COLLEGE STUDENTS' ATTITUDE TOWARDS PLAYING DEFENSE OF THE ANCIENTS (DOTA 1) AND THEIR TRIGONOMETRY PROFICIENCIES

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ABSTRACT

Engrossing in playing Defense of the Ancients (DOTA 1) has become a huge dilemma to the society. The popularity of the said game is at its peak, that even some students were reported to have flunked in school due to negligence from the academic responsibilities. With the increasing prevalence of the impact of playing DOTA 1, learners in schools need to increase their literacy and proficiency in any subject area particularly in Mathematics. This quantitative- qualitative method research design aimed to determine the relationship between College Students' attitude towards playing DOTA 1 and their Trigonometry proficiencies. These researcher-made questionnaire and actual interviews (AI) were used to determine the level and views of College Students' attitude towards playing DOTA and Trigonometry proficiencies. The weighted mean, Pearson r and standard deviation were the statistical tools used in this study. The results of the gathered data revealed that the level of attitude of the college students towards playing DOTA 1 is High and the level of trigonometry proficiencies of the college students is Good. Furthermore, there is a significant relationship between college students' attitude towards playing DOTA 1 and trigonometry proficiencies. On the other hand, the students' views with respect to the effects of playing DOTA 1 and their trigonometry proficiencies are established with more effective and positive remarks. They added that playing DOTA 1 has positive improvements towards their factual learning, learning behaviors, and most especially, changes in personality.

KEYWORDS: *College Students' Attitude, Playing DOTA 1, Trigonometry Proficiencies, Correlation, Philippines*

INTRODUCTION

It is a common notion to most adults that a number of children, some are even students, are most likely engrossed in playing computer games, of all sorts, than playing physical sports and games outside. Also, access to such virtual games are now made very easy by the sprouting industry of cheap tables, computers, cell phones, and venues that cater them such as computer shops, so playing often could always be a possibility. One of these famous, captivating and easily accessible game is Defense of the Ancients (DOTA 1). Although playing may seem harmless, it became a huge dilemma to the society. These past few years where the popularity of the said game is at its peak, some students were reported to have flunked in school just because of spending too much time in playing it. Reasons may vary as to why they do, but it is relevant enough to use the internet cafes during class hours, to deal with it.

Playing video games is often associated in our society with poor academic performance particularly in Mathematics area. This anecdotal idea is supported by some research. Anderson & Dill (2000) found out in their study a negative correlation between General Percentage Average (GPA) and time spent playing DOTA 1. The correlation was relatively small. Time alone accounted for a 4% variance in GPA, yet the findings are significant. On the other hand, other research findings reviewed by the researcher lead to the added conclusion that video game effects are complex and are better understood in terms of multiple dimensions rather than only in the harmful aspect. Positive effects of playing DOTA 1 towards Mathematics proficiency have been demonstrated in a wide range of domains. Some of these effects are it lessens inhibition in any performed tasks and activities, it changes learners' way of activating their prior knowledge since they are trained by the processes of the game to be motivated and it increases solving problem skills through various methods and processes cope by the learner towards playing the game (Oswald, 2010).

With this, the study provides learners the provision and pursuit of the importance of good management between playing DOTA 1 and proficiencies in trigonometry. Thus, the results and findings of the study positively reinforce the college student's attitude in playing DOTA 1 which could require social evaluation among learners in their active involvement to enhance and attain better proficiency in trigonometry.

Objectives

The study determined the college students' attitude towards playing Defense of the Ancients (DOTA 1) and their trigonometry proficiencies.

1. Determine the level of attitude of the college students towards playing DOTA 1 in terms of the following indicators:
   1.1 Factual Learning;
   1.2 Learning Behaviors; and
   1.3 Changes in Personality.

2. Determine the level of trigonometry proficiencies of the college students in terms of:
   2.1 Quizzes;
   2.2 Task performance; and
   2.3 Examination.

3. Identify the significance between college students' attitude towards playing Defense of the Ancients (DOTA 1) and their trigonometry proficiencies.

