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**Please Stop Changing the Rules! The Modifications of Judo Regulations as a Change-Event in Judokas’ and Coaches’ Careers**

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**Abstract**

The modifications of judo regulations since 2013 were examined as a career change-event (Samuel and Tenenbaum 2011a). Highly competitive judokas (*n* = 53) and coaches (*n* = 30), representing three main sub-cultures (i.e., Israel, Croatia, and the UK), completed online measures of change-event experiences and athletic/coaching identity. The modifications of judo regulations were perceived as a moderate and somewhat negative change-event. Judokas’ perceptions of this change-event were correlated with their coaches’ perceptions. Coping efforts mainly focused on adjusting tactical skills. Participants’ decision-making mostly involved consulting with others and making a conscious decision to change. The participants’ motivation decreased following these modifications. The participants were only moderately knowledgeable about these changes. UK participants perceived this change-event more negatively and were less informed about it. These findings stress the importance of conducting a reflective process before additional modifications are introduced to the sport, and the role of coaches in athletes’ education.

*Keywords*: technique, change, referee, judo, International Judo Federation

**Please Stop Changing the Rules! The Modifications of Judo Regulations as a Change-Event in Judokas’ and Coaches’ Careers**

An athlete’s career is a dynamic process, consisting of various transitions and change-events that require athletes to apply effective coping efforts to maintain a meaningful athletic engagement (Samuel and Tenenbaum 2011a; Stambulova 2017; Stambulova and Samuel in press). Athletes may experience changes in various dimensions of athletic engagement, such as self-identity, physiological/physical, performance, technical and technological, personal level, and organizational dimensions (Samuel and Tenenbaum 2011b). In this study, we focused on the modifications of judo regulations (i.e., rules and refereeing), initiated since 2013, as a change-event in the technical and performance dimensions in judokas’ and judo coaches’ careers (for a detailed explanation of the current regulations see IJF, 2018). This change-event can be classified as a quasi-normative (longitudinal) transition (see Stambulova 2016; Stambulova and Samuel in press), as it applies only to a specific group of sport participants (i.e., competitive judokas and coaches). The Scheme of Change for Sport Psychology Practice (SCSPP, Samuel and Tenenbaum 2011a) was used as a conceptual framework to contextualize these changes within judokas’ and coaches’ careers.

***Modifications of Judo Regulations***

The International Judo Federation was founded in 1951. Currently, the IJF has 200 National Federations on all continents. Since 2009, IJF has organized the World Judo Tour consisting of five Grand Prix, four Grand Slams, a Masters tournament, Continental open tournaments, as well as yearly World Championships. There are various commissions and directors involved in this organization, including sport, education and coaching, refereeing (i.e., in charge of setting and implementing new rules and refereeing regulations), competition management, world promotion, and development, among others. The regulations of competitive judo, as set by the IJF, have changed considerably since judo first appeared as a demonstration sport in the 1964 Tokyo Olympic Games (Calmet et al. 2017b; Ceylan and Balci 2017). In 2010, the sport was further modified to promote an attractive and positive combative style for the public (i.e., less tactical, passive/defensive, and shido-based judo, and more scores achieved by direct attacks). At the beginning of 2013, further modifications of regulations were presented, with the main purpose of distancing judo from wrestling and from Russian Sambo, bringing it closer to the traditional Japanese style (Majendie 2018). These included changes in the status of penalties (e.g., three shido results in losing the fight), the prohibition of attacks conducted with the hands below the belt, as well as of certain grip break actions. In case of a tie upon official fight time termination, an unlimited golden score period commenced until one of the competitors achieved a score, or a third shido was given. Also, modifications were made to the refereeing of the fight. Instead of the traditional three referee teams, now only one referee stands on the tatami controlling the fight, supervised by a refereeing commission. In addition, video replay has been introduced. Another change is that referees are guided to use frequent penalties in case of passivity, to promote a higher pace of fighting. Finally, the weigh-in is conducted the night prior to the competition and not on the day of competition (IJF 2013).

