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ABSTRACT

Substantial focus in coaching science has turned to the construct of autonomy support, given mounting evidence of its positive role in athlete motivation and performance. However, existing research is mostly limited to perceptions data, which problematizes its translation to coach education, training, and development. This paper describes the development of an observation system (MPOWER) for coding coach autonomy support. MPOWER was designed for use within high school varsity boys’ soccer practices as part of a larger study. Grounded in self-determination theory literature and guided by recommendations for developing contextually valid observation systems, the instrument includes six behavior concepts: moves decision-making (M), prompts for questions and feelings (P), opts to use player idea (O), withholds information to guide response (W), empathizes with negative affect (E), and rationalizes (R). MPOWER yields descriptive information for research on autonomy supportive coaching, as well as coach education and development.

Key words: Association Football, Coach Autonomy-Support Behaviour, Self-Determination Theory, Systematic Observation, Youth Soccer

INTRODUCTION

As a major contributor to contemporary coaching science, self-determination theory [1] explains the role of athletes’ motivation in various measures of success and identifies perceived coaching behaviors that stimulate adaptive motivational processes. Specifically, SDT research indicates that more self-determined forms of motivation (e.g., intrinsic motivation) enhance athlete success, and that supporting athlete autonomy is critical to nurturing self-determined motivation [2, 3]. At present, however, measures of autonomy-
supportive coaching are limited to questionnaires designed as self-reports or proxy reports of coach behavior. No known studies of autonomy supportive coaching have collected descriptive-analytic data using systematic observation. Systematic observation is a widely accepted and often used research technique for objectively recording, quantifying, and evaluating events in coaching [4]. Tharp and Gallimore [5] were the first to employ this technique in their seminal study of the teaching behaviors of famed college basketball coach John Wooden [6]. Their observation system consisted of 10 codes mostly grounded in concepts popularized by behavioral psychology (e.g., praises, reproofs, modeling), which held sway as the dominant paradigm in both sport science and education research at the time [7]. In the intervening years between then and now, numerous studies have followed in the footsteps of Tharp and Gallimore’s [5] classic work, employing various observation systems to capture the elements of successful coaching [6].

Systematic observation is needed to determine the extent and nature of coaches’ autonomy-support to provide descriptive data that can be used in research, coach education, and coach training/development. The warrant for observational measures of autonomy supportive behavior has been lucidly made by Haerens et al. [8] in the parallel field of physical education, who asserted that such measures can help to generate internally and externally valid information on teachers’ autonomy support behavior, be used to evaluate the impact of autonomy support behavior interventions, and yield detailed information for teacher training. Based on this rationale, the current paper describes the development of a new observation system, MPOWER, designed specifically to assess coaches’ autonomy support in United States-based high school varsity boys’ soccer practices. We created our instrument as part of a larger study examining autonomy support in a group of these coaches [9]. Several previous studies using systematic observation have also focused on soccer coaching [e.g., 6, 10-13]. However, this study is only the second we know of to focus on the high school varsity level and the first to use SDT as a framework for behavior analysis. Given there is an existing knowledge base on the coaching behaviors of soccer coaches, contextualizing MPOWER within this domain has the benefit of extending an established line of inquiry.

Brewer and Jones’ [14] five-stage procedure for development of a contextually valid systematic observation instrument guided instrument development. The stages included: a) observer training, b) amending existing systematic observation instruments, c) establishing face validity, d) assessing interobserver reliability, and e) assessing intraobserver reliability. In the sections that follow, we review current conceptualizations of autonomy supportive pedagogy that served as the basis of our observation system, describe our work through each stage of instrument development, present the final instrument, and discuss its strengths and limitations.