4. Identify the students' views with respect to the effects of playing Defense of the Ancients (DOTA1) and their trigonometry proficiencies.

Theoretical Framework

The study is anchored to Bandura's Social Cognitive Theory. This theory encompasses learning as a persisting change in human performance or performance potential as a result of the learner's interaction with the environment. In addition, he clarified learning as an enduring change in behavior, or in the capacity to behave in a given way, which results from practice or other forms of experience.

The study emphasizes the college student's attitude towards playing DOTA 1 which was linked by Bandura's Social Cognitive Theory which highlights that the performance and proficiency of the students in an academic aspect is affected through simple observation and imitation of experiences seen in the virtual situations from playing DOTA 1.

Personal variables that may influence people's ability to learn from video games, include many variables that are relevant to learning in general: age, grade, ability level, income level, and self-esteem (Smyth, 2007). Other variables that may influence people's ability to learn from video games include variables that are more specifically relevant to video games, including an individual's history of media exposure and how much a person's comprehension of information is affected by the surrounding field of information (Standenet, 2006).

On the other hand, outcomes of playing video games include learning facts, from drill and practice routine, learning specific behaviors and generating personality changes that occur when a person's habitual thoughts and behavior patterns begin to change.

Factual learning. Social Cognitive Learning Theory (SCLT) mentions efficacy beliefs that affect whether individuals think optimistically or pessimistically, in self- enhancing or self-debilitating ways. They play a central role in the self-regulation of motivation through goal challenges and outcome. On this regard self-efficacy lies at the center of SCLT and shows that beliefs about one's ability or capacity to execute a behavior successfully. Moreover, it clarifies that people tend to engage in activities based on their senses of competence and/or past success. Playing DOTA 1 reveals faster visual reaction times and this enhances target localization and mental rotation among learners (Green & Bavelier, 2003). Studies have shown that through playing this game, it improves spatial attention and mental rotation that consider elevation of the visual-spatial skills.

Learning Behaviors. Central to SCLT is the idea that people are capable of regulating their thoughts, emotions, motivation, and actions. Self-regulation refers to the process in which people control and direct their actions. It conceives of the individual as being goal-directed and actively involved in developing functional patterns of thinking and behaving in response to environmental conditions in order to attain personal goals. Effective self-regulation is a cyclical process in which performers actively monitor the performance environment,

develop functional task strategies, skilfully implements those plans, and monitor the results (Chan & Rabinowitz, 2006). Self-regulation is considered when an individual has his own ideas about what is appropriate or inappropriate behavior and chooses actions accordingly (Cordes & Miller, 2000).

Changes in Personality. Personality results from the development and construction of knowledge structure. Influences biological factors, but are primarily based on life experiences. The outcome of appraisal and decision processes depend on a person's available attention.

According to components of Social Cognitive Learning Theory, there are multiple ways that children are socialize to worry about their academics. Originally, Anderson used this theory to study children's aggression but since it has been used to examine a variety of behaviors and phenomena within human development, psychology, criminology, etc. The theory states that people, especially children, learn their behaviors as a result of those that are modelled to them and through the instructions given to them. By observing those around them and navigating the interplay of positive and negative reinforcements they learn how to behave as expected (Bandura, 1977). Applying Social Learning Theory to the development of children's academic anxieties, it can be expected that parents engage in direct instruction and modelling strategies both intentionally and unintentionally in shaping their child's levels of academic anxiety. It is very important to note that some strategies might be carried out entirely unconsciously as the parents don't even realize what they're doing and how they might be influencing their child.

