanese cultures, simple plots, and dialogues that are in accordance with the cognitive development of students. Characters that reflect cultural diversity through names, clothing, habits, and ways of interacting will help students recognize that differences are part of everyday life. The closeness between the characters and the students' experiences also makes the learning process more meaningful so that multicultural values are easier to internalize. This view is in line with research (Ismawati et al., 2023) stating that comics based on local wisdom are easier to accept by students because they are in accordance with their environment. Meanwhile, (Selisetyowati et al., 2026) showed that the representation of figures from different cultural backgrounds was able to foster mutual respect and reduce stereotypes between groups.

In addition to characters, a simple but meaningful storyline is an effective strategy in conveying multicultural education. Stories that raise daily activities, such as studying in class, playing with friends, or working together in the community, provide a real picture of the application of tolerance. The conflicts presented are quite light and close to students' lives so that their resolution can be an example of behavior that respects differences (Pramesti et al., 2024). Dialogue between figures also needs to be developed interactively by combining the use of Indonesian as a national language and a regional language as a cultural identity. The use of local languages in certain situations, such as in the family or community environment, can strengthen a sense of pride in one's own culture while introducing diversity of languages to students. This strategy has been proven to be able to increase student involvement in learning and strengthen the cultural context conveyed through stories (Kudadiri, 2023).

Furthermore, moral messages in comics need to be conveyed explicitly and implicitly so that students understand the content of the story, and can apply these values in their daily lives. Moral messages can be realized through character dialogue, illustrations, behaviors, and conflict resolution that reflect local values such as *silih asih*, *silih ahon*, *silih asuh*, and *tepa selira*. Presenting stories that end with a brief reflection or conclusion can also help students connect the characters' experiences with their own lives. The findings are supported by research (Isnani & Rezania, 2023) and (Nurfauzi et al., 2024) which shows that comics can improve students' understanding, empathy, and character tolerance through the presentation of interesting and contextual stories.

Based on this research, the strategy was applied to the development of multicultural educational comic media "Harmony in Tanah Jasun", presenting the story of student interaction with Javanese and Sundanese cultural backgrounds with simple conflicts resolved through mutual respect, cooperation, and respect for differences. The presentation of contextual stories is expected to make it easier for students to understand the meaning of tolerance while internalizing

multicultural values in daily life.

The Process of Testing and Refining Multicultural Education Comics Based on the Results of Implementation in the School Environment

This research was carried out at SDN Kecipir 01 and SDN Cikuning 03 to analyze the influence of the use of multicultural educational comics on the tolerance attitude of grade V students in the science subject of the material of My Pride Region. The study used a pretest-posttest experimental design with an experimental group using multicultural educational comics and a control group following conventional learning. The research data was collected through learning outcome tests and tolerance attitude questionnaires, while the implementation in two schools aimed to increase the validity of the research results.

Data analysis was carried out descriptively to provide an overview of the results of the instrument test before being used in the research. The instrument test was carried out on 25 grade VI students of SDN Kewingir 01 to ensure the quality of the questions used in the experimental class and the control class. In this study, multicultural educational comics play a role as an independent variable (X), while students' tolerance attitudes are a dependent variable (Y), with the results of instrument trials presented in the table 1.

Table 1

Descriptive Trial Statistics

	N	Range	Minimum	Maximum	Red	Std.Deviation
Tolerance Attitude Test	25	18	12	30	23.84	4.913
Tolerance Attitude Posttest Experiment	25					

Based on the results of the descriptive analysis in Table 1, an average score of student learning outcomes was obtained of 23.84 which shows that the instrument has a score spread rate that can be used as a basis for further testing. Furthermore, the validity test of the tolerance attitude questionnaire was carried out using SPSS version 22 with the significance value criterion < 0.05 and the calculated r value greater than the table r (0.396). The test results showed that the statement items that met the criteria were declared valid and suitable for use as research instruments, as presented in Table 2.