AUTONOMY SUPPORTIVE COACHING

According to Deci and Ryan [15], “Autonomy refers to volition – the organismic desire to self-organize experience and behavior and to have activity be concordant with one’s integrated sense of self” (p. 231). Within SDT, autonomy is identified as a basic psychological need, which when satisfied enhances self-determined motivation [1]. Athletes’ perceived autonomy support from a coach is positively related to their self-reported satisfaction of the need for autonomy [e.g., 16-21] and is therefore an important aspect of the motivational process underpinning sport performance. Perceived coach autonomy support is often measured by the Sport Climate Questionnaire [22] or modified versions of this instrument. Items focus on a variety of coach behaviors, such as providing choices and options, communicating confidence in the athlete’s ability, encouraging questions, and attempting to see things from the athlete’s point of view.
Mageau and Vallerand [3] offer an extended list of autonomy-supportive coaching behaviors using previous research evidence as support. Their list includes: providing as much choice as possible within specific limits and rules; providing a rationale for tasks, limits and rules; inquiring about and acknowledging others’ feelings; allowing opportunities to take initiatives and do independent work; providing non-controlling competence feedback; avoiding overt control, guilt-inducing criticisms, controlling statements and tangible rewards; and preventing ego-involvement from taking place. These behaviors are largely consistent with those identified in the educational literature. For instance, Reeve [23] organizes teachers’ autonomy supportive instruction within five behavior classes: nurturing inner motivational resources, providing explanatory rationales, relying on non-controlling and informational language, displaying patience to allow learning to occur, and acknowledging and accepting expressions of negative affect. Taken together, these and other conceptualizations in sport [e.g., 24] and education [e.g., 25] suggest overall that autonomy support from an authority figure (coach or teacher) encompasses providing opportunities to make choices, offering informational and non-controlling praise/encouragement, giving rationales that explain the importance of advice and established limits, encouraging athlete/student input, accepting athlete/student ideas and perspectives, and demonstrating patience.

Notably, the above-cited behaviors also reflect a tendency for some authors to elaborate on what constitutes autonomy support by positioning it against a controlling motivational style (e.g., providing non-controlling competence feedback; avoiding overt-control). However, this juxtaposition may convolute assessments of autonomy support in coaching. Conroy and Coatsworth [24] indicate,

…the very nature of organized sport lends itself toward a controlling climate. Task-contingent rewards are prevalent. Training and competitions are scheduled in advance to create inflexible “deadlines” for training and performance. Athletes are continually being observed and evaluated by interested parties (e.g., coaches, parents, peers). Athletes’ choice is generally limited, particularly in youth sport, given that coaches usually take responsibility for planning training programs and developing competitive strategies. These contextual characteristics can be construed as controlling and, as such, may be antithetical to autonomy support. [24, p. 673]

Given that coaching environments are by nature controlling environments, evaluations of coaches’ autonomy support may be more clearly derived from assessment along a continuum of relatively low to high levels of support as opposed to a continuum of controlling to autonomy-supportive coaching [24].

**INSTRUMENT DEVELOPMENT**

**STAGE 1: OBSERVER TRAINING**

Brewer and Jones [14] recommend the instrument developers initially become well versed in the concepts and procedures of an existing observation system “deemed to have a suitable design for the environment to be studied” (p. 143) that can be adapted to a specific context. Brewer and Jones [14] chose to adapt the Arizona State University Observation Instrument (ASUOI) [27] to assess rugby coaches’ instructional behaviors in practice settings, as the original instrument has been widely employed in coaching research on team sports and has been specifically modified to record coaches’ instructional behaviors in practice settings in previous research. In the present study, all of the authors had taken formal courses in systematic observation and had experience using numerous observation systems. Two
instruments, the ASUOI and the Cheffers’ adaptation of the Flanders’ Interaction Analysis System (CAFIAS) [28], were identified as providing useful definitional elements that could serve as an initial basis for building the category system for our new instrument. The ASUOI and CAFIAS both contain concepts of pedagogic behavior that resemble some of the key autonomy-support behaviors described earlier. The ASUOI includes three such behavior concepts (questioning, praise, and silence), as does CAFIAS (praise/encouragement, acceptance of students’ ideas and actions, and questions) (see Table 1).

