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Having a goal up your sleeve

Promoting a mastery climate in a youth football academy team

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**Having a goal up your sleeve: Promoting a mastery climate
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Abstract

18
19 Within sport, there is extensive evidence that supports the benefits associated with a mastery
20 climate. However, limited studies have explored how physical tools could be used to promote
21 mastery climates in youth sport contexts. Using an action research approach, we sought to
22 understand the benefits and drawbacks of applying tools grounded in goal setting to promote a
23 mastery environment: (1) an ‘arm-sleeve’ to be worn by athletes during training and matches and
24 (2) a ‘reflection-sheet’ for use pre- and post-training/matches. These tools were implemented for a
25 three-week period with a U13 academy team (18 players and two coaches). Based on observation
26 notes, focus groups, and one-on-one interviews, the analysis showed that the arm-sleeves were
27 helpful reminders for process goals, whereas the coaches had abandoned the use of ‘reflection-
28 sheets’ due to lack of time. The benefits and drawbacks of the tools are discussed while pedagogical
29 and practical implications are considered.

30 **Keywords:** Motivational climate, goal setting, intervention, pragmatism, soccer

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31 **Having a goal up your sleeve: Promoting a mastery climate in a youth football academy team**

32 The global professionalization of youth sport has contributed to a ubiquitous emphasis on
33 early specialization and performance (e.g., DiSanti & Erickson, 2020; Gould, 2019). For instance,
34 youth football players (~ aged 6-12 years) are increasingly reported as being engaged in organized
35 football with high amounts of both deliberate play and practice (Hornig et al., 2017). Moreover,
36 these children are often confronted with early talent identification practices (Wrang et al., 2022).
37 One of the resounding byproducts of engaging in early specialization and talent identification
38 practices is the inevitable emphasis placed on performance. The systemic changes in youth sport
39 have created climates that emphasize performance, where reference points for success and failure
40 (i.e., perceptions of competence) are derived by social comparison and superiority (Erdal, 2018).
41 Such conceptions of competence constitute two achievement goal states (e.g., task vs. ego-
42 involvement), which establish how individuals define success in achievement settings (Roberts &
43 Neerstad, 2020).

44 There is extensive sport literature that highlights the maladaptive outcomes associated with
45 performance climates and supports the benefits of mastery climates (Harwood et al., 2015). For
46 instance, mastery climates—those that emphasize self-actualization and development—have been
47 associated with enhanced enjoyment, positive affect, well-being, intrinsic motivation, and better
48 performance (see Roberts & Neerstad, 2020). Thus, researchers and practitioners alike have sought
49 to counteract the shift to performance climates by working with managers/coaches and sport
50 psychology consultants (SPCs) to acquire knowledge and tools that enable the nurturing of mastery
51 climates that emphasize self-referenced evaluations (Harwood & Thrower, 2020; Maitland &
52 Gervis, 2010). In this regard, the primary approach to establishing mastery climates has involved
53 training and interventions directed at coaches. This tendency reflects the considerable influence that
54 coaches have on the sport environment (Smith et al., 2007), with the primary approach to

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55 establishing mastery climates involving coach training/interventions. For example, the Mastery
56 Approach to Coaching (MAC) that aims to develop a mastery motivational climate, is based on five
57 principles and specific guidelines to nurture the behavior of the coach (Smoll et al., 2007). In this
58 regard, coaches should: (1) emphasize effort and enjoyment when appraising performance; (2) take
59 a positive approach towards instructions (e.g., positive reinforcement, technical instruction); (3)
60 establish norms that emphasize athletes' mutual obligations to support one another; (4) create
61 shared decisional responsibility within the team; and (5) cultivate their own self-awareness and self-
62 monitoring. Studies guided by such MAC-principles have shown to constitute concrete positive
63 differences both in coaching behaviors and in athletes' evaluative responses to the coach and other
64 aspects such as decreases in performance anxiety (Smith et al., 2007; McLaren et al., 2015). For
65 instance, using the MAC-principles, McLaren et al. (2015) found athlete perceptions of task and
66 social cohesion to be improved considerably across a season when recreational youth soccer
67 coaches were trained to use behaviors that emphasized mastery versus performance orientations.
68 Clearly, efforts to train coaches are a potential avenue for manipulating sport environments
69 (Lefebvre et al., 2016). However, such interventions require trained personnel for delivery, club
70 resources, and assume the coach as the main conduit for change. Alternative cost-effective
71 strategies could also influence sport climates through the coach, parents, and the athletes in simple
72 and practical ways. For instance, the use of 'self-help' books can reduce perfectionistic attitudes
73 among high-level football players (Donachie & Hill, 2020). Further, the use of pre-match (e.g.,
74 checklists) and post-match tools such as goal review sheets and logbooks can aid with optimal
75 psychological states (Harwood & Swain, 2002). Even though psychologically-oriented tools have
76 been developed before with various aims, none seem to have been designed for use at the actual
77 sport facility (i.e., on the pitch). Thus, exploring simple and practical avenues that youth clubs can
78 adopt to facilitate mastery climates seems to be a worthwhile endeavor.

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79 One of the most prominent features of a mastery climate involves the use of self-referenced
80 orientations and goals (Ames, 1992). Indeed, the cultivation of self-referenced orientations and the
81 use of goal setting aligns with core principles of MAC, such as emphasizing effort, a positive
82 approach to instruction, shared decisional responsibility, and self-awareness. It is perhaps not
83 surprising then, that goal setting has been, and still is, one of the most widely used applied
84 psychological strategies across a range of sports and participants (Burton & Weiss, 2008; Jeong et
85 al., 2021; Kyllö & Landers, 1995). Despite the widespread use, however, a recent systematic review
86 highlighted inconsistent results in terms of using goal setting as a tool to enhance athletic
87 performance (Jeong et al., 2021). Further, due to an overemphasis on determining the effect of goal
88 setting on athletic performance, researchers have noted the lack of clarity in relation to *how*
89 coaches, athletes, and practitioners view and employ goal setting (Jeong et al., 2021; Maitland &
90 Gervis, 2010).

91 In their general sense, goals have been defined as something that “an individual is trying to
92 accomplish; it is the object or aim of an action” (Locke et al., 1981, p. 126). Setting goals is an
93 effective tool for influencing task orientation, motivation, and action across the age spectrum and
94 for various domains (e.g., rehabilitation, sport, and business). Goals are often distinguished in the
95 degree to which they involve interpersonal comparison (e.g., winning or losing; i.e., outcome
96 goals), are self-referenced (e.g., number of scored goals during a season; i.e., performance goals), or
97 are defined by the execution of skills or strategies (i.e., process goals). Further, although goal
98 setting is often thought of as an individual pursuit, goals can be derived from contextual cues and
99 through instructions given by coaches. Thus, goals can be guided and internalised from the
100 surrounding culture, and each culture varies in the kinds of goals transmitted (Ryan et al. 1996).

