



The Effect of Using VR Box in Learning Effective Shadow Boxing

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Abstract

The main purpose of the current study was to prepare exercises for the use of virtual reality, called (3D recording with 360 degrees) as well as to identify the effect of using virtual reality on learning effective shadow boxing. The researcher used the experimental method for its suitability for the nature of the study. (20) Undergraduate male students were chosen from the second year of college of physical education and sports science, students at Salahaddin University –Erbil. (n=20, age 19 ± 1.45). The sample was selected using a simple random selection approach, which resulted in ten (10) students from class (D) being assigned to an experimental group that wore virtual reality spectacles. As a control group, there were ten students in class (A). The educational program for the experimental group who wore the (VR) goggles had two instructional units and the same for the control group but with no (VR Box) each week for both groups (experimental and control) for a total of four weeks. The results showed the effectiveness of virtual reality in learning effective shadow boxing; which presence of statistically significant differences between the experimental and control groups in the post-test and in favor of the experimental group.

Keywords: virtual reality, shadow boxing, motor learning.

1.Introduction

One of the most popular combat sports is boxing. It combines strength, power, agility, stamina, and endurance. In today's competitive world, everyone aspires to be a champion. Players train on a regular basis for this, but they focus more on their physical abilities. To perform a well shown skill in sports not only, physical training is sufficient to reach high performance but psychological skills required as well. Most athletes have relatively close physical abilities, which makes the difference in completions is the psychological preparation and often overlooked by most players.(Sarteep,2021).

Boxing for college students is a relatively difficult sport compared to other activities and games and that is because of two main reasons. First, this sport is new to most of the students, which means that they did not practice it at high schools, and secondly, this sport requires a good flexibility and coordination that help performers to apply the skills safely. Many boxing skills involve large coordination of hand and eyes as well as weight-bearing powers in the legs and other parts of the body; as well as the requirement of a good mental preparation. one of the most used skills in Boxing that all players need it in all level is, the shadow boxing. And can simply define "Shadow-boxing" as boxing against an imaginary opponent. This skill considers as a fundamental part of a boxer training; We all see boxers do it either as a warm up or a main part in the daily training, learning this skill effectively could help the boxer to improve their skills easier and help them to increase their condition as well since shadow boxing improves rhythm, fluidity, speed, relaxed power and wonderful footwork. Today, in the age of technology and technology being used in various fields, humans have no choice but to dose sport and exercise science as having been significantly affected by technological developments, it is difficult to imagine modern sports and various fields of science not being affected by technological innovations. Therefore, it was necessary to use modern technology



in physical educational process, such as virtual reality technology, which is a logical extension of technological progress with a computer that allows the player to interact with it. With increasing competition levels and records in sport, the demand for new technology has increased as well. (Sartep.2020).

Virtual reality is a new type of computer pattern and the word virtual refers to what the computer provides from identical or similar copies to real physical things, and it is called the virtual world, artificial reality, or the virtual environment. This reality means simulations of real or imaginary environments in which the learner interacts with these environments and lives with them with every sense and not just a user of devices and machines. According to (Riva et al., 2018) VR can fool the human brain's predictive coding mechanism and create a genuine sense of presence in the virtual body and space. VR is also utilized in the training of athletic skills in ball sports. Rugby, table tennis, and soccer are a few examples. It is critical in this illustration to offer useful or guiding feedback, which relates to understanding about the either an outcome or a movement (Miles et al., 2012). The importance of the current study embodied in the use of this technology in learning effective shadow boxing for students at college of physical education and sport sciences – Salahaddin university -Erbil.

statement of the problem: Based on the researcher's recent experience teaching this topic at the college of physical education and sports sciences for the second year, he discovered that the majority of students have never participated in this sport before, making it difficult for them to acquire this talent efficiently. Therefore, the researcher decided to use one of the newly existing learning methods, which is virtual reality, the researcher sought to see how it affected students in the second year of the College of Physical Education and Sports Sciences at Salahaddin University in Erbil acquiring shadow boxing techniques. And the researcher hypothesized that Virtual reality has a positive effect on learning effective shadow boxing skill. And there are significant differences between the control and experimental groups, and in favor of the experimental group.

