

Relationship between Emotional Intelligence and Performance in Karate: Comparative Study between Tunisian and Foreign Karatekas

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Abstract

Our study consists of identifying the relationships between emotional intelligence, in terms of emotional profile, and Tunisian and foreign karatekas, verifying their impact on the coaching effectiveness of coaches as well as that of the social context and material conditions and supervision on the performance of Tunisian and foreign karatekas. To verify our hypotheses, we administered the questionnaire "Profile of emotional skills" to 200 Tunisian and foreign athletes. Statistical analyzes showed a significant difference between Tunisian elite karatekas and foreign elite karatekas ($p < 0.0001$) in terms of emotional skills profile.

Keywords

Coaching Effectiveness, Emotional Intelligence, Elite Karatekas, High Performance

1. Introduction

Martial art sports like karate, kickboxing, taekwondo, etc. need special psychological and physiological readiness (Alesi et al., 2014; Padulo et al., 2014) and they need well-built muscles and power for both upper and lower limbs (Tabben et al., 2013). Anaerobic fitness development via AP and AC is so important to accomplish great and high fitness levels for Martial art sports. Fitness levels mostly focus on the power of the lower limbs especially because it is so impor-

tant for kicking.

Karate is a combat sport that involves short brief efforts associated with jumping. Karate, which first originated in Japan as traditional martial art, will appear for the first time in the Olympic Games programme in Tokyo in 2021.

To get a point in karate four criteria which are potential effect, awareness, timing and distance must be met, and at least two raised flags in favour of the winner karateka according to their relative colours (blue/red). However, the four judges may award points to each karateka at the same time for instance: two flags for the competitor with the blue belt, i.e., ao, and two flags for the competitor with the red belt, i.e., aka).

Karate always ends with a winner, even in cases of tie at the end of regular time of a combat. In this case, first, the winner will be that who scored the first point. Second, in case karatekas score the same points and at the same time, the four judges and the central referee inside the ringed area decide who the winner is on basis of fighting spirit and strength, superiority of tactics, techniques used, and initiative of actions.

The central referee has the right to assign penalties: excessive contact (category1) and prohibited behaviour (category2); however, penalties must be accepted by the four judges. Every time a point or a penalty is awarded to a karateka, the bout stop, which means that the fight in karate happens in short segments, and the karatekas resume their original positions before the next bout begins. When a karateka gets a lead of eight points, the competition is stopped, and a winner is nominated.

Karate involves three more rules. One is the “ten-second” which allows the referee to withdraw a karateka who is knocked down, fell, thrown, or does not stand up on his/her feet within 10 s maximum. The second rule is the possibility to use “video review” by the coach—usually sitting at the corner of the karateka—to request a review of any decision taken or point allocated by the judges. The third rule is the “senshu” rule (the competitor who has obtained the first unopposed score advantage at time-up). This latter rule is the one currently used in international competition and was first ever introduced during the 2017 Open Paris Karate-Premier League which took place from 27 to 29 January at the Pierre de Coubertin stadium.

The goal of our study is to determine whether, beyond potentially modeling karate competitions, it would be possible to issue coaching requirements. We assume that the existing literature on the scoring system in karate must be supplemented by issue related to the expectations of the coaches and the relationships between the coaches and their competitors (Frigout, Tasseel-Ponche, & Delafontaine, 2019). What types of motor decisions could karatekas make during a competition in an ongoing bout and in their relationship with their coaches (Frigout, Tasseel-Ponche, & Delafontaine, 2019)?

To achieve this goal, the authors carried out observations during four selective competitions at the French district level (in the cities of Rungis, Thiais, and Orly,

all located near Paris, in the Val-de-Marne Department), which may lead competitors to participate in national championships in their own categories in case they are successful (Frigout, Tasseel-Ponche, & Delafontaine, 2019). Additionally, two competitions at international level were observed: the Open Paris Karate-Premier League, which is a ranking competition that allows competitors to score points to be qualified for the 2020 Olympics in Tokyo.

