

Djava Dvipa Boardgame: Educational Media to Enhance Nusantara InsightsListyanto Aji Nugroho¹**Abstract**

The objective of this study is to create a gamified history learning tool that delves into students' comprehension of the grand kingdoms of the Nusantara, sparks their interest in learning, and encourages exploration of the cultural heritage of the Nusantara. The research employed the ADDIE development model as its methodology. The outcome of this investigation is the "Djava Dvipa," a thoughtfully crafted educational board game incorporating elements of the snake and ladder game. Hypothesis testing results indicate the effectiveness of the Djava Dvipa board game in enhancing the understanding of Nusantara's historical insight. The paired sample t-test analysis yielded a significance value (sig) of 0.000, which is below 0.05, signifying the acceptance of the alternative hypothesis (H1) and the rejection of the null hypothesis (H0). This study underscores the substantial contribution of the gamification approach, embodied in Djava Dvipa, towards elevating the Nusantara insight among students. The board game presents an intriguing alternative for history instruction that holds promise for integration into the landscape of history education in Indonesia.

Keywords: *Joyfull Education, Play and Learn, Research and Development, Education*

Introduction

The advancement of a nation will always depend on the hands of the future generations of the nation. Building a nation means it must start with building its people. The next generation must be prepared to face all the changes that may occur in the future, so they must be equipped with sufficient skills to face the 21st century, including literacy, numeracy, critical thinking and problem solving, creativity and innovation, collaboration, leadership, cross-cultural understanding, communication, self-reliance, and compassion (Kummanee et al., 2020). The process of developing these skills will always be integrated into the learning activities. Therefore, logically, to create Human Resources (HR) ready to face the 21st century, learning must be integrated into 21st-century skills. From this understanding, the concept of 21st-century learning is born (Mairc, 2020).

In the ever-dynamic era, building an excellent Human Resources (HR) doesn't only require skills but also demands the formation of a strong character based on the nation's identity. Character and national identity can be shaped by understanding the processes of cohesion and socialization within the context of history, which can be learned through history education.

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History education is the key to constructing, integrating, and preserving the nation's identity (Awgichew & Ademe, 2022). History education occurs within spatial and temporal contexts, requiring two types of knowledge: explicit knowledge and tacit knowledge. Explicit knowledge is information that can be learned directly, while tacit knowledge involves the individual construction of knowledge by learners (Ymran et al., 2017).

Understanding Nusantara Insight through the study of history is crucial because it encompasses profound aspects of Indonesia's history, culture, and geopolitics as an archipelagic nation (Purwanta, 2018). First, historical learning provides the foundation to comprehend the historical roots of Indonesia's nation-building process and its development as a nation comprising various ethnicities, cultures, and religions. By studying history, students can understand the nation's struggle for independence and the formation of a united country. Moreover, Nusantara Insight also includes an understanding of Indonesia's cultural diversity. Through historical learning, students can explore the diverse cultures within the Nusantara region and appreciate its rich and diverse cultural heritage. Knowledge of local cultures not only enhances national pride but also strengthens national unity amidst diversity (Keynes & Marsden, 2021).

Furthermore, historical learning enables students to grasp Indonesia's strategic role in the regional and global geopolitical context. As the world's largest archipelagic state, Indonesia holds a strategic position between two oceans and lies along major trade routes. By understanding Indonesia's role in regional geopolitical dynamics, students can appreciate the importance of maintaining sovereignty, security, and stability in the Nusantara region.

Additionally, understanding Nusantara Insight also provides a foundation for students to comprehend the challenges and opportunities faced by Indonesia as an archipelagic nation. Through historical learning, students can understand issues such as ecosystem diversity, natural disaster mitigation, environmental protection, and sustainable utilization of marine resources (Clark, 2016).

Thus, historical learning becomes one of the effective approaches to understanding and internalizing the concept of Nusantara Insight. Through a deep understanding of Indonesia's history, culture, and geopolitics, students can become a generation with a high awareness of the richness and complexity of the Nusantara region. This is not only important for building a strong national identity but also for preparing the younger generation to face global challenges in the future.

In the educational context, establishing an optimal learning process is of paramount importance to inspire and actively involve students in their educational journey (Ymran et al., 2017).

