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Ap-Dama Design: Effectiveness on Test Performance of the Pupils in Araling Panlipunan

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Abstract

Araling Panlipunan is one of the difficult subjects nowadays due to its complexity. Learners tend to overlook it and classify it as a minor subject. AP-DAMA as a gamification tool may help learners to improve their test performance primarily in this subject. This research was carried out to determine the effectiveness of AP-DAMA design to the test performance of the learners in Araling Panlipunan. The research employed quasi-experimental design which was conducted for two (2) months and two (2) weeks done once (1) a week. The subjects were two hundred two (202) Grade V learners who were officially enrolled in H.N. Cahilsot Central Elementary School and Calumpang Elementary School, Barangay Calumpang, General Santos City during the school year 2018-2019. The researchers developed a thirty (30) item pre-test and post-test questionnaire, AP-DAMA game and ten (10) questionnaires for the game to collect data on the test performance of the learners. The study found out that the learners in the control and treatment group have a low level of test performance in Araling Panlipunan before the use of AP-DAMA as an intervention. There is also a significant improvement in the test performance of the treatment group after the use of AP-DAMA. No significant difference is observed in the test performance of the pupils in the control and experimental group before and after the AP-DAMA intervention. The data also revealed that the AP-DAMA significantly improved the test performance of the pupils in Araling Panlipunan. Hence, AP-DAMA is significantly effective in improving the test performance of the pupils in Araling Panlipunan. This study further recommended that Araling Panlipunan teachers and school administrators to check the results of this study for future developments in the test performances of the learners; research is needed to identify the effectiveness of AP-DAMA design as an intervention for increasing learning motivation, formative and summative assessments.

Keywords: AP-Dama, Test Performance, Araling Panlipunan, Gamification, H.N. Cahilsot Central Elementary School, Calumpang Elementary School

INTRODUCTION

Schools today have difficulties in teaching social studies. Teachers are at risk because inefficient instructional strategies resulted in low learner proficiency. Due to the inherent complexity and breadth of Social Studies, students encountered a variety of obstacles while learning the topic. Additionally, by rethinking how social studies are taught, we may be able to remedy the stated issue.

In a paper presented at the second World Conference on design, arts, and education, Kece (2013) discussed the difficulties associated with teaching Social Studies, or Araling Panlipunan. She claimed that teachers of the Araling Panlipunan subject are obligated to work toward achieving the goals of imparting to learners a grasp of the subject's material, concepts, skills, and value. However, some of them were unable to develop these desired abilities. The issue persisted throughout Guimba, Aguino, and Abbas's (2016) examination of learners' attitudes toward Araling Panlipunan at MSU-ILS. They discovered that some students do not believe Araling Panlipunan is a necessary subject because they struggle to understand when lecturers rely solely on textbooks and deliver lectures. Additionally, they stated that the teacher's approach to instruction has an effect on how children learn. According to their results, it is the learners' attitudes and the manner in which teachers provide instruction that affect whether or not learning objectives are met.

For several years at H.N. Cahilsot Central Elementary School, Araling Panlipunan remained a tough topic with a low academic increase based on the National Achievement Test (NAT). According to statistics gathered from children' academic achievement, Araling Panlipunan has consistently been the lowest performing subject, receiving just a 74 percent grade on the NAT out of a possible 100 percent competency norm. Additionally, if these statistics continued to influence pupils' exam results, it might create a chasm in the way the subject is taught. It is mentioned that academic goals were tough to attain in Araling Panlipunan. Pupils' test performance may occasionally deteriorate. As a result of this difficulty, which has existed for such a long length of time, the trend of Gamification emerges as a new hope for achieving goals in teaching Araling Panlipunan.

Gamification is a hot topic in education right now (Sandusky, 2015). It is lively and engages learners' motivation to learn Araling Panlipunan. As Kirkland and O'Riordan (2008) indicate, a game must be meticulously constructed in order to have a holistic impact on its audience, and Araling Panlipunan is an excellent subject to incorporate this concept. It is envisaged that developing novel games such as AP-DAMA will contribute to pupils' test performance improvement. This is corroborated by Treher's (2011) study, which concluded that use board games are effective at accommodating all types of groups due to their flexibility in adding or removing context, and have been utilized for a long period of time. She proposed expanding the use of board games. However, Lister (2015) noted that there is a dearth of research on the effect of gamification on learners' academic achievement. She found challenges evaluating the influence

of games in her research because previous studies did not consider their effect on academic performance.

Additionally, developing associated gamification tactics, such as board games that are active during education, would boost the learners' motivation. The updated DAMA game for Araling Panlipunan incorporates improvements that benefit from the incorporation of Benjamin Bloom's cognitive domain levels as well as features that promote collaboration among the learners.

Objectives of the Study

This study aimed to determine the effectiveness of using AP-DAMA in improving the test performance of the pupils in Araling Panlipunan.

