

The Effect of Virtual Basketball Game to the Basketball Skills of Elementary Pupils

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Abstract:- This study investigates active sports video games' impact on the basketball skills of pupils in physical education. This study utilizes a quasi-experimental design in gathering data with the use of the one group pretest-posttest method. Furthermore, the one group pretest-posttest evaluates the performance of the students in Gentle Childcare Learning Center. The repeated measurement of pretest and posttest determine the significant difference among the basketball skills of pupils. This study uses XBOX 360 - the Kinect Sensor wherein we utilized the Kinect games NBA BallerBeats and the Kinect Sports: Season 2 Basketball. The pupils' participation in active-video gaming focuses on their individual skills enhancement. Each class happened for one (1) hour and thirty minutes (30) every day for three (3) consecutive days. Playing active video games that transpired within the session was guided by the researchers. The results discovered a positive development of the students' basketball fundamental skills performance such as dribbling, passing, and shooting integrating active sports-themed video games into physical education.

Keywords:- ICT Integration in Physical Education, Kinect-based games, Active Video Games.

I. INTRODUCTION

It was determined that seven thousand video gamers, near twelve percent, were being named as addicted to computer games (Grüsser, 2007). Furthermore, students that are addicted to video games possess lower academic grades compared to those who are non-addictive (Chiu, 2004). However, with all the negative effects those video games provide to their players, it is evident that computer games are seen as hostile to movement but rather another sort of learning device (Pohira-Vieth, 2010). The active video game concerning physical activity and education increases motor, intellectual and physical capacities (Campos, C. & del Castillo Fernandez, H., 2016). Virtual play by proficient competitors in sport video games has the potential to support and encourage physical performance (Silberman, 2010). Regardless of the methodology used in teaching, the patterns of fundamental motor capacities upgrade through active video games (Wang et al., 2014). Purposively, this study investigates whether active sport-themed video games increase the performance of pupils in physical education.

A virtual reality learning environment (VRLE) empowers active classroom participation rather than being passive learners. Theory and experimental research in pedagogy and science education recommend that the way the student learned creates an impact on their learning outcomes. Active and didactic methods are the two types of immersive virtual learning environments (VLEs) on understanding and cooperative outcomes. The didactic method is primarily involves lecturing and usually content-oriented, where students are the passive recipients of the ideas (IBE, 2013), while according to Greenwood Dictionary in Education active learning is well-defined as the way toward having students take part in some activity that forces them to consider thoughts and how they are utilizing those thoughts. Expecting students to routinely evaluate their level of comprehension and ability at handling ideas or issues in a specific discipline. The fulfillment of learning by taking an interest or contributing. The way towards keeping students rationally, and frequently physically, dynamic in their learning through activities that include them in collecting information, thinking, and problem-solving. Concerning our study, we used the active method to engage the students in technology specifically the Xbox 360 with the guidance of researchers. Therefore, the integration of technology in education gives an impact on both the significance and the number of contents learned by the students, particularly the way they acquired the knowledge, and which skills the students improve (Coll, 2003). In Spain, Campos C. M. & del Castillo Fernandez, H. (2016) embarks on a precise review of the present journals on dynamic computer games as potential instructive apparatuses for physical training or physical action. Exploration of dynamic computer games for an educational and physical purpose to verify holistic attributes associated with physical activity and physical education. The study concluded that controlled investigations exhibit that dynamic computer games increment limits in connection to physical action and instruction. Moreover, in Australia, Perlman et al. (2012) looked at the movement-based sports games and the potential learning opportunities for physical education students. Their findings illustrated that the development of cognitive understanding in regards to decision making elements could be given a chance for students to build up. Decision-making in a true condition or environment can be affected by the person's capacity to execute sport-specific skills and their physical performance. In a clearer view of the study, there is incredible potential for investigation in the utilization of diversion in virtual conditions as devices for both learning and perception in the recreations, sports field, and physical education. In Stuttgart,

Germany, Kretschmann, R. (2010) pointed his paper to set skills created by playing COTS (Commercial off-the-shelf) sports computer and video games and to contrast them with those created by genuine athletes playing real sports. In using digital sports games in physical education, instructors can support the learning procedure by giving tasks in breaking down the assortment of strategies and their structures, rules, and their infringement, or investigating effective strategies in the game. Teachers have to clarify the association or parallelism of digital and real games to the students. In Scotland, Learning Teaching Scotland has advanced games in institutions, with funding games and learning centers for quality. "Almost 90% of teachers who used games stated they used games in their teaching "to engage students". Almost half of the teachers used them because they "independently wanted to offer an alternate way of teaching". 31% were "inspired by other teachers", while 7% had the idea "suggested by students". The accessibility of consoles, reputation and articles have little effect on educators utilizing games." NFER Futurelab 2009 overview.

