

A Pattern Language of Sports Coaching for Supporting the Development of Youth Athletes

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This paper presents a pattern language of sports coaching for supporting the development of youth athletes and introduces three specific patterns, along with their names and full descriptions. This pattern language was developed based on interviews with seven Japanese expert coaches of youth tennis players. As a result, three elements were found to be important in coaching youth athletes: Fostering a Foundational Relationship, Leading to High Performance, and Together Self-Reliant. Each of these categories includes 12 patterns, making a total of 36 patterns. This pattern language is expected to support the growth of less experienced coaches.

1. INTRODUCTION

The role of a coach is important in the development of an athlete. The origin of the word “coach” comes from the Hungarian word for “carriage,” “kocsi,” meaning that a coach is expected to guide someone to their destination, namely to support the growth of an athlete to achieve their goals.

Among them, coaches of youth athletes in particular are required to take on a wide-ranging role due to the age characteristics of the players. This is because the youth age is an important period of character building, and sports experiences during this time can have a significant impact on later life. Therefore, there is a need to focus not only on improving competitive skills, but also on developing athletes who can be self-reliant in the future (Gilbert and Trudel, 2004).

There are many coaches who teach youth athletes, among them are expert coaches who have accumulated years of coaching experience and have supported the growth of athletes to achieve their goals. Such coaches have “Professional Knowledge” derived from their own competitive and coaching experiences, including knowledge of the skills and tactics of the sport, as well as knowledge of the body. However, having this knowledge alone is not sufficient for effective coaching. They are also required to have “Interpersonal Knowledge” for building good relationships with others, knowledge for effectively communicating information to others, and “Intrapersonal Knowledge” for learning from experience and updating their own coaching methods (Côté and Gilbert, 2009).

However, knowledge such as “Interpersonal Knowledge” and “Intrapersonal Knowledge” that expert coaches possess are difficult to formalize in textbooks and challenging to communicate to others. In addition, these types of knowledge are not needed until an athlete transition to becoming a coach, and many beginner coaches struggle to acquire them.

Therefore, in this study, we examined the thoughts and practices of expert tennis coaches who teach youth athletes when coaching these young players. The findings were compiled into a pattern language. It is hoped that this approach will make it possible to share coaching knowledge with other coaches, which is usually difficult to communicate to others, and thereby support the development of coaches with less experience.

2. CREATING PROCESS

The participants in the mining interviews were seven expert Japanese tennis coaches who teach youth athletes and had consented to participate in the study (Table 1). All of them have more than ten years of coaching experience with youth athletes (U-12 to U-18). In addition, their coachee of each coach had won the Japanese Junior National Championship.

Table 1. List of Mining Interview Participants.

Interview Participants	Years of Coaching Youth Athletes
A	24
B	15

C	15
D	12
E	17
F	26
G	11

After transcribing the mining interviews, we extracted key practices and summarized each on 153 cards. These cards were then arranged on large sheets of paper, grouping those with similar content to form “Islands.” From these groupings, we created “Pattern Ingredients,” each described in a single sentence. As a result, the 153 cards were consolidated into 47 “Pattern Ingredients.”

In the systematization process, 47 “Pattern Ingredients” were categorized into categories and groups. This process resulted in the identification of three categories and 12 groups, with each group containing three patterns, for a total of 36 pattern.

During the pattern writing phase, the content of each pattern was described using the CPS (Context, Problem, Solution) format. CPS is a statement that describes “under what circumstances (Context),” “what problems occur (Problem),” and “how it can be solved (Solution).”

After writing CPS, Full Description was written to complete the pattern description. In this phase, in addition to CPS, “why the problem occurs (Force),” “how to practice the solution (Action),” and “what the outcome will be (Consequence)” were added.

Furthermore, each pattern was given a symbolic “Pattern Name” that represents its content. The pattern names were chosen with consideration for succinctly summarizing the content of the pattern and functioning effectively as vocabulary for communication.

3. OVERVIEW OF PATTERNS

This pattern language consists of 36 patterns (Figure 1). These patterns are categorized into three categories, each containing 12 patterns.

First, the *FOSTERING A FOUNDATIONAL RELATIONSHIP* category demonstrates practices for building a strong foundational relationship with athletes and their guardians, essential for effective coaching. This category comprises four groups: INTERACTING AS A LIVING PERSON, BUILDING TRUST WITH GUARDIANS, BEING CO-THINKING PARTNERS, and PROVIDING DIGESTIBLE FEEDBACK.

Next, the *LEADING TO HIGH PERFORMANCE* category presents practices aimed at enhancing athletes' competitive performance. This category includes the groups: ENHANCING OBSERVATION SKILLS, DESIGNING NON-VERBAL STIMULATION, PLANNING PRACTICE FOR MASTERY, and GENERATING INSIGHTS WITH TWIST.