Review of Related Literature

AP-DAMA as Gamification Strategy

Education has advanced significantly in the modern era to meet the expectations of society. Gamification is one of the most common ways to incorporate various philosophies into schooling. Teachers in the twenty-first century are stated to be equipped to integrate this type of concept. However, how effective is this method in terms of enhancing pupil learning in the modern era?

Playing has been shown to enhance pupils' motivation. This discovery results in the incorporation of games into a variety of sectors, including education. The benefits of this concept are now available to field teachers. Additionally, De Paz (2013) coined the term "gamification."

Gamification is defined as the application of game components and theories to non-gaming concepts with the goal of changing behavior and elevating its users (De Paz, 2013; Chou, 2017). Huang and Soman (2013) described gamification as an intervention that creates a sustained desire to accomplish more. Houtari and Hamari (2012) described gamification as the process of creating offerings that incorporate game-like experiences in order to meet design's holistic value. According to some scholars, it is the incorporation of game-like aspects into a non-game situation (Deterding, Dixon, Khaled, & Nacke, 2011; Gevisser, 2015 and Stott & Neustaedter, 2013). It can also be beneficial in terms of increasing instruction and pupil and teacher engagement in the field of education, according to Kim (2015), as mentioned by (Sandusky, 2015). Gamification of preparatory instruction, such as icebreakers, may aid learners in comprehending and connecting with the lecture. As a result, the likelihood of achieving the lesson's objectives increases.

There are two types of motivation in the realm of gamification: intrinsic motivation and extrinsic motivation (Muntean, 2011 as cited by Richter, Raban, & Rafaeli, 2015). Intrinsic motivation refers to a child's ability to continuously pursue his or her goals for a purpose, which may result in even deeper learning, whereas extrinsic motivation refers to behavior motivated by incentives or punishment (Malone, 1989). According to Sandusky (2015), kids engage in classroom activities out of intrinsic drive. It may, however, change to extrinsic motivation for the use of certain mechanics in the game.

Expectancy-Value Theory (EVT) posits that goal-directed behavior might lead to a pupil's anticipation that his effort will be rewarded similarly; this also influences the outcome and value of the work (Sheppered, 2001 as cited by Ritcher, et al. 2015).

Additionally, Personal Investment Theory, abbreviated as (PIT), incorporates social variables into the assessment of achievement motivation (Schilling & Hayashi, 2001 as cited by Ritcher, et al., 2015). According to them, PIT's meaning is connected to beliefs, perceptions, sentiments, objectives, and goals. Incentives are used in games to entice users to return.

The incorporation of games as a tactic has been shown to be helpful in accomplishing learning for children in a variety of educational topics (Hays, 2015). For many reasons, traditional teaching approaches frequently neglect the delight that motivated learners can experience. Teachers in the digital era can utilize games to enhance the effectiveness and engagement of their lessons. Elshemy (2017) stated in his study that gamification strategies also benefit in increasing pupil motivation. It enhances their contacts with other students, which results in improved academic performance.

According to the European Journal of Teacher Education Vol. 31 (2008), students demonstrated favorable behaviors toward Learner-RA by making it interesting, fun, involving, demanding, and relevant to the child's learning. Additionally, allow learners to construct their own methods of learning, such as through the use of games, so that they can improve their talents holistically in the twenty-first century.

According to the British Journal of Educational Technology (2016), when serious games are designed in a pleasant and engaging manner, they result in a more lively involvement of the learners' emotional, behavioral, and cognitive abilities, which results in success. This publication defined'serious games' as a form of gaming that is active and problem-solving. If we are to build a game that improves cognitive and affective domain connection, as well as psychomotor coordination, it must be enjoyable and engaging. These characteristics will eventually result in learners enjoying their chosen academic area of study. Petrovin (2014) further demonstrates that games are quite useful in the classroom; however, this should be conveyed explicitly to both kids and parents, as they were previously misunderstood as "waste of time."

Nowadays, board games are one of the most popular and simple activities that people play. These are well-known for their strategy, scoring, and necessity of thinking on the part of the players. Board games have permeated all spheres of education as a result of their enormous effect.

According to Viray (2016)'s study on the usefulness of board games as measured by academic performance, there was a substantial difference in academic achievement between the controlled and experimental groups. It was said that kids who engaged in learning through board games improved their academic performance. He emphasized that while board games are an effective tool for enhancing children' academic performance, teachers must develop innovative tactics for maximizing their students' potential, particularly academically. School heads must also be involved

in aiding teachers and assisting them in improving students' academic achievement through innovation and the creation of instructional resources. Additionally, he stated that additional research needs be undertaken in relation to his work.

The use of board games as an educational tool has grown over the centuries, especially since 1981, when Jesus L. Huenda, a Filipino math instructor, introduced the use of dama or "checkers" in arithmetic instruction. This idea earned him the distinction of being a presidential merit awardee the next year. Additionally, several researchers in the Philippines conducted investigations on the use of DAMATH and its effect on pupil learning results.

