

An E-Learning Platform for Tennis Teaching

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Abstract: - In this paper, we focus on the popular sport--tennis. We present a new teaching training method. Base on the E-Learning web-site, we propose the tennis network teaching. We use skilled system to establish the interactive tennis teaching E-Learning structure in our research. And we will execute our method in network teaching web-site finally. Our method provides a novel teaching model and a novel learning channel.

Key words: E-Learning, tennis teaching, skilled system, interactive method

1 Introduction

People start concentrating spare time life while their family life becomes steady. Therefore, the outside sports become popular progressively. And tennis is one of the most popular sports in the world. Due to the limitations of the tennis knowledge and skill resources in Taiwan, we would like to construct the E-learning platform for tennis teaching. We hope this e-learning program can help the experience exchanging between beginners and trained tennis. This program would help in breaking out the limitations on teaching program and the promoting of tennis sport.

1.1 The Motivation

Today, playing tennis is not the only right for those wealthy people. Tennis becomes the popular sport for most of the people. And many school put the tennis on the selective course list. But, if someone decides to start playing tennis, he or she should hire a tennis coach or they will feel upset while practicing tennis by themselves. Because the tennis learning resource is very limited and the tuition is not affordable by everyone.

The profits of the tennis E-learning platform are the resources sharing and the freedom from space limitation. This E-learning platform leads a new channel for those tennis beginners. This is the first motivation of our research.

The interactive learning style is the basic concept of all kinds of learning. The interactive learning strengthens the learning effect and corrects the wrong learning concept immediately. The E-Learning model provides the function of interactive learning. It makes the learning process as a communication process and reaches the correct learning goal. This is the second motivation of our research.

While clearing out the barriers of learning process and gathering the people who own the same

interesting, these would expands the tennis world. This is the third motivation of our research.

1.2 Research Objective

The Objective of this research are:

- a. We hope to bring the novel teaching model and learning channel for the tennis teaching through this research.
- b. We hope to build the E-learning interactive tennis teaching through this research.
- c. We hope to support and create a novel learning chance of the tennis exercise through this research.

1.3 Structures Organization

The Authors arrange this paper in the following: In Section 2, we describe the literature of Tennis and E-learning. In Section 3, the authors describe the research methodology. In Section 4, we submit the program of tennis network platform. And we have a brief conclusion in Section 5.

2 Literature Review

In this section, we depict the various knowledge of the tennis, such as: the selection and use of tennis instruments, the competition rules, the court introduction, the skills learning, and the distinctiveness of E-learning.

2.1 Tennis

Tennis is invented in the center of 1400 in France. Until 1874, the tennis rules were designed by the England soldier W.C. Wingerfeir. Tennis is not only a skillful sport but also a sport that requires much knowledge background. Therefore, we make the literature review from the two points: knowledgeable tennis and skill tennis.

2.1.1 Tennis Knowledgeable

In this section, we have a depiction in the selection and use of tennis instruments, the competition rules, and the court introduction:

i. The choice and Use of Tennis Instruments

There are two types of tennis: Hard-tennis, and Soft-tennis. Their tennis instruments are different. The material of the paddle was wood in the early time. Then, the new metal was used in the production of paddle, such as the iron and aluminum. Today, synthetic fiber is generally used. The sizes of the paddle are: large, medium and small. The beginners can select the large size paddle [1]-[3].

ii. The Tennis Competition Rules

The competition rules include scoring method and the difference of hard-tennis and soft-tennis.

(a) Point: The points are accumulated by one point. The rule is: While none of the serve falls into the service court, the tennis player who loses one point. While the game is going on, if the ball was hit outside, the tennis player who hit the ball loses point. While the game is going on, if the ball touches the cage, the one who hit the ball loses point, too.

While the game is going on, if the competitor couldn't hit back, the competitor loses point. The rules are the same in twosome and foursome competition [4].