Table 1. ASUOI, CAFIAS, and Autonomy Support Behavior Concepts with Similar Definitional Elements

<table>
<thead>
<tr>
<th>ASUOI [27]</th>
<th>CAFIAS [28]</th>
<th>Autonomy Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Questioning</strong> – Any question(s) to players concerning strategies, techniques, assignments, and so forth associated with the sport.</td>
<td><strong>Questioning</strong> - Asks questions requiring student answer.</td>
<td><strong>Encouraging Athlete Input</strong> - Inquiring about others’ feelings [3].</td>
</tr>
<tr>
<td><strong>Praise</strong> – Verbal or nonverbal compliments, statements, or signs of acceptance.</td>
<td><strong>Praise/Encouragement</strong> – Praises, commends, jokes, or encourages.</td>
<td><strong>Offering praise or encouragement</strong> - Providing non-controlling competence feedback [3]; relying on non-controlling and informational language [23].</td>
</tr>
<tr>
<td><strong>Silence</strong> – Periods of time when the subject is not talking (listening to a player or monitoring activities).</td>
<td>(N/A)</td>
<td><strong>Demonstrating Patience</strong> - displaying patience to allow learning to occur [23].</td>
</tr>
<tr>
<td>(N/A)</td>
<td><strong>Acceptance of Students’ Ideas/Actions</strong> - Accepts, clarifies, uses, and develops suggestion and feelings by the learner.</td>
<td><strong>Accepting Students'/Athletes’ Ideas and Perspectives</strong> - Acknowledging others’ feelings [3]; acknowledging and accepting expressions of negative affect [23].</td>
</tr>
</tbody>
</table>

Note: ASUOI=Arizona State University Observation Instrument; CAFIAS=Cheffers’ Adaptation of the Flanders’ Interaction Analysis System

We reviewed and familiarized ourselves with the definitions of these ASUOI and CAFIAS behavior concepts and discussed examples of soccer coaching that would be representative of these concepts. One of the authors, who is an experienced soccer coach and player, was able to give particularly useful insights into whether the behaviors would likely be perceived by varsity soccer players as autonomy-supportive. It was determined that the identified ASUOI and CAFIAS concepts needed to be amended to more fully align with autonomy support concepts. For example, “silence” is defined in the ASUOI as “periods of time when the [coach] is not talking; when listening to a player or monitoring activities” [cited in 14, p. 144]. This behavior concept shares some similarities with, but is insufficient to completely encompass, the autonomy support concept of “demonstrating patience”, which Reeve [23] suggests includes the following (in classroom environments):

…taking the time to listen, providing encouragement for initiative and effort, providing time for students to work in their own way, offering helpful hints when students seem stuck, praising signs of progress, postponing advice until they first understand the students’ goals and perspective, and providing scaffolding when it is needed and invited. [23, p. 170]
Further, since the existing instruments did not seem to capture two of the autonomy support concepts mentioned earlier – providing opportunities to make choices and giving rationales that explain the importance of advice and established limits – we needed to expand the working list of ASUOI and CAFIAS concepts to account for these additional autonomy support concepts.

STAGE 2: AMENDING EXISTING SO INSTRUMENTS

Brewer and Jones [14] state: “The aim of the second stage of the process [is] to contextualize the systematic observation instrument to the specific coaching setting” (p. 145). They indicate the second stage should ensure the content validity of the new instrument, such that the behavior concepts fully capture the coaching processes in question under the specific circumstances that define the chosen context. Following these guidelines, we assembled an initial draft of our instrument and pilot tested it with high school varsity soccer coaches. The draft included concepts with definitions adapted from the above-identified ASUOI and CAFIAS concepts and extended to integrate conceptualizations of autonomy supportive pedagogy. As part of the larger study, we obtained permission from the Institutional Review Board for Human Subjects Research at our university and from two school districts near the university to video record six varsity boys’ soccer coaches (all male) with varying levels of context-specific coaching experience (1-30 years), career success (game win percentage ranging from 14% to 91%) and work conditions (e.g., socioeconomic make-up of the team, number of assistant coaches, financial support for the program) during 40 total practices and 17 total games across a regular season (three months). After video recording the coaches, we watched the recorded practices and games to determine the extent to which the concepts included in our instrument reflected the coaches’ actual coaching behaviors.