2. Methodology

The researcher used the experimental method to suit the nature of the research problem. One of the considerations in scientific research is to select a sample that accurately reflects the original community, as the research community has determined by students in the second stage of Salahaddin University's College of Physical Education and Sports Sciences in Erbil for the academic year (2020-2021), with a total of (77) students grouped into four categories (A, B, C, D). The research sample was selected using a simple random selection approach, which resulted in ten (10) students from Class (D) being assigned to an experimental group that wore virtual reality spectacle. The sample percentage equaled 28.57% of the community research. While the control group, there were ten students in class (A) practiced shadow boxing in the traditional way.

Table (1) It shows the experimental and control groups and the sample size

Group	Learning	Subjects
Experimental	Using (VR BOX)	10
Control	Learning with no VR Box	10

2.1 Instruments

The instruments utilized in this study consisted tools ,such as – Observation, - Questionnaire form, Performance evaluation form as well as Devices such as (Virtual Reality devices (VR.BOX) works on all mobile phones (mobile) devices used to display the artistic performance which worked in a compatible with (SAMSUNG GALAXY S8), (HUAWEI Y9s), (I PHONE 6), (I PHONE 6+), (I PHONE 8) .



2.2 Procedure

On the days of the program execution, the researcher created video clips describing the abilities in issue in terms of technical performance for beginners and intermediate level, which were delivered to the experimental group and downloaded into their mobile phones in addition to providing them with Internet access. The clips usually were from YouTube channels that used 3D VR with 360 degrees. And the

The experiment's duration was limited by the college to a timeframe that corresponded to their weekly timetable, beginning on 4/4/2021 and ending on 25/4/2021, with (8) instructional units for each group, two units each week. Every week, one on Monday and the other on Thursday, according to the student placement schedule. the pilot study were conducted , A pilot study is, a short experiment or mini-work that a researcher does in order to discover the drawbacks and positives that may occur during the performance of the research's major experiment.” (Al-Shawk and Al-Kubaisi, 2004, 88). The researcher conducted the exploratory experiment with the assistant work team * at (9) am on Saturday 3/4/2021 in the Boxing Hall of the College of Physical Education and Sports Sciences, as one of the important procedures that the researcher undertakes before carrying out the main experiment. This experiment's goal was to discover the challenges that come with testing, such as: - Validating the equipment and instruments utilized in the study - Training of the supporting team members on how to conduct the tests Ascertain that the timing of portions of instructional units is acceptable, as well as the extent to which they can be implemented. After the pilot study The educational program for the experimental group who wore the (VR) goggles began on Tuesday, April 4, 2021, at ten o'clock in the morning, with two instructional units each week for both groups (experimental and control) for a total of four weeks. On April 25, 2021, the educational curriculum was fully implemented.

2.3 The pre-test

In order to know the effect of the using VR technology, pretest was conducted before the applying the educational materials and the main experiment. Both groups were filmed performing shadow boxing of the skills that the students already knew (foot works, jab, cross and hook).

2.4 The Post-test

To assess shadow boxing skill, the participants were filmed shadow boxing for 60 seconds and then forwarded to the judges¹ for evaluation and a mark out of 10.

2.5 Statistical means: The researcher processed the data statistically using the statistical package (SPSS) on the data through the following means (The mean, Standard deviation, (t)-test for dependent and independent .

3. Results

To determine the impact of utilizing virtual reality on learning effective shadow boxing among second-year students at Salahal-din University – Erbil's College of Physical Education and Sports Sciences. Instructors and boxing coaches assessed the degree of learning for the control and experimental groups, pre and posttest.

Table (2) It shows the mean, standard deviation, and t-test of the research sample in the pretest

Group	The mean	Standard deviation	T value	T table	The result
Control	4.4	4.24	1.27	2.10	Not Sig
Experimental	4.6	4.32			

Tabular t-value for a probability of error of 0.05 and a degree of freedom of 20-2 = 2.10

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From Table (2) we notice the mean of the pre-test results for the control group members reached (4.4) degrees and a standard deviation of (4.24), while in the same table we note the mean of the pre-test results for the experimental group members reached (4.6) degrees and standard deviation of (4.32). The value of (T) for the pre-test attained is shown in the same table, indicating that there are no significant differences between the pretest and the two groups.

