

## **Learning to Coach Through Experience: Reflection in Model Youth Sport Coaches**

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The present study examined how model youth sport coaches learn to coach through experience. Yin's multiple-case study approach was used with six youth team sport coaches. Data were collected over an entire sport season through a series of semi-structured interviews, observations, and documents. All six case study coaches developed and refined coaching strategies through a process of reflection. Six components characterized reflection: coaching issues, role frame, issue setting, strategy generation, experimentation, and evaluation. A reflective conversation comprising the latter four components, triggered by coaching issues and bound by the coach's role frame, was central to reflection. The selection of options at each stage in a reflective conversation was influenced by access to peers, a coach's stage of learning, issue characteristics, and the environment. Furthermore, three types of reflection were evident: reflection-in-action, reflection-on-action, and retrospective reflection-on-action.

**Key Words:** coaching, learning process

Youth sport coaches are expected to develop and use knowledge from a wide array of disciplines including anatomy, pedagogy, physiology, nutrition, and sport psychology (Campbell, 1993; Martens, 1997). As a result, comprehensive coach education programs that attempt to train many coaches in different sports have been implemented worldwide (Campbell, 1993; De Knop, Engström, & Skirstad, 1996). However, there is no agreed upon format for coach education programs between countries, or within countries in some cases (Sawyer, 1992), and large-scale coach education programs have been criticized for their low ecological validity (Abraham & Collins, 1998; Douge & Hastie, 1993; Gilbert & Trudel, 1999a).

Most youth sport coaches are volunteers and are not required to obtain coaching certification (Campbell, 1993; De Knop et al., 1996; Ewing, Seefeldt, & Brown, 1996). As a result, virtually anyone can assume the role of a youth sport coach. The gap between expected competencies and the typical youth sport coach profile (i.e., volunteers with sparse formal training) has long been considered a major challenge for youth sports (Ewing et al., 1996).

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Coaching experience and observation of other coaches have often been cited as the primary sources of knowledge for coaching (Coaching Association of Canada, 1996; Gould, Giannini, Krane, & Hodge, 1990; Salmela, 1996). For example, Gould and colleagues surveyed 130 coaches in the United States and found that "one of the most important themes arising from the findings was the importance of experiential knowledge and informal education" (p. 34). Although these studies yield valuable information about coach development, the results provide only limited understanding of how youth sport coaches develop a knowledge for coaching. Most of these studies were conducted with coaches at the college or Olympic level, and data were collected using retrospective interviews or questionnaires. Furthermore, none of these studies were designed specifically to focus on how coaches learn to coach.

In summary, the process of how experience is used to develop knowledge for coaching has not been fully explored, particularly with youth sport coaches. Although the importance of experience is widely acknowledged, the simple accumulation of experience does not guarantee coaching competence (Bell, 1997; Douge & Hastie, 1993). It has been proposed, yet never supported through empirical investigation, that model coaches engage in reflection to learn through experience (Martens, 1997). Therefore, the purpose of the present study was to examine how model youth sport coaches learn to coach through experience.

### **Reflection as a Conceptual Framework**

Reflection is the process that mediates experience and knowledge, and therefore is at the heart of all experienced-based learning theories (Dewey, 1938/63; Kolb, 1984; Schön, 1983). Reflection has only recently been empirically documented with practitioners while they are engaged in their professional activity (i.e., on-the-job or in-action). Schön (1983, 1987) developed a theory of reflection specific to the development of knowledge for professional practice in the context of professional activity. Based on research with model practitioners in professions such as education, architecture, and town planning, Schön found that professional growth through experience is accomplished by reflecting-in and reflecting-on practice dilemmas, referred to as a reflective conversation. A reflective conversation is defined as a repeating spiral of appreciation (problem setting), action (experimenting), and reappraisal (problem setting). A reflective conversation is triggered by dilemmas of practice and is bound by the way practitioners view their professional roles, referred to as a role frame. Role frames act as filters through which problems are constructed and strategies are developed. Finally, reflection-in-action is confined by the temporal limits of the dilemma, also known as the action-present.

Schön's (1983, 1987) theory of reflection provides an insightful frame of reference for examining how youth sport coaches learn to coach through experience (Gilbert & Trudel, 1999b). Reflection is most likely to be found in an environment in which there is "a high priority on flexible procedures, differentiated responses, qualitative appreciation of complex processes, and decentralized responsibility for judgment and action" (Schön, 1983, p. 338).

Many of these features are also evident in the typical youth sport environment. For example, there is no curriculum that youth sport coaches must adhere

to, and they have little or no supervision. Most youth team sport coaches work in isolation and therefore have tremendous freedom in the content they select to teach, and in the way they structure the training programs. Another reason why Schön's (1983, 1987) theory of reflection is a useful reference point is because his theory has been widely adopted by educational researchers to examine how teachers learn through experience (Clarke, 1998; Kruse, 1997; Schön, 1991).

### Research Questions

The primary question that guided the present study was: How do model youth sport coaches learn to coach through experience? To answer this guiding question, numerous subquestions were posed, based on a review of the coaching literature and Schön's (1983, 1987) theoretical framework:

1. What are the types of coaching issues (dilemmas) experienced by youth sport coaches?
2. What are the components in the process of learning through experience?
3. To what extent do youth sport coaches engage in reflection?
4. Do youth sport coaches proceed through reflection alone or do they consult other sources?
5. What are the components of a model youth sport coach's role frame?