(b) Game: Any player has to get four points higher than the competitor, and then the player wins a game. The first point is marked '15', the second point is called '30', the third point is marked '50', and the four is marked 'game'. 'Game' also means the winning of this game. If the two players got 3 points (40-40), it is called 'deuce'.

The point right after the deuce is called 'advantage' that means there is only one point to be the winner. Or it is only a 'deuce'. The word 'love' in tennis means '0', '-love' means '30-0'.

(c) Set: Any tennis player who won six games means that he or she wins one set. If both tennis players won five sets, then they marked as '5 all'. Then, any tennis player who would win the set once he or she wins the next two games. But if the game is 6:6, then the 'Tie-break' should be held. If any tennis who wins seven points first and there are two points difference leading the other tennis player, the winner is bone.

In general, the winner should win two sets in the competition. But the male grand slam has nine sets competition. The Davis cup asks the winner should win three sets among five sets.

(d) Hard tennis: Twosome, foursome, mix doubles follows the rules: A set has six games. Any tennis player leads a set right after he or she wins six games. Soft tennis: A set has seven games. Any tennis

player leads a set right after he or she wins four games. But the mix doubles should win five games among nine games.

iii. Tennis Court

The different kinds of tennis courts are: a. natural grass tennis court. b. en-tout-case. c. redbrick sand tennis court d. dust tennis court e. PU plastic tennis court. f. asphalt tennis court g. chamber tennis court. The map of the tennis court is as Fig. 1.

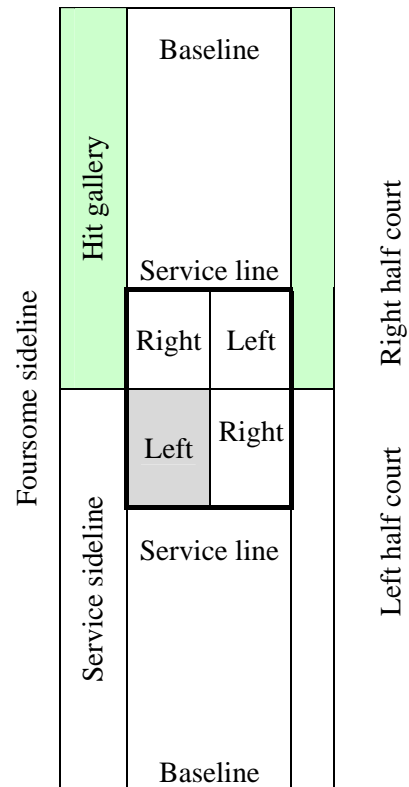


Fig. 1 Tennis court

The side line is about 78 inches. The twosome base line is about 27 inches. The foursome base line is 36 inches. The middle of the cage is about 3 inches; the stub of the side line is 3.5 inches. The distance from base line to serve line is 18 inches. The distance from serve line to the cage is about 21 inches. The width of every serve area is 13.5 inches. The width of the gallery is about 4.5 inches [5].

2.1.2 Tennis Skill

The skills of tennis includes many phases, we submit the discussion of the shot method, the serve, the forehand and backhand.

i. The basic serve: This includes the bump ball, short hit and intercept the ball. The description is as follows:

(a) Bump ball: While the ball falls on the ground, then hit it back.

- (b) Short hit: While the competitor runs to the baseline, hit the ball to the front of the cage that makes the competitor runs hurriedly to catch the ball.
- (c) Intercept the ball: Intercept the ball that hasn't fallen on the ground [4].

ii. Basic Serve

The serve emphasizes not only the serve point but also the standing position. The differences concerning height, arm length and muscle strength influence every other. But the first key point is to have the right serve position.

The serve classifies into: The straight serve—that shots backward and appears the fastest speed of serve. The backward shot appears less rotation, fast speed, and hard to control. The rotating serve—that shots athwart from the back. The ball increases slight rotation athwart. This serve is controlled easily and appears fast speed. This is a widely used serve type [6]. The straight serve is as Fig. 2.