Table 3 shows the means, the standard deviation, and the t-test of the research sample in the posttest

Group	The mean	Standard deviation	T value	T table	The result
Control	5.8	5.2	2.22	2.10	Sig
Experimental	7.4	4.3			

Tabular t-value for a probability of error of 0.05 and a degree of freedom of 20-2 = 2.10

Table (3) reveals that the control group's mean posttest result was (5.8) and the standard deviation was (5.2), whereas the experimental group's mean was (7.4) and the standard deviation was (4.3). In the same table, the value of (T) for the test was 2.10, indicating that there were significant differences in the post test and in favor of the virtual reality experimental group.

In order to know the effect of the dependent variable for the both groups ,the researcher had put the results of both groups (Control ,experimental) and for the pre and posttest .and the results showed that both groups have improvement in perform shadow boxing .However the experimental group has reached the significant level and showed better performance compare to the control groups in the same duration ; which means that using the VR box has a positive effect in learning effective shadow boxing and its showed in Table (4).

Table (4) shows the mean, standard deviation, and t-test of the research sample in the pretest and posttest for both groups

Group	Pretest		Posttest		T value	T table	Result
	Mean	SD	Mean	SD			
Control	4.4	4.24	5.8	5.2	1.98	2.10	Not Sig
Experimental	4.6	4.22	7.4	4.3	2.22		Sig

Tabular t-value for a probability of error of 0.05 and a degree of freedom of 20-2 = 2.10

4. Discussion

In the numerical test, there were substantial differences between the control and experimental groups, favoring the experimental group who utilized the virtual reality goggles. We also see in the first table that the results of the pre-test between the control and experimental groups were not significant, implying that the two groups are equivalent in terms of shadow boxing skill performance. The present study's findings are consistent with previous research in the same field. Exergaming (XBOX Kinect™), for example, according to (Barry et al., 2016), may give an alternative form of rehabilitative exercise by boosting consistency. In healthy people, balance training with the Kinect is both appropriate and intuitively satisfying. In the sports field (Shawky et al. 2019) found that, Virtual reality technology has contributed in a positive way to learning some basic skills in Volleyball. Using VR in motor learning could be an effective way to transfer learning from virtual to reality world and improving the skills of healthy and athletes on the same level (Bao et al. 2018 , Düking et al., 2018, White & Hardy .1995, Seymour et al. 2002) On the basis of these results, we can say that the researchers achieved the goal of the research, which is the positive effect of using this modern



technology, which has become increasingly used for educational purposes in physical education. The researchers also confirm that the importance of technology is not limited to the direct educational process of modifying the course and realizing new concepts in performance, but also helps the learner to create a new environment which it increases his desire and enthusiasm to repeat the skill without feeling bored.

5. Conclusions

- 1-Using a virtual reality device has a positive effect on learning effective shadow boxing skill.
- 2-The presence of statistically significant differences between the experimental and control groups in the post-test in favor of the experimental group.

6. Recommendations:

- 1-Ensure that the virtual reality device is used to learn and develop basic boxing skills.
- 2-Applying the device to different samples to know the extent of learning
- 3-Using virtual reality for other sports games.
- 4-Conducting studies that deal with other determinants that the current study did not discuss