101 Research has shown a range of issues regarding the overall purpose (e.g., performance,
102 wellbeing), focus (e.g., outcome, performance, process), and procedure (e.g., supportive tools or

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103 continuous feedback) of goal setting practices. For instance, Forsblom et al. (2019) examined goal-
104 setting practices among teams and athletes in women's ice hockey, ringette, and floorball across a
105 season at the highest competition level in Finland. Although all teams had set collective goals, their
106 evaluations were largely restricted to outcomes while overlooking their process and performance
107 goals. Similarly, Burton et al. (1998) found elite athletes to infrequently use goal implementation
108 strategies such as writing and publicly posting them. Conversely, Larsen and Engell (2013) showed
109 that systematic and continuous goal-setting consultations between four elite footballers and two
110 SPCs enabled the players to focus on their learning process (i.e., process goals). Such studies
111 involving goal setting relate to findings from current reviews in several important ways. Notably,
112 process goals have been found to have a larger effect on performance in comparison to performance
113 and outcome goals (Williamson et al., 2021), suggesting the need to be present and focused on the
114 task at hand. Similarly, Jeong and colleagues (2021) found that incorporating feedback within goal
115 setting interventions was effective as it aided athletes to promote autonomy and ownership over the
116 process. As such, an emerging practical implication relating to the effect of goal setting for
117 supporting mastery climates is associated with the importance of using triggers (e.g., asking
118 questions that direct behavior change) to instigate awareness of goals in the moment and to dedicate
119 time prior to and after training for reflection.

120 Generally, it appears that scholars and practitioners have an understanding of *what we want*
121 for a training environment (i.e., mastery climates for athletes) and *why we want it* (i.e., positive
122 outcomes for athletes). However, the recent review by Jeong and colleagues (2021) demonstrated
123 that although researchers have been measuring the effects of goals, there is less clarity pertaining to
124 the mechanisms that explain how goals impact sport development and performance and other
125 notable processes and outcomes. Thus, within goal-setting practices, we should strive to uncover
126 more about *how we get what we want*. As most researchers have relied on creating awareness of

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127 goal orientations or mastery climates through coach training or goal setting with athletes, we may
128 be underestimating the importance of the non-conscious processes that can influence the mastery
129 climate of a group. Accordingly, behaviors are likely determined by a combination of conscious and
130 non-conscious processes (e.g., Levesque et al., 2008). Thus, a coach may have promoted a mastery
131 climate and emphasized task-orientations for athletes through their behaviors and discussions, but
132 then the training environment and sport culture could reward ability and superiority compared to
133 others, reflecting a more ego-oriented climate. Consequently, despite coaches verbally and actively
134 attempting to promote a mastery-approach, their behaviors and the emphasis of performance in
135 youth sport could be activated or triggered without intention or conscious decision (Roberts &
136 Nerstad, 2020). There is, then, a need to embed approaches that overturn the non-conscious aspects
137 driven by the professionalization of youth sport described previously.

138 Embedding practical and simple tools into existing systems represents one way to target and
139 impact a complex mastery climate (Kellmann & Beckmann, 2003). Considering the propensity to
140 emphasize early specialization and performance, we must explore new ways to promote self-
141 referenced task orientations within a mastery climate for participating athletes and coaches. In
142 addition to coach-based interventions, complementary mastery-tools, such as observable goal
143 setting practices, could be systematically embedded into preparatory, on-field activities within
144 teams. Accordingly, through this study, we aimed to describe and evaluate the design and
145 application of physical goal setting tools into the daily training activities of a youth football
146 academy team to support the development of a mastery climate. Specifically, the research team,
147 working in collaboration with a head coach and a SPC, sought to understand the benefits and
148 drawbacks of applying arm-sleeves and reflection-sheets that functioned as mastery climate
149 promoting tools among academy youth football players.

150

Methods

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151 **Research Design**

152 We took the pragmatist perspective that as researchers, we should challenge limiting
153 structures while offering novel purposes and activities (Cornish & Gillespie, 2009). Our idea to
154 create and embed tools was inspired by the anthropologist Tim Ingold who championed Charles S.
155 Peirce's idea that things *are* their effects (Ingold, 2011). In this regard, we must consider what
156 things we develop and use in certain situations. From an ontological perspective, pragmatism finds
157 that science is not a means to uncover reality, but rather, to explore habits of action for coping with
158 reality (Rorty, 1989). Accordingly, as pragmatic researchers, we generate novel descriptions of a
159 particular topic or context to best position others—practitioners in particular—to benefit from that
160 information (Rorty, 1989). From an epistemological perspective, we find that knowledge
161 construction is highly contextual and influenced by cultural, political, and historical conditions.
162 This position requires us to provide a rich description of how the study was situated within a
163 broader context. As pragmatists, we acknowledge that our subjective world is contingent and
164 changeable (Biesta & Burbules, 2003). However, the world is not just a collection of things in
165 motion but consists of both lines and associations of events and effects (Ingold, 2011).
166 Consequently, we recognize that participants may perceive and experience similar events in
167 different ways. Thus, the identified benefits and drawbacks of the mastery-involving tools
168 **implemented within the current study** ought to be recognized as a function of the perceived lines
169 and associations of events and effects.

170 With its focus on contextualized actions and challenging limiting structures to improve
171 practice, pragmatism serves the aims of action research (AR). Specifically, AR originates from Kurt
172 Lewin (1946) who advocated for the production of knowledge that was relevant for finding
173 solutions to social problems (Kellmann & Beckmann, 2003). According to Kellmann and
174 Beckmann (2003), Lewin proposed that relevant knowledge needed to be produced *through*

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175 involvement with practitioners, by collaborative investigation to create intentional change. Thus,
176 any attempt to change a praxis, will entail ‘action learning,’ which occurs in ‘communities of
177 practice’ and functions in a ‘learning spiral’ comprised of five stages: (1) usual praxis, (2)
178 reflection, investigation, and agreement on new praxis, (3) testing (or *implementation*) of new
179 praxis, (4) analysis and reflection of the impact of new praxis, and (5) new approaches to
180 understand and act upon (Rasmussen & Hansen, 2018). After situating our AR and participants
181 during the following sections, we describe the change initiatives involved in the first three stages of
182 the AR process. Due to the short intervention period (i.e., three weeks), we only had the opportunity
183 to provide minor modifications during stages four and five. Further analysis and reflection on the
184 impact of the new tools (i.e., stage 4) as well as suggestions for further development of their use
185 (i.e., stage 5) are presented in the analysis and discussion.

186 **Context and Case**

187 *Access and Participant Selection*

188 The youth football team for the current study was recruited from a Danish Superliga football
189 club. This choice was guided by opportunity (i.e., access provided through successful collaboration
190 in previous projects) as well as information- and action-oriented case selection criteria (Smith &
191 Caddick, 2012). Specifically, the youth academy was selected due to its openminded leaders and
192 coaches, with an interest in hands-on tools to aid player development. During an initial meeting
193 with the talent director, he said: “We are not interested in projects that result in a pile of paper that
194 collects dust. We want tools that can be directly translated into practice and that promote learning
195 and development.” Given our AR approach, we engaged with key stakeholders from the club to
196 design and apply tools that would facilitate **their overall developmental objective of enabling**
197 **players to successfully transition to the professional team** (e.g., Kellmann & Beckmann, 2003).