Lastly, the *TOGETHER SELF-RELIANT* category focuses on practices that foster mutual independence, where athletes grow as individuals and humans, and coaches as professionals. It consists of four groups: FACING ONESELF AS A COACH, KEEP UPDATING COACHING, NURTURING SELF-PROGRESSIVE THINKING, and RELEASING FOR SELF-RELIANCE.

In the following sections, one pattern from each category will be highlighted and introduced:

- Collaborative Goal Setting (No.5)
- Preferred Sensory Approach (No.22)
- Co-Planning Match Schedules (No.35)



Fig. 1. Structure and Pattern Names of the Pattern Language.

4. PATTERNS

In this section, we will present the pattern names and full descriptions for three selected patterns.

4.1 Collaborative Goal Setting

Collaborative Goal Setting

You are considering about the athlete's future goals and the path to achieve them.

▼ In this context

If you alone decide the direction, it may not accommodate with the intentions of the athlete or their guardians. The athlete, guardians, and coach sometimes have differing expectations. If a direction is chosen without considering the expectations of these three parties, there's a risk that the resulting direction may become biased. In addition, even if goals are shared between athletes and coaches, it can be difficult to build trust with parents if those goals are different from their expectations.

▼ Therefore

Setting up opportunities for the athlete, guardians, and coach to accommodate the intentions of all three parties and collectively decide the athlete's future goals and the approach to achieve them in the sport. The athlete, guardians, and coach are partners in the project of nurturing the athlete's growth. For this reason, regular meetings among the three parties are conducted to openly discuss the intentions of each stakeholder. In these discussions, it would be valuable to delve into details, covering not just goals for sports performance but also how long the athlete intends to compete and whether they aim to pursue a professional career.

▼ Consequently

By creating opportunities for accommodation among the athlete, guardians, and coach, it enables all parties to work towards goal achievement with a clear and unified focus. As a result, the athlete might become fully immersed in the sport without distractions, potentially leading to better performance and results. Furthermore, building trust with the athlete's guardians can lead to effective collaboration, enabling progress towards solutions, even in challenging situations.

4.2 Preferred Sensory Approach

Preferred Sensory Approach

You are trying to give technical advice.

▼ In this context

While explaining using words, it's possible that some may understand while others may find it difficult. Each athlete has a different sense of how easily information can be understood. For example, some athletes are easier to listen to and understand than others, while others are easier to watch and understand. And young athletes, in particular, may have poor logical thinking skills and may not be able to understand verbal explanations. With these characteristics, if coaches convey information using only verbal explanations, some athletes will have difficulty understanding the advice.

▼ Therefore

Beyond verbal explanations, try different methods of communication, such as showing actions and providing physical assistance, to understand each athlete's sense of preference and tailor explanations to their learning styles. For example, by showing videos of expert athletes and sharing images, information is conveyed visually. It is also a good idea to help athletes with their movements so that they can rely on their physical senses to help them understand the information. By experimenting with these various methods, you can gain an understanding of which sensory approach makes information more accessible for each athlete.

▼ Consequently

By arranging the way information is conveyed according to the characteristics of athletes, they can properly understand what the coach is conveying. Then, even if there are diverse athletes on the team, you can help them develop in a way that is appropriate for each. Furthermore, through trial and error in conveying information to athletes, you will become more skilled in your coaching techniques.

4.3 Co-Planning Match Schedules

Co-Planning Match Schedules

You are deciding on the tournaments for athletes to participate in.

▼ In this context

If you make all the decisions about which tournaments to participate in, it becomes difficult for the athletes to understand when and what kind of matches they will have under their own responsibility, which leads to a decrease in the quality of practice aimed at those matches. Especially at younger ages, the adults around athletes tend to decide all the tournaments in which they will participate. However, this would make it difficult to improve the quality of practice because athletes do not know when and what games are coming up in the future. Furthermore, when they are older, they will not be able to decide for themselves which tournaments they will participate in.

▼ Therefore

By involving athletes in the process of planning which tournaments to participate in, you enable them to approach the competition as their own personal challenge. First, explain to athletes how tournaments are structured in a hierarchy, such as world championships, national competitions, and regional events, to ensure their understanding. Then, even if it is difficult for athletes to decide everything, athletes, together with their guardians and coaches, try to think about which tournaments they will participate in. Some teams have created a system in which athletes themselves write down on paper which tournaments they will participate in and when, and submit this information to their coaches.

▼ Consequently

By allowing athletes to choose the tournaments they participate in, they will be able to take ownership of the game. Then, they will be able to think about how they want to play and what their goals are in that tournament, and the quality of their practice will improve. And later, they will be able to think about what kind of tournaments they want to participate in and work toward them on their own.

5. CONCLUSION

This paper presents a pattern language of sports coaching for supporting the development of youth athletes and introduces three specific patterns, along with their names and full descriptions. It is hoped that this pattern language will be used in the future to support the growth of coaches. Although this study focuses on coaching youth tennis players, it is expected that pattern languages for other sports and levels will be developed in the future.

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