### Methodology

#### *Selection and Profile of Coaches*

A multiple-case study approach was used for the present study (Yin, 1994). The participants were six youth team sport coaches: three in competitive soccer and three in competitive ice hockey. It has been suggested that reflection is evident only in certain types of coaches (Bell, 1997; Martens, 1997) and practitioners (Schön, 1983). Therefore, only model youth sport coaches were sought for the present study. The following criteria were used to identify model youth sport coaches: (a) demonstrated interest in learning about the theory and practice of coaching; (b) respected in the local sporting community for their commitment to youth sport; (c) considered good leaders, teachers and organizers; and (d) kept winning in perspective and encouraged children to respect the rules of the game, their competitors, and officials. The cases were selected based on the recommendation of coaching directors, who were provided with the four selection criteria when making their choices.

Coach profiles were consistent with those of other youth sport coaches (Ewing et al., 1996). All coaches were volunteers and four coached one of their own children. On average, the coaches were in their late 30s ( $M = 39$  years,  $R = 21$ –55 yrs). Five of the six coaches were male. Coaches averaged 10.7 years of coaching experience ( $R = 3$ –20 yrs), and all coaches had formerly competed as youth sport or adult recreational athletes ( $M = 11.3$  yrs,  $R = 3$ –20 yrs). All coaches had obtained either Level I (a one-weekend course in coaching theory) or Level II (a two-week-end course in coaching theory) certification through the National Coaching Certification Program (NCCP). The NCCP is Canada's 5-level national coach education program designed for coaches in over 60 sports (Gowan, 1992). The athletes ranged

from 10 to 14 years of age (five boys' teams and one girls' team). Two coaches asked that their information remain confidential. Therefore, although only one of the soccer coaches was female, all three soccer coaches were given female pseudonyms.

### *Sources of Evidence*

Six sources of evidence were used in the following sequence: background interviews, documents, observations combined with video and audio recording, on-site interviews, interval summary interviews, and member check interviews (see Table 1).

*Background Interviews.* Background interviews were conducted with each coach prior to the sport season. The interview comprised questions on demographics, coaching issues, and coaching strategies. Coaches were asked to describe some of the typical coaching issues they have addressed as a youth sport coach, what coaching strategies they used to address these issues, and how they developed or acquired these strategies.

*Documents.* Written documents were collected throughout the sport season and included materials prepared by each coach, documents from sport associations, and media publications.

*Observations and On-site Interviews.* The season was divided into three intervals (early season, mid-season, late season). Each interval covered a period of 7 to 12 days, during which each coach was videotaped and audiotaped at least three times in regularly scheduled games and practices (see Table 1). Games and practices in ice hockey typically lasted 50 to 60 minutes. For soccer, the games ranged from 60 to 90 minutes and the practices lasted 90 to 120 minutes.

The video camera was set up across the playing surface from the coach and players' bench, and both the coach and the play were recorded. The coach wore a wireless microphone and the researcher wore headphones to listen to the coach's dialogue. Video and audio equipment was used to listen to the coaches because it was not practical to stay within hearing distance of the coaches in the context of soccer and ice hockey. The videotapes were also used to validate statements the coaches made during the interviews.

The video and audiotaping was supplemented by nonparticipant observation (30–45 minutes before and after each event). During nonparticipant observation the coach's interactions with other coaches, parents, and athletes were recorded in a journal. At each recorded event, the coach was interviewed on site before and after the event. The purpose of the on-site interviews was to discuss current coaching issues. On-site interviews generally lasted 10 to 15 minutes.

*Interval Summary Interviews.* Within a week after each data collection interval was completed, a semi-structured interview was conducted. The interval summary interview guides were based on (a) a review of the videotapes, field notes, and on-site interviews specific to that interval of data collection, and (b) incomplete data collected in previous intervals. The purpose of the interval summary interviews was threefold: first, to explore in-depth the coaching issues raised during the on-site interviews; second, to validate coaching issues discussed in previous intervals; third, to provide a testing ground for emerging propositions.

Table 1 Sources of Evidence and Case Study Data

| Cases         | Background interviews <sup>1</sup> | Documents <sup>2</sup> | Recorded events <sup>3</sup> | On-site interviews <sup>1</sup> | Interval summary interviews <sup>1</sup> | Member check interviews <sup>1</sup> | Pages of interview transcripts | Coaching issues discussed |
|---------------|------------------------------------|------------------------|------------------------------|---------------------------------|------------------------------------------|--------------------------------------|--------------------------------|---------------------------|
| <i>Soccer</i> |                                    |                        |                              |                                 |                                          |                                      |                                |                           |
| "Jackie"      | 1 (11)                             | 6                      | 9 (3G/6P)                    | 18 (20)                         | 3 (35)                                   | 1 (8)                                | 74                             | 13                        |
| "Barbara"     | 1 (16)                             | 25                     | 9 (4G/5P)                    | 20 (23)                         | 3 (33)                                   | 1 (5)                                | 77                             | 15                        |
| "Jennifer"    | 1 (10)                             | 4                      | 9 (5G/4P)                    | 18 (17)                         | 3 (41)                                   | 1 (5)                                | 73                             | 13                        |
| <i>Hockey</i> |                                    |                        |                              |                                 |                                          |                                      |                                |                           |
| "Bren"        | 1 (11)                             | 10                     | 11 (6G/5P)                   | 22 (32)                         | 3 (36)                                   | 1 (3)                                | 82                             | 18                        |
| "Richard"     | 1 (6)                              | 6                      | 10 (6G/4P)                   | 20 (33)                         | 3 (46)                                   | 1 (7)                                | 92                             | 16                        |
| "Duane"       | 1 (10)                             | 42                     | 11 (6G/5P)                   | 22 (25)                         | 3 (32)                                   | 1 (3)                                | 70                             | 14                        |
| Totals        | 6                                  | 93                     | 59                           | 118                             | 18                                       | 6                                    | 468                            | 90                        |