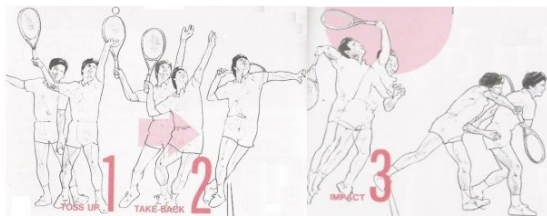


Fig. 2 The Straight Serve

iii. Forehand & Backhand

Forehand: (a) The preparation actions: Open two feet to the same wide of shoulder while standing. And then, bend down the knee a little, open the elbow a little, hutch forward, and the height of the paddle shouldn't not be higher than the netter's eyes. (b) Pull the paddle and turn around: Start rotating the right feet while pull the paddle, and hutch the right feet, slightly bending two knees. While pull the paddle, rotate the shoulder, expert the left hand, keep the balance of the body, relax the elbow that holds the paddle, and fix the radian of the backswing. (c) Step on of the left foot: While backswing and turning around, step on the former (left) foot. Tightly hold the paddle to fix the wrist and keep the paddle the same height of the waist. (d) The shot area: Backswing to the former upper area, and moves athwart to the former foot. The upper shoulder, arm and the waist tightly hold the paddle while the shot moment. The player should lower the jaw, watch the tennis ball concentrate. (e) After shot, the paddle leads the arm based on the tennis ball route. Then, raise the paddle to the show direction. While the paddle stops at the left shoulder, repeat the preparation action. As listed in Fig. 3.

Backhand: (a) Preparation actions: Stand forward, separate two feet to the same wide of shoulder while standing, slightly bend the knees, bend the body forward, and move athwart to the toes. Adapt the Eastern Backhand holding method, the other hand hold the middle of the paddle and watch the ball carefully. (b) Backswing and turn around: Start rotating left foot and move athwart to the left foot. Use the other hand that doesn't hold the paddle to help back-holding the paddle. This keeps the paddle at the serve height. (c) The left foot steps forward: Hold the paddle backward and turning shoulders while needed, and move athwart to the left foot. (d) Shot area: Wave the paddle head slightly, and step at the horizontal direction with the tennis ball's route. Tightly holding the paddle to keep the wrist and make the head of the paddle the same height of the wrist. (e) Hitting zone: Move athwart to the former foot, backswing upward and hold the paddle tightly. The upper shoulder, wrist, arm rotate at the same time, lower the jaw slightly, and watch the tennis ball concentrate. (f) Raise the paddle high and hit the tennis ball. Keep hitting followed the tennis ball's route. (g) Follow through: Extend the arm that holds the paddle at the top of the head, and step forward to face the cage. As listed in Fig. 4.



Fig. 3 Forehand Hit

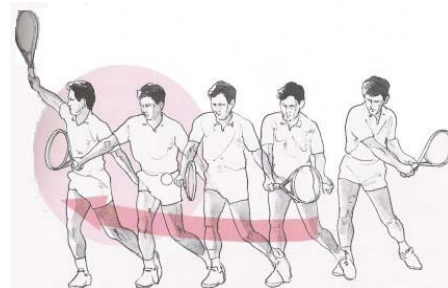


Fig. 4 Backhand Hit

2.2 The E-Learning

Due to the different vision points, E-learning can be explained as: i. The digital transferring information base 'digital learning', ii. Emphasize the 'on-line learning' through the network technique, iii. The electrical assisting 'electric learning', the prior teaching is based on the audio tapes, video tapes, space-gear televisions; computer assisted training [7].

But after the internet network is widely used, the E-learning becomes the teaching model that uses the modern broadcasting technique to transfer knowledge and skill [8]. This model breaks up the limit of time and locations. The students use the computers connecting to the internet to receive the required courses and materials. And the learning program can be designed by personal characteristics.