According to a study conducted by Obod (2013), DAMATH improves pupils' holistic interpersonal relationships with one another and also fosters mathematics consciousness in the family. Her study changed the DAMATH game to correspond to the grade level's lessons; she devised a more straightforward approach to the game and suggested some improvements.

Additionally, a study on activity-based teaching of integer concepts and operations employed games to determine the effect of games on lesson learning (Rubin, Marcelino, Mortel, and Lapinid, 2014). DAMATH was one of the games employed, and according to their conclusion, it improves academic achievement. It was discovered that children were driven to participate in groups in order to expand their knowledge through the use of math operations principles.

Following the success of DAMATH in the Philippine school system, a new method of incorporating the board game concept was discovered, which we now refer to as Sci-DAMA. This DAMA game utilized the checker concept to include several critical science disciplines or lessons. Huenda also created a unique form of board game with the goal of instilling environmental awareness in its players (Brago, 2010).

The two educational DAMA games mentioned previously were successful in their goal of increasing kids' motivation for improved test achievement in their respective disciplines. According to Brago (2010), DAMATH and Sci-DAMA require players to develop a combination of basic and higher order thinking skills. These higher-order thinking abilities are referred to as Taxonomy, which was developed by Benjamin Bloom and is still the most widely used classification system for learning levels in the educational industry. Additionally, if these educational DAMA games are successful in enhancing pupils' thinking abilities, there is a chance that employing DAMA as an educational game can help improve pupils' exam performance, particularly in Araling Panlipunan.

By modifying the DAMA game as a strategy for achieving more profound learning in Araling Panlipunan, the researchers developed a system that could assess the learners' cognitive domains in accordance with Benjamin Bloom's Taxonomy of Learning. Its purpose is to raise kids' mastery levels in preparation for increased test performance.

To gain a better understanding of the subject area, the Department of Education (2016) defined Araling Panlipunan as the study of individuals, groups, communities, societies, beliefs, and culture

with the goal of molding the Filipino people into observant, contemplative, responsible, productive, patriotic, and compassionate individuals. Thus, establishing the Filipino nation's basis through Araling Panlipunan and extending its technological medium through the use of gamification as a technique to foster a deeper spirit discovery of who we truly are.

As a result, the innovations included in AP-DAMA are projected to aid in the learning of Araling Panlipunan students. According to theories, gamification as a tactic boosts learners' motivation, which results in their acquisition of interest. Academic success demands learners to demonstrate interest in order to achieve favorable outcomes. Thus, AP-DAMA as a strategy will strengthen the foundation laid by Araling Panlipunan lessons, resulting in improved academic achievement.

Gamification, in general, is the incorporation of game-like aspects into non-gaming-related domains (De Paz, 2013). Upon building its foundation, gamification provides two classifications of motivation, the intrinsic (Inner) and extrinsic (outer), these motivations will help the main purpose of a child on things that they do. Either they expect something from the game (Expectancy-Value Theory) or purposely investing for their self-advantage (Personal Investment Theory). There are also researches that revealed results as gamification unleashes favorable behaviors among pupils. These favors were narrowed as the researchers found support to these ideas that board games are effective strategic tools as per Obod (2013) and Rubin et al. (2014). Thus, the accounts about the effectiveness of DAMA games might lead its way to improve the test performance in Araling Panlipunan.

Test Performance in Araling Panlipunan

Nowadays, some students struggle to understand Araling Panlipunan as a core topic that will help them for the rest of their lives. This state of perception on the part of the learners may have an effect on their ability to acquire the learning competencies associated with Araling Panlipunan.

According to certain studies, pupils are disinterested in learning Araling Panlipunan in certain circumstances. According to the Academic Journal for Social Studies (2013), variables contributing to students' low academic performance include their age, their habits for handling multiple choice issues, the complexity of their syllabus, health concerns, and a lack of material. Traditional teaching approaches such as expository teaching and tedious classes, attention distracters, repetitive exercises and questions, and a lack of desire all contribute to this. However, this journal proposed solutions to mitigate the effects of poor academic performance in Araling Panlipunan, including the following: creating a supportive and positive classroom environment, teachers being warm, appreciative, happy, calm, peaceful, and humorous, and students studying and preparing in advance. Positive reinforcement in the form of verbal and non-verbal praise is necessary for learners to get excellent marks, and the instructional instruction and activities should be entertaining. A new topic should be introduced on a regular basis, as should appropriate resources and examples of interests and activities. Thus, making a few adjustments to the method you teach and assisting students in deriving enjoyment from the session leads to motivation and successful learning.

Additionally, Oyibe and Ven (2015) concluded that teacher and student-related factors contribute to the learners' performance in Araling Panlipunan. They proposed that the government assist by providing instructional resources that aid in learning, that Araling Panlipunan teachers assist, and that learners develop a positive interest in the topic by considering its significance to the country's construction.