<sup>1</sup>Interviews — number of single-spaced transcript pages for interviews in parentheses;<sup>2</sup>Documents — number of pages of printed material;<sup>3</sup>Observed Events — number of games (G) and number of practices (P) in parentheses.

*Member Check Interviews.* Upon completing each case study, a case summary report was submitted to each coach. Each report contained a summary of (a) the demographic profile of the coach and the team, (b) the coach's role frame, (c) the coaching issues discussed, and (d) the within-case propositions. A member check interview was then scheduled with each coach.

### *Data Analysis*

The propositions that guided the analysis were based on Schön's (1983, 1987) theory of reflection. In terms of coaching, the two general propositions were that (a) model coaches engage in reflection to learn through experience, and (b) coaching issues trigger reflection.

Nested within the general analytic strategy, five methods of qualitative data analysis were used: memos, coding, data displays, interim case summaries, and electronic text searches (Maxwell, 1996; Miles & Huberman, 1994; Yin, 1994). Memos were recorded on-site while collecting data, and off-site while considering all aspects of the study. The coding process began immediately after the first interview was transcribed. Therefore, initial coding influenced subsequent data collection. The first step in the coding process was to code each interview at a descriptive level. Each interview transcript was descriptively coded using a broad two-category coding scheme. The two categories, coaching issues and role frames, corresponded to the initial research questions and were used to break the interview data into meaningful chunks of text for the next coding step. Each line of interview transcript that corresponded to these two categories was coded to a corresponding node in the QSR NUD.IST qualitative data analysis software program (Qualitative Solutions and Research, 1997).

The second step in the coding process was to code reports of the data at a more interpretive level. Reports for each coaching issue and each coach's role frame were generated from QSR NUD.IST at the end of each data collection interval. To code the process used by each coach to address the coaching issues, a provisional start list of codes and code definitions based on Schön's (1983) theory of reflection was employed. The coding list and code definitions were continually revised until all data could be readily classified.

To code the role frame reports, a provisional start list of role frame codes was prepared based on the youth sport coaching literature (Leblanc & Dickson, 1997; Martens, 1997). Types of markers used in the analysis included (a) repetition of ideas and concepts, (b) omission of statements, especially valuable when compared to what is said by other coaches, (c) negative statements, (d) generalizations, and (e) evaluative language (Tannen, 1993).

Types of data displays that were used included issue review matrixes, role frame diagrams, and models of reflection (examples may be obtained from the first author). Interim case summaries were written after the second interval of data collection with each coach. Each interim case summary included sections for participant demographics, data collection, and propositions. Vignettes were included in the case summaries to support the propositions and to contextualize the results (Miles & Huberman, 1994).

## *Validity*

Consistent with the qualitative approach used to guide the present study, validity was defined as "the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account" (Maxwell, 1996, p. 87). Examples of the 15 validity tactics used in the present study include: (a) the preparation of a case study database and a case study protocol, (b) comparison within-case, across-case, and to the literature, (c) member checks during data collection and after data analysis, (d) triangulation of data sources, (e) peer feedback, (f) prolonged interaction in the field, and (g) the creation of vignettes for each coaching issue. A thorough description of all the validity tactics is provided by Gilbert (1999).

## **Results**

The presentation of the results is structured in two parts. First, an overview of reflection is provided (see Figure 1). Second, a detailed explanation of each component is provided with supporting examples from the coaches (all names are pseudonyms).

### *Overview of Reflection*

All the coaches developed and refined coaching strategies through a process of reflection. Six components characterized reflection: (1) coaching issues, (2) role frame, (3) issue setting, (4) strategy generation, (5) experimentation, and (6) evaluation (see Figure 1). A reflective conversation comprising the latter four components, triggered by coaching issues (1) and bound by the coach's personal role frame (2), was central to reflection. Coaching issues provided the impetus to generate and test new coaching strategies through reflection. Coaching issues did not simply present themselves to the coaches, however. The process of identifying an issue, and deciding why it was an issue, is referred to as issue setting (3). Once an issue was set, a coach then proceeded to strategy generation (4). After one or more strategies were generated, an experiment was conducted (5). The effectiveness of the experimented strategy on resolving the issue was then evaluated (6).