Anderson cited the significance of family as the first social institution of a child's socialization (Cordes & Miller, 2000) this issue has great significance internally for the entire family as well as externally to peers, teachers, school administrators, etc. who interact with the children and their families in a school context. Recognizing degrees of anxiety will allow for everyone to be mindful of its influence and can potentially help foster the development of successful stress management techniques. Parents will also learn of the ways in which they can be positive influences to their children's academic careers. Teachers, guidance counsellors, etc. will also find this information useful in their work with both children and adults. As heightened levels of academic anxiety cause of poor performance as well as issues related to self-esteem, perception of evaluation, defensiveness, etc. this information is especially critical (Crater, 2009).
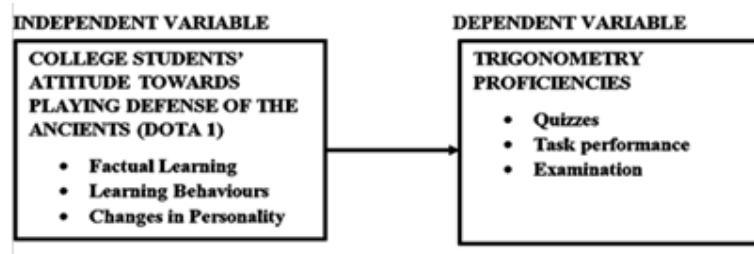
Moreover, playing DOTA 1 results in some aggressive tendencies that may occur within the academic performances of the learners (Cesarone, 2001). This indicates that social evaluation and coordination of most of the learners may alleviate which in turn affects the performance and proficiency of the learners in Mathematics.

Conceptual Framework

The conceptual framework in Figure 1 shows the relationship between the independent variable and dependent variables. The independent variable in this study is the college students' attitude towards playing DOTA 1. Indicators are the following: Factual learning, Learning behaviors, and changes in personality. Factual learning refers to the focus on drills and practice routines to enhance learning of specific, concrete facts (Bensley & Van, 2001). This refers to the processes of learners' decision-making tactics particularly their practices and motivations to solve problems and the management of their active participation in class. Learning Behavior pertains to the core of the processes of their interpersonal skills. In addition, this emphasizes the relativeness of their attention in doing tasks and activities. Moreover, Changes in personality refers to the behavior that may alter or change for the development or digress of one's personality (Craton, 2011). This highlights the influences of their mood and emotion during the teaching-learning experience. It further tackles the intended influences that may transform ways of thinking and feeling at some moments and time. This also encompasses the measures of the tolerance that they feel towards the learning experience which registers pleasant or unpleasant behaviors that affect personality.

On the other hand, the dependent variable of the study is the proficiency of students in trigonometry. Indicators are the following: quizzes, task performance, and examination. According to Craton (2011), quiz refers to the results of the processes of evaluating the effectiveness of sequences of instructional activities when the sequence was completed. Furthermore, it establishes the purpose of the intended tasks and activities in class. On the other hand, task performance refers to the performed activities that contribute to the implementation of the teaching and learning processes (Bavelier, 2003). It is any learning activity or

assessment that asks students to perform to demonstrate their knowledge, understanding and proficiency. This yields a tangible product and/or performance that serve as evidence of learning. Moreover, examination pertains to a formal test of a person's knowledge or proficiency in a particular subject or skill (Ahrad, 2017). In addition, this is a comprehensive assessment that accesses examinee's knowledge on Trigonometry's contents that refer to the three (3) components such as: quizzes, task performance, and examination.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
COLLEGE STUDENTS' ATTITUDE TOWARDS PLAYING DEFENSE OF THE ANCIENTS (DOTA 1) • **Factual Learning** • **Learning Behaviours** • **Changes in Personality**	**TRIGONOMETRY PROFICIENCIES** • **Quizzes** • **Task performance** • **Examination**

Figure 1: Conceptual Paradigm of the Study

METHODOLOGY

This part presented the method used in this undertaking. This includes the following: Research Design, Research Locale, Research Respondents, Research Instrument, and Ethical Considerations.

Research Design

This research study utilized qualitative and quantitative methods. Moreover, the study used a descriptive-correlation method in securing data to come up with the accurate result of the study. A descriptive-correlation study is a research method that describes and predicts how variables are naturally related in the real world, without any attempt by the researcher to alter them or assign causation between them (Anand, 2007).