The E-learning is called network learning, network teaching, on-line learning or electrical learning. E-learning can be classified into synchronous network teaching and asynchronous network teaching. 'Synchronous network teaching emphasizes a real-time information transferring. Through the video meeting and multimedia techniques, the teachers and students can implement asynchronous network teaching at different time and different locations.

The teachers can allow the students to join the learning program at anytime through the computer network. The students can submit their questions freely. The students raise their questions through the e-mail, on-line discussion, message board and chat room. These processes create the flexible communication model [9].

2.2.1 The Characteristics of E-learning

The characteristics of E-learning are: i. equivalent educational chance: it provides the students the equal high-quality learning opportunities. ii. no restrictions on time and place: the learning processes are not interfered with the external useless factors. iii. Individual education: the learning program is arranged by individual requirements. iv. Appropriate personal characteristics development: the students can learn independently; the computers release the learning pressure for the students and provide the privacy for the students. v. The students share the learning with all the students all over the world. This helps in creating the worldwide aspect in this global world. vi. Through the self learning process, the students learn the following abilities: self control,

activeness, responsibilities, dependence, and lifelong learning [10].

2.2.2 The Advantages of E-learning

The E-learning includes the following advantages: various types of contents, channels of learning experience exchanging, the virtual learners' groupware, and the professional network resource providers. These advantages offer: the widen information sources, the rapid learning channel, the lower learning cost, the raise of learning quality and the increase of learners' participation rate.

i. Multiple-type of Content

The data transferred through the internet includes: text, graph, image, music, animation and video.

ii. Knowledge Exchanging Channel

The message board, discussion area and chat room are the communication channels for comment exchanging.

iii. Virtual Learning Groupware

The teaching platform is without the limitation of time and locations, so there are many learners can use the resources at the same time. Therefore, the virtual learning groupware is created.

iv. Professional Information Providing

The teaching platform groups specialists of different background and aggregates different topics of teaching materials and comments.

3 The Research Methodologies

The literature analysis method is used by this research. Our teaching training platform is designed on the basis of the advantages of present existing e-learning platforms.

3.1 Research Method

First, we collected the literature concerning E-learning and tennis and tried to find out the relationship between E-learning and Tennis. We also tried to sympathetic the construction of E-learning teaching training platform.

The sources of literatures contain text books, journals and research reports. We have made a deep straight analysis, cross analysis, and comparison on those literatures. Those analysis results become the base of our research and are widely used on the planning of the e-learning teaching platform.

3.2 Study Steps

The study steps are as Fig. 5.

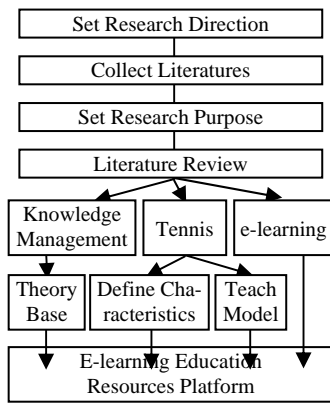


Fig. 5 Research Steps

4 The Scheduling of Tennis Teaching Platform

For the purpose to create a high-quality E-learning teaching platform, our courses are designed by the following guidelines:

4.1 Approach Learners' Necessities & Centralization Teaching

The courses include different levels. The teaching contents are designed by different levels. In order to forbid the less attractiveness, the text should be replaced by the video teaching. Those films are created by the professional specialists. The learners select the appropriate course level to start learning.

For those steps those are difficult and unclear, the learners can repeat watching while necessary. The tennis learning is different from other courses, it owns knowledge and skills. Especially in the skill training, the instructions of professional specialists are quite important.

4.2 Interactive Design & Planning to Increase Learning Efficiency

The interactive function is the most important one on the traditional teaching. Therefore, the discussion area, message board, and chat room are installed for interactively communicating on the E-learning teaching platform. The interactive function not only helps in solving the problems through the learning process but also implementing the cooperation teaching model by team work.

