Article

The Art of Shoot: The 3D Model Presents a Smart Digital Way Teaching of Basketball

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Abstract: Sport is an art form. Every athlete thinks, creates, obeys rules, plans, and produces tangible results. Like most art forms, basketball for learning, monitoring, and understanding the sport requires all five senses. With the same logic by which an architect plans to build a building, the basketball team prepares for the game mode, the systems, which they will have in a match. In summary the players and the coaching staff think before they do. For this reason, in basketball it is important to create a philosophy and a system of values in the team. Values such as trust, solidarity, cooperation, ambition, consistency are important for building the mindset among stakeholders for the successful course of the team and for titles. Finally, sport produces knowledge. Basketball is an evolving and progressive sport. Adapting to modern requirements, studying, and monitoring new trends. For example, the specialization of players in Shoot, in speed in, power, strong, results in an increase in the ability of players to man-to-man attacks. On the other hand, the defensive function of both individual and team needs to deepen the proper treatment of powerful offensive players.

Keywords: 3D Model, Animation, Athletes, Basketball, Teaching

1. Introduction

The current paper refers in the 3D product of exercise of basketball. Especially, the product is the 3D Model of the technical characteristic of shoot. The athletism is a form of art. Each art has the progress, the preparation, the right technic, and the suitable rules. The methodology contains many objects as a video recording, the animation analysist and explication of the right progress of shoot. Also, the theoretical and practical analysis of the good shooter and the offense systems as simple examples. Finally, the animation presents a smart and innovative way of teaching the shoot mainly in the youth ages. Also, it a good opportunity of the international promote the animation as a surf in the web.

2.1 The three basic kinds of offence

Reaching the basket is the main goal in an attack on basketball. The achievement of the basket comes directly or indirectly in various and varied ways. The three main ways to achieve a basket in an attack are:

- Attack man to man.
- Player partnerships.
- Offensive system.

In the first category, the striker can reach the shoot through creating a shoot situation. Guards usually arrive in shoot mode, from a dribble, from a drive, which results in a jump shoot and from a free shoot.

The ratio of aerobic to anaerobic in basketball is 1:9; this shows that basketball is an anaerobic and high intensity exercise [1]. In collaborations of 2 and 3 more players the shoot is dominant in modern basketball., Always, collaborations in basketball were used.

Today the coaches of all teams try to organize and design partnerships between the players. We achieve this by breaking the pitch into quadrants and with proper spacing we create good shoot conditions. An attractive way is for a player to give an assist to his teammate. Basketball is a team sport, cohesion and thinking offensive solutions must go hand in hand with the mentality of the team. Finally, there are the collaborations between:

- Guards with guards.
- Guards with forwards.
- Forwards with forwards.

In modern basketball, forwards are athletic and fast players and play with high-guard characteristics. So, in addition to the offensive rebound and the post–up game, they can shoot the high post, 3-points, create man to man conditions, as the speed and technique of the shoot has improved.

2.2 The charismatic shooter

The charismatic shooter Proper learning of the basic principles starts with how the player will get out of the way and how to welcome the ball. Players' shoot performances are required to be improved to win the match as well. A certain strength and endurance is needed to shot the ball which is crucial for winning the match.

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In 2002 the International Basketball Federation (FIBA) decided to decrease the shot clock violation to 24 seconds so that players have to improve their fitness to avoid fatigue.

When a sport player feels tired it has influence on performance and leads At an early age, it is the duty of every successful academy coach to learn the basic rules of basketball. Shoot is a form of art and technique. The evolution of technology is an important step in human progress. Young children are familiar with technological applications. This helps to quickly assimilate Shoot's learning tools. For example, visualization of the shoot.

3. Methodology

3.1 Methodology of the shoot

The methodology of the work is based on on the construction of an animation, which depicts the process of shoot. Initially, there was a player as a role model, who videos from the key triple threat position. A triple threat position is the first thing a player does when he welcomes the ball. The opening of the legs is equal to the height of the shoulders. The player also catches the ball with his fingers open, leaving a small gap between the palm and fingers.

The fingers touch the ball. The player then begins to stretch his knees, giving his body a boost from the ground to the sky. The movement is made until you ball in the eyebrow. At this point, it acts as a window to properly hold the ball with the arm in a straight line between palm and elbow, but also to aim well at the basket. Finally, the release of the ball follows by stretching the hand and leaving the ball with your fingers. The ball release from finger was a key factor, the kinematics chain was from the shank, thigh, trunk, upper arm and fore arm segments which also influences release height [2]. So the joints flexion and extension were an important rule in shooting. In addition to the fore arm segments, the ball flying tautochrone and stability was dependent on it [3]. The player releases the ball with the wrist, which bends and remains in the same position until the ball falls to the ground. The technique of shooting is a process of learning, teaching, concentrating, composure and making the right decision.