Yusuf (2005) posited that pupils' performance can improve when the teacher exposes them to a variety of collaborative instructional tactics. Cooperation in class was believed to encourage interaction, gender equality, and academic performance. He also advocated that teachers at Araling Panlipunan engage students in an educational style that fosters social interaction, self-motivation, active learning, and learning by doing.

According to the International Journal of Education and Development Vol. 4, (2016), there is a positive correlation between students' academic results and peer group impact in Araling Panlipunan. This bond ensures the pupils' academic achievement and also helps them escape the embarrassment associated with failure. Additionally, this study utilized qualitative data collection methods such as the Peer Group Assessment Questionnaire and the Social Studies Achievement Test.

Ganyaupfu (2013) concluded in his study that students benefit significantly more from performing their learning rather than memorizing and recalling information. Regular learning sessions with basic lectures from the teacher do not encourage involvement and do not focus on the lesson's objective of comprehension. He underlined that pupils will gain a better understanding if the teacher allows them to participate actively in class activities.

Okon and Archibong (2015) emphasized the importance of instructors resourcing their use of instructional materials when teaching Araling Panlipunan. These will assist learners in achieving superior academic performance in both Araling Panlipunan and other school topics. Additionally, a study conducted by Ogaga, Wallace, and Egbodo (2016) substantiated this concept. It has been proven that 80% of teachers and 73% of students prefer to further their education through the usage of suitable instructional resources when learning Araling Panlipunan. His research revealed that the usage of instructional materials has a broad effect on Araling Panlipunan learning and teaching.

Utilization of technology in education in a practical manner Araling Panlipunan has developed a more effective strategy than its conventional counterpart. Ilhan and Oruc (2016) noted the experimental group's effectiveness in comparison to the control group's utilization of multimedia techniques. These findings indicate that by incorporating multimedia techniques as new teaching materials, learning can engage a greater number of students in the process of knowledge growth. As a result, they recommended that teachers at Araling Panlipunan design and select tools that encourage successful learning.

According to a study conducted by Fan, Odidi, and James (2016), kids' academic performance improves significantly when they collaborate alongside their classmates. The study was done in Cross River State, Nigeria, and involved 160 secondary school students. The researcher conducted this investigation using two instruments. They will complete a Peer Group Influence Assessment Questionnaire in which they will score their peers on a scale of Strongly Agree to Strongly Disagree. Following that, a 50-item multiple choice questionnaire was administered in Araling Panlipunan.

Test questionnaires were the pioneers in determining a learner's success in a given subject or topic. The major metric used to assess the learners' degree of knowledge acquisition is their scores. Numerous studies referred to or defined test performance as the sum of the learners' test scores or the results of the exam Fan & Ji (2014), Wu & Lee (2017); Mandinach, Bridgeman, Laistusis, & Trapani (2005), Tracy (2013), Jordan & Lovett (2007), Salehi & Marefat (2014), Berk & Nanda (2006), Chen (2012), Xiao (2013), and NCTE (2014).

Danili and Reid (2006) stated that there may be certain factors affecting the pupils' performance. Several aspects to examine are the test's content and presentation. Additionally, the test's format and the kids' willingness to participate may be evaluated.

Certain students who take exams frequently develop anxiety as a result of stress and pressure (Orfus, 2008). Pupils who have taken tests frequently worry about passing or achieving high marks, which can result in learners achieving below-average results. As a result, teachers are urged to devise strategies that will aid learners in studying and understanding teachings in Araling Panlipunan that are included in the objectives the kids must attain (Ebagat, Dacanay & Simeon, 2016).

Constructing a test to assess the learners' mastery of a given aim simplifies the process of efficiently assessing the learners. However, presenting learners with a genuine and trustworthy test enables teachers to properly diagnose where they need to develop. Teachers in the twenty-first century must stick to the idea of inventing or experimenting with methods that will assist their students in mastering the teachings while remaining sensitive to the way the exam questions are constructed (Ebagat et al. 2016).

Additionally, when teaching Araling Panlipunan, teachers must make it as stimulating, enjoyable, and simple to learn as possible. By making it enjoyable, useful, energetic, and beneficial in approach, there should be a noticeable improvement in the academic performance of the kids at Araling Panlipunan.

Araling Panlipunan was identified as a subject in which students are disinterested in studying and is taught using a traditional technique. These difficulties that Araling Panlipunan subjects are currently experiencing are consistent with the notion that the level of exam performance of learners enrolled in this subject is at stake. School administrators, teachers, and other

stakeholders approach this issue in a way that promotes (Interest), collaboration (peer group), and learner-centered instruction (performing learning).

Effectiveness of Gamification

To increase exam performance in Araling Panlipunan, the new era of pedagogical instruction has devised an approach that is considered to be beneficial in unleashing the cognitive potential of the learners: Gamification. It is the application of game-like mechanisms and aspects to a non-game concept, as defined by Stott and Neustaedter (2013) and Capponetto, Earp, and Ott (2014). Generally, it is believed to promote student participation and motivation.