This descriptive research is described, explained and interpreted conditions of the present i.e. "what is'. Such research design is applied in this research study to acquire an overview for the purpose of more comprehensive responses on the students' engagement in DOTA 1 and their proficiency in Trigonometry.

Moreover, qualitative method used to uncover trends in thought and opinions, and dive deeper into the problem. Qualitative data collection methods vary using unstructured or semi-structured techniques. The researcher utilized this technique through some common methods include focus groups (group discussions), actual interviews (AI), and participation/observations to determine the effects of playing DOTA 1 and their trigonometry proficiencies.

The employment of this qualitative method maps out an approach to problem-finding or problem-solving on the matter of college students' attitude towards playing Defense of the Ancients (DOTA 1). The process was a comprehensive strategy that silhouettes our college learners' choices and views towards the issue.

Research Locale

The study was conducted in Maragusan and Montevista Campus of Compostela Valley State College (CVSC), Compostela Valley Province, Philippines.

Research Respondents

The respondents of the study were thirty-one (31) students from the campus of Maragusan and Montevista of Compostela Valley State College (CVSC). There were fourteen (14) respondents from Maragusan and seventeen (17) respondents from Montevista.

The selection of respondents determined through a purposive sampling technique. Purposive sampling technique focuses of all the participants who are playing DOTA 1 and currently enrolled in trigonometry in the school year 2017 – 2018, second semester in Compostela Valley State College, Maragusan and Montevista.

Research Instrument

The instrument utilized in this study was a researcher-made questionnaire. This was the main tool that used in gathering the data to describe the attitude of the students who are playing DOTA 1. The tool was designed according to the variables reflected in this study.

The researcher-made survey questionnaire has already been subjected to content validation by the three experts from different universities. The validation results were gathered and computed before the said questionnaire was distributed to non-respondents for pilot testing. The survey questionnaire has undergone validation with the mean result of 2.76 which interpreted as Fair in the indicated scale and has a Cronbach's alpha of 0.986 and Cronbach's alpha based on standardized items of 0.987 which made it reliable with 25 items all in all.

Ethical Considerations

As aligned to the ethical standards in every research, this study specified and cycled the three fundamental moral standards relevant to the ethics of research involving human subjects: the principles of respect of persons, beneficence and justice.

The students who were presented as respondents were included in the gathering of information for this study. They were treated with the highest respect. They were likewise made mindful that they may withdraw their inclusion whenever with no interest for clarification. If there would be inconvenience that they may feel during the testing of the matter, they may inform the researcher about their concerns. The researcher valued their participation and placed their welfare as the researchers' highest priority during the course of the study. Likewise, privacy and confidentiality of the respondents were ensured. No individual information gathered from them and their names excluded to safeguard their identities so they took that they participated without any fear that their involvement in the study may be revealed.

The researcher explained the objectives and significance of the study before the respondents answer the questionnaire. The data collection through qualitative and quantitative survey, the group discussion and individual interview applied.

Beneficence was also an ethical standard that the researcher observed in protecting the respondents from any harm. The researchers ensured that the questionnaires utilized do not contain any degrading, discriminating or any unacceptable language that could be offensive to any of the respondents.

To promote justice, respondents fully informed about the objectives of the study before involving them in the data collection process. They were mindful that the outcomes could advantage them as well as different learners, the school, and the general public by and large.

Lastly, the researcher reviewed the measures that he followed to assure that the rights and safety of the respondents of the study was considered.

RESULTS AND DISCUSSION

This part deals mainly with the presentation, analysis, and interpretation of the results of the study on College students' attitude towards playing Defense of the Ancients (DOTA 1) and their trigonometry proficiencies.

6.1 Level of Attitude of the College Students towards Playing Defense of the Ancients (DOTA 1)

Table 1 reveals that changes in personality is the highest level of attitude of the college students toward playing DOTA 1 with a descriptive level of High and this considers that playing DOTA 1 is often perceived positively

with an average mean of 3.57. This claims that playing DOTA 1 has resulted to aggressive tendencies among learners that may be a nuisance towards given performances and proficiencies in learning trigonometry. This implies that students exhibited good changes in personality brought about by playing DOTA 1. Thus, this means that students made use of the positive impact and effects of playing DOTA that influences the mood towards learning processes.