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198 The talent director suggested the club's U13 team would be ideally suited to participate in
199 the study, as they consisted of fairly new youth players (recently assembled from local clubs). This
200 provided an excellent opportunity to impact the athletes and the context, as Harwood and Thrower
201 (2020) recently suggested that interventions ought to occur in the early stages of group
202 development, as they are often characterized by social comparisons and competition for positions at
203 this stage. Further, Roberts and Neerstad (2020) claimed that children at age 12 begin to adopt a
204 more adult perception, which makes them more prone to develop an ego-orientation (e.g., that the
205 demonstration of competence involves outperforming others). Hence, this age group was well
206 positioned to be introduced to process goals and the cultivation of mastery-involved behaviors.

207 We contacted the U13 head coach and the in-club SPC to discuss the potential collaboration.
208 It was determined that the actionable tools would be created together and that the coach and SPC
209 would determine how and when they would be used. Before the AR process took place, ethical
210 approval was obtained from the lead author's institution and informed consent was obtained from
211 the talent director, head coach, SPC, players, and their parents/guardians. The talent director, coach,
212 and SPC have all read and endorsed this manuscript, while the names of the players are presented as
213 pseudonyms to protect their identities.

The Club, Coach, and SPC

215 Like most elite clubs in Denmark, the club positions itself as the regional elite club, which is
216 best shown by their recruitment of athletes from the whole region to their youth academy. The U13
217 team consisted of a head coach, a SPC, and 18 U13 players who had been recruited from local clubs
218 six months previously. At the time of the study, the head coach was 28 years of age and had been
219 with the club for two years. The SPC was 26 years of age and had been the club's part-time SPC for
220 two years. All players had been playing organized football from the age of 3-5 years in local clubs,
221 practiced four times a week, and lived between 3-62 km from the academy. The head coach and

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222 SPC characterized most players as highly motivated, but predominantly focused on **outcome** goals
223 (e.g., winning in training and matches, becoming a professional football player). As the SPC only
224 fulfilled a part-time job for the whole academy, his role was mostly to facilitate sport psychology
225 sessions with coaches and parents within the club.

226 *The Action Researchers*

227 At the beginning of the AR process, three researchers, Marie-Louise, Marcus and Michael,
228 were part of the research team. All three had followed and completed several general psychology
229 and applied sport psychology courses at Aalborg University, which were taught by the first and
230 fourth author. This education emphasizes problem-based learning and theory-practice coupling,
231 which are vital aspects in AR (Greenwood & Levin, 2007). In addition, the connection to the elite
232 club **by the first and fourth author** helped to build rapport (Krane & Baird, 2005) and contextual
233 understanding (Smith & Caddick, 2012) for the researchers.

234 Understanding of the elite club's ethos, normative practices, and procedures were key to
235 aligning the AR process to the context (Greenwood & Levin, 2007). For example, it allowed the
236 researchers to use local terminology, discuss how the project could support desired objectives, and
237 be aware of cultural assumptions and routines. In this regard, not being football experts helped the
238 researchers to position themselves as experts in motivation, while acknowledging the head coach
239 and SPC for their roles and expertise pertaining to football. This was important for challenging
240 local beliefs and traditions that may have hindered the discovery of important ways for change
241 (Greenwood & Levin, 2007).

242 **The Action Research Process: Procedure and Data Collection**

243 The AR process is depicted in Figure 1 and aligned with the stages advanced by Rasmussen
244 and Hansen (2018). To better understand usual praxis, the researchers engaged as 'participant
245 observers' for a three-week period prior to the design phase (involving three training sessions and

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246 one competition; e.g., Sparkes & Smith, 2014). From this stage, the researchers documented general
247 observations and noted their reflections from informal interviews with club staff in a document.
248 Three design meetings took place that involved the researchers and the SPC and/or the coach to
249 discuss the usual praxis in the club and to discuss potential tools. In accordance with Reason and
250 Bradbury's (2001) definition of AR as "a participatory, democratic process concerned with
251 developing practical knowing in the pursuit of worthwhile human purposes" (p. 1), the first meeting
252 sought to clarify roles for the coaches and researchers; the coaches were the primary facilitator of
253 using the tools, whereas the researchers facilitated reflections on the benefits and drawbacks of the
254 tools.

255 During the first meeting, motivation was identified as a salient topic of interest that the club
256 wanted to support in a practical manner. The SPC and head coach were not concerned with general
257 levels of motivation, but admitted that many players had transitioned from performance-dominant
258 environments. To support an applied focus on process goals in this club, the coach and SPC had
259 initiated weekly individual player development meetings. Despite best intentions, the SPC did not
260 feel that these meetings changed the way athletes approached daily training. Importantly, it was
261 apparent that the players were familiar with traditional goal setting (i.e., setting process and
262 performance goals every three months). In preparation for the second meeting, the researchers held
263 several mind mapping sessions to discuss potential tools to influence day-to-day practices within
264 the team. The aim of this second meeting was to present the proposed tools for implementation.
265 Here, a preliminary version of the reflection-sheets (Figure 2) were proposed. The SPC discussed
266 the need for more task-involving *on-field* applications. Inspired by the use of quarterback playbook
267 wristbands in American football, the idea of arm-sleeves with written process goals was put
268 forward. The suggestion was that such a tool could serve as reminders during training, while not
269 changing current practice nor adding additional components to daily training. These tools were

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270 designed, produced, and presented to the SPC and coach in a third meeting. Although they instantly
271 approved the arm-sleeves, the coach requested that the reflection-sheets be simplified (it originally
272 consisted of four categories) and suggested the use of specific questions.

273 ***The Tools***

274 The main objective when creating the tools was to ensure that self-reference and task-
275 involvement were at the forefront for **the players**. This was done to create salient mastery criteria
276 cues within the sport environment (e.g., Ames, 1992). The reflection-sheets for each player were on
277 laminated A4 paper with written questions and blank spaces created for answers. The main function
278 of this tool was to stimulate reflection with regard to the players' task-involvement, and it consisted
279 of two sections: (1) a pre-training/match section; and (2) a post-training/match section. In each
280 section, four questions targeted self-reference and task-involvement. Pre-questions emphasized
281 process over outcome and the players considered these prior to all training sessions (e.g., "What
282 tasks did you focus on in your last training/match?", "What tasks are important for you today?",
283 "How would you like to practice these tasks?"). Each players' reflection-sheet was hung on the wall
284 in the dressing room before training and brought home after training. Responses to these questions
285 informed what players would write on their arm-sleeves. Here, process goals (e.g., behavior-
286 specific cues) would be written on a small piece of paper, which was inserted into a plastic pocket
287 on the arm-sleeve to serve as a reminder during training (e.g., "active first touch"; "takeoff";
288 "orientation"). After training or matches, players completed the post-questions which focused on a
289 player's process of working on the task (e.g., "How did you succeed with your process goal?",
290 "What can you do to improve your skills in relation to your process goal?", "How can you do it
291 better the next time?"). Once the evaluation questions were answered, the players were asked to
292 present their reflection-sheets to their teammates to promote an emphasis on the task, but also to

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293 make them inspire each other. The arm-sleeves were hand-sewn by a red fabric that comprised of
294 both cotton and polyester, which made it weather-proof and stretchable.