While viewing the video recordings, we frequently paused the video to discuss the coaches’ behaviors. Our discussions focused on a number of issues, including whether the behavior in question was consistent with a given behavior concept in our instrument, whether the definition of a concept needed to be revised to better reflect or include the observed behavior, whether the observed behavior justified the need to create a new behavior concept, and whether any concepts on the instrument needed to be discarded due to not being apparent in the observed coaching behaviors. During this stage, we made the decision to remove the concept of praise/encouragement from the instrument, despite its inclusion in other conceptualizations of autonomy supportive pedagogy [e.g., 3, 23]. We noticed that the instances of coaches using praise far outnumbered the instances of coaches using other behaviors identified on the instrument and we questioned the extent to which praise was being used to support perceived autonomy versus perceived competence. Conroy and Coatsworth [24] found that praise was a predictor of youth sport participants’ perceived autonomy but also perceived competence, and concluded: “The salience of competence in youth sport…may lead youth to interpret affirming feedback with regard to its implications for their competence perceptions” (p. 681). Moreover, the autonomy support literature specifies that praise/encouragement should be informational and non-controlling, and we were not able to agree on whether observed instances of praise/encouragement were informational/non-informational or non-controlling/controlling.

We continuously reworked the category system of our instrument until our viewings of the videos yielded no additional insight into the nature of the coaches’ autonomy support. We concluded at this juncture that the instrument had content validity, as it seemed to capture the full range of the coaches’ autonomy support behaviors. Moreover, we were consistently able to use the instrument to identify and code examples of coach autonomy support in the videos,
even when we viewed previously unwatched footage. Thus, it was clear each of the behavior concepts was distinct in its definition and ready to be subjected to more stringent testing.

STAGE 3: ESTABLISHING FACE VALIDITY
Following Brewer and Jones [14], the next step in the process of developing our systematic observation instrument was establishing face validity. Cheffers [28] suggests face validity is an important characteristic of systematic observation instruments, as it helps to legitimize the tool as relevant and appropriate to the field setting in which it is to be used. We assessed the face validity of our instrument by conducting semi-structured interviews with the six coaches we had video recorded in stage two of our research, and conducting focus group interviews with athletes on each coach’s team. Like the video recordings, the interviews were part of a larger research project [9] but were useful in the present study as a way to confirm the veracity of our work with the perspectives of representative practitioners and athletes from the context in which we intended to employ the instrument.

During the interviews, the coaches and athletes were asked about the coaches’ leadership style, motivational style, and use of autonomy support during practices. The interviews were audio recorded, transcribed, and analyzed with the purpose of determining whether the coaches’ and athletes’ perspectives of the coaches’ autonomy support were conceptually consistent with and could be completely and discretely categorized within our instrument’s category system. The analysis of the interview transcripts involved searching for statements the participants made, which either confirmed or disconfirmed that: a) the participants perceived autonomy support in ways that our category system could capture, and b) the coaches believed they used, and the athletes believed the coaches used, the autonomy support behaviors represented in our instrument. Results indicated a high level of congruency between the participants’ views of autonomy supportive coaching and the concepts/definitions of autonomy support included in our observation system. For example, statements such as “he’s always asking my opinion” from one of the athletes, and “it’s immensely important that [the players] are able to make their own decisions,” from one of the coaches reinforced the instrument’s behavior concepts of “prompts for questions or feelings” and “moves decision-making”, respectively (see the section below on MPOWER’s behavior concepts). Therefore, we felt at this point that the instrument possessed adequate face validity and was aptly suited, pending tests of its ability to be reliably used, for application in research and evaluation of high school boys’ varsity soccer coaches’ autonomy support in practices.

