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Having a goal up your sleeve

Promoting a mastery climate in a youth football academy team

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18   **Abstract**

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, wheras 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; Kyllo & 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 succesfull 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.

214 ***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 <mark>outcome</mark> 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 <mark>by the first and fourth author</mark> 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.

378 **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 uncertanties. 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-

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 herin 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 adacemic 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 *benefical 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)

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.

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.

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

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

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-goingly 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).

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 aliviate 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 pedagogial *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.

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861

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

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.

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.

To	
Cc	
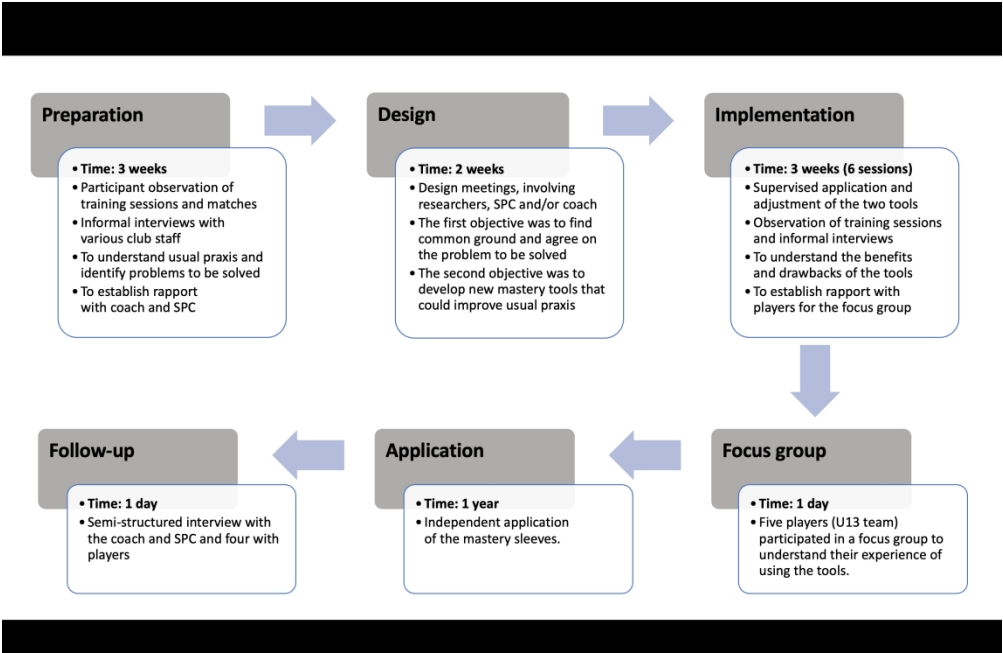
Timeline of the research process

533x346mm (144 x 144 DPI)