295 ***Implementation***

296 Together with the coach, the three researchers, Marie-Louise, Marcus and Michael,
297 introduced the tools to the players before a training session, while the researchers subsequently
298 engaged in their roles as participant observers in six observations across training and matches. The
299 participant observations primarily had three functions. First, they supported the implementation of
300 the tools by exchanging ideas with the coach for including the tools in consistent dialogue with
301 players. To facilitate continuous use of the arm-sleeves, the coach made players (individually or in
302 pairs) reflect on their process goals before and after training sessions (e.g., how they worked with
303 their goals). Second, observations also provided the opportunity to investigate *how* interactions and
304 procedures among the athletes, coach, and SPC changed within the team as they took place. Third,
305 observations enabled the second author to establish rapport and facilitate recruitment for the follow-
306 up interviews. After each observation, the second author noted specific incidents or potential
307 follow-up questions for the interviews and engaged when possible, with the coaches to discuss the
308 implementation. This led to several adjustments with the arm-sleeves. During a training session
309 with heavy rain, the process goals were washed away, which led to the subsequent use of
310 waterproof markers. During implementation, some players wanted to set more goals on the sleeves
311 to help focus on different skills during the various drills within a practice. Though most players
312 engaged with the reflection-sheets pre and post training, between two and four different players did
313 not complete them for training, but all players did for matches. The quality of the process goals set
314 by players varied across individuals, as some players at times set avoidance goals (e.g., 'avoid the
315 blind side') and unspecific goals (e.g., 'set pieces') that did not seem to aid them on field or with
316 reflecting and evaluating on their practice. In most instances, the coaches helped the players refine

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317 their goals (e.g., turning avoidance goals into achievement goals) between training sessions, as we
318 as researchers had agreed to be in the background during observation. While most of the players did
319 not report any discomfort in wearing the sleeves, a couple of the players told us that the sleeves
320 were itching during the first training sessions. These specific players did not report any itching
321 further during implementation and therefore seemed to grow accustomed to the sleeves. After the
322 implementation period, the coaches informed us they were not permitted to use the sleeves in
323 official matches due to worries that the sleeves could conflict with their jersey sponsorship.

324 *Evaluation*

325 As shown in Figure 1, six training sessions were observed during the implementation. After
326 every two observations, the three researchers, Marie-Louise, Marcus and Michael, met with the first
327 author as a means of creating collaborative critical reflection. During these evaluation meetings, it
328 was discussed how the coaches could emphasize the process goals more explicitly during training
329 sessions, without adding tasks to their already busy schedule. This led to minor adjustments (e.g.,
330 the coach began to ask questions regarding the process goals in-between drills). Overall, it was
331 noted that the coaches enthusiastically supported the sleeves and were eager to engage with the new
332 tools. However, although they used and emphasized the reflection-sheets, they did not appear to be
333 the priority.

334 Shortly after the implementation phase, we explored athlete perspectives (stage 4: analysis
335 and reflection of the impact of the tools). Based on Patton's (2015) principles of heterogeneity
336 sampling, the researchers asked all players if they wanted to take part in focus groups. Five players
337 agreed and this sample was considered a convenience sample (Patton, 2015). The focus group was
338 an appealing approach given its suitability for generating rich perspectives and contextual
339 information (Brinkmann & Kvale, 2015). The focus group was conducted in a meeting room at the
340 club and lasted 54 minutes. The focus group followed guidelines put forth in the literature and

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341 therefore contained both an interview guide, but also the concrete tools which were put forth during
342 the discussion to stimulate the **player's** ability to recall their experiences (Gibson, 2016).

343 As we were interested in exploring potential changes induced by the tools, follow-up
344 interviews were conducted one year after implementation. One semi-structured interview was
345 conducted with the coach and the SPC, and individual semi-structured interviews were conducted
346 with four players. Due to the circumstances caused by the ongoing global pandemic (i.e., CoVid-
347 19), player interviews were conducted remotely via Skype. **Only players who participated in the**
348 **original focus groups were recruited for these follow-up interviews. The main rationale for this**
349 **decision was for because of the importance of familiarity with the interviewer for remote interviews**
350 **(Deakin & Wakefield, 2014).** The interview with the coach and SPC lasted approximately 1 hour
351 and 6 minutes, whereas the interviews with each of the players lasted 23 minutes on average ($SD =$
352 8:01). Despite the apparent brevity of some of the player interviews, their aptitude with technology
353 and relation to the researcher meant that little time was needed to establish rapport and comfort. All
354 interviews were recorded and subsequently transcribed verbatim.

355 **Focus Group and Interview Guides.** **All interview guides** consisted of four general
356 **sections** with similar questions, **modified to suit the participants in each setting.** The sections
357 involved: (1) a general introduction (e.g., question for athletes: “How did you experience the last
358 few weeks?”); (2) content specific to the **reflection-sheets** (e.g., question for the coach: “How did
359 you experience the **reflection-sheets** in the daily practice?”); (3) content specific to the sleeves (e.g.,
360 question for athletes: “How did you use the sleeves in your daily practice?”); and (4) the general
361 outcomes (e.g., question for all participants: “What do you think you got out of the tools?”).
362 Throughout these sections, questions were also informed by the observations **made by the**
363 **researchers** during the implementation phase. **In this regard, the semi-structured nature of the**

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364 interviews allowed a flexible approach with the possibility to ask curious follow-up questions and
365 the use of prompting within an open conversational environment.

366 For the initial focus group, the interview guide focused on experiences during the
367 implementation process and which elements of the tools were most important to players. For the
368 individual follow-up interviews with the coach/SPC and the players, the questions revolved around
369 the participants' experiences from the implementation (e.g., "How did you experience the tools
370 when we started?", "How would you describe how you worked with the tools back then?") as well
371 as their current use of the tools (e.g., "How do you use the sleeve now?", "What happens when you
372 use it?", "What challenges do you experience when you use it?").

373 Across all interviews, participants were encouraged to respond as freely as possible and for
374 the focus group, the players were supported to discuss alternative perspectives. To gain deeper
375 insight into the experiences with the tools, the interviewer helped the participants to recall
376 experiences from the implementation by means of providing examples of observations and
377 statements from the initial interviews.

Data Analysis

379 The analysis was inspired by Peirce's pragmatist notion of abduction as a spontaneous and
380 imaginative search for possible explanations and exploring the past and imagining possible futures
381 (Rasmussen & Glăveanu, 2020). Rather than exploring relations between data and theory by means
382 of inductive and/or deductive processes, abductive reasoning is concerned with the relationship
383 between *situation* and *inquiry* (Brinkmann, 2014). Hence, an abductive analysis is neither a data-
384 driven induction nor a theoretically based deduction, but rather, an attempt to breakdown
385 *understanding* by engaging with the data while engendering and entertaining novel hunches and
386 ideas (Alvesson & Karreman, 2011; Rasmussen & Glăveanu, 2020). This approach aligned with our
387 aims, as we desired to gain an in-depth understanding of the potentials and drawbacks in the design

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388 and application of mastery-involving tools. Further, this choice aligned with our pragmatist
389 position, where research is seen as part of the continuity of the situation: “there is . . . no hard and
390 fast line between life, research, theory, and methods” (Brinkmann, 2014; p. 722). Peirce’s
391 pragmatic maxim implies that things are their effects, and thereby abduction can be described as a
392 form of imaginative reasoning employed in situations of uncertainty, “when we need an
393 understanding or explanation of some effect” (Tanggaard & Brinkmann, 2018, p. 91).

