

## A CASE STUDY OF MATCH ANALYSIS FOR PRACTICAL TENNIS COACHING

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The purpose of this study was to verify a new coaching method through match analysis with video as a case study. A woman collegiate tennis player was selected for this study. The goal for the player was to decrease the problem pattern and to increase the strength pattern in actual match. The coaching period was about 5 weeks. In coaching process, the video clips edited by Gamebreaker (Sportstec) was used. Each rally in pre- and post-match was categorised to 'Good', 'Poor' or 'Neutral'. The frequencies and the ratios of each category were compared between pre- and post-match. As a result, The ratio of 'Good' category showed significantly high and the ratio of 'Poor' category showed significantly low in post-match compared to pre-match. It was considered those differences between pre- and post-match were caused by the coaching with video.

**KEY WORDS:** tennis, coaching, video, Gamebreaker.

### INTRODUCTION:

The purpose of this study was to verify a new coaching method through match analysis with video. The importance of video feedback was indicated by Lievermann *et al* (2002) and Liebermann and Franks (2004). Olsen and Larsen (1997) also suggested the importance for match analysis in coaching. The most important aspect of video feedback and match analysis is to provide the athlete with a practice environment that is conducive to effective and efficient learning (Lievermann *et al*, 2002). On the other hand, Hughes and Franks (2004) suggested that those video technologies can make this process more efficient and also provide audiovisual feedback for the coach and the athlete. And also the next phase of audiovisual feedback is translating the use of video analysis systems into practice. O'Donoghue (2006) suggested that eleven kinds of edited videos for feedback in sport: Match videos, Areas for improvement, Videos concentrating on particular techniques, Opposition Team Movie, Individual opposing player movie, Individual positives / negatives, Selection movie, Motivational movies, Light relief, Tournament movie and Career movie. However, those kinds of videos were applied for team sports. Although, tennis is an individual sport, it is considered to apply which kinds of videos. Especially in practical conditions, the specific feedback and coaching methods were unclear. In current study, the authors applied a new coaching method using video feedback and verified the effectiveness of this method in the case for a collegiate tennis player.

### METHOD:

**Subject:** A woman collegiate tennis player (player A) was selected for this study. Player A's style was baseline player and two-hander (Bollettieri, 2001). This style is a typical in women collegiate tennis in Japan.

Her coach (coach A) indicated that the problem in player A's style was shot direction. Player A tended to hit the ball to down-the-line on inappropriate situation. It caused player A to disadvantage in positioning. Also indicated that the strength of player A was forehand crosscourt, especially from left side of baseline. Figure 1-A and 1-B showed the problem and the strength of player A's style.

In current study, coach A tried to improve player A's style. The goal for player A was to decrease the problem pattern and to increase the strength pattern in actual match.

**Data Collection and analysis:** Each rally in pre- and post-match was categorised to 'Good', 'Poor' or 'Neutral'. The definitions for categorising were based on the usual theory in the situation of groundstrokes. For example, when in a corner of the court, hitting in a crosscourt direction would yield the shortest distance to the correct recovery position (Bollettieri, 2001).

From this point of view, the problem pattern for player A was incorrect shot direction from that court position (figure 1-A). The definitions of those categories were shown as below:

- ‘Good’: The rally with the strength pattern while without the problem pattern
- ‘Poor’: The rally with the problem pattern
- ‘Neutral’: The rally without the problem or the strength pattern OR the rally finished within serve or return