STAGE 4: ASSESSING INTEROBSERVER RELIABILITY
Interobserver reliability is a measure of an instrument’s ability to be reliably used by more than one observer [30]. We video recorded a new practice session (~ 2 hours) led by one of the coaches. The first and second author watched the video independently and coded the observed behaviors using our instrument. The first author’s codes were treated as the criterion for determining interobserver reliability. We used the standard formula to calculate interobserver reliability: \[ \frac{\text{number of agreements}}{\text{number of agreements} + \text{number of disagreements}} \times 100 \] [30]. We did not reach .85, which Siedentop [31] suggests is an acceptable level of overall agreement, so the first author reviewed the behavior concepts with the second author and the second author recoded the segments of the video where there had been disagreement in scoring. This resulted in a high level of agreement (.98) with only six of 244 30-second intervals not scored the same. The second author then trained two graduate students who had not been involved with instrument development to use the instrument. On
the first attempt, the graduate students’ codes did not reach a .85 level of agreement with the criterion codes, so the second author reviewed the behavior concepts with the graduate students and the graduate students recoded the segments of the video where there had been disagreement in scoring. This resulted in high agreement percentages with the criterion codes for each graduate student (.95 and .97). Interobserver agreements against the criterion codes for each behavior concept are presented in Table 2.

Table 2. Interobserver Agreements Against the Criterion Codes for Each Behavior Concept

<table>
<thead>
<tr>
<th>Behavior Concept</th>
<th>Second Author</th>
<th>Graduate Student 1</th>
<th>Graduate Student 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agreements</td>
<td>Reliability</td>
<td>Agreements</td>
</tr>
<tr>
<td>Moves decision-making</td>
<td>241</td>
<td>.99</td>
<td>238</td>
</tr>
<tr>
<td>Prompts for questions or feelings</td>
<td>242</td>
<td>.99</td>
<td>239</td>
</tr>
<tr>
<td>Opt to use player idea</td>
<td>244</td>
<td>1.0</td>
<td>244</td>
</tr>
<tr>
<td>Empathizes with negative affect</td>
<td>244</td>
<td>1.0</td>
<td>244</td>
</tr>
<tr>
<td>Rationalizes</td>
<td>233</td>
<td>.95</td>
<td>238</td>
</tr>
</tbody>
</table>

Note: Agreements represent the number of 30-second periods in which the observer scored a given behavior concept the same way as the criterion code (i.e., circled versus not circled on the recording sheet). There were a total of 244 30-second periods.

STAGE 5: ASSESSING INTRAOBSERVER RELIABILITY
Intraobserver reliability is a measure of an instrument’s ability to be used in the same way by the same person over time [32]. The third author coded a video clip (~36 minutes) containing a dense compilation of instances of autonomy support from the videos collected with all six coaches. He then watched the same clip two weeks later. A two-week timeframe was chosen because we believed it would allow enough time to pass to avoid a “memory effect” biasing coding, while also permitting the observer to approach coding with a consistent understanding of the behavior concepts. The same formula used to calculate interobserver reliability was used to calculate intraobserver reliability. A high level of overall agreement was reached (.96).

MPOWER BEHAVIOR CONCEPTS
MPOWER includes six coach behavior concepts: moves decision-making (M), prompts for questions or feelings (P), opts to use player idea (O), withholds information to guide response (W), empathizes with negative affect (E), and rationalizes (R). The definitions of the concepts are presented in Table 3.

VIDEO RECORDING PROCEDURE
MPOWER is designed to be used as an analysis tool with video recorded data. Video recording has two important advantages over live coding. First, video recording allows the observer to stay on the sidelines during data collection. This is important as it helps to ensure the procedure for collecting data is as non-invasive as possible, reducing the potential for inadvertently altering the natural flow of events in the observation setting. Live coding at practices would require the observer to “shadow” the coach to hear the coach’s verbal communication with athletes. The coaches we recorded moved around the soccer field a lot
during practices. Shadowing could interrupt or in some other way interfere with the coach’s practice behaviors. A second advantage of video recording is that it permits the coder to review the coach’s behaviors as many times as needed to make coding decisions, whereas live coding requires the observer to code in real time. The potential for inaccurate coding and ending up with missing data is greater under live conditions than with video.

