

Coach-athlete perceived congruence between actual and desired emotions in Karate competition and training

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13

Abstract

14 Coaches can help athletes regulate emotions but would benefit from tools that help them
15 accurately perceive athletes' emotions. In the present study, we investigated the use of video
16 recorded performances to compare three martial artists' ratings of desired and actual
17 emotions with their coach's ratings. Results show how desired emotions progressively
18 fluctuated throughout competition. Furthermore, desired and actual emotions differed
19 between training and performance contexts. Finally, we report correlations between
20 performance and perceived congruence in desired and actual emotions. Cumulatively, results
21 offer support for the video-assisted recall of emotions as an intervention tool in developing
22 emotion regulation abilities.

23 **Keywords:** emotion, performance, affect, psychological skills, mood

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25 Coach-athlete perceived congruence between actual and desired emotions in karate
26 competition and training

27 Research indicates that martial artists experience a wide range of emotions before and
28 during competition (Cerin & Barnett, 2011; Robazza, Bortoli, & Hanin, 2004; Ruiz & Hanin,
29 2004, 2011; Terry & Slade, 1995) and that these emotions can strongly influence
30 performance (e.g., Chapman, Lane, Brierley, & Terry, 1997; Devonport, Lane, & Hanin,
31 2005). Therefore, the ability to regulate emotions becomes an important mental skill for
32 martial artists to learn, develop and master. Emotion regulation refers to efforts to change
33 one's feelings in the pursuit of hedonic and instrumental goals (Tamir, Mitchell, & Gross,
34 2008). Emotion-performance relationships tend to be very individual (Hanin, 2010) and so
35 there is not a common emotional profile that could be used as a standard for emotion
36 regulation. Effective emotion regulation, however, involves the deliberate attainment of a
37 desired emotional state (Gross, 2015), thus, it is crucial to identify the discrepancies between
38 the emotions that athletes actually experience, and those that they would desire to experience.
39 Athletes, and martial artists in particular, use a variety of strategies to regulate their emotions
40 including listening to music, self-talk, talking to others, and imagery (Lane, Beedie, Jones,
41 Uphill, & Devonport, 2012; Massey, Meyer, & Naylor, 2015). However, not all emotion
42 regulation is self-driven or initiated by the athlete. Athletes' emotions can be regulated by
43 others (e.g., teammates, coaches, referees), a process labelled interpersonal emotion
44 regulation (e.g., Friesen et al., 2013; Friesen, Devonport, & Lane, 2016; Niven, Totterdell, &
45 Holman, 2009). Particularly, coaches can influence athletes' emotions either directly via
46 persuasive techniques that aim to change the athlete's appraisals or indirectly through self-
47 management and emotion contagion (Friesen et al., 2013). The aim of the present study is to
48 investigate differences between desired emotions and actual emotions (i.e., emotions actually
49 experienced) by martial artists, examining the perspectives of the coach and the athlete.

50 Athletes typically regulate their emotions to achieve certain goals (Lane, Beedie,
51 Devonport, & Stanley, 2011). This type of instrumental emotion regulation is therefore
52 dependent on the setting that the athlete is exposed to (Campo, et al., 2016; Tamir, 2011).
53 Typically, the goal in competition is to defeat your opponent or achieve personal best
54 performances where the perceived or actual consequences of failure are usually high.
55 Conversely, within a training setting, goals are more learning-focused, intended to practice
56 skills and learn new techniques, and failure is seen as a normal part of learning. Not
57 surprisingly, research indicates differences in emotional experiences between training and
58 competition (Nicholls, Levy, Grice, & Polman, 2009; Terry & Lane, 2000).

59 Whether a coach should attempt to regulate an athlete's emotion is guided by
60 empathic discrepancies between desired emotions (i.e., what they want their athlete to feel)
61 and actual emotions (i.e., what they perceive their athlete to feel) (cf. Zaki & Williams,
62 2013). For example, if a coach perceives her athlete to be feeling anxious and believes that
63 this feeling is detrimental to performance, the coach will likely attempt to help the athlete
64 reduce the anxiety. In this case, the perception of emotions and awareness or knowledge
65 about their functional impact on performance is crucial. However, the coach does not have
66 access to the athlete's inner feelings and therefore can only infer their athletes' feelings from
67 observing expressions and using empathy (Petrides, Furnham, & Mavroveli, 2007).
68 Following temporal models of emotion regulation (e.g., Gross, 2015), emotion perception
69 represents the starting point for consequential regulation, with inaccurate perceptions leading
70 to emotion regulation failure. Likewise, the ability to perceive another person's emotional
71 states represents an important part in the interpersonal emotion regulation process (Dixon-
72 Gordon, Bernecker, & Christensen, 2015; Losoya & Eisenberg, 2001). That is, before
73 emotion regulation strategies can be deployed, the coach needs to accurately perceive how his
74 or her athlete is feeling, and importantly, wants to feel. Regarding this process, the individual