Table 2

Data on the Validity Test Results of the Tolerance Attitude Test

Item	Calculation	Table	Criteria	Item	Calculation	Table	Criteria
P1	0.135	0.3365	Invalid	P16	0.409	0.3365	Valid
P2	0.159	0.3365	Invalid	P17	0.401	0.3365	Valid
P3	0.414	0.3365	Valid	P18	0.390	0.3365	Invalid
P4	0.433	0.3365	Valid	P19	0.416	0.3365	Valid
P5	0.493	0.3365	Valid	P20	0.348	0.3365	Invalid
P6	0.454	0.3365	Valid	P21	0.400	0.3365	Valid
P7	0.492	0.3365	Valid	P22	0.451	0.3365	Valid
P8	0.482	0.3365	Valid	P23	0.420	0.3365	Valid
P9	0.063	0.3365	Invalid	P24	0.423	0.3365	Valid
P10	0.424	0.3365	Valid	P25	0.667	0.3365	Valid
P11	0.494	0.3365	Valid	P26	0.532	0.3365	Valid
P12	0.124	0.3365	Invalid	P27	0.527	0.3365	Valid
P13	0.563	0.3365	Valid	P28	0.428	0.3365	Valid
P14	0.630	0.3365	Valid	P29	0.407	0.3365	Valid
P15	0.499	0.3365	Valid	P30	0.503	0.3365	Valid

The results of the validity test showed that of the 30 items of the tolerance questionnaire statement, as many as 24 items were declared valid and suitable for use as research instruments, while the other 6 items were declared invalid so they were not used in data collection. Reliability

analysis was carried out with the help of SPSS version 22 application. The results of the reliability test of the student tolerance attitude questionnaire are listed in Table 3.

Table 3

Reliability Output Tolerance Attitude Test

Cronbach's Alpha	N of Items
.835	30

The results of the reliability test showed a Cronbach's Alpha value of 0.835, greater than 0.60, so the tolerance attitude questionnaire was declared reliable. Based on the results of the validity and reliability test of 30 statements, the 10 best items that meet the criteria were selected to be used as an instrument to measure student tolerance attitudes in research.

After the instrument trial was completed, the study was carried out in the experimental class and the control class with different treatments. The experimental class followed learning using multicultural educational comic media interactively, while the control class followed conventional learning without using comics. Both classes began with the same learning activities, such as openings, prayers, and material delivery, then ended with learning evaluations. Before the treatment, all students first took a pretest to measure tolerance and find out their initial abilities as a basis for comparison before and after learning. The results of the pretest descriptive analysis in the experimental class and the control class are presented in the table 4.

Table 4

Descriptive Statistical Data Pretest Attitude Tolerance

Tolerance		N	Minimum	Maximum	Red	Std.Deviation
Tolerance Attitude Posttest	Control	30	21	37	29.37	3.917
Tolerance Attitude Posttest	Experiment	30	20	38	29.57	4.651
Valid N (listwise)		30				

Based on the results of the descriptive analysis in Table 4, the pretest value of tolerance attitude in the control class ranged from a minimum value of 21 to a maximum of 37. Meanwhile, the pretest score of tolerance attitude in the experimental class has a minimum score range of 20 to a maximum of 38. After the experimental class was given treatment using comic media, the next stage was that students were given a posttest to measure students' understanding after learning was carried out. The following is a table of descriptive analysis data of tolerance attitudes in the control class and the experimental class.

Table 5

Descriptive Statistics of Posttest Data Attitude Tolerance

Tolerance		N	Minimum	Maximum	Red	Std.Deviation
Tolerance Attitude Posttest	Control	30	23	38	30.73	3.532
Tolerance Attitude Posttest	Experiment	30	28	40	34.80	3.336
Valid N (listwise)		30				

Based on the results of the descriptive analysis in table 5. showed that the posttest value of the tolerance attitude of the control class was minimum 23 and maximum 38, while the posttest value of the tolerance attitude of the experimental class was minimum 28 and maximum 40.

The normality test was carried out to determine whether the research data were normally distributed using the Shapiro-Wilk One-Sample method through SPSS version 22. The test is based on significance values, i.e. the data is declared to be normally distributed if the significance value is > 0.05 and abnormal if the $<$ is 0.05 . The results of the normality test of the variable tolerance attitude of students are presented in Table 6.

Table 6
Normality Output Pretest and Posttest Attitude Tolerance

Classes		Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tolerance	Control Pretest	.136	30	.161	.961	30	.334
	Posttest Control	.103	30	.200*	.981	30	.850
	Pretest Experiment	.121	30	.200*	.967	30	.458
	Posttest Experiment	.124	30	.200*	.962	30	.357

The results of the normality test using the Shapiro-Wilk method showed that all pretest and posttest data in both the experimental and control classes had a significance value greater than 0.05, so it can be concluded that the data was normally distributed. Furthermore, the homogeneity test was carried out using SPSS version 22 to determine the similarity of variance between the two groups. The data were declared homogeneous if the significance value was greater than 0.05, with the test results presented in Table 7.