Drawing from various studies, the utilization of gamification, or the integration of game elements, has proven to be effective in motivating learners to actively participate in educational activities (Silpasuwanchai et al., 2016). Moreover, the application of gamification in learning has demonstrated its potential to make the intricate process of history education more enjoyable (Kim & Lee, 2015). However, a significant challenge emerges when aiming to implement gamified learning: striking the right balance between educational content and entertainment within the learning platform. Excessive educational material may compromise the platform's ability to create a pleasant and motivating learning atmosphere. Conversely, an abundance of entertainment content could lead to ineffectiveness in the learning process, as students might become overly engrossed in the game, thereby diminishing the educational impact. This encapsulates the primary challenge faced in the development of gamified learning platforms. Therefore, the researcher feels the urgency to create a gamified learning product that is balanced in content, holds high educational value, and also possesses strong entertainment aspects, thus ensuring effective and enjoyable learning experiences. One of the game mechanisms to be adopted by the researcher is the Snake and Leader mechanism. Developing a robust game mechanism is crucial as it serves as the core component of a game, and the success or failure of the gamification process heavily relies on the formulation of these game mechanisms (Lim et al., 2015). Based on research conducted by Munif (2019), the Snake and Leader game has been proven to enhance cognitive functions, capture attention, boost affective responses, and act as a compensatory tool for learning purposes. Due to its perceived theoretical effectiveness, the researcher chooses to adopt this mechanism. The Research question are; can the use of the Djawa Dvipa board game effectively enhance students' understanding and awareness of Nusantara Insight?

Theoretical Review

Nusantara Insight

Nusantara Insight is a deep and complex concept that is at the center of attention in studies about Indonesia, a country consisting of thousands of islands surrounded by the Indian and Pacific Oceans. This concept goes beyond just a geographical view of these islands; it encompasses a deeper understanding of the geopolitical, cultural, economic, and security dynamics that affect the region. First, let's look at the contribution of geopolitical theories in understanding Nusantara Insight. Theories such as Mackinder's Heartland Theory and Mahan's Sea Power Theory highlight the importance of Indonesia's geographical location in the regional and global power dynamics. Indonesia, located at the crossroads of major sea routes and with

vast maritime territory, becomes a significant player in regional geopolitics (Alvarez, 2023; Krause, 2023).

However, not only from a geographical standpoint, Indonesia's identity is also enriched by its diverse cultural aspects. Through the lens of cultural studies, we can understand how the diversity of ethnicities, languages, religions, and traditions within the Nusantara region contributes to a strong national identity. The concept of *Bhinneka Tunggal Ika*, or "Unity in Diversity," symbolizes the unity amidst cultural diversity in Indonesia. In the political context, political geography provides insights into how Indonesia manages its sovereignty and political boundaries. Indonesia, consisting of many islands, faces challenges in resource management and law enforcement (Atmaja et al., 2020). However, through political and diplomatic efforts, Indonesia continues to strive to uphold its sovereignty and territorial integrity.

The maritime dimension is also crucial in understanding Nusantara Insight. Maritime studies highlight the importance of maritime security, marine resource management, and maritime connectivity in the Indonesian context. With its vast maritime territory, Indonesia has great potential to utilize natural resources and expand trade and diplomatic relations through sea routes. In international relations, Indonesia has been actively participating in various regional and global forums (Muhibat, 2017). By being a member of ASEAN and various other international organizations, Indonesia strengthens its position as a regional leader and an active player in multilateral diplomacy. Indonesia's contributions to global issues such as climate change and world peace also demonstrate the importance of this country's role in the international community.

This theoretical framework provides a deeper understanding of the complex dynamics within the Nusantara region. Through the integration of various perspectives from geopolitics, cultural studies, political geography, maritime studies, and international relations, we can see how different factors and variables are interconnected and influence each other in shaping Indonesia's identity and position at regional and global levels.

Therefore, understanding Nusantara Insight is not only important for Indonesia as a nation, but it also has broad implications in the regional and global geopolitical and economic contexts. By continually developing our understanding of the complex dynamics within this region, we can better prepare ourselves to face the challenges and opportunities that arise in the future (Plagemann et al., 2021).