75 relationships between emotion and performance presents a challenge for a coach. Consider an
76 example of two athletes feeling energetic before a contest. One athlete might want to feel
77 even more energetic, whereas the other athlete might wish to feel calmer. In such instances,
78 the coach would need to be able to perceive a discrepancy between how each athlete is
79 currently feeling and how the athlete wants to feel, to help determine appropriate emotion
80 regulation strategies for each athlete.

81 Assessing emotions in sport performances has some limitations based on the nature of
82 emotion and the confines of research. While a complete discussion of these limitations is
83 beyond the remit of the current study (see Lane & Terry, 2016), there is a need for new
84 methods to be developed based on the following emotion-performance characteristics. The
85 first is that emotions are transitory in nature (Cerin, Szabo, Hunt, & Williams, 2000; Hanin,
86 2010). What and how intensively an athlete feels can vary throughout a performance
87 depending on the athlete's appraisal of the interaction with the environment (Lazarus, 2000).
88 As matches progress and results unfold, the emotions athletes might desire to feel will change
89 to coincide with new emergent performance goals. For example, an athlete might desire to
90 feel very aggressive at the start of a match, but if the athlete becomes injured part-way
91 through, the athlete might desire to not feel so aggressive in order to keep from exacerbating
92 the injury. Methods that capture this dynamic nature can be preferable to assessing emotions
93 only prior to competition (e.g., Cerin & Barrett, 2011; Jones, Lane, Bray, Uphill, & Catlin,
94 2005; Lane et al., 2010).

95 Secondly, not only are the type and the intensity of emotions important to assess, but
96 Thomas, Picknell, and Hanton (2011) has also demonstrated that measuring the frequency of
97 emotional changes throughout a performance can provide a more accurate description of an
98 athlete's experiences. Therefore, a method that can record both intensity and frequency is
99 warranted (Martinent, Campo, & Ferrand, 2012). Thirdly, Terry (1995) argued that while the

100 pre-competition phase represents a practical opportunity for a sport psychologist to intervene
101 or consult with athletes, coaches are in the unique position where they have multiple
102 opportunities to regulate athletes' emotions throughout competition (Martinent, Ledos,
103 Ferrand, Campo, & Nicolas, 2015). Therefore, assessing methods that utilize this advantage
104 is important for sports psychology research.

105 Many researchers have argued that video recording is an effective practical tool for
106 assessing emotional states experienced during competition (Bertram, Marteniuk, &
107 Guadagnoli, 2007; Ives, Straub, & Shelley, 2002; Martinent et al., 2015). Previous research
108 examining optimal emotional states for performance has tended to rely on past recollections
109 of emotional events whereby athletes identify their feelings at a specific point in time (e.g.,
110 Dewar & Kavussanu, 2011; Nicholls, Polman, & Levy, 2011). With the aid of video replay,
111 participants view performance footage and describe or rate emotions experienced in real-time
112 (cf. Campo et al., 2016; Martinent et al., 2015). This type of method to study interpersonal
113 emotion regulation has been used in other areas of psychology to good effect (e.g., Butler,
114 Hollenstein, Shoham, & Rohrbaugh, 2012; Parkinson & Simons, 2012).