The scientific justification for these modifications has been challenged and statistical evidence-based investigations indicated an opposite trend of increasing penalties and decreasing scores (Calmet et al. 2017a; Franchini, Takito, and Calmet 2013). At the end of 2016, the IJF published the new competition regulations for the 2020 Olympic cycle (IJF 2017a). In these regulations, a major modification was presented, with the elimination of the traditional score of yuko. Only the waza-ari and ippon scores remained, but the waza-ari score could be accumulated, and two waza-ari did not equal an ippon. Also, in the golden score period, both a score or a shido could end the fight. Calmet et al. (2017b) compared the Astana-2015 and Budapest-2017 World Championships and found: (a) no changes in the number of ippon, (b) an increase in the number of waza-ari, and (c) a decrease in the number of penalties. Thus, indicating that these modifications resulted in more attractive judo fighting for the public to watch (i.e., less tactical and shido-based fighting and more active attacks). Finally, in January 2018, further modifications were introduced (IJF 2018), regarding the scoring system (e.g., two waza-ari would equal an ippon), the golden-score (i.e., only a score can finish the fight), leg-grabbing (i.e., a shido for each leg-grab incident/occurrence), and the refereeing system (i.e., less interventions from the video review)[[1]](#footnote-1). To summarize, multiple and frequent changes of regulations and refereeing were introduced to the sport of judo, by the IJF, apparently with the objective of making the sport more attractive for the public, as well as to maintain its unique characteristics in respect to other combat sports. As the IJF President, Marius Vizer (IJF 2017b), stated:

In the process of development of our sport, it is of utmost importance to do the best, first of all for the content and the image of our sport, for a better comprehensibility and consistence of the rules for judokas, judo lovers and the World.

It is questionable, however, how much consideration was given to the needs of the athletes and coaches, at the various competitive levels, when these modifications have been conceived and implemented. From the athletes’ perspective, these modifications required many of them to change their technical repertoire (e.g., from leg-grabbing techniques to hip and arm techniques) as well as their fighting style (e.g., use more leg techniques, stand taller – less wrestling style and more of a traditional Japanese style) and tactical approach (e.g., increase attacking pace due to penalties, pursue or avoid golden scores; e.g., Adam et al. 2012; Chirazi 2013; Escobar-Molina et al. 2014). It is possible that athletes experienced *a situation-related crisis* pertaining to changing their techniques and deautomatization of motor acts (Stambulova 2000). In addition, judo coaches had to make changes to their instructions as well as their technical and tactical knowledge-base because of these modifications (Chirazi 2013; Santos et al. 2015). For example, international high-level judo coaches who were interviewed by Santos et al. (2015) agreed that referees tend to limit the importance of *ne-waza* (groundwork) and stop the fights too early, which has implications for how much time is dedicated in training to groundwork. Also, the above modifications may have resulted in adjustment difficulties and reduced motivation (e.g., Lincoln 2015).

Modifications in sport regulations also occurred in other disciplines, potentially leading to negative side effects. For example, since 2000, The World Taekwondo Federation introduced rule changes (e.g., the reintroduction of multiple point scores for head kicks and turning kicks), refereeing (e.g., the introduction of video replay) and equipment modifications (e.g., introducing the ‘Protector Scoring System’). These modifications resulted from taekwondo fights being perceived as too boring to watch for audiences and the International Olympic Committees’ demand for more transparency in taekwondo’s scoring process (Moenig 2015). It was suggested that the above modifications led to various negative side effects, such as difficulty to follow the scoring of a match for a common audience, potentially more injuries, and a strong dependency on front leg kicking techniques. It was further suggested that athletes and coaches should be included in the sport’s policy-making discussions (Moenig 2015). Similarly, in 2003 the International Association of Athletics Federation (IAAF) implemented a series of rule changes for the pole vault event, in facilities, procedures, and refereeing. Coaches and athletes were concerned about the new the time limitation for preparation–to–takeoff which was reduced from 90 sec to 60 sec, influencing their mental and technical readiness (Lobinger and Groß 2005). They were also concerned about the new subjective influence of the referees in determining whether a vault is valid or invalid. While there was no objective evidence that these modifications had influenced performance scores, they were still perceived negatively by the athletes and coaches (Lobinger and Groß 2005). Interviews with 15 elite German pole vaulters confirmed that the majority of athletes identified the modification in time for preparation as problematic, potentially increasing the number of failed attempts, especially at outdoor events when the athletes need time to assess the environmental conditions. The athletes reported more stress which led to rushing their performance, emphasizing the significance of adapting their pre-performance routines to the new rule (Lobinger and Solomon 2010). Therefore, to evaluate how judokas and coaches perceived and coped with the sport regulations modifications, within the context of their careers, we applied the SCSPP (Samuel and Tenenbaum 2011a).