This bout analysis is clearly in favor of the results presented by Vidranski, Sertic, & Jukic (2015) concerning the significant differences between actions attempted and points scored in competitive karate.

Thanks to this type of observation, we were able to define a performance model in karate competitions (Frigout, Tasseel-Ponche, & Delafontaine, 2019) by using Frigout, Tasseel-Ponche, & Delafontaine (2019) work: the technical and tactical paradox, which requires finding the right balance between “exposing, realism, protecting, and creativity”.

To this end, the coach must act as a researcher and try to be as objective as possible through observation.

Modeling in sports is the subject of several studies that have proven relevant: from Franks & Goodman (1986), who define the necessity of a systematic model and quantification, to Frigout, Tasseel-Ponche, & Delafontaine (2019), who discusses game modelling in the context of better training, to Frigout, Tasseel-Ponche, & Delafontaine (2019) in the context of soccer. These different works discuss how modeling “can be considered as a mediator between a theoretical and an empirical field (...) in order to analyse performance trends and to prioritize potential issue within the training structure” (Frigout, Tasseel-Ponche, & Delafontaine, 2019).

How should a coach choose a strategic training method specific to competition while implementing several tactical adaptation schemes? Should competitors try to simultaneously validate points to minimize both their gains and losses? Could Frigout, Tasseel-Ponche, & Delafontaine (2019) be applied and used to model training sessions?

2. Methodology and Experimental Organization

Aim of the study: To understand the effectiveness of different interactions between coach and athlete, and how they vary between Tunisian athletes and coaches; and foreign coaches and athletes.

In other terms, it is a question of verifying:

- 1) Whether the quality of coaching depends on the experience of the trainer.
- 2) If the personality and the mental strategy which the coach portrays play a considerable role in the effectiveness of coaching.
- 3) If the closeness (relationship), the recommendation (of the coach towards athlete) and the cooperation are considerable factors on the effect of coaching during competition.

To verify our hypotheses “the coach-athlete Relationship Questionnaire” (Cart-Q;

Jowett & Ntoumanis, 2004) was utilised.

This questionnaire consists of two parts:

1) Questionnaire for the coaches (Coaching Efficacy Scale):

The investigation took place during the sports season 2015/2016. Subjected to this study were 52 elite level karate trainers, with this population split into two different groups:

- Group of 26 foreign coaches of various nationalities.
- Group of 26 Tunisian coaches (the trainer's elites).

This method will understand the implications for the efficiency of the training as well as the efficiency of the coaching.

The efficacy of the coaching was defined as the measure in which the trainers believe that they have the capacity to influence the learning and performances of their athletes and consists of four dimensions: the motivation, the strategy of game, the technique and the forming of character.

2) Questionnaire for the athletes

The investigation took place during the sports season 2015/2016. The subjects of this study were 78 elite level karatekas. Elite level means at the highest level of competition and are often high performance despite being nominally amateurs. This population was split into three different groups:

- Group of 26 foreign athletes of various nationalities.
- More successful Tunisian group of 26 athletes.
- Less successful Tunisian group of 26 athletes.

3) Contents of questionnaire

The Coach-athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004) is an English language questionnaire which has been widely used since 2004. It is a questionnaire intended for both trainers and for athletes.

The CART-Q is divided into three perspectives: direct, indirect and perspective of interaction.

1) The direct aspect considers the direct point of view of the athlete (or of the trainer). This measures 3 types of relationships and is separated into 12 subsections:

- The closeness (4 items, ex: "I love my trainer").
- The commitment (3 items, ex: "I am close to my trainer").
- The complementarity (4 items, ex: "when I am pulled by my trainer, I feel has quit").

2) The indirect prospect contains 11 items and is measured across 3 sections, but this time according to the meta-perception of the athlete.

For example, an item of measure of Meta perception, of the sub-scale of closeness, is "my trainer loved me" and an item of the scale of Meta complementarity is "My trainer is ready to work to the best of his ability when he trains me".