ABT (Active-Based Teaching) was found to have a positive effect on the learners' higher thinking skills. It was stated that incorporating literature into ABL (Active-Based Learning) is more effective at developing higher thinking skills. Additionally, a research was recommended to establish the relative effectiveness of ABT and to apply other fields of science to all grade levels. Araling Panlipunan's interests ranged widely, from literature to science. The employment of ABT is assumed to be a suitable strategy for improving learners' learning (Khan, Saeed, Muhammad, Khan, Ahmed, 2012).

According to Weltman (2007), increased usage of active learning and teaching increases Bloom's higher thinking skills among learners. However, it was recommended in his research that a future study be conducted to see whether active learning does indeed assist learners perform better on tests or quizzes.

Gamification in education has been reported to have the ability to increase learning if it is used and implemented appropriately (Dicheva, Dichev, Agre, Angelova, 2015). However, it was mentioned that additional empirical research is necessary to determine the motivational effects that games offer in educational situations, particularly for a certain type of learner.

Sailer, Hense, Mandl, and Klevers (2013) concluded that when viewed from a theoretical standpoint of Gamification, it had positive potential for increasing pupil motivation. Well-designed games indicated a link between motivational systems that are critical for laying the groundwork for some educational outcomes. The success of gamification from a theoretical standpoint supports the notion that it can increase pupil motivation and performance.

According to Meneses (2016), gamification was an effective method for improving learners' word recognition skills. There is a considerable difference in the capacities of Grade IV children before and after the game's intervention. This study has been supplemented by Rabosa (2016), who evaluated gamification as an intervention with Grade VI kids and reported that the pupils' word recognition skills had improved. Thus, if word recognition abilities have responded well to gamification, Araling Panlipunan may likewise be effective in applying it to this integrated subject.

According to Aluan (2017), providing game-based learning to Grade 6 mathematics students improves performance following the intervention of the activity. Additionally, he noted that employing this active method to imparting the lesson is an effective technique. The learners' enjoyable learning experience persisted, as Katmada, Mavridis, and Tsiatsos (2014) found that games were an enjoyable approach for learners to learn. They discovered that games improved learners' comprehension of the lesson, are simple and entertaining to use, may incorporate other innovations for improved learning, and are adaptable.

Although gamification was associated with game-based learning in schools, its objective is not just to transmit fun, learning, and motivation, but also to inspire affective transformation through its collaborative, artistic, and self-directed nature (Capponetto et al 2014). This creates a more conducive environment for holistic development for every learner who participates in activities at school that incorporate game-like aspects.

Leaderboards and badges are two game-like components that have been shown to have a substantial effect on learners' motivation (Huang & Hew, 2015). It was demonstrated that students in the treatment group participate in more difficulties than students in the control group, implying that the treatment group provides significant improvement in terms of short-term engagement and external scaffolding. However, Lister (2015) made a point about leader boards. He discovered that incorporating these features into games can incite competitiveness among learners, which some despise. Additionally, Huang and Hew (2015) and Lister (2015) proposed that additional study be conducted to validate the impacts of gamification and its importance for deeper learning.

Concerning the academic side, Kirkland and O'Riordan (2008) determined that games are an effective approach for students to review classroom teachings. Students perceive games as an interesting learning activity, and regardless of the type of game provided to students, the engaging aspect of the games was deemed crucial. Students that participated in Kirkland and O'Riordan's games performed significantly higher on average on exams, and they were reported to be more interested in the learning process. It has been asserted that the use of games did result in mood elevation and facilitated more activity, which boosts student morale.

In terms of assessment, Stott and Neustaedter (2013) have shown the benefit of gamification by establishing a link between gamified learning and formative evaluations. They discovered that the ability to fail portions of a game can effectively motivate pedagogical learning by increasing classroom engagement. Additionally, they conclude that gamification is an effective method of teaching.

Reichelt (2015) discussed the benefits of gamification in the classroom. The endeavor found a 20% rise in average quizzes and a 12% increase in test performance for non-honor students. Honor students had a 10% increase in quizzes and a 5% increase in test performance. Positive reinforcement through gamification, it was discovered, benefits non-honor students more than honor students, who are reported to be more self-motivated.

For a variety of reasons, the widespread usage of gamified components in education has resulted in relevant studies demonstrating the favorable consequence. The findings indicated that students reacted favourably to instructive card games. The learners achieved excellent scores and believed that the game was beneficial for subject learning. These efficient teaching strategies elicited a response from the learner, supporting them in acquiring knowledge. Additionally, game-based learning is said to pique learners' interest (Liu & Chen, 2013).

According to Treher (2011), gamification is an effective method of teaching students, particularly using board games. It was claimed to be an effective method of generating interest in a diverse collection of people and to be quite adaptable to everyone. Additionally, she stated that the use of board games may be increased in various ways. Similarly, the idea and concept of AP-DAMA seek to embody similar characteristics.