***The SCSPP***

The SCSPP suggests that upon experiencing a change-event in their careers (e.g., *the modifications of judo regulations*), which disrupts the athletic engagement status quo and creates emotional and cognitive imbalance, athletes engage in an appraisal process. They consider the perceived signiﬁcance of the event in the context of their careers, their existing coping resources, and potential solutions. This cognitive elaboration typically leads to *a strategic decision* as to how to initially respond to the change-event: (a) deny/ignore it, (b) cope independently, or (c) consult with others (including a sport psychologist). Various factors might affect athletes’ strategic decision, including their perceived control over this new situation (i.e., the introduction of new judo regulations), their sport motivation, existing coping skills, and available support (Samuel and Tenenbaum 2011a). Athletes’ identification with the athletic role (i.e. athletic identity; AI, see Brewer and Cornelius 2001; Brewer, Van Raalte, and Petitpas 2000) is also an influential factor. For example, a case study of a female athlete who experienced multiple change-events moving between rugby and weightlifting indicated alternations in her AI throughout this change process (Knowles and Lorimer 2014). Studies that examined athletes who rehabilitated from a severe knee injury reported that maintaining AI was a psychological advantage in coping with this change-event (Brewer et al. 2010; Samuel et al. 2015). A study which examined the relationship between AI and aggressiveness found no differences between contact and collision sports athletes, yet there were cross-cultural differences; American athletes had higher mean AI than Hong Kong athletes (Visek et al. 2010). Moreover, the general nature of a change-event may also be affected by its relatedness to AI. The *modifications of judo regulations* are not considered as related to AI as *an injury* or *a major reduction in motivation* but are rather thought to have a moderate emotional-cognitive profile, like *a change of teams* or *a change of a field position* (see Samuel and Tenenbaum 2011b). In addition, research has shown that athletes tend to consult with others upon experiencing a career change-event. Nevertheless, they do not tend to consult with a sport psychologist, although they consider such support as helpful (Samuel and Tenenbaum 2011b; Samuel, Tenenbaum, and Gil Bar-Mecher 2016). This might be due to sport-related norms that debilitate athletes’ tendency to consulting a sport psychologist (Martin et al. 2004).

Once athletes decide how to address the change-event, they continue to elaborate on the new situation, according to the path they have chosen. When they decide to avoid change (i.e., not to make necessary adjustments in their technical repertoire), athletes typically continue to experience emotional instability (Samuel and Tenenbaum 2011a). Athletes who decide to address the change (i.e., independently or by consulting with others), will then make *a decision to change* (i.e., make all necessary adjustments to effectively cope with the new situation). Then, athletes typically examine the possibilities for implementing their decision. It is assumed that motivated athletes who also have a capacity for change (i.e., feel motivation and self-efﬁcacy for creating the required change) will decide to change (Samuel and Tenenbaum 2011a). Once they implement the change, athletes will feel in control and assume responsibility for initiating the change. As a result, they will perceive the outcome of the change process more positively and potentially maintain high motivation (Samuel 2013; Samuel and Tenenbaum 2013; Samuel et al. 2015). On the other hand, athletes might experience a reduction in their motivation, as a result of experiencing a change-event (Samuel and Tenenbaum 2011b; Samuel et al. 2016; Samuel et al. 2019). This may be related to expected modifications in their sport engagement, loss of future aspirations, or changes in their AI. Yet, a probabilistic perspective is adopted in the SCSPP, recognizing that various factors can affect the change process and outcome. While the SCSPP was originally developed to describe athletes’ career changes, it has also been applied successfully with competitive coaches, who are typically ex-athletes and have high sport motivation, strong identification with the coaching role, and career considerations (see Samuel et al. 2016).