Consequently, results indicate that factual learning is descriptively rated as High with its mean score of 3.48 with the standard deviation of 0.61 which implies that by the influence of the virtual game, students improve their abilities in decision making and that it enhances the way they think to solve a problem in the subject. Furthermore, it has brought positive impact on their activeness in participating tasks and activities within the duration of the discussion.

However, the data likewise show that learning behaviors, gain the lowest level of attitude of the college students toward playing DOTA 1 with a descriptive level of Moderate and which implies that playing DOTA 1 is sometimes perceived positively with a mean of 3.35 with the standard deviation of 0.59. This means that playing DOTA gives a lot of enthusiasm, moreover, it elevates inattention to doing tasks and activities in the classroom and employs aggressive attitudes towards learning new ideas in trigonometry.

Moreover, the over-all level of attitude of the college students toward playing DOTA 1 in terms of factual learning, learning behaviors, and changes in personality implies that playing DOTA 1 is often perceived positively with a mean of 3.47 and the descriptive level of High.

The results show that the level of attitude of the college students toward playing DOTA 1 is considered heterogeneous since the over-all Standard Deviation is 0.55. This means that the answers of the students in playing DOTA 1 assessment vary.

The findings illustrate that playing DOTA 1 brings a positive attitude towards learners since the over-all mean achieved the High level. This is supported by Hew & Cheung (2010) that students' performed better when some form of guidance was provided even in practice mode compared to those where there was no guidance provided. Furthermore, Hughes (2014) stated that playing virtual games could effectively provide a good sense of analysis and enhance quick thinking and coordination.

Locally, the below claim is also supported by the study of Sulit (2012) which stated that through playing DOTA 1, students are building new mathematical knowledge through problem solving. In addition, the game positively stimulates learners' perception of learning.

Table 1: Level of attitude of the college students towards playing DOTA 1

Attitude	Mean	SD	Descriptive Level
Factual Learning	3.48	0.61	High
Learning Behavior	3.35	0.59	Moderate
Changes in Personality	3.57	0.61	High
Overall	3.47	0.55	HIGH

6.2 Level of Trigonometry Proficiencies of the Students

Table 2 implies that task performance is the highest level of trigonometry proficiencies of the students with a descriptive level of Very Good and this emphasizes that the students are able to exhibit their knowledge in almost of the teachers' assigned tasks in trigonometry with an average mean of 4.16. On the other hand, quizzes reveal to obtain the mean score of 3.68 which implies that this level of trigonometry proficiency is highly impacted by the students' attitude towards playing DOTA 1 which has resulted to effectiveness. This highlights that students cope with the struggles of tasks and activities in the classroom. Thus, this means that students acquire good retention of skills learned during instruction.

However, the data likewise show that examination gains the lowest level of trigonometry proficiency of the college students with a descriptive level of Fair and which implies that the students are able to exhibit their knowledge in few of the teachers' assigned tasks in trigonometry with a mean of 3.35. This means that students do not make many connections through what they had learned in class and the problem in front of them, however, students need the ability to use unique ways of coming up with solutions in every assessment.

Moreover, the over-all level of trigonometry proficiencies of students in terms of quizzes, task performance, and examination indicates that the students are able to exhibit their knowledge in some of the teachers' assigned tasks in trigonometry with a mean of 3.70 or a descriptive level of Good. These findings are highly affirmed by the following studies wherein as according to Craton (2011), quiz refers to the results of the processes of evaluating the effectiveness of sequences of instructional activities when the sequence was completed. Furthermore, it establishes the purpose of the intended tasks and activities in class. On the other hand, task performance refers to the performed activities that contributes to the implementation of the teaching and learning processes (Bavelier, 2003). It is any learning activity or assessment that asks students to perform to demonstrate their knowledge, understanding and proficiency. This yields a tangible product and/or performance that serves as evidence of learning. Moreover, examination pertains to a formal test of a person's knowledge or proficiency in a particular subject or skill (Ahrad, 2017).