Strategy generation (4), experimentation (5), and evaluation (6) comprised a subloop in a reflective conversation. For example, when addressing coaching issues, the coaches often cycled through this subloop many times. If a coach terminated a reflective conversation and experienced the same issue later in the season, the issue was then set again in a new reflective conversation. The subloop in a reflective conversation ran clockwise, unless a virtual-world experiment was conducted and evaluated positively. In this scenario the coach would return to the experimentation stage to conduct a real-world experiment. The coaching strategy would then be evaluated once again and the coach would either terminate the reflective conversation or attempt to generate a more effective strategy. If a virtual-world experiment was not evaluated positively, however, the coach would proceed clockwise from evaluation to strategy generation before returning to experimentation.

A series of options was found for each component of a reflective conversation (see Table 2). The turn of a combination lock provides a metaphor for explaining

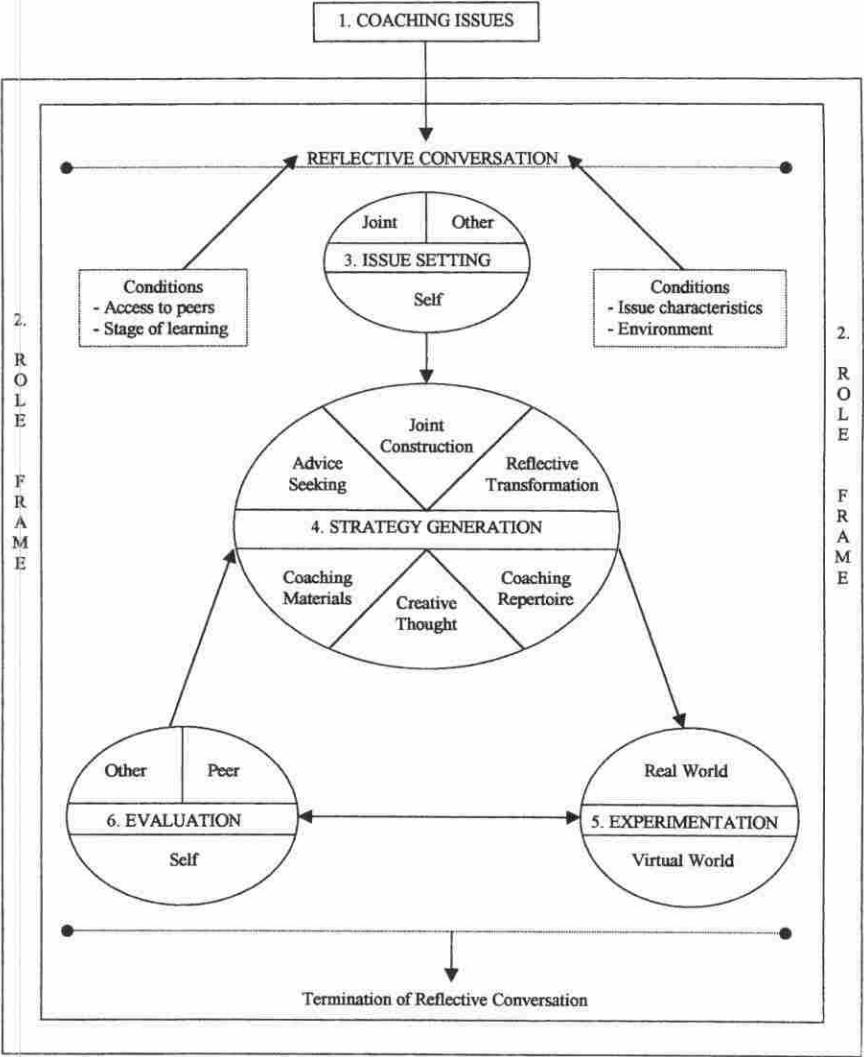


Figure 1 — Overview of reflection.

variations in the options used for each component. This analogy is not to be taken literally; the coaches were not found to engage in a conscious process of reviewing each option every time they experienced a challenging issue. Instead, the selection of options for each component—the turn of the combination lock—was influenced by a coach’s access to peers, a coach’s stage of learning (acquisition vs. construction), issue characteristics (degree of challenge), and the coaching environment (influence of parents and league administrators).

**Table 2** Definitions of Reflective Conversation Components and Options

| Component<br>Option                                                          | Definition                                                                                                           |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <i>Issue Setting: How issues are identified and framed</i>                   |                                                                                                                      |
| Joint                                                                        | Discussion between coach and one or more coaching peers                                                              |
| Other                                                                        | Unsolicited comments from parents, players, league administrators, and/or team management                            |
| Self                                                                         | Coach's own personal observations                                                                                    |
| <i>Strategy Generation: Sources consulted to develop a coaching strategy</i> |                                                                                                                      |
| Advice seeking                                                               | Asking peers or expert coaches for suggested strategies, one-way relationship                                        |
| Joint construction                                                           | Mutual development of a strategy with one or more peers, ideas are tossed around and discussed, two-way relationship |
| Reflective transformation                                                    | Observation (visual / auditory) of another coach's strategy                                                          |
| Coaching materials                                                           | Formally prepared coaching resources (e.g. books, videos)                                                            |
| Creative thought                                                             | Introspective, personal cognitive process, "inside the head"                                                         |
| Coaching repertoire                                                          | Existing strategy from personal repertoire of coaching strategies                                                    |
| <i>Experimentation: Implementation and testing of a coaching strategy</i>    |                                                                                                                      |
| Real world                                                                   | Trial in actual context                                                                                              |
| Virtual world                                                                | Trial in simulated context (alone or with peers)                                                                     |
| <i>Evaluation: Review of coaching strategy effectiveness</i>                 |                                                                                                                      |
| Other                                                                        | Evaluative comments from players, parents, and/or team management                                                    |
| Peer                                                                         | Evaluative comments from one or more peers                                                                           |
| Self                                                                         | Introspective review based on personal observations                                                                  |