Assessing Nusantara Insight of Student

Measuring the level of Nusantara Insight in students requires an approach tailored to the educational context and their cognitive developmental stage. Nusantara Insight encompasses a comprehensive understanding of the geopolitical, cultural, economic, and security aspects related to the Indonesian archipelago. Therefore, the development of diverse evaluation instruments that meet the needs of students in understanding and internalizing these concepts is necessary (Plagemann et al., 2021; Reed & Mercer, 2023).

First, in measuring the geopolitical aspect of Nusantara Insight, evaluation instruments can focus on assessing students' knowledge of Indonesia's geographical location. This includes knowledge of the main islands, maritime boundaries, and Indonesia's strategic position among international maritime routes. Additionally, it is important to measure their understanding of the importance of maritime areas to the country's economy, as well as their awareness of territorial disputes that may affect regional stability.

Second, in measuring the cultural aspect of Nusantara Insight, evaluation can be done through questionnaires or tests that assess students' understanding of Indonesia's cultural diversity. This includes knowledge of various ethnicities, languages, religions, and traditions within the Nusantara region. Additionally, evaluation instruments can measure students' attitudes toward pluralism and tolerance, which are important values in strengthening national unity.

Third, in measuring the economic aspect of Nusantara Insight, students can be assessed through projects or tasks that involve exploring the main economic sectors in Indonesia. They can be asked to analyze the impact of regional trade on the domestic economy and understand the potential of natural resources owned by Indonesia. Through these activities, students will be able to understand the role of the economy in shaping and strengthening Indonesia's position at the regional and global levels.

Last, to measure the security aspect of Nusantara Insight, tests or simulation exercises can be used. Students can be evaluated based on their knowledge of regional and national security threats, as well as their participation in debates on security policies. Additionally, it is important to measure their awareness of the role and responsibilities of individuals in maintaining national resilience, especially in the context of new threats such as transnational crime and terrorism.

By using evaluation instruments that are appropriate for students' developmental stages, we can effectively measure and enhance their understanding of Nusantara Insight. Through a holistic and diverse approach, students will be able to develop a deep understanding of

Indonesia's complexity as an archipelagic nation and its role in regional and global geopolitical dynamics.

To measure the level of Nusantara Insight, researchers utilize five types of instruments (McCrossan et al., 2022). First, instruments to gauge geopolitical understanding are designed to assess how well an individual comprehends Indonesia's geographical location and its significance in the regional geopolitical context. Second, instruments for measuring cultural understanding are employed to evaluate one's understanding of cultural diversity in Indonesia, including language, customs, and religion, as well as its impact on national identity. Next, instruments focusing on economic context understanding are utilized to assess knowledge of Indonesia's major economic sectors, their contributions to the national economy, and the country's natural resource potential. The fourth set of instruments aims to evaluate understanding of Indonesia's historical context, including significant events in the nation's history, the roles of historical figures, and the impact of colonialism on Indonesia's development. Finally, instruments concentrating on global security understanding are designed to assess comprehension of security challenges faced by Indonesia, Indonesia's role in maintaining regional and global security stability, and its contributions to peace efforts and international conflict resolution. By utilizing these various instruments, researchers can comprehensively depict an individual's level of understanding of Nusantara Insight in the contexts of geopolitics, culture, economy, history, and global security.

Learning Media

Learning media plays a crucial role in supporting the learning and understanding of the concept of Nusantara Insight among students. By utilizing various learning media, teachers can create engaging, diverse, and in-depth learning experiences for students, helping them acquire a comprehensive understanding of Indonesia as a unique archipelagic nation (Lampropoulos et al., 2022; Lazuardi et al., 2023).

First, documentary videos are one of the effective learning media in presenting information about the history, culture, and geopolitics of Indonesia. In documentary videos, students can witness visualizations of various important historical events that shaped the Indonesian nation, such as the struggle for independence, cultural diversity, and territorial conflicts. With strong visuals and informative narratives, students can more easily grasp the historical context and the complexity of life in the Nusantara region. Additionally, multimedia presentations are also an effective learning media in exploring the concept of Nusantara Insight. By using images, graphics, audio, and video, multimedia presentations can help present information visually and

audiovisually, making it easier for students to understand and remember the material presented. Teachers can use multimedia presentations to explain important concepts such as cultural diversity, ethnic diversity, and Indonesia's strategic role in regional and global geopolitics.