115 In sum, previous research examining emotion regulation has taken an athletes'
116 perspective mainly focusing on the specific strategies used by them in order to successfully
117 pursue instrumental goals. The role of others, and that of the coach in particular, has typically
118 not been considered in emotion regulation. The perception of emotions and knowledge about
119 the functional impact on performance is crucial for effective emotion regulation. Exploring
120 the discrepancies between athletes' actual emotions and desired (optimal) emotions both from
121 an athlete's and a coach's perspective would have important implications for emotion
122 regulation. The aim of the present study was to investigate differences between desired
123 emotions and actual emotions of martial artists, examining the perspectives of the coach and
124 the athlete. We hypothesised that there will be differences in desired emotions between

125 training and competition settings (hypothesis 1); there will be fluctuations in desired
126 emotions throughout competition (hypothesis 2); and there will be significant correlations
127 between perceived performance and the extent to which desired and actual emotions were
128 congruent (hypothesis 3).

129 **Method**

130 **Participants**

131 The coach was a 40 year old male with 24 years of experience coaching national and
132 international level athletes in karate. Three of his athletes participated in this case study and
133 their descriptive profiles are presented in Table 1.

134 <Insert Table 1 here>

135 **Measures**

136 **Emotions.** We developed an instrument comprised of two questions asking, “Rate
137 how you wanted to feel at the start of the fight (or training session)” and, “Rate how you were
138 actually feeling at that time.” Each question included nine items representing nine distinct
139 emotions (i.e., “happy,” “angry,” “calm,” “downhearted,” “energetic,” “still,” “sluggish,”
140 “enthusiastic,” “anxious”). These emotions represent the four quadrants of Russell’s (1980)
141 circumplex model of emotions that distinguishes emotions along a valence continuum and an
142 arousal continuum. Each item was rated on a 7-point Likert scale ranging from 1 (*not at all*)
143 to 7 (*extremely*). After answering these two questions, participants were given the following
144 instructions: “Now start watching the video and every time any emotion changed during the
145 session, pause the video, enter the time from the clip in the time column and rate all of your
146 emotions, and your performance at that point in the session.” Space was provided on the
147 instrument for the participants to respond and rate each of the nine emotions for every time
148 they paused the video.

149 **Performance.** At each moment when participants reported their emotions, they also
150 reported an overall performance score based on their subjective perceptions (Terry, 1995).
151 This was rated on a 7-point Likert scale ranging from 1 (poor performance) to 7 (extremely
152 good performance).

153 **Procedure**

154 Following institutional ethical approval of the study, the coach and three of his
155 athletes from a martial arts club were approached to participate in the study. The
156 observational nature and procedures of the study were explained to the participants and
157 written consent to participate was obtained. Participants then provided demographic
158 information.

159 The coach was tasked with choosing and filming one practice session and one
160 competitive tournament match for each athlete. Each training session video lasted 90 minutes
161 with one hour being supervised by the coach. The footage that was analysed for training
162 included technical, tactical and sparring aspects. Competition videos varied in length in
163 accordance with the length of the matches. For Athlete 1, the competition consisted of four
164 fights, each a maximum duration of 3 minutes. He won all four fights, with the fourth being
165 an event final. For Athlete 2, the tournament video consisted of three fights, each a maximum
166 duration of 3 minutes, with her winning all three. For Athlete 3, the tournament video was of
167 two fights. He was eliminated from the contest after losing the second fight.

168 Within a week of the sessions being recorded, participants met individually with a
169 member of the research team to watch the videos. Athlete participants used the instrument to
170 report the emotions they had: (a) desired to feel, and (b) actually felt, in the hour before their
171 training session and competitive match. The athlete participants then watched their respective
172 videos. When watching the videos, any time the athlete remembered experiencing a specific
173 change in emotions, the athlete paused the video. Consistent with the approach used by

174 Martinent et al. (2012) for assessing emotions during performance, the researcher noted the
175 time at which the athlete paused the video, and recorded the athlete's rating of desired and
176 actual emotions experienced as well as performance using the instrument.

177 A similar procedure was then undertaken with the coach. The coach and researcher
178 watched the same videos and the researcher paused the videos at every time point the athlete
179 had paused the video. The coach then reported what he perceived the athlete's desired and
180 actual emotions were at that time using the instrument. The coach also provided subjective
181 ratings of performance at each pause.