The results show that the level of trigonometry proficiencies of students has been considered heterogeneous since the over-all Standard Deviation is 0.58. This means that the level of trigonometry proficiencies of students vary.

Table 2: Level of trigonometry proficiencies of the students

Level of trigonometry proficiencies	Range of the percentage of grades	Range of the grades (66-100)	Mean	SD	Descriptive Level
Quizzes (30%)	26.04	86.79	3.68	0.90	Good
Task performance (30%)	27.52	91.72	4.16	0.75	Very Good
Examination (40%)	33.45	83.63	3.35	0.62	Fair
Over-all	87.01	87.01	3.70	0.58	Good

6.3 Relationship between College Students' Attitude towards Playing (DOTA 1) and their Trigonometry Proficiencies

Table 3 reveals that there is a significant relationship between college students' attitude towards playing Defense of the Ancients (DOTA 1) and their trigonometry proficiencies with the p-value of 0.025 and describing overall r value of 0.401 indicated to be direct, moderate, and significant where in the college students' attitude towards playing DOTA 1 increases as their trigonometry proficiencies also increases. The results are supported by Bandura's Social Cognitive Theory that indicates that performance and proficiency of the students is impacted

through observation and mimicking of experiences. Thus, this study also claimed by Anderson & Dill (2000) who stated that people can learn behaviors through observation and that by observing and performing behaviors, people are also learning scripts overall, people's behavior is guided by learning, internalizing and applying scripts.

Table 3: Test of significant relationship between college students' attitude towards playing DOTA 1 and their trigonometry proficiencies

Attitude	Trigonometry Proficiencies	r	Sig (p-value)	Remarks
College students' attitude towards Playing DOTA 1	Trigonometry proficiencies	0.401	0.025	Significant

6.4 Effects of Playing Defense of the Ancients (DOTA 1) and their Trigonometry Proficiencies

Table 4 results reveal that 85% who illustrate that there are favorable effects of playing DOTA 1 among the respondents. These are to improve techniques in solving problems, develop abilities, develop critical thinking skills, improve good decision making and accuracy, calculate areas, analyze the situation and teamwork and cooperation.
In addition, students notified that playing DOTA 1 influences their ways of thinking about multiple ideas at a given time to solve problems in trigonometry and it employs social responsibility that solidifies good teamwork and cooperation. Furthermore, learners stated that playing DOTA 1 improves their proficiencies in trigonometry by activating their processes of thinking and enhancing the ways they think to solve problems. The game encourages their active participation in tasks and activities.

However, college students stated negative effects of playing DOTA 1 that lead to their low proficiencies in trigonometry. These are no time management, elevates hostile mood, become addict and lazy, trash talking (quick anger) and get low grades. Further, one of the mentioned disadvantages is it becomes a nuisance during study time and time would not be well- managed in that effect. A few of the students have mentioned that it would cause less social coordination and responsibility. Consequently, with these effects, it has been indicated that playing DOTA 1 inevitably gives unfavorable assessments towards learners in which particularly is observed throughout the reflected data.

On the other hand, based on the results of the study, playing DOTA 1 does hamper proficiency in trigonometry because the students' lack of time management to study in trigonometry. In addition, they added that playing DOTA 1 gives the power of automaticity in learning and that it activates cognition and memory in solving problems in trigonometry.

Table 4: Students' views with respect to the effects of playing Defense of the Ancients (DOTA 1) and their trigonometry proficiencies

Favorable	Negative
• Improve techniques in solving problems • Develop abilities • Develop critical thinking skills • Improve good decision making and accuracy • Calculate areas • Analyse the situation • Team work and cooperation	• No time management • Elevates hostile mood • Become addict and lazy • Trash talk (Quick anger) • Low grades

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