***Study Purpose and Objectives***

In December 2016, the IJF published a statement that the modifications of regulations

conducted in the 2016 Olympic cycle were considered successful, leading to improved technical abilities and as a result a higher percentage of fights being determined by ippon (IJF 2016). However, we could not find an official publication by the IJF presenting a study of athletes’ or coaches’ perceptions of these modifications. In this context, Arias, Argudo, and Alonso (2011) reviewed the literature on rule modifications of sport in general and reported that in most sport disciplines, the athletes were not consulted prior to modification. Therefore, in light of previous studies (e.g., Lobinger and Solomon 2010; Moenig 2015), the main purpose of the present study was to explore the modifications of judo regulations since 2013 (i.e., the *change-event*) in the context of athletes’ and coaches’ careers. Our specific objectives (with the related hypotheses) were to examine:

* The participants’ perceptions of the change-event (including differences between coaches and athletes and among cultures), and the relationship between AI/CI and perceived significance of the change-event. We predicted this change-event to have a moderate emotional profile (Samuel and Tenenbaum 2011b), with positive correlations between perceived significance and AI/CI.
* The participants’ coping with the change-event, and the related decision-making process. We predicted a positive relationship between a strategic decision (i.e., ignore, cope alone, consult with others) and a decision to change.
* The perceived outcome of the change process and the effects on motivation. We predicted a positive association between the perceived outcome of this change-event and participants’ motivation after these modifications, as well as a reduction in participants’ motivation in general after the modifications.
* The participants’ perceptions concerning the availability of resources of support throughout the change process, and attitudes towards sport psychology services. We predicted the participants to be moderately knowledgeable about these modifications and not to consider using sport psychology services.

**Methods**

***Design***

A cross-sectional and retrospective design was applied. Data collection was conducted between May 2018 and January 2019. We sampled both athletes and coaches as this change-event affected both populations. We also sampled participants from several cultures. In making these sampling decisions, we wished to create a wider perspective concerning this change-event, which significantly changed the world of judo.

***Participants***

A power analysis was conducted (G\* Power 3, Faul et al. 2009) to determine the number of participants needed for the study. For the main analyses (i.e., MANOVAs), using *f* = .35, *α* = 0.05, *1 − β* = 0.80, with two (coaches vs. athletes) or three groups (cultures – Croatia, UK and Israel), the power analysis indicated that the total sample size recommended was between 68 (2 groups) and 84 (3 groups).

The participants were 53 adult competitive judokas (23 males, 30 females, *M* age = 25.17 years, *SD* = 6.75) and 30 judo coaches (23 males, 7 females, *M* age = 41.20 years, *SD* = 11.98). For the study purposes, the sample was international in nature: 31 Israeli, 23 Croatian, and 18 from the UK. Additional participants (*n* = 11) were from France, Germany, the U.S., Spain, Brazil, Austria, and South Africa. The judokas (*M* experience = 13.32 years, *SD* = 5.91) and coaches (*M* experience = 18.03 years, *SD* = 11.35) had an extensive competitive experience. The judokas represented almost all weight categories for males and females (i.e., the open categories were not represented), all had a brown belt or higher, and most of them (81.13%) had competed at international level. Twenty-two of the judokas previously competed in World Championships and three in the Olympic Games. The coaches were all black belts, 17 had national competition experience and 13 had international competition experience.