182 **Data analysis**

183 To answer our research questions, we first examined whether athletes and coach
184 desired for the athlete to experience different emotions between training and competition
185 contexts. We used a repeated measures MANOVA to examine potential differences for the
186 athletes collectively as well as for the coach in the two conditions (i.e., training and
187 competition). For our second question, we separated desired emotion scores by the fight
188 round they were recorded in order to see whether desired emotions fluctuated throughout the
189 course of competition. We examined progressive changes using a repeated measures
190 MANOVA. Finally, we analysed whether congruence between desired emotions and those
191 that were actually experienced predicted ratings of performance. We subtracted scores for
192 desired emotions from scores from actual emotions creating a new variable (labelled
193 "emotion congruence"). We then correlated emotion congruence with perceived subjective
194 performance scores. We did this for each of the nine emotions for both the athletes and the
195 coach using Pearson correlations.

196 **Results**

197 In total, 90 time-point recordings ($N = 56$ competition; $N = 34$ training) were collected
198 and analysed (see Table 2).

199 <Insert Table 2 here>

200 We analysed whether the desired emotions differed across training and competition
201 contexts (hypothesis 1). The interaction between athletes' collective emotion intensities
202 indicated significant differences between these two contexts. (Wilks Lambda = 0.654;
203 $F[8,81] = 5.353$, $p < .01$, see Figure 1). There were higher intensity discrepancies for anger
204 and enthusiasm, with athletes reporting higher intensities scores for competition. Conversely,
205 athletes reported a desire to feel lower intensities for downheartedness and sluggishness in
206 competition. Responses from the coach also indicated a significant difference between
207 desired emotions across training and competition contexts (Wilks Lambda = 0.033; $F[8,80] =$
208 288.5 , $p < .01$, see Figure 2). There were higher discrepancies for anxiety and calmness, with
209 higher intensity scores desired for competition. And, similarly to the athletes, the coach
210 reported lower desired intensities for downheartedness and sluggishness in competition.

211 <Insert Figure 1 here>

212 <Insert Figure 2 here>

213 We also sought to determine whether athletes' desired emotions fluctuate throughout
214 the course of competition (hypothesis 2). Using rounds as time comparables, a repeated
215 measures multivariate test revealed significant differences throughout the course of
216 competition for all the athletes (Wilks Lambda = 0.424; $F [24, 122.4] = 1.75$, $p < .05$). See
217 Figure 3.

218 <Insert Figure 3 here>

219 We analysed the extent to which discrepancies between athletes' actual and desired
220 emotions correlated with perceived performance (hypothesis 3). Pearson correlations between
221 emotion congruence and performance were significant for all emotions. Similarly, we
222 analysed the extent to which discrepancies between the coach's perceived actual and desired
223 athlete emotions correlated with his perceived performance. Pearson correlations between

224 emotion congruence and performance were significant for all emotions, indicating that
225 greater congruency between the desired and actual emotion was positively correlated with
226 better perceived performance (see Table 3).

227 <Insert Table 3 here>

228 **Discussion**

229 The aim of the present study was to investigate differences between desired emotions
230 and actual emotions experienced by martial artists. We documented the differences in desired
231 and actual emotions across contexts (i.e., training vs. competition). We further found the
232 emotions athletes desired to feel both as reported by themselves and the coach fluctuated
233 throughout the course of competition. Finally, we found that there were significant
234 correlations between desired and actual emotion congruence and perceived performance for
235 most of the emotions. That is, higher congruence between what the athletes felt and what they
236 wanted to feel was associated with higher ratings of performance.

237 Results indicated that the athletes in this study desired to feel different emotions at
238 specific points in time in competition. Specifically, there was a progressive increase in high
239 energy feelings (i.e., anger, energetic, and anxiety) as the athletes progressed through their
240 competitive rounds. This is consistent with past research that suggests that optimal karate
241 performance can be achieved or maintained with high levels of unpleasant emotions (cf: Ruiz
242 & Hanin, 2004; 2011). The progressive increase in energizing emotions could be a tactical
243 strategy. Similar to training contexts, early rounds in competition might be devoted to
244 achieving information-gathering goals (i.e., opponents “feeling” each other out) to learn
245 about the other’s fight style or tactics. As competition progresses, the goals can shift from
246 being primarily focused on information-gathering to including action-implementation. This
247 would then be reflected in the athlete’s desired emotional state whereby the athlete would
248 desire energizing emotions to help facilitate quick and powerful movements (Perkins,

249 Wilson, & Kerr, 2001; Tod, Iredale, & Gill, 2003). An important implication for coaches and
250 athletes then would be to prepare emotion regulation strategies that can be effectively
251 employed during competition with minimal effort.