### *Components of Reflection*

1. *Coaching Issues.* The coaches discussed 90 coaching issues (see Table 1). The issues were regrouped into five types—(a) athlete behavior: athlete actions and attitudes that could affect team dynamics and performance; (b) athlete performance: execution and mastery of sport-specific skills and tactics; (c) coach profile: personal challenges, based on coach and athlete characteristics, that a coach perceived as direct influences on his or her coaching ability; (d) parental influence: parent interactions with athletes, coaching staff, officials, and administrators; and (e) team organization: team management, including coordination of athletes before, during, and after training and competition. An in-depth discussion of the coaching issues and the strategies used to address the issues is available elsewhere (Gilbert, Gilbert, & Trudel, 2001a; 2001b).

Regardless of the type of coaching issue, issues served as important triggers for reflection (see Figure 1). This proposition is supported by many examples of the coaches deciding not to engage in reflection, or to terminate reflection, because a situation was not set as an issue. For example, before the season started, "Barbara" (soccer coach) indicated that she might develop a strategy for disciplining athletes. However, reflection was never triggered and no strategy was developed because she never considered athlete discipline to be an issue. Field notes from nonparticipant observation supports the point that athlete discipline did not appear to be an issue for this coach. A series of quotations is used to support this proposition:

Preseason: I'm working out a guideline with regards to players who don't follow [rules]. I'm struggling with that one right now. (Background interview)

Early season: I guess I haven't fully formulated that [a guideline]. I am still thinking about it because so far I haven't found any attitudes yet. (Interval 1 summary interview)

Midseason: Have there been any discipline issues, and have you had to create those written guidelines that you were thinking about?

Discipline-wise, no, I haven't had any problems with it so far. I haven't had any issues related to that so it doesn't stick out in my mind right now. (Interval 2 summary interview)

*2. Role Frame.* Reflection was bound by the coaches' personal approach to coaching, also referred to as a role frame. In this sense, a coach's role frame influenced why certain coaching situations were set as issues worthy of reflection, and what types of coaching strategies were developed. Despite the demographic variations in the coach profiles, the personal role frames varied only slightly (see Gilbert, 1999). On average, the coaches' role frame comprised 11 components ( $R = 8-13$ ). Typical role frame components included (with number of coaches supporting the role frame component): the age group and competitive level of the athletes (6 coaches), discipline (6), fun (6), personal growth and development (6), positive team environment (6), sport-specific development (6), winning (6), emphasis on the team (5), equity (5), and safety (4).

Data from one of the soccer coaches ("Jennifer") illustrates how a coach's role frame influenced reflection, in particular what issues were set and what strategies were generated. Substituting players during games was set as an issue on the basis of the following role frame components: equity, personal growth and development, sport-specific development, and winning.

Equity, Personal Growth and Development, Sport-Specific Development: My philosophy is that you learn by playing, not by watching, and if kids are going to be on the side, they are not going to learn. (Background interview)

Winning: Plus we are trying different positions on a few kids to try and improve the outcome of the games. (Interval 2 summary interview)

The personal growth and development component, cited by all coaches, was an integral part of Jennifer's role frame. This component relates to the promotion of non-sport-specific skills such as life skills, social and moral development, confidence, and individual responsibility.

I guess my role with the group of boys is to promote leadership, and to teach them commitment whether this is soccer, bowling, or cooking, it doesn't really matter. To me these are kind of lessons in life. I don't view myself as making them elite professional soccer players. I view it in terms of making them better people—active contributing members within our society. (Background interview)

3. *Issue Setting.* The process of identifying an issue, and deciding why it is an issue, is referred to as issue setting. To be considered a coaching issue, a situation must first be identified as puzzling or problematic (in a sense the coach has to "find" the issue). Many coaching issues were set based on the coaches' own observations (self). Joint issue setting was another common issue-setting option. Joint setting of coaching issues was generally accomplished through informal discussions between a coach and a peer on site at the arena or soccer field, before or after a game or practice. A third and less common issue-setting option included comments from parents and team management (other).