394 The analytical process was inspired by three suggestions advanced by Rinehart (2020)
395 pertaining to abductive analysis, namely: (1) taking your time, (2) ‘off-task’ influences, and (3)
396 backward mapping. Guided by the first principle, the first author initially familiarized himself with
397 the data by reading the transcriptions and reviewing the observation notes. The principle of taking
398 your time also stresses the importance of questioning one’s own assumptions, resisting quick
399 judgments and premature closure of interpretations, and staying open to new ideas. Based on the
400 second principle, the first author adopted a to-and-fro approach during a one-month period, where
401 the author varied between intense analysis (i.e., being immersed in the data, generating codes and
402 themes) and other scholarly tasks or daily chores. This allowed for informal prompts and ideas to
403 emerge from what was seen or heard in other contexts and not just from the repeated inspection of
404 data transcripts. During this to-and-fro process, he made notes on aspects that caused confusion or
405 uncertainty or engaged him during the reading. For instance, it puzzled him that the coaches
406 completely abandoned the reflection-sheets after the implementation period. Hence, he engaged in
407 abductive thinking to come up with several possible explanations to such uncertainties. This
408 imaginative process enabled the author to *stumble* onto unexpected analytical directions that may
409 not have been discovered otherwise (Tanggaard & Brinkmann, 2018).

410 Finally, inspired by Rinehart’s (2020) principle of backward mapping, and to enhance
411 validity, the first author recurrently reread transcripts and observation notes while generating sub-

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412 themes to trace data extracts that supported the logics of the hunches, ideas, and uncertainties that
413 emerged during off-task activities and thereby confirmed the plausibility of his interpretation.
414 Throughout this process, the three other authors served as critical friends to further explore the
415 evolving themes and ensure their coherence with the data material (Smith & McGannon, 2018).
416 Finally, the three themes that stood out as novel opportunities or drawbacks were defined, described
417 in detail, and shared and discussed among the research team. The analysis initially led to the
418 creation of four higher-order themes, which were collapsed to three during the shared discussion by
419 the research team (i.e., puzzle of circumstance). The first theme was primarily based on the
420 observation notes, focus group and interview with the coach, while the second and third were based
421 on the follow-up interviews.

422 **Qualitative Rigour**

423 We undertook several procedures across study development, data collection and analysis,
424 and reporting to ensure qualitative rigor. Specifically, we encourage readers to judge the quality of
425 our work based on the AR approach that we undertook. As a beginning point, it is worth noting that
426 this research was immediately relevant and worthwhile for the club and its members. The research
427 question and proposed tools were cocreated and subsequently implemented by the research
428 participants. In order to enhance the *transparency* of our process, we provide the most accurate and
429 concrete descriptions in both the context of the study and the methodological actions herein for the
430 data collected (Tanggaard & Brinkmann, 2015). In addition, rather than triangulation, which
431 primarily aims to improve accuracy, we sought to embrace various viewpoints from several
432 participants, which draws on the notion of *crystallization*. This notion appreciates the complex and
433 unstable world by exposing different perspectives and different aspects of problems and solutions
434 (Richardson & St. Pierre, 2005). Finally, we aimed for *practical utility* by including tools within
435 everyday practice and exploring the potentials and drawbacks to uptake, all with the hope of

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436 understanding whether the tools were easily adopted and made an impact on those involved. Since a
437 pragmatic AR approach encompasses stimulating future actions and potentially the creation of
438 artefacts that can be contextually adjusted, the study ought to be deemed as a worthy topic, which is
439 viewed as a marker of high quality (e.g., Smith & McGannon, 2018; Tracy, 2010).

440 **Results**

441 The following three higher-order themes represent benefits, drawbacks, or both, that were
442 identified from the analysis. The first higher-order theme describes the apparent benefits
443 experienced from the mastery sleeves: *Sleeves as day-to-day, drill-to-drill reification of task-*
444 *orientation*. The second theme pertained to the reflection-sheets, and encompassed a range of
445 perspectives describing both benefits and drawbacks: *Coach killed the reflection-sheets, but some*
446 *players missed it*. Lastly, the third theme described an unforeseen benefit that both tools seemed to
447 facilitate: *Teammates as goal buddies*. Each theme also includes several lower-order sub-themes
448 that will be shown in italics and described in detail in the following sections (see Table 1).

449 [Insert Table 1 near here]

450 **Sleeves as Day-To-Day, Drill-To-Drill Reification of Task-Orientation**

451 During observations of the implementation, the focus group and the 1-year follow-up interviews,
452 the **arm**-sleeves were characterized as highly useful in players' day-to-day practices. The coach, the
453 SPC, and players stated that the sleeves had been used a lot throughout the year. Indeed, as we will
454 describe in this theme, the sleeves were seen as a useful *constant reminder*, they were deemed to
455 *enhance focus*, and were *easily implemented due to their simplicity*. During implementation, the
456 sleeves instantly changed the coaches' and players' focus and their conversations during training.
457 They were observed chatting about the process goals on the sleeves in every training and the
458 coaches often asked the players to reflect in pairs about their goals on their sleeves from one drill to
459 another. The extensive use of the sleeves, as well as the perceived effectiveness from all

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460 participants, was somewhat unforeseen for the research team. All the interviewed players described
461 how the sleeves were constantly reminding them on their process goals on the field. When asked
462 how the sleeve helped, one athlete said:

463 Well, I think more on the goal, focus a little more on it during practice and talk about
464 it, like being constantly reminded of it, that it just pops up in my head, I remember it,
465 and it helps to quicken the development toward your goal. (Allan, U13 player)

466 As the quote displays, the sleeve functioned as a *constant reminder* in the player's focus of their
467 process goals. Interestingly, this player also supposed that this reminder had quickened his
468 development in this matter. During implementation, one player had written the process goal "one
469 touch", as he aimed to lessen the number of dribbles and releasing the ball quicker. In a practice, he
470 received the ball and started dribbling as he usually did. Then an assistant coach yelled "look at
471 your sleeve", which made him do so. The next three possessions he received, he had a maximum of
472 two touches. Surprisingly, the sleeves were not only able to remind the players of their process goal
473 in technical drills but proved *useful to enhance focus in different game formats*; as the players
474 particularly expressed how the sleeves helped them in more complex, tactical games where it can be
475 difficult to focus on process goals given the many distractions.

476 Well, yes, I had one thing I wrote, "fast return run," when we had just had an attack at
477 the end of the match. When we were attacking and the goalie had the ball, I looked at
478 it (the sleeve), and remembered that I had to do my best in this. So, when we were
479 attacking, it gave me some food for thought, and then I just stepped on it and had more
480 focus and felt that I could handle it. (Allan, U13 player)

481 While the players had learnt to use the sleeve with one process goal during the implementation
482 phase, they were now using one or two process goals for each practice. From the focus group
483 participants, we also learned how most of the players checked the actual plans and drills for the

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484 daily training session beforehand to decide which process goal was the most appropriate to wear on
485 their arm. After the implementation phase, one of the interviewed players had experienced being
486 moved to a team that did not use the sleeve, and then returned to a day-to-day practice with the
487 sleeve again.