It is important for the player feel that the timing right, both internally and to read the defensive function of the other team. Self-talk based on what people say to themselves affect on their behavior, strategies involved in mental
processes, [6] believe that athletes used of this technique for conduct their attention (e.g. focusing), control of anxiety (e.g. relaxation), and judgments about their performance (e.g. the great work) and by this dialogs to find a chance to express feelings. [4]. For example, in addition to practice and continuous improvement of the structure of his body, he needs to believe in himself and feel the confidence that the team has in his face. Successful effort is a set of factors, technical characteristics, mental gifts, behavior, space on the field and preparation time of both individual and team effort.

3.2 Methodology of the animation

These basic principles differentiate animation from simple movements made in mechanical ways. These principles are common to all kinds of character and technique of animation. According to the twelve Basic Principles of Animation by designers Ollie Johnston and Frank Tomas, we have two main categories of Animation creation, direct design and pose-to-pose design. A third category, Rotoscoping, has been added to them. The third category is used here in turn chose and used the third category. In this category animation animation is created directly on a live-action animation by editing and recreating textures, color, shape. The qualitative characteristics that highlight rotoscope as a high aesthetic animation technique are found not only in color and visual intervention but mainly in the reconstruction of the reference movement. The selection of frames from live action animation and the creation of new motion keys using the basic principles of animation that refer to natural laws. We in this particular case received as a reference a video which we then used to create the character with the individual movements.

The main goal of the principles of animation, is to give personality to the designed character by respecting the basic laws of physics, but also to give more abstract concepts, such as the emotional state, timing and visual attraction of the characters. Although originally intended to apply to traditional, animation, the principles are still of great importance for computer animation and stop motion animation techniques. Some of these principles have also been reflected in our work. More precisely, we used the principle of the resulting movement, the anticipatation and the deceleration, acceleration. Follow Thought, Overlaping Action, Drag Action includes two key elements . The ongoing secondary movement. The overlapping movement at different rates. The ongoing secondary movement is based on the idea that certain parts and parts of a moving body continue to move after the movement is completed. Overlapping movement at different rates is based on the idea that different parts of a body move at different rates. Preparation is the technique that leads to "fuller reading" and a better understanding of a movement, which in animation can be very, very fast. To create a "strong" movement, an attitude is created that heralds what is going to happen. For example, before someone jumps, a pose is created where they bend their knees. In the same way, before someone throws something forward, his hand pulls back first. This technique creates a realistic sense of movement, even if the movement itself is excessive. Without any preparation, the movements seem unnatural and sporadic. Rhythm at the beginning and end of a move (Slow Acceleration). Slowing down and accelerating at the beginning and end of a move responds to the physical performance of the start and end of a move. In nature a movement is slow at its inception, then fast, and slow again, as all self-propelled objects usually take a second to accelerate and slow down. For example, an athlete or car does not immediately reach its top speed and cannot stop automatically and instantaneously in an instant.

Adobe Photoshop, or simply Photoshop, is a graphics editor developed and released by Adobe Systems. The new photoshop upgrades enable you to create and export videos. By inserting the reference video, with the help of the Brush Tool, we designed on specific moments that we chose, based on the production of smooth movement of the character in order to capture certain basic principles that would give life and vitality to the image.

Table 1. The steps of the progress.

Steps	Analytical		Progress	
1.Analysis the technical the shoot	1.1.The balance position of athlete	1.3.Elbow Placement	1.5.Follow Through	
	1.2.Hand Placement – Keep the ball with fingers	1.4.Release		
2.Record the shooting progress	2.1.Site the camera	2.3.Move the body of athlete	2.5.Stop recording	
	2.2.Start recording	2.4.Follow the technic of shoot	2.6.Save the video	
3.Transform the video to animation	3.1 Delete the extra items		3.3 Decrease the duration of the video.	
	3.2 Keep only the ball and shooter			
4.Create the animation	4.1 Keep the silhouette of athlete.	4.3 Focus in details	4.5 Put white background	
	4.2 Create a human diagram	4.4 Render the video		