With the various works of the literature review conducted or read by the researchers, most of these focus only on various intangible behaviors. None of these works of literature correlates the result to skills performance of students to physical education.

In this research, the researchers aim to integrate ICT (Information and Communications Technology) in teaching Physical Education. Hence, this study investigates active-video games' impact on the basketball skills of pupils in physical education. Lastly, the researchers would like to determine the relationship of active video games to pupils in physical education.

II. THEORETICAL BACKGROUND

This research aims to determine if the use of active video games in Physical Education classes can increase the student's performance skill in basketball. This study is mainly anchored to Situated Learning Theory by Jean Lave supported by Social Constructivist Theory by Lev Vygotsky and Social Learning Theory by Albert Bandura.

Situated learning studies how information is gained with regards to real activity. Learning with the use of active video games can take place in a significant and relevant setting by providing data at the exact moment. As indicated by (Protopsaltis, 2011), situated learning in recreations is to use "data in setting a production of a setting near reality. "For instance, using active video games in classes creates a context wherein students can perform a particular skill that is near the reality wherein students can effortlessly use the particular information in present reality. According

to Stein, situated learning uses cooperative and participative teaching strategies in gaining information. The structure of the learning is understood in the experience as opposed to in the topic organized by the teacher. In short for Stein, situated learning in the classroom coordinates content, setting, community, and interest. One of the suggested programs that situated learning and implications for interactive and learning needs to provide coaching and scaffolding (Herrington and Oliver, 1995).

This leads to the supporting theory of Social Constructivism by Lev Vygotsky specifically the so-called "scaffolding". Wood, Bruner, and Ross (1976) first presented scaffolding to portray the ways in which an expert or adult coach somebody who is less able to finish a task or to solve an issue. Scaffolding happens when an expert controls parts of a task that is beyond the student's abilities. As a result, permitting the student to finish a task that he or she would not be able to do without the help of others. In using active video games in classes, the researchers have to guide the students on how to go about the particular game to be utilized or what we call as tutorials. In addition, there are two fundamental parts to true scaffolding according to Pea (2004). First is the continuous dynamic assessment of the student's obtaining of the abilities to be learned and the second one is a progressive vanishing of supports as the student advances. As students learned the basics of the particular active video game this is when the scaffolds gradually fade but the role of the expert or teacher doesn't end because continuous dynamic assessment and feedback have to be done on the learner's progress.

Last theory to support our study is the Social Learning Theory by Albert Bandura. Social learning theory or also called as observation learning portrays the process of learning through watching others, remembering the information, and afterward reproducing the behaviors that were watched. The players of movement-controlled games, an example would be Kinect-based games that happen in rooms where others are present soon connect the attention of non-players (Isbister, 2012). In using active video games in teaching the basic skills in basketball could get the attention of those who are not playing and just merely focusing their attention on the game. In fact, observers are the ones who gain more from the game than players (deHaan et al., 2010). According to (Reese, 2007), in some instances where playing a game may not bring about learning while playing, but rather makes the player ready for later learning. Furthermore, a qualification exists between a spectator's "obtaining" a behavior and "executing" a behavior. Through observation, the eyewitness can gain the behavior without performing it. The spectator may then later, in circumstances where there is a reason to do so, will definitely show the behavior.