Table 7
Homogeneity Output Pretest and Posttest Attitude Tolerance

LifeStatistic		df1	df2	Sig.
Tolerance	Based on Mean	1.543	3	.116
	Based on Median	1.254	3	.116
	Based on Median and with adjusted df	1.254	3	106.113
	Based on trimmed Red	1.548	3	.116

The results of the homogeneity test showed a significance value of 0.207 (> 0.05), so it can be concluded that the variance of data in the experimental class and the control class was homogeneous. After meeting the assumptions of normality and homogeneity, the analysis is continued with the Independent Sample t-Test. Decision-making is carried out based on the value of Sig. (2-tailed), i.e. H_a is accepted if the significance value is < 0.05 and H_0 is accepted if the significance value is > 0.05 . This test was used to compare the averages of the two groups as well as determine the effectiveness of multicultural educational comics as a learning medium in increasing students' tolerance in the science subjects of the material of My Pride Region.

Table 8
Tolerance Attitude Data t-Test Output

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Red Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Tolerance	Equal variances assumed	3.133	.082	5.008	58	.000	5.233	1.045	3.141	7.325
	Equal variances not assumed			5.008	52.596	.000	5.233	1.045	3.137	7.330

Based on the output results in Table 8, a significance value of 0.000 was obtained. In accordance with the applicable provisions, since the value is less than 0.05, the first chance is accepted and the second chance is rejected. Hence, multicultural educational comic media influences students' tolerance in science subjects.

Discussion

Students seem more enthusiastic in reading, discussing, and connecting the content of the story with their experiences in the school environment. The interaction between Sekar figures who represent Javanese culture and Wira who represent Sundanese culture encourages students to understand that cultural differences are something natural and need to be appreciated. The results of the students' reflections show the emergence of empathy, tolerance, and the desire to respect friends who have different cultural backgrounds.

The results of the effectiveness test showed that the use of comics had a positive and significant effect on improving students' tolerance attitudes, as evidenced by an increase in the average tolerance score in the experimental class from 29.57 to 34.80, higher than in the control class, and supported by the results of the t-test with a significance value of 0.000 ($p < 0.05$). In addition, the qualitative analysis in this study uses Albert Bandura's Social Learning Theory as a basis to explain the change in students' tolerance attitudes. According to (Al-kfairy et al., 2026; Bandura, 1986), the learning process takes place through the stages of attention, retention, reproduction, and motivation which are influenced by the interaction between cognitive, environmental, and behavioral factors (reciprocal determinism).

In this study, the characters in the comics act as models of behavior observed by students. The results of the observation show that students not only pay attention to the tolerant behavior displayed by the characters, but are also able to remember, understand, and begin to apply them in learning activities and social interactions in the classroom. The role of teachers as facilitators through discussion and reflection also strengthens the social learning process so that the values of tolerance are easier to internalize.

At the attention stage, the observation results showed that students focused more on panels and scenes that displayed cultural conflicts and their resolutions, and were able to identify the most memorable characters or scenes during the reflection activity. This shows that the combination of visual illustrations and concise dialogue can increase the attractiveness of the behavior model so that students can more easily observe examples of tolerant behavior. Furthermore, in the retention stage, students can retell the storyline, explain conflict resolution, and identify tolerant actions taken by the characters. Sequential storytelling with visual support helps students build stronger mental representations so that tolerance values are easier to remember and reconstruct when faced with similar situations in real life.

The reproductive stage is seen when students begin to apply the behaviors observed in the comics into learning activities, such as giving friends the opportunity to talk, using polite greetings, and working together with friends from different cultural backgrounds. Teachers act as supporting models who strengthen the imitation process through direction and example during the activity. Furthermore, at the motivation stage, tolerant behavior is maintained because students receive reinforcement in the form of appreciation from teachers and peers, while comics also display the positive consequences of tolerant behavior, such as conflict resolution and social acceptance. The entire process shows the principle of reciprocal determinism, which is the mutual interaction between cognitive, environmental, and behavioral factors. Learning comics create a more inclusive learning environment so that changes in student behavior help strengthen a positive classroom climate and support the sustainability of tolerance.