In addition to audiovisual media, interactive applications can also be an effective learning tool in teaching the concept of Nusantara Insight. By using interactive applications, students can directly engage in exploring these concepts through games, simulations, and interactive exercises. For example, interactive applications can present geographic challenges about the locations of major islands in Indonesia or role-playing games that invite students to solve problems related to territorial disputes. With active engagement in learning, students can gain a deeper and more meaningful understanding of the concept of Nusantara Insight.

Aside from using digital learning media, creative approaches in using physical media can also be an effective strategy in supporting the learning of the concept of Nusantara Insight (Luangrungruang & Kokaew, 2022). For example, interactive physical maps of Indonesia can be used by teachers to explain the geographical location of Indonesia, maritime boundaries, and the locations of various ethnicities and cultures in the Nusantara region. By seeing and feeling physical maps directly, students can gain a more concrete and tangible understanding of these concepts.

By utilizing various learning media, teachers can create an inspirational and supportive learning environment in teaching the concept of Nusantara Insight. Through the use of diverse learning media, students can acquire a deeper, broader, and more meaningful understanding of Indonesia as an archipelagic nation rich in history, culture, and diversity. Thus, learning media not only serves as a tool for delivering information but also as a means to stimulate students' interest, understanding, and appreciation of the concept of Nusantara Insight.

Gamification

Gamification, originating from the English word "gamification," is defined in the Oxford dictionary as the application of game elements such as competition, scoring, and game rules in an activity. According to Kapp (2012), gamification is a concept that combines game elements, critical thinking, and aesthetics to capture attention, motivate, promote learning, and problem-solving. Therefore, gamification can be concluded as integrating games into learning.

In education, gamification is used as an approach with a game as its component. According to Marisa et al. (2020), gamification aims to enhance intrinsic motivation. This means that game components can be used as motivators, and in the context of learning, gamification serves as a catalyst for students to tackle problems and actively participate in learning.

From the above explanation, it can be concluded that gamification is an activity that has been modified with game elements to make it more engaging. An example of gamification is a learning activity that uses games to make the learning process exciting and capture the interest of students.

Gamified History Learning Media

Gamified history learning media plays a key role in strengthening students' understanding of the concept of Nusantara Insight through an interactive and engaging approach. By integrating gaming elements into history education, students are not only actively involved in the learning process but also experience captivating and memorable experiences (Kapp, 2012).

One example of using gamified history learning media is through role-playing games that simulate significant historical events in Indonesia's development. In these games, students can take on the roles of historical figures or political leaders from the past, and they must face the challenges encountered by these figures in dealing with political, social, or cultural conflicts (Rosa-Castillo et al., 2022). Through these role-playing games, students can directly understand the dynamics of history and the complexity of decisions made by these figures. Additionally, gamified history learning media can also incorporate puzzle or geographical challenge elements to help students better understand historical contexts. For example, students can be given puzzles or missions that require them to explore historical maps of Indonesia and identify the locations of important events. By solving these puzzles, students not only enhance their knowledge of history but also gain a better understanding of Indonesia's geography and its significant role in the nation's history.

Furthermore, elements of competition and rewards can also be incorporated into gamified history learning media to incentivize students to achieve learning goals. Students can earn points or other rewards for correctly answering historical questions, successfully completing historical missions, or actively participating in class discussions on relevant historical topics. With these elements of competition and rewards, students will feel motivated to actively participate in history learning and achieve better academic performance (Aderoben & Darmawan, 2023).

Thus, gamified history learning media can be an effective tool in helping students understand the concept of Nusantara Insight through interactive, engaging, and in-depth history learning. By engaging students in challenging historical games and providing incentives, teachers can create a dynamic and motivating learning environment that allows students to gain a better

understanding of Indonesian history and its role in the regional and global geopolitical dynamics.

Method

The research method employed is the ADDIE development model, consisting of the Analyze, Design, Develop, Implement, and Evaluate stages (Smaldino et al., 2004). This study falls under the empirical research category as it involves measurement and analysis activities using statistical methods. The research stages include Analysis, Design, Development, Implementation, and Evaluation.