An example from the ice hockey coach "Bren" illustrates the joint issue-setting option. Nonparticipant observation field notes show that Bren and his coaching staff held frequent discussions after games and practices. Late in the season Bren summarized the process of joint issue setting as a collaborative effort among the coaching staff:

After games, either while we are waiting for the players to get out or they are all gone, we [the coaching staff] will usually talk about it. He [Peter] will come up with some things that are legitimate problems in our game, so we will build a drill to exercise that. You see where the weakness was, something came up during the game, so we will say, "Next practice let's do this, work on this." So a lot of the time it is collaboration. (Interval 3 summary interview)

4. *Strategy Generation.* Once an issue was set, a coach then proceeded to strategy generation. Three strategy generation options were independent of coaching peers: coaching materials, creative thought, and coaching repertoire. Of these three options, the most frequently cited one was creative thought. It was evident in coach statements such as, "I have to think about that," "I am mulling it over," or "I need to sleep on it." The creative thought option is supported by the ice hockey coach "Richard." Creative thought was his preferred option for generating coaching strategies. The issue of poor back-checking and defensive coverage serves as an example of how Richard used creative thought to generate a coaching strategy, in this case a new practice drill:

I get those drills from my memory and from just making it up, you know. One day I just made two lines [of players] and one goes and the other one has to catch him. In those drills I can see the back-checking and I can also see the positioning on the back-checkers and see who is taking their man and

who is not. For every practice, what I do is I sit there and I always have just a piece of paper, like you have, and I just draw a rink and then if I want to work on back-checking, then I just stare at it. For some reason I can see it come out from the piece of paper, and then I will just brainstorm it down. (Interval 2 summary interview)

Creative thought was also frequently used in conjunction with other strategy generation options. For example, four of the six coaches relied heavily on their personal repertoire of coaching strategies. When coaches referred to their personal repertoire, they often described it as “digging into my bag of tricks” to generate a strategy. The third independent type of strategy generation option was coaching materials. Coaching materials such as books and videotapes were seldom mentioned when discussing coaching issues. At first this finding would seem to suggest that coaching materials did not warrant inclusion as a strategy generation option. However, when questioned about this finding, the coaches explained that coaching materials were indeed a valuable option for generating strategies. In fact, most of the coaches had extensive personal libraries of coaching materials. The coaches revealed that the selection of this type of strategy generation option was very dependent on the conditions that influence a reflective conversation (see Figure 1). For example, all of the coaches referred to coaching materials when they were addressing sport-specific technical or tactical types of coaching issues (issue characteristics), which were not frequently selected for discussion by the coaches.

The other three strategy generation options were dependent on coaching peers: advice seeking, joint construction, and reflective transformation. A common peer-dependent option was to jointly construct strategies with a colleague, typically one or more assistant coaches. Although this finding was evident with all the case study coaches, it was more prevalent with the ice hockey coaches. Perhaps the different environment of each sport accounts for some of this difference (e.g., amount of time required for players to put on equipment). As a result, the ice hockey coaches typically spent more time on site than did the soccer coaches. For example, the ice hockey coach Richard and his main assistant coach, Shawn, often co-constructed coaching strategies. For Richard, coaching strategies generated this way were so dependent on the interplay of dialogue between himself and Shawn that when describing the source of a strategy, he invariably said “we.”

Whereas joint construction was a shared generation option, in advice seeking the coach was the receptor of possible strategies from a coaching peer. For example, occasionally a coach would contact another respected coach and ask for strategies to help resolve a challenging issue. The soccer coach “Jackie” frequently used the advice seeking option because she had easy access to knowledgeable and trusted coaching peers (one of the conditions on the selection of options). Several other teachers at the school where Jackie worked were also soccer coaches and she valued their advice:

It came from talking with Bill. Bill has been a professional player and coaches club soccer. And we also have Matt, who coaches a university team. So we are always sitting together at lunch talking soccer and ideas get tossed around and I pick up a lot of ideas from these guys. Quite often, given their experience, if I’ve got a problem I will ask them. I will throw up a problem and they will both comment and give me an idea. (Post-practice 4 interview)

A third peer-dependent option used to generate coaching strategies is referred to as reflective transformation, the process of observing another practitioner's strategy and then modifying and testing it in another environment. It differs from mere observation and transfer of a strategy, because the strategy is transformed to fit the practitioner's unique role frame. When asked to describe the process of how coaching strategies were generated by watching other coaches, the soccer coach Jackie indicated it was a type of "osmosis." For example, one coach on whom Jackie modeled many of her coaching strategies was the coaching director of the soccer association. The director conducted player development clinics and Jackie would observe the director while her son participated in the clinics. Although it was considered an important option, reflective transformation was not often used by the coaches. When asked why, the coaches simply said they were too busy with their regular jobs, volunteer coaching, and parenting to spend much time observing other coaches.

*5. Experimentation.* After one or more strategies were generated, an experiment was conducted. The two types of experiments used were real world and virtual world. Real-world experiments were the true test of any coaching strategy. The only time a real-world experiment was not conducted was when the action-present for the issue had passed, for instance after the season was finished and there was no opportunity for real-world experimentation. Virtual-world experiments were also evident in all the case studies. They were either conducted alone (self) or with a peer (peer sounding boards). When coaches conducted virtual-world experiments alone, they often created a graphical display for the experiment. For example, some coaches used paper and pen to test different strategies before implementing them in the real world (e.g., practice drill design, tactical arrangement of athletes).

To conduct a virtual-world experiment with a peer, a coach typically generated a strategy and then tested it on his or her peer sounding board; some coaches described this as "running it by" their peers. Peer sounding boards were usually a member of the coaching staff, such as an assistant coach. For Jackie, her assistant coach Bob functioned as her peer sounding board because he was trusted and respected as a coach. An example of using Bob as a peer sounding board to conduct a virtual-world experiment is evident in the issue of athlete attendance, which was considered particularly challenging. After Jackie thought about it and consulted with other coaches, she generated a strategy. She indicated that a strategy was generated without consulting Bob because he was unavailable, but since it was a challenging issue she wanted to test the strategy on Bob before conducting a real-world experiment:

A few players started missing practices and I didn't want it spreading through the team. I didn't have any guidelines at the beginning because I've never really had attendance as an issue to deal with. So I had to come up with something and I wanted to be fair with it so I phoned a few coaches and found out what their attendance guidelines were.