Good quality audio equipment should be used when video recording coach behaviors for analysis with MPOWER. We had the coaches wear blue-tooth wireless microphones with a transmission range of approximately 200 meters. The microphones were sensitive enough to clearly capture what the coaches’ said from anywhere on the soccer field. Moreover, the microphones were able to capture what others’ within about a 15-meter radius of the coach said at a “normal” volume. This allowed us to contextualize the coaches’ verbal

<table>
<thead>
<tr>
<th>Behavior Concept</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Moves decision-making (M)</td>
<td>The coach transfers decision-making power to player(s). For example, the coach tells athletes they can choose their own teams for a scrimmage, tells athletes they can respond to a situation “any way they like”, or tells athletes they can choose from a number of options. Do not code instances when the coach pressures players into choosing a particular option by making the other option punitive (e.g., “Either do it the way I showed you or run laps”).</td>
</tr>
<tr>
<td>Prompts for questions or feelings (P)</td>
<td>The coach prompts player(s) to confirm their understanding or share feelings. For example, the coach checks to see if players understand something (e.g., “Are there any questions,” “Does that make sense?”) or asks players how they feel (i.e., philosophically, emotionally or physically). Only code if the coach gives players at least 2 seconds to respond to a prompt or a player audibly responds to the prompt.</td>
</tr>
<tr>
<td>Opt(s) to use player idea (O)</td>
<td>The coach uses player(s) idea. For example, a player offers to play in a teammate’s absence and the coach allows the player to do so or a player makes a suggestion to alter a team rule and the coach changes the rule accordingly.</td>
</tr>
<tr>
<td>Withholds information to guide response (W)</td>
<td>The coach asks a question with a pre-determined correct response or gives player(s) a clue without revealing the whole answer. For example, the coach asks a player which teammate he should have passed the ball to or gives hints about the appropriate pass option instead of telling the player the answer. Only code if the coach gives athletes at least 2 seconds to respond to the question/clue.</td>
</tr>
<tr>
<td>Empathizes with negative affect (E)</td>
<td>The coach, with or without prompting from player(s), states that he recognizes, understands, or respects the player(s) negative feelings. For example, the coach tells players he understands this is a difficult point in the season or says he is just as tired as they are.</td>
</tr>
<tr>
<td>Rationalizes (R)</td>
<td>The coach explains, justifies, and/or identifies for player(s) the underlying meaning for something. For example, in response to a player who asks why a certain team rule is being enforced, the coach says, “Because it helps to ensure everyone’s safety.” Examples of a controlling rationale would be “Because I said so” or “Because it makes me angry.” Cue words that are helpful in identifying rationales are “because”, “so”, “that’s why”, “if…then”, “therefore”, “since” and “that way”, although not all rationales include these words and these words do not always lead to a rationale. The coder should be careful not to mistake explanations of how something should be done (description) or what should be done (directive) for explanations of why something should be done or is the way it is (rationale).</td>
</tr>
</tbody>
</table>
communication based on what his athletes’ said, which was essential for accurately coding
certain instances coaches opting to use players’ ideas and empathizing with negative affect.
While recording, we wore an earphone that enabled us to listen to the coach through the
wireless transmission and make sure the audio functions continued to work properly.

CODING PROCEDURE
MPOWER uses event recording to code coaches’ autonomy support behaviors. This
procedure requires the observer to record each instance a behavior concept on the instrument
is observed in the coach’s practice behaviors. The instrument includes a recording and
reliability sheet (Figure 1), which separates events into 30-second periods. This helps to
ensure the reliability of the instrument, since codes are recorded by 30-second period and can
be easily traced. The recording and reliability sheet also allows observers to record
contextual information (e.g., when the last game was played and whether the team won or
lost), which should help to add perspective in analyses of coaches’ practice behaviors.