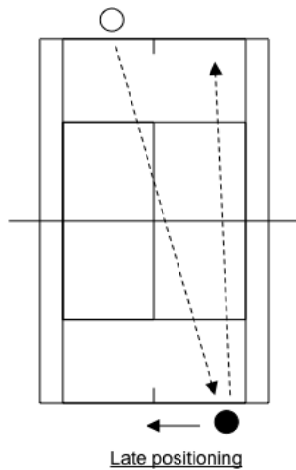


Figure 1A. The problem pattern for player A

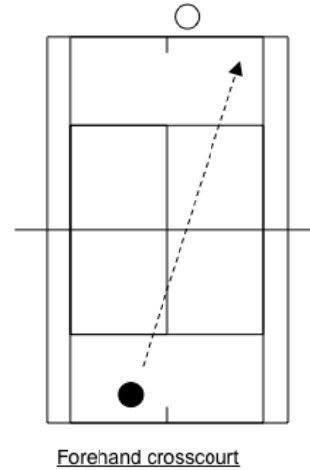


Figure 1B. The strength pattern for player A

Pre-match was held on February 2008. Coach A analyzed this match by using Gamebreaker (Sportstec). Coach A categorised each rally by watching the VTR of player A’s match. The coach used the results of the game analysis and the video clips edited by Gamebreaker during the coaching process with the player. The kinds of videos in current study were ‘Areas for improvement’ and ‘Individual positives / negatives’. In coaching process, coach A trained player A’s style by practical match training. It was held in two to three times per week. The coaching period was about five weeks. Post-match was held on March 2008. All the subjected matches were held in official tournaments. The opponent was same in pre- and post-match. Her coach analyzed post-match in same method as pre-match. And player A reported about the remarks of the video based coaching process. After those processes, another tennis coach (coach B), licensed by Japan Tennis Association and experienced over 15years in tennis coaching, analyzed pre- and post-match as same method. Coach B appraised the results of categorising by coach A. The rallies categorised in different categories between two coaches were excluded from statistical analysis. The frequencies of categorised rallies were compared by chi-square tests. The procedures of current study were shown in figure 2. The details of pre- and post-match were shown in table 1.



Figure 1 The procedures of current study

**RESULTS:**

Frequencies and ratios of each category are shown in Table 2. Significant differences are shown in 'Good' and 'Poor' categories. The ratio of 'Good' category became high and the ratio of 'Poor' category became low in post-match.

**Table 1 The details of pre- and post-match**

Match	Date	Score	
Pre	Feb 2008	26,62,46	Opponent
Post	March 2008	36,46	Opponent

**Table 2 Frequencies and ratios of each categories by match analysis**

Categories	Pre-match (%)	Post-match (%)	
Good	19.2 (35)	27.4 (32)	*
Poor	19.8 (36)	13.7 (16)	*
Neutral	61.0 (111)	59.0 (69)	
Total	100.0 (182)	100.0 (117)	

**DISCUSSION:**

This study was just a case study for attempting the video analysis in tennis coaching. The results and discussions below were applied for the definite situations with player A and coach A. To apply this coaching methodology for general situations, further research is needed to clear the effectiveness with or without video feedback situations.

The ratio of 'Good' category showed significantly high and the ratio of 'Poor' category showed significantly low in post-match compared to pre-match. It was considered those differences between pre-match and post-match were caused by the coaching with video. In the coaching process, coach A showed the edited video to player A. The video was edited from the scene of player A's problem style and strength style. It helped for understanding the problem and strength for player A. Those edited videos were affected the improvement in player A's style. The report from player A showed that the video information was helpful for me to understand the problem and the strength. However it needs to consider about the applied area for video analysis. In current study, we focused on the player A's style especially in the problem and the strength. Sometimes too much information might interfere with performance (Liebermann *et al*, 2002). Visual feedback has much information than verbal feedback. Coaches consider the timing and the amount of the feedback from video.

Video information without coach's guidance would be rather ineffective in many cases (Liebermann and Franks, 2004). In current study, coach A guided the problem and the strength of player A with video information. This guidance was effective for player A to understand the problem and the strength.

In the coaching process in current study, the methodology of coaching by coach A was not different with the usual coaching. It was just different in using the video information and to guide with video information. Video analysis sessions can be a very powerful tool to use with players to increase their knowledge and understanding of the game (Groom and Cushion, 2005). The effectiveness of video information was also verified in current study.

The coaching period in current study was only five weeks. Franks (1997) suggested that the benefits of a video based analysis and feedback process can only be seen after a period of time and practice. Post-match was held just after the coaching process. It was considered that the timing for post-match was affected the results of this study. Jenkins *et al* (2007) suggested that four months period used in the coaching for netball team might not have been sufficient to improve the team. There was the difference between team sports and individual sports. However, further research is needed to clear the sufficiently period for video feedback and coaching.

Another aspect from current study was to judge the player's style in actual match. The results of categorising the rallies accorded between coach A and coach B. Those

observations were usually subjective, unreliable and often inaccurate (Franks and Miller, 1991). However, those results in current study suggested experienced coaches have the consensus to judge the player's style.

### CONCLUSION:

This study was verified the effectiveness using video analysis in tennis coaching as a case study. The player's style was improved after the coaching process with video information in current situation. It was considered that video feedback was helpful for the subjected player to understand the problem and strength in player's style.

Further study is needed to clear the effectiveness with or without video feedback to apply this coaching methodology for general situations.

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### Acknowledgement

This study was supported from the research fund of department of sports performance, in National Institute of Fitness and Sports in Kanoya.