And did you discuss that with Bob?

Yeah I did. I had to contact him by phone and I let him know that I was concerned with attendance and he agreed, and I said, "Well here are the

sanctions," and he said that sounds reasonable. So I typed up a sheet. (Interval 3 summary interview)

6. *Evaluation.* After experimentation, coaching strategies were evaluated for their effectiveness, that is, did it resolve the coaching issue? In general, the coaches preferred to make evaluations of experiments on their own (self). Occasionally feedback was also solicited from colleagues (peer), parents, team management, or athletes (other). Evaluative comments from others were generally restricted to virtual-world experiments.

The ice hockey coach "Duane" provides an example of how coaches used the self option to evaluate experiments. He described this option for evaluating experiments as a process of self-discovery. Once an experiment was conducted, Duane would critically examine its effectiveness. For example, he had difficulty teaching one of his players, Randy, and had to experiment with two strategies: compliment and verbal reprimand. Only after reflecting on the ineffectiveness of earlier experiments did he discover that Randy was more of a visual learner. Non-participant observation notes also provide evidence for this discovery process:

Randy has been a concern from the start of the year. He is a good-natured boy and a good skater, but I don't know where I can go inside him and grab that hidden talent. I think he doesn't know it, but he has talent. As soon as he does something well I will compliment him like I did tonight. I gave him heck for not understanding a drill, especially after he watched the other players do it. It seems I have to draw it out for him and I have to be beside him to show it. I discovered today that he is more visual, you have to show him, not just tell him. So I am going to have to take him aside and show more. (Post-practice 3 interview)

## Discussion

The confirmation that coaches learn through experience is not a revelation to the sport science community. However, an empirical record of how model youth sport coaches use reflection to learn through experience is a unique contribution of the present study. Although many of Schön's (1983, 1987) concepts are evident in the results (role frame, issue setting, and virtual-world experiment), it is important to stress that the concepts were not forced on the data. Only theoretical concepts that were empirically supported are included in the final results.

Research with coaches of elite sport hints at the possibility that components in reflection may also explain how coaches in other contexts learn through experience. For example, in Salmela's (1996) study of 22 coaches of provincial, national, and Olympic teams, at least three of the four components of a reflective conversation are visible. In his description of the experiential learning process, the three components of strategy generation, experimentation, and evaluation are clearly evident: "many learned by trial and error [reflective conversation], by coming up with a plan [strategy generation], applying it [experimentation] and evaluating the outcome [evaluation]" (p. 31). Although the reflective conversation appears to be valid outside of the immediate study, more research is needed to explore the validity of reflection, particularly with coaches in different contexts such as elite sport, and coaches of individual sports.

The present study makes another contribution to theories of experiential learning and reflection by providing an in-depth description of the stages in the reflective process. For the first time, the different options employed at each stage in a reflective conversation have been explored and documented. Furthermore, insight into the important role that peers can play in the reflective process has also been provided. The present study goes beyond merely supporting the point that peers are critical in the experiential learning process, to demonstrate *how* peers play different roles at different stages in a reflective conversation.

Although reflection provides a framework for explaining how coaches learn to coach through experience, this does not imply that all coaches reflect. The coaches in the present study were identified as model coaches, and thus are not representative of all sport coaches. Perhaps coaches who do not learn through their coaching experience are coaches who do not reflect. This may help explain why some coaches simply accrue experience without developing into model coaches (Bell, 1997; Douge & Hastie, 1993; Martens, 1997).

### *Types of Reflection*

As well as differences in the use of reflection, some coaches may use more than one type of reflection. Based on the results of the present study, and a review of the literature (Munby & Russell, 1989; Schön, 1983, 1987; Shulman, 1987), it appears there are at least three types of reflection: (a) reflection-in-action, (b) reflection-on-action, and (c) retrospective reflection-on-action. Although Schön's (1983) theory served as the conceptual framework, a reformulation of the definitions of reflection may be needed. Take the example of a coach who struggles with the issue of a disruptive athlete and engages in reflection to generate and test strategies. If the coach reflects while the athlete is being disruptive during a game or practice, this would clearly fit Schön's (1983) definition of reflection-in-action. More often than not, however, the coaches in the present study reflected on issues outside of the activity (e.g., at home after the practice or at work with colleagues). Yet because the coach could still influence the disruptive behavior of the athlete any time during the rest of the sport season, it is reflection within the action-present, one of the defining characteristics of reflection-in-action. Yet it is not reflection "in the midst of action," another defining characteristic of reflection-in-action.

This discrepancy is the basis of the criticism advanced by Court (1988) when she attempted to apply Schön's definition of reflection-in-action to teaching. Similar to the environment of youth sport, the action-present for teachers lasts several months—the length of the school year. So although a teacher may reflect about a disruptive student after class, reflection can still influence the situation during future classes; the temporal dimension of the action-present is still respected.