The results of these reflections show that the effectiveness of comics is not only influenced by visual quality and storyline, but also by the learning process that involves discussion, reflection, and reinforcement from teachers. Bandura explained that prosocial behavior is easier to develop if students get a clear model accompanied by reinforcement from the social environment (Al-kfairy et al., 2026; Bandura, 1986). The findings of this study are also in line with various studies that show that story-based visual media can increase empathy, prosocial behavior, and tolerance through the modelling and vicarious reinforcement process. In addition, (Syafii & Azhari, 2025; Vygotsky, 1978) emphasized that learning takes place optimally through meaningful social interaction and cultural contexts, so that comics function as a mediating tool that helps students build an understanding of diversity. The results of previous research confirm that comic media is effective in instilling character values, empathy, and multicultural awareness in elementary school students (Agma, 2026; Huda et al., 2023; Rina et al., 2020; Rondli & Fajrie, 2026; Sanjaya et al., 2026).

Based on the results of observation and reflection, the impact of the use of the comic book *Harmony in Tanah Jasun* can be seen in three main dimensions, namely cognitive, affective, and social behavior. Cognitively, students can explain the meaning of tolerance, recognize cultural diversity, and understand the consequences of intolerance. In the affective aspect, students show increased empathy, respect, and the ability to appreciate friends who have different languages and cultures. Meanwhile, in the aspect of social behavior, change is seen through the habit of working together without distinguishing backgrounds, using cross-cultural greetings such as "*punten*", "*sampurasun*", and "*matur nuwun*", and resolving differences peacefully. The results of the observations showed that the most noticeable changes occurred in the social behavior aspect, followed by the affective and cognitive aspects which indicated that tolerance values began to be applied in daily life.

The results of the reflection are the basis for formulating effective learning comic design principles for multicultural education in elementary schools. Comics need to be designed with characters that are close to students' lives, contextual storylines, relevant conflicts, interesting illustrations, and moral messages that are strengthened through reflection and discussion activities with teachers. The application of comics also needs to be supported by a collaborative learning environment so that the process of observation, imitation, and behavior reinforcement can take place optimally. Thus, the comic *Harmony di Tanah Jasun* functions as an effective character education medium in forming tolerant, empathetic, and inclusive attitudes in elementary school students, as well as strengthening quantitative findings that the use of comics has a positive influence on increasing tolerance.

For teachers, these findings suggest that the JASUN comic can be directly integrated into lesson plans as a discussion-based media in social studies or character-education sessions, paired with structured reflection activities to reinforce Bandura's attention-retention-reproduction-motivation cycle. For learning-media developers, the results highlight the importance of embedding locally recognizable characters and settings (Al-kfairy et al., 2026; Bandura, 1986), culturally authentic dialogue, and morally explicit yet age-appropriate storylines as design principles that can be replicated when developing similar culture-based media for other regions or subject areas.

CONCLUSION

This research succeeded in developing a multicultural educational comic media "*Harmony in the Land of Jasun*" through a Javanese-Sundanese culture-based Research and Development (R&D) approach as a learning medium to form tolerance attitudes of elementary school students. Based on the validation results of media experts, material experts, and education practitioners, comics are declared worthy of use because they present material in an interesting, contextual, and in accordance with the characteristics of students. The results of the effectiveness test showed that the use of comics had a positive and significant effect on improving students' tolerance attitudes, as evidenced by an increase in the average tolerance score in the experimental class from 29.57 to 34.80, higher than in the control class, and supported by the results of the t-test with a significance value of 0.000 ($p < 0.05$). The novelty of this research lies in the development of comics based on Albert Bandura's social learning theory which integrates multicultural values and Javanese-Sundanese culture as a learning medium to strengthen the tolerance attitude of elementary school students.

Based on the results of the study, teachers are advised to use multicultural educational comic media as an alternative teaching material that can instill the values of tolerance, empathy, and respect for diversity in a more interesting and contextual way. Schools are also expected to support the integration of local cultural values into the learning process using visual media and project-based learning activities that elevate local wisdom. In addition, further research is recommended to develop similar culture-based comic media grounded in other Indonesian regional cultures (e.g., Minangkabau, Batak, or Balinese), to test its effectiveness at other education levels such as junior secondary school, and to employ a larger multi-school sample with a more diverse methodological approach in order to obtain more comprehensive and generalizable findings.

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AUTHOR CONTRIBUTION STATEMENT

Didik Tri Setiyoko contributed to the conceptualization, research design, development of the JASUN learning media, data collection, analysis, and preparation of the original manuscript. Eva Banowati contributed to the development of the theoretical framework, methodology, validation, and critical review of the manuscript. Agustinus Sugeng Priyanto contributed to data interpretation, validation, and refinement of the research discussion. Arif Purnomo contributed to supervision, manuscript review and editing, and final evaluation of the research.

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