References

- Al Gburi ,I., Ibrahim ,(2017) ‘the impact of virtual reality technology on improving cognitive achievement and learning some basic gymnastics skills for students’ unpublished master thesis. University of Karbala.
- Bao,T., Carender, WJ., Kinnaird ,C., Barone, VJ., Peethambaran, G., Whitney, SL., Kabeto, M. ,Seidler RD., Sienko, KH.(2018) ‘ Effects of long-term balance training with vibrotactile sensory augmentation among community-dwelling healthy older adults: a randomized preliminary study’. *J NeuroEng Rehab*,15(1):5.
- Barry, G., van Schaik, P., MacSween, A.(2016)‘ Exergaming (XBOX Kinect™) versus traditional gym-based exercise for postural control, flow and technology acceptance in healthy adults: a randomised controlled trial’. *BMC Sports Sci Med Rehabilitation* , 8, 25 (2016). <https://doi.org/10.1186/s13102-016-0050-0>
- Bliss, JP., Tidwell, PD., Guest, MA. (1997) ‘The effectiveness of virtual reality for administering spatial navigation training to firefighters’. *Presence: Teleoperators & Virtual Environments*. 6(1), pp.73–86.
- Düking, P., Holmberg ,H-C. and Sperlich, B. (2018) ‘ The Potential Usefulness of Virtual Reality Systems for Athletes: A Short SWOT Analysis’. *Front. Physiol*. 9:128. doi: 10.3389/fphys.2018.00128.
- Eaves, D. L., Breslin, G., & Van Schaik, P. (2011) ‘The short-term effects of real-time virtual reality feedback on motor learning in dance’. *Presence: Teleoperators and Virtual Environments*, 20(1), 62-77.
- Mohamed, A.,Shawky. A., Muhammad, Abdul Hamid seed, M, Amir. (2019)‘The effect of using virtual reality glasses on learning some basic skills in volleyball’, *Journal of Physical Education and Sports Sciences*.Vol 42,(Benha University - Faculty of Physical Education for Boys - Dec.2019 Part (9).
- McConville, KMV.,Virk, S.(2012)‘ Evaluation of an electronic video game for improvement of balance’. *Virtual Reality*. 16(4):315–23. <https://doi.org/10.1007/s10055-012-0212-7>.
- Miles, HC., Pop, SR., Watt, SJ., Lawrence, GP., John, NW. (2012) ‘A review of virtual environments for training in ball sports’. *Computer Graph*, 36, pp. 714–726.
- Riva, G., Wiederhold, BK., Mantovani, F. (2019) ‘ Neuroscience of virtual reality: from virtual exposure to embodied medicine’, *Cyberpsychology, Behav Soc Netw*, Jan 1; 22(1): 82–96. Published online 2019 Jan 14. doi: 10.1089/cyber.2017.29099.gri
- Sarteep, S., Salah. (2020) ‘The effectiveness of a designed device for measuring and improving choice reaction time among players of physical education and sport Science College’. *International Journal of Physical Education, Sports and Health* 7(6): 257-260.
- Sarteep, S.,Salah.(2021) ‘The Study Of Mental Imagery Dimensions And Their Relationship To Perform DIVE On Floor Exercise In gymnastics’. *Indian Journal Physical Education, Sports and Applied Science*,Vol11, NO 1, Jan,pp.19-23.
- Seymour, NE., Gallagher, AG., Roman, SA., O'brien, MK., Bansal, VK., Andersen, DK. (2002)‘Virtual reality training improves operating room performance: Results of a randomized, double-blinded study’. *Annals of Surgery*. 2002 Oct; 236(4):458-63; discussion 463-4. doi: 10.1097/00000658-200210000-00008. PMID: 12368674; PMCID: PMC1422600.
- Stefan ,C., Michalski,.ID., Ancret, S., Dimitrios, S. , Tyler, J., Ross , Mark, B., Tobias, L.(2019),‘ Getting your game on: Using virtual reality to improve real table tennis skills’.<https://doi.org/10.1371/journal.pone.0222351>.



- Stevens, J. A. (2005) 'Interference effects demonstrate distinct roles for visual and motor imagery during the mental representation of human action'. *Cognition*, 95(3), 329-350
- White, A., and Hardy, L. (1995) 'Use of different imagery perspectives on the learning and performance of different motor skills', *British Journal of Psychology*, 86 (Pt. 2), 169-180.