4. Results

This project is completed with the finish of the road the creation of the animation. The following figures show the progress of the animation. The user do many snapshots during progress of the animation. The image has analysis 300 dpi. Mainly, it is the presentation of the right position of the athlete and the slow-motion progress of the shoot. The option as a diagram presents more detailed and clearly the move of the shoot, as the video focus on the athlete. In this way, the other items in the background are deleted. The two at study objects are the shooter and the ball. Finally, the user tries to find attractive and simple ways of the presentation. The reason is the wide – range audience, from the young academies to the professional.
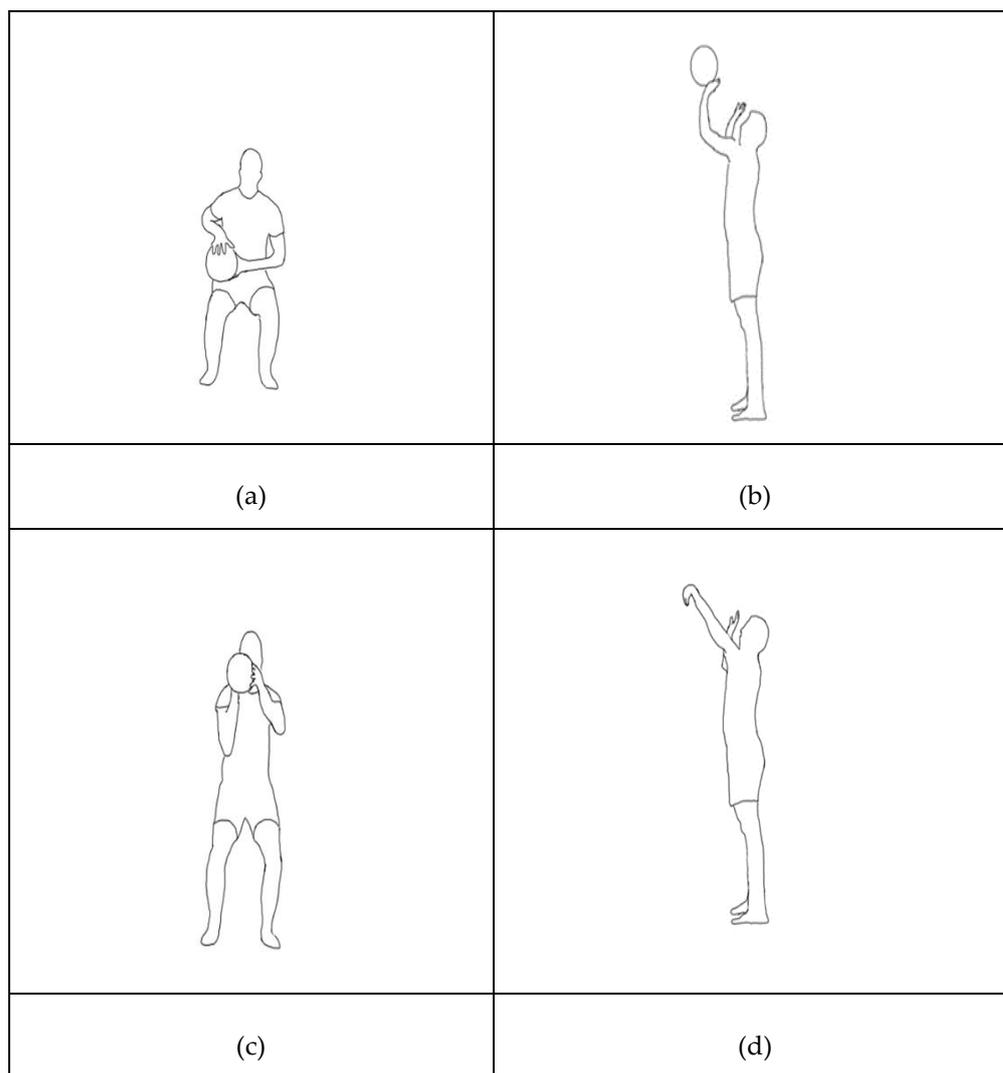
Figure 1. a) The start position. b) Release the ball. c) Hand placement. d) Follow through

5. Conclusions

The project is a smart tool that teaches the basketball mainly in the youth age. The realization of shooting exercises as well as condition improving training programs in the training programs applied in the pre-season camps and improving the shooting performance of the player are thought to be important. [5]. The right position of the body of athlete is important. Also, the technical approach of the video, has the analytical thesis into the manuscript. The digitalization of the basketball technics is a concept of high importance.

References

[1] Cheng-Chang Lin (1997), Exercise physiology. Taipei, Taiwan.

[2] Shin-Liang Lo (2004), The Effect of the Different Kinds of Fatigue to the Field Goal; Unpublished master dissertation,National college of physical education and sports, Taipei, Taiwan.

[3] Chi-Yang Tsai, Wei-Hua Ho, Yun-Kung Lii, Chin-Lin (2006), The kinematic analysis of basketball three point shoot after high intensity program Huang Institute of Sports Science , Taipei Physical Education College, Taipei, Taiwan

[4] Shahzad Tahmasebi Boroujenia (2011), Mehdi Shahbazi Procedia The Effect of Instructional and Motivational Self-Talk on Performance of Basketball's Motor Skill Social and behavioral sciences

[5] Level Seyfi Sava, Mehmet Fatih Yüksel, Ahmet Uzun, Universal The Effects of Rapid Strength and Shooting Training Applied to Professional Basketball Players on the Shot Percentage Journal of Educational Research 6(7): 1569-1574, 2018, DOI: 10.13189/ujer.2018.060717

[6] Zinsser, N., Bunker, L., & Williams, J. M. (2001). Strategies for training concentration. In J. Williams (Ed.), Applied sport psychology: Personal growth to peak performance (4th ed.) (pp. 284-311). New York: McGraw-Hill.