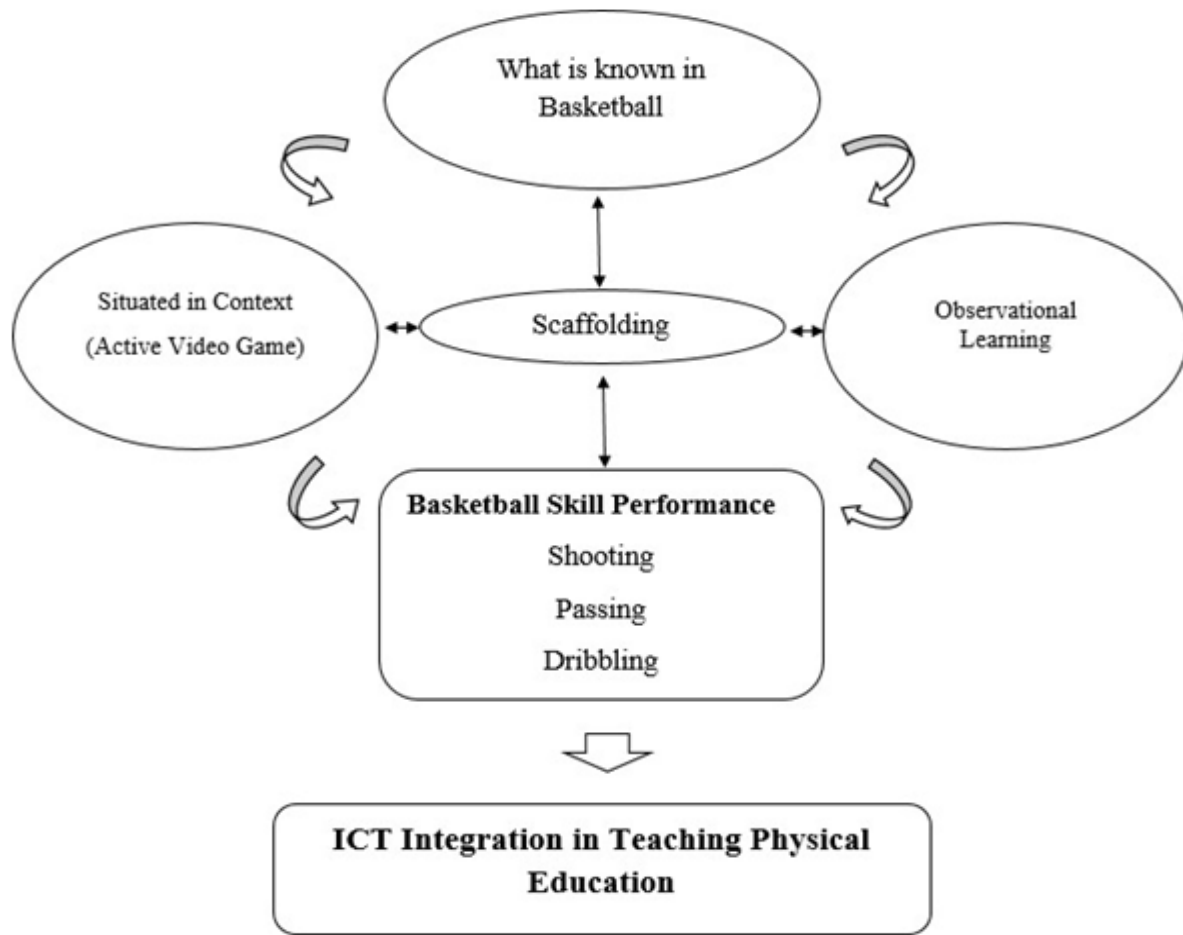


Figure 1: Conceptual Framework

III. RESEARCH METHODOLOGY

This study utilized the quasi-experimental design in gathering the data with the use of one group pretest-posttest method. It is quasi-experimental because it is an empirical study used to estimate the causal impact of an intervention on its target population without random assignment. One group pretest-posttest method is also called simple panel research – this is a within-groups (repeated-measures) design, since it looks at changes in your outcome within just one group, using the same participants prior to the treatment as after the treatment. The researchers requested the principal of the aforementioned school for an approval to allow conduct access to the information that answered the questions to the study. Letter of approval from the principal was given to the intended adviser of the particular class. The selection of class was done depending on the convenient time of the two parties. This study was conducted in two different areas. The playing of sports games happened in the San Nicholas Basketball Court while the use of active video games in lessons happened inside the school during the lesson. This study utilized the XBOX 360 particularly the Kinect Sensor which was the medium wherein the students played the active video games downloaded by the researchers. The decided sport was basketball and the active video games were the NBA BallerBeats and the Kinect Sports: Season 2 Basketball. The pre-evaluation of the student's performance in playing the specified sports game

were evaluated by the researchers with the use of an analytic scoring rubric. The classes were conducted the following day of the pre-evaluation. Each class happened for one (1) hour and thirty minutes (30) every day for three (3) consecutive days. Playing active video games transpired within the session which was guided by the researchers themselves. Post-evaluation using the same sports game and scoring rubric happened after the class sessions. After recovering the results of the pre and post evaluation, data were gathered and treated.