4.3 Consistency & Simplicity of Learners' Interface

A good E-learning teaching platform should be easily operating and learning by the learners. The interface should be consistency and simplicity. The learning flows and materials should be understood by the learners rapidly and conveniently. All those advantages would help in creating the learning strategies for the individual learner.

4.4 Entirety Functions of Teaching Platform

Based on the above three views points, the E-learning teaching platform is as Fig. 6.

The descriptions of each unit are listed below:

i. Public Board

This public board is to offer public messages, important issues, activities news, information updating. The fans of tennis can hold up the hot news here.

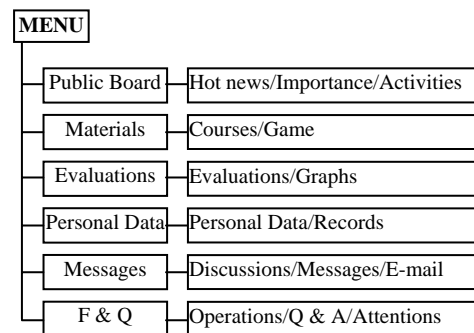


Fig. 6 E-learning Functional

ii. Courses and Resources

The design of the courses is based on the knowledgeable teaching. The main topic of the courses is the talent teaching. It uses the film-type teaching model, such as the different patterns of shot, the feet moving type, the standing type, and the backswing, etc. It uses the distinctiveness of the multi-media and combines with the introduction of animation and text to raise the efficiency of the talent learning. All those courses can be replayed at any time.

iii. Teaching Estimation

The learners can use the questions that are listed on the E-learning teaching platform to evaluate their learning efficient. This evaluation can be corrected by the standard learning skills and makes a better connection to the next learning stage.

iv. Private Records

This E-learning teaching platform keeps the entire learning report those can be used to organize better connection for the next learning step.

v. Knowledge Exchange

The discussion region, message panel, chat room and E-mail provide a ground for the learners sharing the learning experience. These channels act like a two-way communication channel for the learners and professional coaches.

vi. F and Q

This phase includes the operating method, use instructions and limitation. This phase leads the learners to be easily familiar with the platform.

4.5 The Real Exhibitions in the e-Learning Teaching Training Platform

In this Section, the author himself (Wen-Chen Tsai) will present the real person standard altitude about Tennis Trainings, the authors is a senior trainer and competing chairman in the Athletics Department of St. John's University and also is a Nation Player in Taiwan, R.O.C.

The author won numerous Prizes during the past ten years. The author himself presents the Straight Serve shown in Fig 7, the Forehand Hit shown in Fig 8, and the Backhand Hit shown in Fig. 9.

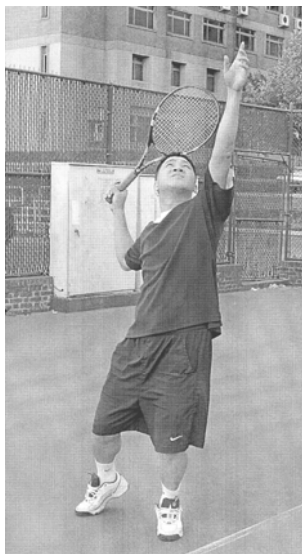


Fig. 7 'The Straight Serve

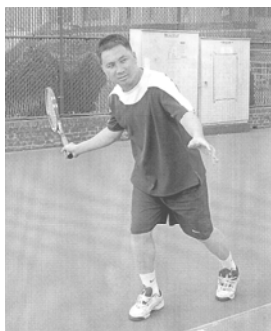


Fig. 8 The Forehand Hit



Fig. 9 The Backhand Hit

5 Conclusion

Throughout the production of the E-Learning teaching training platform, the authors' researches provide the constructive advantages of the Tennis Teaching and Trainings. We implement the real E-Learning Platform for Tennis Teaching in school and obtain some successful results.

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