Though the trend of incorporating game-like features into education continued to grow, Lee and Hammer (2011) expressed concern that excessive usage of the concept could deplete teacher resources and drive learners to rely on extrinsic rewards. Despite acknowledging the success of some gamification research in education, they maintained their stance on gamified learning standards. They stated that games must be developed with caution and careful research. As a result, it suggests that perhaps gamification is not a guarantee of pleasure for educators worldwide.

Additionally, Lister (2015) made it difficult for him to conclude that gamification is a useful strategy for addressing some school-related issues, such as school activities. While there are studies demonstrating the usefulness of gamification, they do not adequately support all of the factors necessary to validate such conclusions. Additionally, he stated that additional research needs be undertaken to establish the impacts of gamification on learning. Through gamification, a new strategy to address the children' deteriorating test performance in Araling Panlipunan may be discovered sooner. According to related research, game-based learning improves academic achievement (Aluan, 2017), has the ability to accelerate learning (Dicheva et al., 2015), fosters motivation (Sailer et al., 2013), and is beneficial to learners (Katmada et al. 2014). Additionally, because gamification encompasses cognitive, psychomotor, and affective domains, it may serve the requirements of learners holistically. These objectives are supposed to be more efficiently accomplished because Kirkland and O'Riordan noted that games are a good technique for students to review their lessons; hence, AP-DAMA is meant to be intervened following instruction. Thus, the fear and ambiguity surrounding gamification encourage its researchers to conduct an AP-DAMA test to determine its effectiveness.

METHODOLOGY

This study employed a quasi-experimental design. The researchers created AP-DAMA, a fun and interactive game, to examine the influence of gamification, such as board games, on the test performance of pupils in Araling Panlipunan. This strategy was deemed appropriate in the study

by Bueno (2016) because it incorporates the use of some settings in which it is not possible to control all important factors.

The study took place in H.N. Cahilsot Central Elementary School and Calumpang Elementary School, both of which are located in Barangay Calumpang, General Santos City, Philippines. The researchers chose the aforementioned school because Araling Panlipunan has consistently been the lowest performing academic subject on the National Achievement Test for several years.

The subjects of this study used cluster sampling to identify subjects in two schools from all sections of Grade 5 who were officially enrolled during the 2018-2019 school year. Two classes from each school were randomly assigned to the control and treatment groups. The study enrolled a total of 202 people, 106 experimental subjects and 96 control subjects. The treatment and control groups were randomly assigned using a coin toss to determine who would utilize the proposed intervention and who would continue to use the old method.

The researcher created the AP-DAMA game, which was used as a post-lesson review tool. Following the instruction, participants played the AP-DAMA game, which has 24 Bloom's Taxonomy-based cognitive domain questions. A thirty (30) item questionnaire was also created to ascertain the influence of AP-DAMA on the Grade V children' test performance. The test questionnaire, which had a reliability coefficient of 0.77 and a validity coefficient of 4.36, was included in the first ten (10) classes of Araling Panlipunan's Curriculum Guide (K-12) during the third grading period. This was done to determine the effectiveness of AP-DAMA on the learners' test performance. Finally, the instructional tool (AP-DAMA Manual) was evaluated to confirm the instrument's reliability prior to use. Teachers at Araling Panlipunan were provided with an evaluation tool; it has an average rating of 0.94 for instructional material validation.

Prior to the data collection, a letter of authorization was given to the principals of H.N. Cahilsot Central Elementary School and Calumpang Elementary School. After the proposal was approved, the researchers conducted a randomization to select the control and treatment groups. Additionally, the study began by informing participants about AP-DAMA and the various ways in which it can be used. Parental agreement was obtained and respondents were assessed two days after submission.

The researchers described the aims, instructions, design, and mechanics of the AP-DAMA game to the learners during the actual implementation. The control and treatment groups were then given a 30-item test. Pupils took the test for 40 minutes, with researchers guiding them through the process. Following that, surveys were gathered.

The actual implementation took place over a period of two (2) months, with two (2) weeks of treatment administered once a week to the treatment group. The researchers conducted a post-test to learners in both the control and treatment groups after ten (10) days of implementation. Following that, the examination questionnaires were retrieved.

Additionally, all pre- and post-test results were organized and subjected to statistical analysis and interpretation. The percentage rate, frequency count, percentage mean, standard deviation, and t-test were employed to analyze the data. The percentage mean was utilized to determine the level of test performance in Araling Panlipunan.

The instrument's data were tabulated, processed, and interpreted appropriately. The study used t-tests to determine any possible difference between the data acquired from the subjects' pre-test and post-test result.

RESULTS AND DISCUSSION

Table 1 presents the pre-test performance of pupils in the control and treatment group before the intervention of AP-DAMA game in the classroom. In the control group, the data speaks that 3.13% of the learners have reached a highly mastered level of 8.33% of the learners have moderately mastered while 11.46% have less mastered the test performance. Thus, 77.03% have least mastered the test performance before AP-DAMA.
Moving to the treatment group, 0.94% of the learners have highly mastered the test performance, 0.94% also have moderately mastered the performance, 2.83% have less mastered the test performance and 95.28% have least mastered the test performance before AP-DAMA. Also, none (0%) of the learners in the control and treatment have reached the very highly mastered in the test performance scale. This gives us a sense that there really is a gap for the learners to improve their test performance.