The respondents of the study were a particular grade six (6) section with an age range of ten (10) to twelve (12) years old of the Gentle Childcare Learning Center batch 2017-2018. The analytic scoring rubric used in the study was modified based on the intended results of the study. The final draft of the rubric was presented to the adviser for an approval. The researchers also seek help and suggestions for refinement, which was applied and incorporated in the final analytic scoring rubric. In obtaining the data, the analytic scoring rubric was answered by the researchers based on the performance of the student. The analytic scoring rubric has individual parts of the performance. The following are shooting, passing and dribbling. The range of the score was from one (1) to four (4) wherein one is equivalent to the need for improvement, two is developing, three is proficient and four is advanced.

IV. RESULTS AND DISCUSSIONS

This section presents the results and discussion after the data were thoroughly tabulated, analyzed and interpreted. A grade six (6) section composed of 18 students from Gentle Childcare Learning Center were the respondents of these quasi-experimental study.

Table 1. Level of Performance of Respondents during Pretest and Posttest in Shooting.

Variables	N	Balance	EyeCoordination	Elbow Placement	Extension	FollowThrough
Pretest	18	2.33	2.33	2.28	2.28	2.28
Posttest	18	3.06	3.56	2.83	2.83	2.78

Table 1 above shows descriptive results on the level of performance of students during pre- test and post-test in shooting. Moreover, there is an improvement in all of the variables under shooting. The variable with the highest improvement is eye coordination (2.33 – 3.56) while the variable with least improvement is follow through with (2.28 – 2.78). This links with the study of the active video game in relation with physical activity and education that resulted to increased motor, intellectual and physical capacities (Campos, C. & del Castillo Fernandez, H., 2016).

Table 2. Level of Performance of Respondents during Pretest and Posttest in Passing.

Variable	N	ChestPass	BouncePass Overhead Pass	TwoHand	BaseballPass
Pretest	18	2.22	2.33	2.33	2.33
Posttest	18	2.94	2.94	2.78	2.78

Table 2 above shows descriptive results on the level of performance of students during pre- test and post-test in passing. Moreover, there is an improvement in all of the variables under passing. The variable with the highest improvement is chest pass with (2.22 – 2.94) while the variable with least improvement are two hand over head pass and baseball pass with the same rate (2.33 – 2.78). Furthermore, it implies that two hand overhead pass and baseball pass are skills that need appropriate development and it also includes the factors such as age and physical capabilities of the student.

Table 3. Level of Performance of Respondents during Pretest and Posttest in Dribbling.

Variable	N	Head Up	Keep Dribbling at or Below Knees	Knees Bent
Pretest	18	2.78	2.28	2.78
Posttest	18	3.18	3.56	3.76

Table 3 above shows descriptive results on the level of performance of students during pre- test and post-test in dribbling. Moreover, there is an improvement in all of the variables under dribbling. The variable with the highest improvement is keeping dribble at or below waist level with (2.28 – 3.56) while the variable with least improvement is heads up with (2.78 – 3.18). In addition, respondents got the least improvement in heads up while dribbling because they are conscious in dribbling the ball that needs a lot of time for them to develop.

Table 4. T-Test Paired and CI of Respondents' Performance between Pretest and Posttest.

Skills	N	Mean	T-value	P-value	Decisionand Interpretation
Shooting	18	2.300	-7.11	0.000	There is a significant difference
Passing	18	2.306	-3.32	0.004	There is a significant difference
Dribbling	18	2.278	-4.92	0.000	There is a significant difference

All of the variables in the T-test Paired and CI of respondents' performance between pretest and posttest registered a significant difference wherein the P-value of shooting is (0.000), passing is (0.004) and dribbling is (0.000). Meaning, all three (3) skills that the researchers focused revealed an increase in performance.

V. CONCLUSION

In integrating Information and Communications Technology in teaching Physical Education specifically with the use of active video games is the most trending activity of most students nowadays. It showed great improvement in terms of shooting, passing, and dribbling during pretest and posttest. The active video game increases the interest of students even if they are not into sports. Students who have no inclination in playing Basketball displayed disparity on

their performance. Furthermore, active video games can be utilized by teachers in teaching Physical Education to improve performance and to ignite excitement in playing the active video games in classes.

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