3) "The perspective of interaction" corresponds to the average of the scores obtained in direct and indirect perspectives. The perspective of interaction offers perspectives of the relationship with the coach and athlete, predictive of the

quality of the relationship and its consistency.

The answers are reported/plotted on type Likert's type scale in 10 points, going from "strongly in disagreement" (1) to "strongly in agreement (10)".

Closeness describes the relationship-driven trainer from an emotional point of view. The expression of confidence, respect and the interpersonal links indicates the degree of satisfaction of the emotional relationship.

The commitment ("Commitment") reflects the will of the trainer and the athlete to maintain a satisfactory relationship over time.

Complementarity ("Complementarity") defines the interaction between the trainer and the athlete of who is perceived as cooperative and effective. It is a behavioural approach based essentially on the acts of cooperation.

Left Methodology

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The commitment ("Commitment") reflects the will of the trainer and the athlete to maintain a satisfactory relation in time. Finally complementarity ("Complementarity") defines the interaction between the trainer and the athlete who is perceived as cooperative and effective.

It is a behavioral approach based essentially on the acts of cooperation (**Table 1**).

3. Statistical Tools

The statistical analysis was made by statistical processing software "SPSS.16" for windows (Social Statistical Package for Science). The accepted materiality level is 0.05. The data were presented in the form of average \pm standard deviation. To compare the average values of the skills of coaching of the Tunisian trainers with those of the foreign trainers, we held T of Student for two independent samples.

To compare the components of the relation trainer/athlete (closeness, commitment and Complementarity) between three studied groups of karateka (Less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes), we held the analysis of the variance to a factor. The multiple comparisons between the groups were made by the variant Bonferroni.

Table 1. Characteristics of each group.

Athletes	N
Elites more successful T.	26
Elites less successful T.	26
Athlete foreigners	26
Nbr Total	78

4. Results

Evaluation of the perception of the fitness of coaching of the trainers of karate (Table 2).

The values are presented on average standard deviation. The analysis of the variance in two factors showed a significant difference in the effects of the perception:

*: The difference is significant at $p < 0.05$.

** : The difference is very significant at $p < 0.01$.

The perception of the trainers of their capacities for coaching is significantly more important for the foreign trainers than the Tunisian trainers ($p < 0.008$).

The level difference in perception of the technical fitness of coach and that of the trainers authorize to motivate the athletes is significantly more important for the foreign trainers than those of the Tunisians ($p < 0.008$).

On the other hand, the perception of the trainers of their skills to forge a character and that of the skills to develop a strategy is not different between the foreign trainers and the Tunisian trainers (see Table 3).

The perception of the trainers in their capacities of coaching is significantly more important for the foreign trainers than the Tunisian trainers ($p < 0.008$) (Table 4).

The differences in the perception of the trainers of their abilities to develop a strategy are not significant (Table 5).

The perception of the trainers of fitness to motivate the athletes is significantly more important for the foreign trainers than the Tunisian trainers ($p < 0.008$) (Table 6).

The difference in the perception of the trainers of their technical fitness is significantly more important for the foreign trainers than the Tunisian trainers ($p < 0.008$) (Table 7).

Table 2. Perception of the skills of coaching of the trainers of karate.

	Global coaching	Skills to develop a strategy	Skills to motivate the athletes	Technical skills	Skills to forge a character
Tunisian trainers	8.03 ± 0.53	7.85 ± 0.67	8.04 ± 0.69	8.10 ± 0.63	8.11 ± 0.69
Trainers Foreigners	8.35 ± 0.26	8.02 ± 0.55	8.45 ± 0.34	8.50 ± 0.35	8.41 ± 0.44
Comparison	t = 2.74 $p < 0.008$	t = 0.99 N.S	t = 2.75 $p < 0.008$	t = 2.74 $p < 0.008$	t = 1.86 $p < 0.069$

Table 3. Perception of the fatnesses of global coaching.