It is recommended that the observer watch the coach’s verbal interactions with players for
at least 2 minutes before coding to get a feeling for the coach’s communication patterns (e.g.,
dialect, verbal tics, accent). When coding, the observer should circle a behavior concept code
(e.g., “M” for moves decision-making) in the appropriate 30-second cell as soon as there is
evidence of a behavior concept on the video. The observer should only circle a behavior
concept code once in a given 30-second cell on the recording sheet, even if the concept is
observed more than once. This helps to avoid conceptual issues, such as when a string of
rationales is given to support the same idea and it is difficult to disentangle them. The
observer should pause the video whenever there is doubt concerning a coach behavior and
review the video until a coding decision is made. The observer should code a behavior
concept in two or more consecutive 30-second cells if the behavior is first observed in one
cell and continues to be observed in subsequent cells (e.g., the coach gives a long rationale).
The observer should change codes as needed if subsequent observation disconfirms previous
codes or reveals a code should be added in a previous cell.

The observer must follow several ground rules when coding to ensure reliable use of the
instrument. First, the observer should only code verbal behaviors as defined on the
instrument. Video recording limits the observer’s ability to see the full range of nonverbal
behaviors a coach enacts, such as when the coach has his back turned to the video camera.
Second, the observer should only code coach behaviors exchanged with athletes on his team
and not with other coaches, bystanders or other individuals in the practice setting. Third, the
observer should not code any coach communication that is not clear enough to understand
(e.g., because of poor audio quality). Fourth, the observer should be cautious not to code
coach behaviors that fit the definitional requirements of the concepts on the instrument but
simultaneously or subsequently contradict the behavior with additional messages. For
example, the coach might use praise and say, “Good job” but obviously be using sarcasm or
subsequently say, “but not good enough”. Additionally, the coach might provide a
“controlling” rationale, which obviously serves to primarily assert his power or authority
(e.g., “Because I said so”). Other examples would be if the coach prompts athletes and asks,
“What’s wrong with you?” but the question is clearly asked out of frustration or if the coach
moves decision-making by offering a punitive option (e.g., “You can either do it my way or
run laps”).
### MPOWER Recording and Reliability Sheet

**Coder's Name:**

**Season Period:** Early / Middle / Late

**Date of Video Recording:**

**Coach's Name:**

**Date of Last Game:**

**Team Name:**

**Date of Next Game:**

**Practice Time:**

**Coding Start Time:**

**Coding Stop Time:**

#### Behavior Concept Codes

- **M** = Moves decision-making
- **P** = Prompts for questions or feelings
- **O** = Offers to use player idea
- **W** = Withholds information to guide response
- **E** = Empathizes with negative affect
- **R** = Rationalizes

#### PERCENT AGREEMENT ACROSS 30-SECOND PERIODS

<table>
<thead>
<tr>
<th>Concept for All 30-SECOND PERIODS</th>
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<tbody>
<tr>
<td>M= _______%</td>
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<tr>
<td>O= _______%</td>
<td>W= _______%</td>
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#### PERCENT AGREEMENT ACROSS CONCEPTS FOR ALL 30-SECOND PERIODS

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<td>W= _______%</td>
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<tr>
<td>E= _______%</td>
<td>R= _______%</td>
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#### Figure 1. MPOWER Recording and Reliability Sheet.

**ANALYSIS PROCEDURE**

**Reliability.** Observer reliability can be calculated using the standard formula mentioned earlier in this paper. Reliabilities should be calculated for an overall autonomy-support score and a score for each behavior concept. The overall score represents the total agreement across 30-second periods. For example, if there are 100 30-second periods, and 90 of these
periods were scored the same way (all of the same concepts circled and not circled on the recording sheet), the overall reliability score would be .90. The score for each behavior concept represents the agreement across 30-second periods for a given concept. For example, if “P” was scored the same way for 90 of the 100 30-second periods, the reliability score for that behavior concept would be .90. This analysis procedure is based on the idea that behavior concepts that are both circled and not circled across cells on the recording sheet are equally important in determining observer reliability. The reliability scores should account for whether there was agreement when autonomy support behaviors were both observed and not observed.