488 When we started using it, we had a small break in which we did not use it that much,
489 and then I moved up to another year group and we started playing with it again, and
490 you could just instantly feel that it helped, and you got better, and were more focused
491 in training and so on. (Mark, U13 player)

492 The coach felt the players had increased their focus on process goals dramatically during the
493 implementation phase and continued to do so one year later, and he attributed it to the sleeves.

494 Last year with my last team, I never experienced, or at least it was very rare players
495 walked up to me and said “hey, this is what I want to develop further” and so on.

496 While this team, there are so many that actually think about their process goals “okay,
497 now I have actually obtained my goal, I would like a new one, how do I get it?.” I
498 think it’s a giant step and a giant acknowledgement to the sleeves. (Head Coach, U13
499 coach)

500 The coach also explained how the arm-sleeves *easily fit into the everyday practice because of their*
501 *simplicity*: “Then I think that the sleeves required minimum work (SPC, was nodding in
502 agreement), and therefore it seemed to somehow be favorable, both for us as coaches, but also for
503 the players” (Head Coach, U13 coach). When asked how the tool helped with the process-
504 orientation, the SPC said: “it’s a relatively simple tool, but it is a reification and seems to prompt
505 some different or draw the attention to something important, that one needs to practice” (SPC).

506 Later in the interview, both the coach and SPC agreed that the sleeves somehow turned out to be a
507 reification of the players process goals that made the focus on mastery from abstract to concrete.

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508 Somehow, the sleeves turned an abstract construction (process goals), and separate from the actual
509 practices, to something very concrete and always at hand.

510 Coach Killed the Reflection-Sheets—But Most Players Miss It

511 In contrast to the participants' compelling agreement regarding the usefulness of the sleeves in their
512 day-to-day practice, the analysis focusing on the reflection-sheets revealed a disagreement among
513 the youth players and the coach and SPC. As a general overview of the two sub-themes, the sheets
514 were seen as *too demanding* and as a potentially *beneficial addition to the sleeves*. Nevertheless, in
515 the follow-up interview, the Head Coach stated that "The boards [reflection-sheets] are more or less
516 dead."

517 Whereas the **arm**-sleeves were still in use at an everyday level, the coach and SPC had
518 stopped using the reflection-sheets shortly after the implementation phase. The Head Coach
519 described the decision process: "I think that there is too much work in the reflection-sheet in a
520 stressful working day life." The Head Coach and SPC agreed that the reflection-sheet demanded *too*
521 *much time and effort* from the players and their parents and how the players' efficiency in using the
522 reflection-sheet was heavily dependent on parental support: "You could tell a difference on the
523 reflection-sheets that hung in the hallway. That is, who got help from home, and who did not"
524 (SPC). The feeling of increased time and effort was also reinforced by perceptions that the sheets
525 were more academic than practical: "The reflection-sheet was somehow *too academic* (the Head
526 Coach nodded) and made too many demands, both in time to the sort of other support they needed"
527 (SPC).

528 Although the Head Coach and SPC agreed that the reflection-sheet was not as useful as the
529 sleeves in the long-term and required time and effort, most players said that the combination of the
530 tools had been most helpful in making them focus on their process goals, and that they still
531 preferred the reflection-sheets as being part of the day-to-day practices. In this regard, athletes saw

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532 them as a *beneficial addition to the sleeves*. For example, Mark stated how the commute to the club
533 meant he had time to reflect on the questions:

534 Before training (in the car) I wrote what could be better and what I wanted to do in
535 specific situations and so on. It helped me quite a bit to understand what the process
536 goals are about [...] when you look at the sleeve, and so on, you think shortly on what
537 you wrote before training, and what you specifically wanted to do. (Mark, U13 player)

538 Another player agreed that the sleeves were more efficient in combination with the reflection-sheet.

539 I still get something out of it (the sleeve), but I don't think it was as good as back then
540 (during the implementation phase). I still get better in my process goals, but I think it
541 was better when we could write on the cards (reflection-sheets) [...] it made you think
542 more about what you had to do and so on. (Martin, U13 player)

543 This was also highlighted by Nolan (U13 player), who pointed out that while the sleeve functioned
544 as a reminder of the process goals on the field, the reflection-sheet made him reflect on the goals
545 before and after training. That being said, some athletes acknowledged that they had not always
546 used the reflection-sheet, because they simply forgot or were unsure of how to use them.

547 Whereas the SPC thought that the reflection-sheet as a tool was "in a way something that is
548 left in the bag" (i.e., more theoretical/conceptual and not ideally transferred in practice), the coach
549 saw it as "something that needs to be placed on the pitch, I think, before it has an impact." This
550 seemed to align with Mark's thoughts:

551 I think in some way or another that bringing these sheets (reflection-sheet), or how
552 you would do it, on the field, so you could go and watch, for instance, how should I do
553 this now? Did I do what was written on the sheet? So you get the more specified goals
554 to the field instead of just being reminded of it. (Mark, U13 player)

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555 The coach and the SPC agreed about the obstacles of the reflection-sheet as they found that they
556 were perceived to be overly academic in nature and too time and energy consuming. Paradoxically,
557 most of the players experienced that the tool not only was helpful in cultivating their awareness on
558 process goals before and after practice, but also in inspiring them to set goals (e.g., being able to see
559 each other's goals during the implementation phase). Even though the observation notes showed a
560 difference in the coaches' motivation to utilize the tools, it was found that they abandoned them the
561 following season (post-implementation) even though they appeared crucial in supporting the
562 athletes' ability to reflect on their goals before and after training.

563 **Teammates as Goal Buddies**

564 The implementation of the tools seemed to spark a mastery goal-orientation within the team and had
565 a positive influence on the relationships among the players and coaches. Even though the tools were
566 implemented to promote individual goal-involvement, the observations and interviews revealed
567 how the tools seemed to facilitate a mastery-involving orientation in conversations and behaviors
568 between the players, coaches, parents, and the SPC. In the three-week implementation phase,
569 process goals suddenly became a vital part of the participants' daily lives. From observations during
570 the implementation phase, the second author noticed how the players talked about their goals during
571 the breaks between drills, in the dressing room, and when going back and forth to the training
572 ground. They also noted how coaches were integrating the process goals into training and
573 conversations with players wherever possible. As this change occurred quickly and became a
574 normative behaviour, the tools manifested a focus on process-goals very concretely in the players'
575 and coaches' daily actions. This was still the case for most of the interviewed players and the coach
576 after a year. Interestingly, players also expressed how they supported each other in their process
577 goals before, during and after practice:

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578 The left back and me, I'm a right back, we talk about our goals. We have similar
579 goals, so we talk with each other, then focus, and look at each other during practice so
580 after practice we can tell each other what went good and less good. (Allan, U13
581 player)

582 Martin, Mark, and Nolan also stated that the idea of sharing the reflection-sheet on a wall during the
583 implementation phase supported them in setting process goals: "Looking at the reflection-sheet, I
584 saw what others wanted to be better at and how they wanted to do it, and how some had the same as
585 me. You could get inspired by them, how to carry it out" (Martin, U13 player). Most of the players
586 also deliberately expressed that the process goals had become a part of the conversations before and
587 after practice. This seemed to mostly appear among what could be called *goal buddies* with which
588 they discussed their process goals and how well they were executed on the field.