	Global coaching
Tunisian trainers	8.03 ± 0.53
Trainers Foreigners	8.35 ± 0.26
Comparison	t = 2.74, $p < 0.008$

Table 4. Perception of the fitness to develop a strategy.

	Authorized to develop a strategy
Tunisian trainers	7.85 ± 0.67
Trainers Foreigners	8.02 ± 0.55
Comparison	t = 0.99 N.S

Table 5. Perception of the fitness to motivate the athletes.

	Skills to motivate the athletes
Tunisian trainers	8.04 ± 0.69
Trainers Foreigners	8.45 ± 0.34
Comparison	t = 2.75, $p < 0.008$

Table 6. Perception of the technical fitness.

	Technical skills
Tunisian trainers	8.10 ± 0.63
Trainers Foreigners	8.50 ± 0.35
Comparison	t = 2.74, $p < 0.008$

Table 7. Perception of the fitness to forge a character.

	Skills to forge a character
Tunisian trainers	8.11 ± 0.69
Trainers Foreigners	8.41 ± 0.44
Comparison	t = 1.86, $p < 0.069$

The difference in the perception of the proximity

Foreign trainers and those of the Tunisians of their fitness to be forged a character is significant no.

Evaluation of the relation athlete/trainer (Table 8)

The components of the relation Coach/Karateka significantly difference between three groups of karateka studied (less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes).

Indeed, the closeness of the trainer towards his athlete postpones significantly between three studied groups ($p < 0.036$); while the closeness of the athlete towards his trainer is not different. The commitment athlete/trainer and the complementarity athlete/trainer are significantly different ($p < 0.001$).

Evaluation of the perception of the closeness at the karatekas (Table 9)

Perception of closeness of the athlete to sound trainer does not differ not significantly between three groups of studied athletes (Table 10).

The perception of the trainer's proximity to these athletes is more important in the group of foreign athletes than in the groups of the least effective Tunisian athletes.

Table 8. Summary table of the evaluation of the relation athlete/trainer.

		Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes	Comparison
Closeness	Closeness of the athlete towards his trainer	8.45 ± 0.92	8.46 ± 0.69	8.75 ± 0.63	F = 1.37 N.S
	Closeness of the trainer towards his athlete	8.18 ± 0.95	7.92 ± 1.06	8.56 ± 0.56	F = 3.47 <i>p</i> < 0.036
Commitment	Commitment of the athlete to his trainer	4.02 ± 1.37	3.64 ± 0.86	6.75 ± 2.79	F = 21.55 <i>p</i> < 0.001
	Commitment of the trainer to his athlete	3.80 ± 1.36	3.61 ± 0.38	6.69 ± 2.84	F = 23.01 <i>p</i> < 0.001
Complementarity	The athlete completes the trainer	7.89 ± 0.82	7.58 ± 0.88	8.56 ± 0.78	F = 9.44 <i>p</i> < 0.001
	The trainer completes the athlete	8.15 ± 0.78	7.72 ± 0.62	8.39 ± 0.81	F = 5.34 <i>p</i> < 0.001

Table 9. Perception of the closeness of the athlete towards his trainer.

Perception of the closeness of the athlete towards his trainer			
	Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes
Successful Tunisian athletes	-	N.S	N.S
Less successful Tunisian athletes	N.S	-	N.S
Foreign athletes	N.S	N.S	-

Table 10. Perception of the closeness of the trainer towards his athlete.

Perception of the closeness of the athlete towards his trainer			
	Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes
Successful Tunisian athletes	-	N.S	N.S
Less successful Tunisian athletes	N.S	-	N.S
Foreign athletes	N.S	N.S	-

N.B: The perception of the closeness of the athlete to his trainer does not differ significantly between three groups of athlete studied (less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes). On the other hand, the foreign athletes perceive a more important closeness of the trainer towards his athletes than the group of less successful Tunisian athletes.