**Autonomy Support Scores.** The total number of codes across the observation period can be summed to provide an overall autonomy support score. A score for each behavior concept can also be calculated by summing only the codes for that concept across the observation period. There are no “cut off” scores to delineate high versus low autonomy support. Rather, MPOWER should be used repeatedly to examine differences in a coach’s autonomy support across time or to compare different coaches’ level of autonomy support. Continued research using MPOWER might yield clearer ideas of what should be considered an appropriate level of autonomy support in the given context.

**CONCLUSION**

**STRENGTHS AND LIMITATIONS**

Considerable perceptions-based research on coaching has examined the role of coach autonomy support in athletes’ motivation and success with results affirming the tenets of SDT [3]. However, we are not aware of any studies that have developed or employed systematic observation techniques to conceptualize and document coaches’ autonomy support. MPOWER is the first known instrument designed for these purposes so that continued research within SDT might build on perceptions data with observational data and enhance the application of autonomy-support research in coach education, training, and development.

This study provides a mechanism for extending the knowledge base on soccer coaching. Most other studies of soccer coaching that have used systematic observation [6, 10-12] employed The ASUOI or the Coach behavior Assessment System (CBAS) [33], which do not incorporate the full conceptual framework for autonomy support reflected in MPOWER. Autonomy supportive coaching constitutes a “hot topic” in the extant coaching science literature, but little is known about soccer coaches’ autonomy support behaviors. MPOWER represents an initial step toward exploring and documenting such behaviors in one of many contexts where soccer coaches work. On a broader scale, we hope that researchers and practitioners whose work focuses on sports other than soccer can adapt MPOWER for their specific needs. While the instrument was developed to be context-specific, it is notable that its conceptual framework is in many ways consistent with observation instruments designed to assess teacher autonomy support in physical education that have been published since we conducted our study [8, 34]. For example, Haerens et al.’s [8] instrument includes items such as “offers choice to all pupils”, “asks pupils questions about their interests, problems, values or wishes”, and “gives pupils the opportunity to practice independently and to solve problems on their own, without interfering”, which closely align with MPOWER’s concepts of moves decision-making, prompts for questions or feelings, and withholds information to guide response, respectively. Therefore, we suggest that some components of MPOWER may have transferability to other pedagogical contexts.

MPOWER does not distinguish between autonomy support and control, given that the
coaching environment is by nature a controlling one [24]. However, conceptualizing control in terms of coaching behaviors that exert undue pressure and serve to undermine self-determination is an important direction for future systematic observation research in coaching. It is possible that athletes’ ratings of their coach’s autonomy support derive less from perceived levels of autonomy support and more from perceived levels of control. Similar to the way MPOWER is conceptualized, we suspect control can be measured as relatively high or low such that it falls along a continuum without the need to juxtapose it against how much autonomy support is being provided. Therefore, reducing control would not necessarily mean a coach is increasing autonomy support. For example, a coach might not provide his athletes with many choices but might also refrain from issuing directives in a way the athletes perceive as commanding or threatening.

The contextualized nature of MPOWER gives it advantages over instruments assumed to be generalizable in their applicability to coaching research. As Brewer and Jones [14] indicate, “the emphasis placed on the inclusion of perceived generic coaching behaviors within existing systematic observation instruments has not made these instruments context specific enough, thus potentially precluding the development of an accurate conceptual model of effective coaching practices” (p. 140). MPOWER is specifically tailored to the types of conditions and events one would normally expect to see in high school varsity boys’ soccer practices. It provides a unique, theoretically based, and empirically driven lens for systematically observing the coaching process and evaluating coach effectiveness. As with all systematic observation instruments, MPOWER will be most aptly used in studies that take into careful consideration the sensitive and dynamic nature of the coaching context. For instance, varsity boys’ soccer coaches’ autonomy support during practices may vary across time as a function of key events during a season (e.g., competitions, team building experiences) or a career (e.g., changes in team membership, formal and informal learning experiences that inform developing expertise). Another consideration for future studies is to employ MPOWER in combination with established inventories of perceived autonomy support and motivation within SDT. Such information might help to highlight similarities and differences in descriptive analytic data when compared to perceptions data and elucidate aspects of autonomy supportive coaching that are more or less important to athletes’ self-determination.

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REFERENCES