In the Analysis stage, there is an analysis of development needs, including an analysis of student characteristics, curriculum, and learning components. The Design stage involves structuring learning content, drafting the product, and designing evaluation instruments. Development involves the creation of the Djava Dvipa Boardgame product, which then becomes a prototype. The prototype is validated by media and subject matter experts.

The Implementation stage involves testing the use of the Djava Dvipa learning media with teachers and tenth-grade students at Satya Wacana Christian High School. During this stage, feedback on the use of learning media is collected from both teachers and students. The Evaluation stage is carried out to assess the product's quality, focusing on the improvement of historical learning abilities, especially regarding the Nusantara Insight.

The effectiveness of the product is measured by comparing post-test results with pre-test results using the quasi-experimental procedure (Creswell, 2012). Research subjects, tenth-grade students at Satya Wacana Christian High School, are divided into control and experimental groups. The control group uses conventional teaching materials and methods, while the experimental group uses the Djava Dvipa Boardgame.

Research instruments consist of media and subject matter expert validation questionnaires and an effectiveness questionnaire including pre-tests and post-tests. Data analysis is conducted using a quantitative approach and processed using the SPSS Statistics 20 software. The questionnaires are tested for validity and reliability using the Pearson Correlation formula and Cronbach's Alpha. Pre-test and post-test results are analyzed using paired sample t-tests.

Conclusion is drawn by formulating hypotheses. Two types of hypotheses are applied in this study: no significant influence in using the Djava Dvipa Boardgame on students' understanding improvement (H^0), and a significant influence in using the Djava Dvipa Boardgame on students' understanding improvement (H^1). If the paired sample t-test value is greater than 0.05,

H^0 is accepted and H^1 is rejected; conversely, if the value is less than 0.05, H^0 is rejected and H^1 is accepted.

Results and Discussion

Validity and reliability of the instrument

The instrument used in this study is a test instrument on knowledge Nusantara Insight. This instrument consists of 30 items. Validity and reliability testing were conducted on the 30 items through empirical testing. The data obtained through empirical testing were then re-evaluated using Pearson correlation technique to determine validity and Cronbach's alpha for reliability.

Table 1. Validity of Item

ITEM	R-VALUE	R-TABLE	NOTE	ITEM	R-VALUE	R-TABLE	NOTE
1	0,454	0,444	VALID	1	0,454	0,444	VALID
2	0,464	0,444	VALID	1	0,448	0,444	VALID
3	0,534	0,444	VALID	1	0,554	0,444	VALID
4	0,632	0,444	VALID	1	0,794	0,444	VALID
5	0,575	0,444	VALID	2	0,672	0,444	VALID
6	0,469	0,444	VALID	2	0,547	0,444	VALID
7	0,754	0,444	VALID	2	0,574	0,444	VALID
8	0,449	0,444	VALID	2	0,446	0,444	VALID
9	0,448	0,444	VALID	2	0,583	0,444	VALID
10	0,525	0,444	VALID	2	0,576	0,444	VALID
11	0,635	0,444	VALID	2	0,508	0,444	VALID
12	0,531	0,444	VALID	2	0,662	0,444	VALID
13	0,442	0,444	VALID	2	0,662	0,444	VALID
14	0,564	0,444	VALID	2	0,657	0,444	VALID
15	0,648	0,444	VALID	3	0,721	0,444	VALID

Based on the table above, after finding out that the critical (tabulated) correlation coefficient (r-table) is 0.444 (N=20), the comparison between the computed correlation coefficient (r-value) and the critical value suggests that all test items are deemed valid because the computed r-value is greater than the r-table.

Table 2. Reliability Test

Cronbach's Alpha	N of Items
.807	30

Based on the table of the testing results using the Cronbach alpha technique above, the coefficient of reliability is found to be 0.807. An instrument is considered reliable when the Cronbach alpha value is greater than 0.60. From this data, it can be concluded that the instrument is reliable since the Cronbach alpha value of 0.807 is greater than 0.60.

Prerequisite Test

Before testing the effectiveness of the product, prerequisite tests are conducted, including tests for normality and homogeneity of data.