589 After training when you go to the dressing room, you go two and two and talk about how it
590 went with your process goal. Then I could, for instance, say to the one I talked to, that he
591 could do better at some point (during practice). You could say to him that it was a good time
592 in which he did this, and so on, and the same when it was opposite. (Martin, U13 player)

593 Several of the players had also noticed how the coach reminded the players of focusing on process
594 goals after the implementation phase, which was new to them. The SPC also said: "I think that the
595 biggest difference is that we are all more aware about it, and able to articulate it". Thus, it seemed
596 that goal awareness characterized the team as a whole.

597 Discussion

598 We explored the benefits and drawbacks of designing and implementing two mastery-
599 involving tools into daily activities with a U13 football team. In the following sections, we discuss
600 how the tools, particularly the **arm**-sleeves, were perceived as primers of task-orientations and
601 became a part of the socialization process within the youth team. Throughout, we also discuss

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602 implications of our study in relation to the established literature and from applied sport psychology
603 perspectives.

604 **Sleeves as Primers of Task-Orientation**

605 The players, the SPC, and coach spoke positively about how the **arm**-sleeves' promoted a
606 day-to-day focus on process goals. In fact, it seemed that the sleeves functioned as *primers* for both
607 coaches and players, which means they stimulated the processing system (Baddeley, 1997). Indeed,
608 the stimuli in such priming models are often implicit in nature, meaning that the participants are not
609 aware of the nature of the prime or its presentation (Bargh et al., 1996; Hull et al., 2002).

610 Nevertheless, the sleeves seemed to function as both explicit (i.e., before and after the training and
611 in-between training activities) and implicit stimulus (i.e., during the training activities). Locke and
612 Latham (1985) acknowledged that, whereas goals often are portrayed as the driver of goal-directed
613 behavior, they do not necessarily always function at a conscious level. This is also underlined by a
614 range of experiments by Van Yperen and Leander (2014) who explored the so-called misalignment
615 phenomenon named the overpowering effect of social comparison information (TOESCI). The
616 phenomenon positions social comparison as the main driver of individuals' self-evaluations, even
617 among individuals who explicitly endorse a mastery-orientation. Because of the widespread
618 emphasis on performance (or at least the athletes' future performance in youth sport), this
619 overpowering effect may be accentuated by stakeholders and athletes' perceptions and actions like
620 those demonstrated within the current study (Wrang et al., 2022). Notably, our findings suggest that
621 practitioners can explore opportunities to introduce simple procedural tools to counteract the
622 unconscious desire to engage in social comparison and emphasize mastery orientations.

623 There is interest in **understanding the impact of purposeful** attention **that individuals place**
624 **on activities during sport performance** (e.g., Liao & Masters, 2002). However, it seems that
625 interventions that draw on achievement goal theory aiming at cultivating process goal or mastery

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626 approaches among athletes have mostly targeted explicit attentional processes by articulating and
627 creating mastery goals or educating coaches, parents, and athletes in the importance of a mastery
628 approach (e.g., . Smith et al., 2007; McLaren et al., 2015). Although some of these studies have
629 shown significant results in terms of improved enjoyment and self-esteem (e.g., Appleton & Duda,
630 2016), small effects sizes may mean that the impact of future interventions may be even more
631 powerful if they aimed at educating coaches, assisting athletes, *and* providing them with simple
632 tools such as the arm-sleeves that draw on participants' explicit and implicit attentional processes.
633 Notably, the results from the current study showed how players began to discuss and evaluate the
634 goals among each other. Consistent with findings from McLaren and colleagues (2015), this may
635 indicate that the sleeves could help promote greater task cohesion amongst academy players
636 because of the awareness of how individual objectives align with those of the total team. As the
637 implementation of the tools was done during the early stages of group development when social
638 comparisons and competition for positions are often emphasized, the tools may have had a greater
639 impact within this age group than with more mature athletes. Nevertheless, the early
640 implementation also aligned with the suggestions from Harwood and Thrower (2020) pertaining to
641 establishing interventions early in group development. While we mostly focused on the player's
642 involvement in setting and focusing on the process goals during the design and implementation
643 phase, the results also showed how the sleeves particularly also directed the attention of the head
644 coach and the SPC towards the players' specific goals in each practice. This may **be** of particular
645 value as **in** a recent systematic review in goal setting **interventions, Jeong and colleagues (2021)**
646 **pointed out** that the provision of effective feedback seem to be a key moderator in the effectiveness
647 of goal setting interventions. Thus, the implementation of the tools may not only have served as a
648 goal-reminder to the players, but also provided a reminder for the coach to provide consistent
649 process-oriented feedback and even teammates.

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650 **Adults (and time) as the primary drawbacks of the reflection-sheet**

651 While the analysis showed that the athletes and coaches willingly and rather effectively used
652 the tools during implementation, the analysis also revealed that the athletes' were left to use the
653 reflection-sheets by themselves. As the tools were discarded as overly time consuming and too
654 academic by the coach and SPC, it seems critical that for improved uptake, the proposed tools be
655 easily implemented into coaches' everyday practice. Extending the above considerations, coaches
656 are entangled in a series of pedagogical (e.g., lack of expertise), conceptual (e.g., traditional
657 ideologies and lacking understanding of key terms), cultural (e.g., values, norms, and social
658 expectations), and political (e.g., power distribution in the coaching environment) dilemmas that
659 may limit their application of new approaches (Cushion, 2013). **These four levels of dilemmas were**
660 **recently discussed in relation to designing and implementing creativity-enhancing training activities**
661 **in a Danish elite youth football setting (Rasmussen et al., 2021). For example, this study outlined**
662 **conceptual barriers in terms of the purpose of operationalizing creativity. Similarly, such dilemmas**
663 **could explain why the coaches in the present AR process chose not to continue using the reflection-**
664 **sheets and to emphasize the impact of the sleeves. Hence, more focus on explaining the importance**
665 **of the reflection-sheets might have been beneficial.** Importantly, although the sheets were seen as
666 overly onerous, academic, and requiring support from parents, it is also possible that the lack of use
667 could be due to the coaches' lack of knowledge in facilitating a mastery-involving climate. Whereas
668 both the researchers and coaches in the design and implementation phase were focused on how the
669 athletes responded to the new goal-setting practices, we as researchers should have more
670 intentionally supported the coaches prior to, during and after the implementation phase. While the
671 more traditional interventions most often have targeted the education of coaches' behaviors, the
672 tools facilitated a more task-involved approach among both athletes and coaches. While the tools
673 seemingly served to constitute a focus on most of the five principles from MAC that aim to develop