تأثير استخدام صندوق الواقع الافتراضي في تعلم ملاكمة الظل الفعالة

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مستخلص

كان الهدف الرئيسي من الدراسة الحالية هو إعداد تمارين لاستخدام الواقع الافتراضي (تسجيل ثلاثي الأبعاد بزواوية 360 درجة) وكذلك التعرف على تأثير استخدام الواقع الافتراضي في تعلم ملاكمة الظل الفعالة. وقد استخدم الباحث المنهج التجريبي لملائمة لطبيعة الدراسة. تم اختيار (20) طالبا من طلبة المرحلة الثانية في كلية التربية البدنية وعلوم الرياضة في جامعة صلاح الدين - أربيل. وبطريقة الاختيار العشوائي البسيط، حيث تم توزيعهم على مجموعتين (تجريبية وضابطة) 10 طلاب لكل مجموعة. المجموعة التجريبية استخدمت تكنولوجيا الواقع الافتراضي باستخدام نظارة البعد الثلاثي. أما المجموعة الضابطة فانها استمرت بالممارسة بالطريقة التقليدية المتبعة ضمن منهج الملاكمة. أما المدة الزمنية للبحث فقد استغرقت اربعة اسابيع وبواقع وحدتين تعليميتين بالاسبوع. أظهرت النتائج فاعلية الواقع الافتراضي في تعلم ملاكمة الظل الفعالة والتي ظهرت وجود فروق ذات دلالة إحصائية بين المجموعتين التجريبية والضابطة في الاختبار البعدي ولصالح المجموعة التجريبية.

الكلمات المفتاحية: تكنولوجيا الواقع الافتراضي، التعلم الحركي، الملاكمة

كارىگهرى به كارهيتنانى چاويلكهى فى ئار له فيربونى بۆكسىتى خه يالى كارىگهرى

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پوخته

ئامانجى سه رهكى ئه و تۆزینه وه بریتى بوو له ئاماده کردنى چهنه راهیتنانیکى تايهت به فى ئار (واقیعی دروستکراو) که به شیوازی سى رههه ندى تۆمارکراوون له گه ل مهودای ۳۶۰ په بینین. ههروهها زانینی کارىگهرى به کارهيتنانى چاويلكهى فى ئار له فيربونى بۆكسىتى خه يالى كارىگهرى. نوێزهه شیوازی لیکۆلینه وهی کردارى به کار هیتنا له بهر گونجانی له گه ل سروشتی تۆزینه وه که. نموونهی تۆزینه وه که بریتى بوو له ۲۰ قوتابى قوناخى دووه می کۆلیژی پهروهدهی جهستهی وزانسته وهرزشیهه كان - زانکۆی سهلاحهدين / ههولیر. نموونه که به شیوازی هه ره مه کی دهستنیشان کران که، دابه شکرابوو به سه ر ۲ گروپی په کسان (۱۰ قوتابى وه کو گروپی تاقیکردنه وه، و ۱۰ قوتابى وه کو گروپی کۆنترۆل). گروپی تاقیکردنه وه چاويلكهى فى ئاریان به کارهيتنا له فيربونى بۆكسىتى خه يالى كارىگهرى، گروپی کۆنترۆل به شیوازی وانیه تهقلیدی خۆیان بهردهوام بوون. ماوهی تۆزینه وه که ۴ ههفتهی خایاند که له ههفتهی ۲ جار پراکتیک ئه نجام درا. ده رته نجامه کانی ئه م تۆزینه وه ده ریخست کهوا، به کارهيتنانى چاويلكهى فى ئار له فيربونى بۆكسىتى خه يالى كارىگهرى ئه نجامی ئه ریتى هه بوو و له رووی جیاوازی ئاماره وه گروپی تاقیکردنه وه ده رته نجامی باشتر بوو له گروپی کۆنترۆل. بۆیه نوێزهه وه به پشت به ستن به ئه نجاما کانی ئه و راسپاردانه ده خاته روو (۱- به کار هیتنانى به کارهيتنانى چاويلكهى فى ئار له فيربونى بۆكسىتى خه يالى كارىگهرى و کارامه کانی دیکه ی بۆكسىتن ۲- به کارهيتنانى چاويلكهى فى ئار له فيربونى کارامه کانی وهرزشه کانی دی.

وشه کللییهه كان: نهکنه لۆژیای واقیعی دروستکراو (فى ئار)، جووله زانی، بۆكسىتن