Normality Test

The normality test is performed to assess whether the distribution of the test results follows a normal distribution before undergoing paired sample t-test (Usmadi, 2020). The technique used is the Kolmogorov-Smirnov technique, and the resulting data are as follows:

Table 3. Normality Test

Control	Sig. Kolmogorov-Smirnov	.557	.933
Experiment	Sig. Kolmogorov-Smirnov	.584	.559

The data distribution is considered normal if the significance value is greater than 0.05. From the table above, it is observed that the significance values for the pretest and posttest data in the control and experimental groups are 0.557, 0.933, 0.584, and 0.559. All of these values are greater than 0.05, indicating that the data distribution is considered normal.

Homogeneity Test and Paired Sample t-test

Homogeneity testing is a prerequisite before conducting a paired sample t-test to ensure that the obtained data is homogenous. The technique used is the Levene Statistic test (Usmadi, 2020). The data resulting from the homogeneity test is as follows:

Table 4. Homogeneity Test

Levene Statistic	df1	df2	Sig.
3.568	1	28	.069

In the Levene test, data is interpreted as homogenous if the significance value exceeds alpha, which is 0.05. Based on the table above, the significance value is 0.069, which is greater than alpha. Therefore, it can be concluded that the data distribution is homogenous.

Table 5. Paired Sample T test

Type	Sig.
Pre Test – Post Test	0,000

Table 6. Mean Measurement

Pair	Sig.
Pre Test – Post Test Control	40.667
Pre Test – Post Test Experiment	46.267

Based on the mean values in the table above, it is evident that the mean increase in test scores in the experimental group (46.267) is higher than in the control group (40.667). This indicates that the treatment administered to the experimental group has a more positive impact compared to the control group. Therefore, it can be concluded that the Djava Dvipa board game product has succeeded in enhancing students' knowledge of the Nusantara Insight. Based on the test results, it can be concluded that H^0 is rejected, and H^1 is accepted because the significance value (2-tailed) is 0.000, which is smaller than 0.050. The use of the Djava Dvipa board game is considered highly effective in improving students' knowledge of the Nusantara Insight.

The use of the Djava Dvipa Board Game can help students better understand the material. Learning through board games creates a more active and enjoyable learning environment. Post the COVID-19 pandemic, excessive reliance on digital technology in education has caused boredom for students (Cherubini, 2020). Therefore, a refresh is needed through innovative teaching methods so that students can experience learning involving physical activities and interpersonal interactions (Grek & Landri, 2021).

This research provides interesting results indicating that the use of the Djava Dvipa board game is effective in improving the understanding and awareness of high school students regarding Nusantara Insight. The findings indicate that students engaged in learning using this board game have a significant improvement in their understanding of Indonesia's geographical location, its significant role in regional geopolitics, cultural diversity, national history, and the global security challenges faced by Indonesia. This suggests that Djava Dvipa is not only an engaging and enjoyable learning tool but also effective in teaching important concepts about Nusantara Insight to students.

It is important to note that the success of using the Djava Dvipa board game in enhancing Nusantara Insight among high school students can be linked to the theory of gamification in history learning (Aderoben & Darmawan, 2023). The concept of gamification involves incorporating game elements into the learning context to enhance motivation, engagement, and student learning. In the context of using Djava Dvipa, elements such as challenges, competition, and rewards integrated into the game can increase students' interest in history learning and help them actively engage in understanding the concepts of Nusantara Insight. Furthermore, the

social interaction that occurs while playing board games can enrich learning by facilitating discussion and collaboration among students.

Conclusion

Based on the results of the discussion, it can be concluded that the educational board game media Djava Dvipa can enhance students' understanding of the Nusantara insight. This conclusion is based on the rejection of H0 and the acceptance of H1 because the paired sample t-test results show a significance of 0.000, which is smaller than 0.050. Thus, the research findings indicate that the use of the Djava Dvipa board game not only provides a fun learning experience for students but is also effective in improving their understanding and awareness of Nusantara Insight. Moreover, these findings support the concept of gamification in history learning as a relevant and beneficial approach to enhancing student learning in the context of complex historical concepts such as Nusantara Insight.

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