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674 a mastery motivational climate, they may have failed to cultivate the coaches' own self awareness
675 and self-monitoring (Smoll et al., 2007). Such a focus could have increased the coaches' interest in
676 changing and supplementing their behavior more directly and intentionally as motivational climates
677 highly depend on the behaviors and attitudes of the coaches (Smith et al., 2007). Sport coaching has
678 generally been criticized as being guided by a reproductive and coach-led approach (Piggot, 2015).
679 Hence, a more supportive approach to the continued implementation of the tools could certainly
680 have been useful. Even though we shortly introduced the concept of goal theory and achievement
681 goal theory during meetings, we could have been more explicit in the possible behaviors that the
682 coaches needed to refine (e.g., positive instructions and attitudes to the tools) as previous studies
683 have shown to incorporate that in their coach education (Appleton & Duda, 2016; McLarent et al.,
684 2015). It seems that we as researchers coincidentally initiated so-called 'penny-drop' moments
685 with the arm-sleeves in training sessions (Stone et al., 2021), which ensured that coaches and
686 players realized that the armbands could increase their task-orientation considerably and be
687 meaningful in their daily practices. However, as the reflection-sheets constituted these processes in
688 a more abstract, but important way, the coaches' experiences with the tool did not reflect such
689 'penny-drop' moments. Thus, we as researchers ought to have initiated such moments more
690 intentionally by instigating conversations with coaches prior to, during implementation or even
691 interviewing players in the presence of coaches to show them the connectedness of the concrete and
692 more abstract tools. As the outcome of the reflection-sheets was reported to be highly dependent on
693 the parental support, these ought to have been made even simpler or facilitated more on-ingly
694 during implementation. Even though athletes at this age can distinguish between effort and
695 performance and be self-monitoring, they probably needed more on-ingly facilitation due to their
696 age and limited experience with reflective evaluation, which was too time consuming for the coach
697 and the SPC (Roberts & Nerstad, 2020).

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698 Intriguingly, Kolbotn (2004) described the demanding nature of consistently and actively
699 reiterating desired environments, which again, reinforces the potential benefits of having coaches or
700 practitioners include tools that consistently reiterate the message by simply being present. Such a
701 process would alleviate some of the demand currently experienced or felt by coaches (e.g., Olusoga
702 et al., 2019), as their messages could be conveyed without consistent and active attention required.
703 As youth environments by nature ought to be preoccupied with providing quality learning
704 environments for athletes, it seems paradoxical that most environments (i.e., at least that we have
705 observed in a Danish context) do not have exposure to psychological and pedagogical *tools*, besides
706 the coach themselves, that directly constitute the primary purpose of the environment, namely
707 learning. Clearly, the inclusion of simple tools could be an opening for athletes and coaches to
708 introduce and discuss more complex sport psychological concepts, which is ideally aligned with our
709 pragmatic orientation in the current study.

710

Conclusion

711 This study provided a novel exploration of designing and implementing procedural tools to
712 cultivate a mastery-involving climate in academy youth football. Whereas the reflection-sheets
713 were perceived as too time consuming and academic by coaches, and athletes had mixed responses,
714 and the arm-sleeves were highly praised and functioned as reminders of process-orientated goals
715 that helped to facilitate mastery-orientated behaviors. Likewise, the tools were also perceived to
716 have impacted a more process goal orientation within the team that was shown by players
717 exchanging, discussing and evaluating process goals before, during, and after practice. As insights
718 about potentials and challenges in AR are crucial for informing future practice, this study may help
719 SPCs and coaches when designing similar tools to those we initiated, that have the potential to
720 introduce, remind, and promote reflection for mastery-involving principles in sport environments.

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- 721 Indeed, the use of simple tools may have the potential to educate the coaches on site, while also
- 722 introducing sport psychology to athletes on and off site.

For Peer Review

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Themes	Sub-themes
Sleeves as day-to-day, drill-to-drill reification of task-orientation	<i>Constant reminder</i> <i>Useful to enhance focus in different game formats</i> <i>Low work effort was required</i> <i>Mastery from abstract to concrete</i>
Coach killed the reflection-sheets, but most players miss it	<i>Too much time and effort</i> <i>Too academic</i> <i>Dependent on parental support</i> <i>The combination of the tools had been most helpful</i> <i>Reflect on the goals</i>
Teammates as goal buddies	<i>Spark a mastery-orientation within the environment</i> <i>Supported them in setting goals</i> <i>Goal buddies</i> <i>Goal awareness characterized the teams</i>

Table 1: Overview of the themes and sub-themes

Example Reflection-sheet

Name:

Date:

REFLECT ON TODAY'S PRACTICE OR GAME

What tasks did you focus on in your last training session/match?

Push first, Put off, Get back to close 6'er

What tasks are important for you today?

Push first

How would you like to practice these tasks?

To push first, so I can win more close duels, so I can put off the ball or turn with it.

I want to practice it by offering myself in the channels, and by trying to push the man behind me away.

The defensive players, myself and my sleeve can help me do this.

REFLECT ON TODAY'S PRACTICE OR GAME

How did you succeed with your process goal?

I think I won most of my close duels.

What can you do to improve your skills in relation to your process goal?

To help myself improve I can rely on opponents, my coach, myself, my sleeve and people around me.

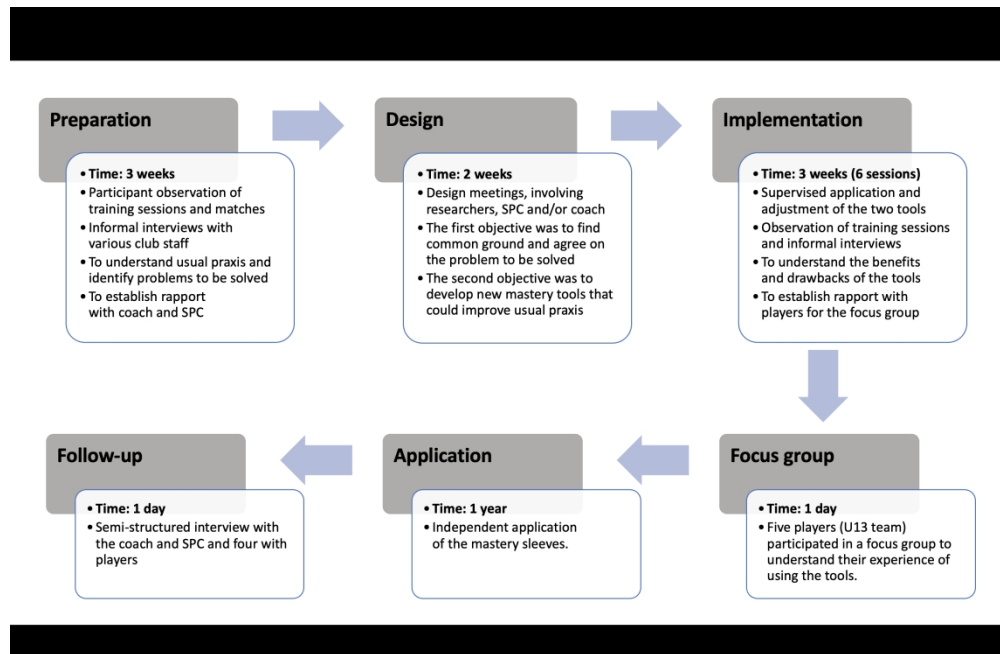
How can you do it better next time?

I need to keep going into close duels to become better.

To improve I can next time focus on finding a low center of gravity to have a better balance.

For Peer Review

To	
Cc	



Timeline of the research process

533x346mm (144 x 144 DPI)