Assessment of Perceived Involvement in Karatekas (Table 11)

The perception of the commitment of the athlete to his trainer is very significant between three groups of the studied athletes (Table 12).

The foreign athletes perceive more the commitment of the trainer towards his athletes than the less successful Tunisian group of the athletes.

N.B: The perception of the commitment of the athlete to his trainer is very significant between three groups of athlete studied (less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes). Also, the foreign athletes perceive a bigger commitment of the trainer towards his athletes than the group of less successful Tunisian athletes.

Evaluation of the Perception of the complementarity at the karatekas (Table 13)

The perception of the complementarity of the athlete towards his trainer is very significant between the Tunisian group of the athlete the least performing and the foreign athletes. On the other hand, it is significant no for the group of the successful athletes (Table 14).

Table 11. Perception of the commitment of the athlete towards the trainer.

Perception of the closeness of the trainer towards his athlete			
	Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes
Successful Tunisian athletes	-	N.S	N.S
Less successful Tunisian athletes	N.S	-	$p < 0.032$
Foreign athletes	N.S	$p < 0.32$	-

Table 12. Perception of the commitment of the trainer towards the athlete.

Perception of the commitment of the trainer towards the athlete			
	Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes
Successful Tunisian athletes	-	N.S	$p < 0.001$
Less successful Tunisian athletes	N.S	-	$p < 0.001$
Foreign athletes	$p < 0.001$	$p < 0.001$	-

Table 13. Perception of the complementarity of the trainer towards the athlete.

Perception of the complementarity of the trainer towards the athlete			
	Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes
Successful Tunisian athletes	-	N.S	N.S
Less successful Tunisian athletes	N.S	-	$p < 0.006$
Foreign athletes	N.S	$p < 0.006$	-

Table 14. Perception of the complementarity of the athlete towards the trainer.

Perception of the complementarity of the athlete towards the trainer			
	Successful Tunisian athletes	Less successful Tunisian athletes	Foreign athletes
Successful Tunisian athletes	-	N.S	$p < 0.014$
Less successful Tunisian athletes	N.S	-	$p < 0.001$
Foreign athletes	$p < 0.014$	$p < 0.001$	-

The perception of the complementarity of the athlete towards the trainer is more significant in the group of the foreign athletes than in groups him less successful Tunisian athletes.

N.B: The perception of the complementarity of the athlete to his trainer is very significant between both groups of athletes (less successful Tunisian athletes and foreign athletes) on the other hand it is significant not for the group of the successful Tunisian athletes. Also, the foreign athletes perceive a more important perception of the complementarity of the trainer towards his athletes than the group of less successful Tunisian athletes.

5. Conclusion

1) The perception of the trainers of their authorized techniques and authorization to motivate the athletes are significantly more important to the foreign trainers than the Tunisian trainers ($p < 0.008$). On the other hand, their skills to forge a character and skills to develop a strategy are not different between the foreign trainers and the Tunisian trainers.

2) The components of the relation coach/karatekas differ significantly between three groups of karatekas studied (less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes). Indeed, the closeness of the trainer towards his athlete postpones significantly between three studied groups ($p < 0.036$); while the closeness of the athlete towards his trainer is not different. The commitment athlete/trainer and the complementarity athlete/trainer are significantly different ($p < 0.001$) between three groups of trainers.

3) The perception of the closeness of the athlete to his trainer does not differ significantly between three groups of athlete studied (less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes). On the other hand, the foreign athletes perceive a more important closeness of the trainer towards his athletes than the group of less successful Tunisian athletes.

4) The perception of the commitment of the athlete to his trainer is very significant between three groups of athlete studied (less successful Tunisian athletes, more successful Tunisian athletes and foreign athletes). The foreign athletes perceive a more important perception of the commitment of the trainer towards his athletes than the group of less successful Tunisian athletes.

5) The foreign athletes perceive a more important perception of the complementarity of the trainer towards his athletes than the group of less successful

Tunisian athletes.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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