Table 1. Pre-test Performance of the Pupils in Control and Treatment Group Before the AP-DAMA

PRETEST					
Indicator	**Control**		**Experimental**		**Interpretation**
	f	**%**	**F**	**%**	
90-100	0	0	0	0	Very Highly Mastered
85-89	3	3.13	1	0.94	Highly Mastered
80-84	8	8.33	1	0.94	Moderately Mastered
75-79	11	11.46	3	2.83	Less Mastered
Below 75	74	77.03	101	95.28	Least Mastered
Mean	**71.7069**		**70.2149**		**70.9609**
	Least Mastered		**Least Mastered**		**Least Mastered**

n=202

In general, the test performance of the learners in the control and treatment group before the AP-DAMA gamification garnered a weight mean of 71.70% and 70.21% respectively and described as least mastered. This implies that the pupils in both the control and treatment group have a low level of test performance in Araling Panlipunan. This means that the percentage mean

score in the pre-test of the treatment group should improve for the AP-DAMA design to become significant.

The result gathered is supported by the data on the performance of the Grade VI in the school year 2011-2014 NAT result. General Santos City had only 72.77 mean percentage score in the time frame of three (3) years. Generally, SOCSKSARGEN had only 71.62% mean percentage score in the given NAT result. EPFL (2018) stated that one of the internal struggles that the learners face while taking exams is facing and answering it unprepared. Learners in the other hand took the pre-tests without any sufficient preparations which now explain the data that reflects the low level of test mastery of the subjects.

Table 2. Post-test Performance of the Pupils in Control and Treatment Group After the AP-DAMA

POST-TEST					
Indicator	**Control**		**Experimental**		**Interpretation**
	f	**%**	**F**	**%**	
90-100	0	0	0	0	Very Highly Mastered
85-89	3	3.13	1	0.94	Highly Mastered
80-84	8	8.33	4	3.77	Moderately Mastered
75-79	15	15.63	10	9.43	Less Mastered
Below 75	70	72.92	91	85.85	Least Mastered
Mean	**71.8452**		**71.4028**		**71.6240**
	Least Mastered		**Least Mastered**		**Least Mastered**

n = 202

Table 2 presents the performance of the learners in the control and treatment group after the AP-DAMA design was integrated into Araling Panlipunan V.

The gathered data show that AP-DAMA as a board game helped in generating modest improvement in the mean percentage score of the pupils after the intervention. In the treatment group, 0.94% of the learners have reached highly mastered level. 3.77% obtained moderately mastered level while 9.43% are in less mastered level. 85.85% of the learners had still least mastered the test performance. It is also noticeable that none (0%) of the pupils reached very highly mastered in their test performance.

In the control group, the data speaks that there are almost no improvements in the test performance of the learners. The above-mentioned data revealed that only 3.13% of the learners have highly mastered test performance, 8.33% have moderately mastered test performance, 15.63% have less mastered test performance while 72.92% has least mastered test performance. None (0%) of the learners in the control have reached the highly mastered test performance.

In general, the result of the test performance of the learners in the control group after the AP-DAMA gamification garnered a weight mean of 71.84% while treatment garnered a weight mean of 70.40% respectively and also described as least mastered. However, there are significant improvements in the mean percentage score of the treatment group in their pre-test and post-test performance.

This result is supported in the study conducted by Viray (2016) that deals on the effectiveness of board games by measuring it through academic performance revealed that there had been a significant difference between the academic performance of a controlled and experimental group. Weltman (2007) also stressed that greater use of active learning and teaching promotes higher thinking skills to the learners. However, according to Nakada (2017), where she discovered that gamified lecture courses only improve learner evaluations but not in their exams and that explains why there is only a limited increase in the test performance from the subjects. Hence, with such test results, it is still tolerable to assume the effectiveness of AP-DAMA as a gamified tool.

Table 3. Difference in the test performance of the pupils in the experimental and control group before and after the AP-DAMA intervention

	Pre Test	**Post Test**
Control Group	13.826 (4.708)	13.957 (4.746)
Experimental Group	12.620 (3.210)	14.109 (3.256)
t-computed	-2.031	0.254
p-value	0.044	0.800
Remarks	Not Significant	Not Significant

n = 202

Table 3 presents the significant difference in the test performance of the control group and the experimental group before and after the AP-DAMA.

The analysis revealed that there is no significant difference in the test performance of the control and experimental group before the AP-DAMA intervention. The computed value of t -2.031 with the p-value of 0.044 indicated that there is no significant difference in the performance of the pupils before the intervention. After the intervention, the computed t-value 0.254 with a p-value of 0.800 indicates no significant difference in the test performance of the pupils in Araling Panlipunan after the intervention.