252 The athletes in this study presented significantly different desired emotion profiles
253 between training and competition contexts. This finding supports past research that has
254 highlighted these discrepancies (cf. Nicholls et al., 2009; Terry & Lane, 2000). Whilst sports
255 psychology practitioners often encourage athletes and coaches to practice in training the
256 psychological skills that they intend to employ in competition, our results highlight that the
257 training context itself represents a performance setting with its own particular goals.
258 Unsurprisingly, both athletes and coach wanted reported desired intensities for
259 downheartedness and sluggishness to be nearly zero. This is to be expected as both emotions
260 are associated with physical exhaustion which would not be perceived as instrumental to
261 martial arts (Robazza et al., 2004). The athletes reported the desire to feel higher levels of
262 anger, whereas the coach desired higher levels of anxiety in competition. Both of these
263 emotions have been reported as potentially useful for performance effects in martial arts
264 (Ruiz & Hanin, 2004, 2011). Research on psychological skills usage indicates that athletes
265 are more prone to use psychological skills in competition rather than practice settings (Lane,
266 Harwood, Terry, & Karageorghis, 2003; Thomas, Murphy, & Hardy, 1999). Our results
267 suggest that sports psychology practitioners work with coaches and athletes to develop
268 effective psychological skills that might aid in achieving training session goals.

269 Findings from the current study also suggest that perceived performance is related to
270 whether or not athletes are feeling how they desire to feel in competition. That is, participants
271 believed that they were performing particularly well when there was minimal discrepancy
272 between desired emotions and those that were actually experienced. The extent to which
273 athletes feel how they desire to feel in competition can be indicative of their attempts to

274 regulate emotions (Gross, 2015; Lane et al., 2012; Tamir, et al., 2008). That is, if an athlete is
275 feeling how they desire to feel, they can be considered as successful in regulating their
276 emotions. Conversely, if there is a large discrepancy between desired emotions and actual
277 emotions, this would suggest a failure to regulate emotions. The results from our study
278 suggest that athletes will typically be pleased with their performance when they are also
279 successful at regulating their emotions.

280 Another applied recommendation from the present study is that video recording offers
281 a practical way of accessing emotional states experienced during competition and training (cf:
282 Bertram et al., 2007; Ives et al. 2002; Martinent et al., 2015). Previous research to identify
283 optimal emotional states for performance has tended to rely on past recollections of
284 emotional events whereby athletes identify their feelings at a specific point in time (e.g.,
285 Robazza et al., 2004), including their best or worst performances (Hanin, 2010) without the
286 use of visual prompts. We suggest that recording an athlete's performance is not only
287 relatively straightforward with modern technology, but also offers a useful approach to help
288 identify differences between coach and athlete perceptions of performance or situations
289 experienced. Raising self-awareness should act as a trigger to initiate self-regulatory
290 processes to reduce discrepancies between current and optimal emotional states (Carver,
291 2004). Video recording also allows coaches to collect data on their athletes in genuine
292 performance settings. Research contrasting accuracy of interpersonal perceptions of emotions
293 has often relied on data collection from laboratories where the emotions that participants
294 experience do not necessarily resemble those experienced in natural settings (Gross, 2010).
295 Video recordings circumvent this limitations aiding to its potential as a practical training tool.

296 The current study has a number of limitations. The first limitation is a very small
297 sample size. The study, however, contrasted athletes' actual and desired emotions both from
298 an athletes and coaches perspective in a total of 90 time-point recordings which allowed for a

299 sound analysis of such discrepancies. The authors were interested in developing a strategy to
300 help athletes and coaches monitor emotion perceptions (both intra- and interpersonal) which
301 represents the precursor to emotion regulation (Lane et al., 2012). Secondly, with the addition
302 of measures of objective performance, there might have been the opportunity to extend the
303 implications of the study pertaining to emotion-performance relationships. Future research
304 should address these limitations and examine whether the effects remain comparable. With
305 video-assisted recall becoming a useful tool in emotion regulation research, it would be
306 prudent for future research to include these procedures in experiments that test the efficacy
307 and effectiveness of emotion regulation strategies. Given that many sports already include
308 videos as part of their technical and tactical debriefs, there is opportunity for psychological
309 and emotion regulation skills to be included within such debriefs with minimal additional
310 effort.

311

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