For the purpose of the present study, therefore, Schön's (1983) concept of reflection-in-action is interpreted to apply only to the reflection that occurs in the midst of activity. Reflection that still occurs within the action-present, but not in the midst of activity, is defined as reflection-on-action (e.g., the coach who reflects about an issue in-between games or practices). Retrospective reflection-on-action is defined as reflection that occurs outside of the action-present (e.g., after the season or after a coach's reflection can no longer affect the situation). Retrospective reflection-on-action is genuinely a "thinking back" type of reflection because there is no longer an opportunity to address the issue.

In terms of how the different types of reflection influence experiential learning, the first two types can be considered modes of learning *through* experience, while the third type of reflection can be considered a method of learning *from* experience. In the present study the most frequently documented type of reflection was reflection-on-action. Unwittingly, the research design was structured to specifically capture reflection-on-action by questioning coaches about coaching issues and the experiential learning process outside their activities (e.g., before or after games and practices). Because reflection-in-action is thought to occur in the crucible of action (Schön, 1983), the only way to access it is in-action, using techniques such as think aloud or concurrent probing. However, these techniques are laden with methodological limitations (Clarke, 1998; Yinger, 1986). It remains to be seen whether actual episodes of reflection-in-action can be reliably documented (Usher, Bryant, & Johnston, 1997).

### Implications for Coach Development

Based on the small sample limited to ice hockey and soccer, implications should be viewed as exploratory ideas more than definitive directions for coach development. First, developers of coaching materials and coach education programs should consider using an issue-based approach. By structuring texts or programs around common types of coaching issues and frequently used strategies, these resources can bridge the gap between coaching theory and coaching practice. Coach education programs could also provide opportunities for coaches to explore how they frame their role as a youth sport coach.

Role frame analysis has been cited, under various labels and across domains, as a critical step in personal and professional development (Argyris, Putnam, & Smith, 1985; Kruse, 1997; Schön, 1983). Role frame analysis allows an individual to critically examine the underlying components that influence behaviors. Simply lecturing to coaches about the importance of certain role frame components (e.g., equity or fun) will probably have little effect on a coach's approach to coaching. Argyris and colleagues discovered that role frames can be identified and modified by interrupting practitioners while they are in the process of addressing a challenging issue. They concluded that by "directing individuals' attention to what they are doing, thinking, and feeling at the time" (p. 283), a practitioner can critically evaluate and possibly restructure his or her role frame. Similarly, coaches could be asked, individually and in small groups, to address a series of typical coaching issues. While engaged in the process of thinking about how to resolve the issue, coaches could be asked to respond to questions such as, Why is this considered to be an issue? and, What strategies could be used to address the issue?"

The remaining implications for coach development are directed at administrators of community-based sport associations. Individuals responsible for organizing community-based sport associations should strive to create an environment that nurtures the reflective process. Coaches need freedom, within reason, to engage in creative thought to generate and experiment with novel coaching strategies that may not fit the standard model of coaching. To further support reflection, community-based sport associations could also encourage journal writing as a valuable exercise for professional growth. Francis (1995) developed four journal writing tasks with preservice teachers that can serve as a blueprint for journal writing for coaches. Creating metaphors about coaching is an example of a journal writing

task. Based on the widely held proposition that professional knowledge, or knowing-in-action, is largely tacit and difficult or impossible to verbalize, metaphors can "provide insights into ideas that are not explicit or consciously held" (Francis, p. 238).

The importance of having access to knowledgeable and respected coaching peers is critical to facilitating the reflective process. Although coaches are often expected to consult with members of their coaching staff such as assistant coaches, the results of the present study show that in the youth sport environment this option is not always feasible or preferable. The results also show that if a member of the coaching staff is not selected, coaches will find a peer sounding board elsewhere if possible (e.g., parent or other coaches). However, not all youth sport coaches will have access to peer sounding boards outside of their team.

Two peer-related options that can be easily implemented, and which have minimal or no cost, are issue-discussion meetings and coaching pods. Most community sport associations already conduct meetings with their coaches throughout the season. Time could be allocated during these meetings to allow coaches to discuss current coaching issues. When coaches have an opportunity to discuss real issues experienced in their everyday coaching, the discussions will have greater significance for them. Individuals will pay more attention to information that has immediate and personal meaning for them, or when their "operative attention" is high (Schön, 1983). Although it can only be speculated, this could be one reason why large-scale coach education programs often have little or no impact (Gilbert & Trudel, 1999a; Woodman, 1993). In large-scale coach education programs, information is presented out of context and coaches are asked to discuss hypothetical situations; this increases the likelihood that their operative attention is low.

The other suggestion for community-based sport associations is referred to as coaching pods. Coaches of teams within similar athlete age groups could form a peer network and discuss coaching issues. The most senior, or competent, coach in each age group could be given the responsibility for periodically checking in with the other coaches and coordinating group discussions. Because of their size, coaching pods would be flexible and adaptive to immediate concerns. Furthermore, coaching pods would provide the opportunity for coaches working with athletes at the same stage of development to share their ideas.

At the very least, implementation of the strategies suggested herein may generate more communication and collaboration between coaches. It is hoped that these suggestions will be realized in some form, with the ultimate goal of helping youth sport coaches cultivate the learning opportunities inherent in their experience.

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