The result implies that the test performance of the pupils in the control and treatment groups before and after the intervention is similar. This means that the control and experimental groups have close test performance with each other.

The result of the study corroborates with the findings of Navarro, Rubio, and Olivares (2015) that learners with close age brackets tend to have closer academic performance compared to their counterpart age brackets. Wyle (2007) revealed that consistency in the level of competency development is observed between the ages 8 to 16 years old. Through these discoveries, we can conclude that the level of test performance among the grade five learners is normal and tolerable.

Furthermore, the use of AP-DAMA towards the achievement of the test performance of the control and experimental group is observed to be not significant. As the research employed and emphasized higher-order thinking skills created and identified by Benjamin Bloom.

Table 4. Significant improvements on test performance in Araling Panlipunan

	Control	**Experimental**
Pre-test	13.826 (4.708)	12.620 (3.256)
Post-test	13.957 (4.746)	14.109 (3.256)
t-computed	0.375	5.292
p-value	0.708	0.000
Remarks	Not Significant	Significant

n = 202

Table 4 presents the significant difference between the test performance of the pupils in control and experimental groups. Pupils in the control group before and after intervention have scored with a computed value of 0.375 with a p-value of 0.708. This result indicates no significant difference in the test performance of the pupils before intervention at 0.01 level of significance. In the experimental group, on the other hand, scores of the pupils before and after the intervention have a computed t-value of 5.292 with the p-value of 0.000. This result suggests that there is a significant difference in the test performance of the pupils exposed to AP-DAMA intervention.

The result implies that there is no significant improvement in the test performance of the pupils in the control group while significant improvement in the test performance of the pupils is reflected in the treatment group. This result further implies that AP-DAMA significantly contributed to the improvement of the test performance of the pupils.

The result complements with findings of many gamification studies which revealed that games contribute to the improvement of the performance of the pupils. For instance, a study conducted by Aluan (2017) yielded an increase in the performance of the learners after the conduct of their gamified intervention. Another study supports this result with findings yielded that a significant increase in the quiz results of the non-honor learners was observed after being exposed to

gamified strategies (Reichelt, 2015). Increased cognitive performance was also observed by Fan et. al. (2016) when learners were given opportunities to play with their peers.

Table 5. Difference between the mean gain scores of the control and experimental group

	Mean	**SD**	**t-value**	**p-value**	**Remarks**
Control Group	0.130	3.336	3.037	0.003	Significant
Experimental Group	1.489	2.699			

n = 202

Table 5 presents the significant difference between the mean gained scores of the control and experimental group. The mean gained scores of the control group is 0.130 while the experimental group has 1.489 which indicates that the experimental group has a higher mean gained score compared to the control group. The t-test analysis revealed that the computed t-value is 3.037 with a p-value of 0.003 which means that there is a significant difference in the mean gained scores of the control and experimental group.

The result implies that the AP-DAMA board game intervention is significantly effective in improving the test performance of the pupils in Araling Panlipunan. Initially, the test performance of the pupils in the control group is better than the treatment however; after the intervention, improvement in the test scores of the pupils is evident. This means that the significant difference between the mean gained scores of the pupils in the control group can be attributed to the AP-DAMA. The game may have helped the pupils retain the content of the courses taught to them. AP-DAMA, being a gamified review strategy helped increased the test performance of the learners in Araling Panlipunan.

The findings are supported by the study of Medved (2015) that 80% of the respondents expressed that gamification improved their performance in terms of retaining of the course content and 74% noted that they experienced betterment in their scores and assignments.

Also, several explanations could be drawn through the studies of Kirkland and O'Riordan (2008) where that concluded that using games is an effective way to help the students in reviewing their lessons taught in class. Stott and Neustaedter (2013) also identified the advantage of gamification by expressing the connection of gamified learning on formative assessments and scaffold learning.

CONCLUSIONS

Based on the findings of this study, the following conclusions were made:

1. The learners in the control and treatment group have a low level of test performance in Araling Panlipunan before the use of AP-DAMA as an intervention.
2. There is a significant improvement in the test performance of the treatment group after the use of AP-DAMA as an intervention.
3. There is no significant difference in the test performance of the pupils in the control and experimental group before and after the AP-DAMA intervention.

4. AP-DAMA significantly improved the test performance of the pupils in Araling Panlipunan.
5. AP-DAMA is significantly effective in improving the test performance of the pupils in Araling Panlipunan.

RECOMMENDATIONS

Based on the findings and conclusions, the following are recommended:

1. School administrators should actively support future developments in gamified strategies to help improve the test performance of the learners in various subject areas.

2. Araling Panlipunan teachers should consider the results of this study as it will help them identify the root causes on the trend that pertains to the low-performance level of the learners in the subject.

3. Further research is needed to identify the effectiveness of AP-DAMA design as an intervention for increasing learning motivation, formative and summative assessments.

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