



# Examination of causes of unforced-errors in Australian tennis players and Coaches

Daisuke Hirata *Senshu University* • Kentaro Shibahara *Nippon Sport Science University* • Shuhei Sato *Sendai University* • Kiso Murakami *Tokyo University of Science* • Daiji Morii *Nippon Sport Science University* • Masahiro Kiuchi *Doshisha University* • Masayuki Sato *Senshu University*

## Purpose

There are two types of errors in tennis skills including an unforced-error (UE) and forced-error. The unforced-error is caused in the situation that the player is able to select the shot and is in control of a point or game. About Hirata et al. (2014) found several causes of UEs in Japanese Collegiate female tennis players. As a result, it was four “Distraction” factors including “Hesitation”, “Delay in the ready”, and “Anxiety”.

On the other hand, we compared these in the Association of Tennis Professionals (ATP) ranking and the international tournaments held in the past 20 years between in Australia and Japan. The data suggested that the system in Australia had a friendly system and education that encouraged players to compete in the tournament when compared to that in Japan.

The purpose of this study was to investigate the difference in the unforced-error structure cause factors between two countries with different strengthening methods through the comparison of players and coaches.

## Method

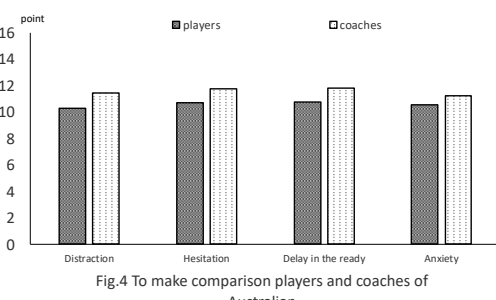
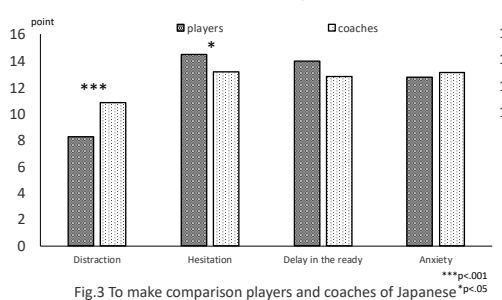
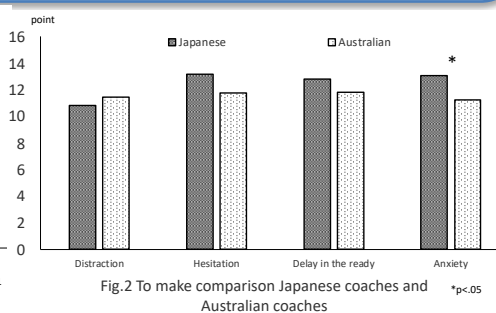
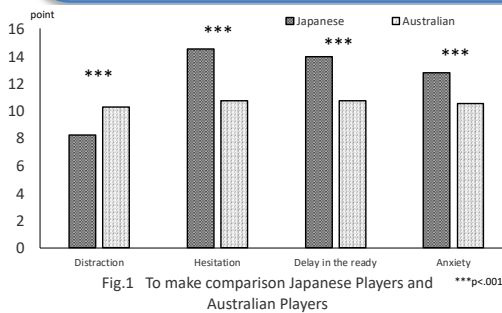
Data were obtained from a sample of 55 Australian tennis players and 19 Australian coaches and 99 Japanese tennis players and 33 Japanese coaches (see Table 1).

A questionnaire was prepared based on the Situational Decision-Making processes model (Nakagawa,1984) and previous study (Hirata et al., 2017; Haga,2000).

The answer was evaluated on a scale of 1 to 5 and was “not at all”, “rarely”, “Occasionally”, “Frequently” and “Always”.

Table 1 Groups details of Players and Coaches

| Player     |                  |             |                                      |
|------------|------------------|-------------|--------------------------------------|
| Country    | Number ( )=women | Age(year)   | Experience in Tennis (year)          |
| Japanese   | 91(91)           | 15.47±1.61  | 6.74±3.37                            |
| Australian | 55(18)           | 16.04±5.59  | 8.62±5.89                            |
| Coaches    |                  |             |                                      |
| Country    | Number ( )=women | Age(year)   | Coaching Experience in Tennis (year) |
| Japanese   | 33(6)            | 38.03±13.21 | 13.41±10.33                          |
| Australian | 19(8)            | 32.18±14.48 | 13.53±12.69                          |



## Result

In order to evaluate the difference between the two countries in players and coaches, we conducted an unpaired t-test in rating scores of UE.

As a result, players revealed a significant difference between Japan and Australia in all factors (see Fig1). On the other hand, coaches revealed no significant difference between Japan and Australia in all factors (see Fig 2).

In order to evaluate the difference between players and coaches in Japan and Australia, we conducted an unpaired t-test in rating scores of UE. In Japan, the results revealed a significant difference between players and coaches in the distraction and hesitation (see Fig3). On the other hand, there was no significant difference found between players and coaches in Australia (see Fig4).

## Conclusion

From these findings, it appears that recognition of cause of UE is different between Japan and Australia. In particular, it is caused by error of decision / judgment in Japan while it is likely to be due to cognitive / prediction in Australia.

**References:** Daisuke Hirata, Shuhei Sato, Kiso Murakami, et al. (2017) An examination of the factorial structure of the unforced-error measure in collegiate women tennis players in Japan: A comparison between players and coaches. *ITF Coaching & Sport Science Review*, 71. 8-10.

Table 2 The question items to coaches and players

| Items to players  |  | Items to coaches  |  |
|---|--|---|--|
| <b>F1 : Distraction</b>                                 |  |   |  |
| A1 I played sloppy.                                     |  | Player played sloppy.                                     |  |
| A2 I was careless.                                      |  | Player was careless.                                      |  |
| A3 I played with not enough thought.                    |  | Player played with not enough thought.                    |  |
| A4 I afforded too much the time before making a hit.    |  | Player afforded too much the time before making a hit.    |  |
| <b>F2 : Hesitation</b>                                  |  |   |  |
| B1 I was too confident with my shot.                    |  | Player was too confident with my shot.                    |  |
| B2 I was uncertain with my shot selection.              |  | Player was uncertain with my shot selection.              |  |
| B3 I hesitated.   |  | Player hesitated.   |  |
| B4 I made a wrong decision.                             |  | Player made a wrong decision.                             |  |
| <b>F3 : Delay in the ready</b>                          |  |   |  |
| C1 I was slow to regain possession.                     |  | Player was slow to regain possession.                     |  |
| C2 My timing was late with my stroke.                   |  | Player's timing was late with my stroke.                  |  |
| C3 I was uncoordinated to make my shot.                 |  | Player was uncoordinated to make my shot.                 |  |
| C4 I wasn't prepared before hitting (re-load the limb). |  | Player wasn't prepared before hitting (re-load the limb). |  |
| <b>F4 : Anxiety</b>                                     |  |   |  |
| D1 I was unconfident with my shot.                      |  | Player was unconfident with my shot.                      |  |
| D2 I was anxious to play.                               |  | Player was anxious to play.                               |  |
| D3 I was not aggressive enough.                         |  | Player was not aggressive enough.                         |  |
| D4 I was nervous.                                       |  | Player was nervous.                                       |  |