***Sub-Cultural Context***

The three judo sub-cultures represented in this study (i.e., Israel, Croatia, UK) are qualitatively different. In Israel, judo is considered the leading Olympic sport. The Israeli coaches are typically professionals whose main vocation is judo coaching. They are expected to meet professional standards and meet periodically for professional training and refereeing updating. As Israel is a relatively small country, all national teams’ judokas train in the same location. They form a small and close community with open communication about the various modifications occurring within the sport.

The UK has a rich and vibrant history of the growth of judo dating back to the early 1900s. However, within the UK, judo is still considered a minority sport, with the majority of coaches working as volunteers. This has resulted in the UK having a strong culture of a club-based system, rather than a centre-based system, although in the last two Olympic cycles a centralized program was initiated.

In Croatia, judo is a popular sport, yet not all clubs have professional full-time coaches. To become a judo coach, it is required to finish a level of formal education and then participate in a yearly obligatory coaching seminar. Most of the time, athletes train in their home clubs with their club coaches, with several national team gatherings throughout the year. There is also a collaboration at the local level and between clubs, usually for randori (training fighting) sessions.

***Measures***

Due to the highly competitive and international nature of the sample (i.e., high training and traveling demands), we chose the most effective way to survey the participants – online Google Forms. The survey included two validated measurements, the Change-Event Inventory (CEI, see Samuel and Tenenbaum 2011b) and Athletic Identity Measurement Scale (AIMS, seeBrewer and Cornelius 2001). To use the measurements and consent form in native languages other than English (i.e., Hebrew, Croatian), a back-translation procedure was applied, in line with Weeks, Swerissen, and Belfrage’s (2007) recommendation. The internal reliability coefficients of the three measurements versions (English, Hebrew, and Croatian) were examined separately. There were several low coefficients in each version, which are pointed out as a study limitation.

*The Change-Event Inventory (CEI)*

The CEI (Samuel and Tenenbaum 2011b) measures change-event experiences in a retrospective manner, using a three-section format: (a) demographic information (i.e., gender, age, country of origin, years of experience as a competitive judoka or coach, competition experience, and professional achievements), (b) perception of and reaction to a change-event (i.e., the modifications of judo regulations), measured by 13 two-item Likert-type subscales (1 = not at all/very negative, 3 = moderate/neutral, 5 = very much/very positive), and (c) decision-making and availability of support resources. At the end of the coaches’ survey, the coaches were given an opportunity to openly comment on this change-event.

To confirm that the various modifications made in judo rules since 2013 were represented in the inventory, two expert coaches were contacted. They reviewed the rules guidelines and confirmed that changes were made in eight main areas: the refereeing system, the penalty system, the scoring system, ne-waza (groundwork), golden score, kumi-kata (grip), leg-grabbing, and the fighting mat area. These changes were reflected in section b of the CEI. The two expert coaches also indicated that the potential changes were influential to the areas of technique, tactics, and fighting style. These were also incorporated into section b of the CEI.

Previous research on a heterogeneous sample of competitive athletes indicated adequate psychometric properties of the CEI, including temporal stability, internal consistency (i.e., all Cronbach’s α ranged between .68 and .89), and internal factorial structure (Samuel and Tenenbaum 2011b). To fully capture the relevant change-event, additional items were added to the second section of the inventory, pertaining to modifications athletes and coaches needed to make to their technical repertoire, fighting styles, and tactical approach. Also, items pertaining to the presentation of the new rules by the governing bodies, athlete-coach cooperation, and satisfaction of professional achievements, were added. In this study, alpha coefficients ranged between .58 and .91. Due to poor internal reliability, the ‘perceived severity’ and ‘effectiveness of coping’ subscales were omitted from predictive analyses.

*Athletic Identity Measurement Scale (AIMS)*

The 7-item AIMS (Brewer and Cornelius 2001) evaluates participants’ identification with the athletic role. The inventory measures three aspects of AI in a concurrent format, using a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree): *social identity* (3 items)*, exclusivity* (2 items), and *negative affectivity* (2 items). The total AI score ranges from 7 to 49. Brewer and Cornelius (2001) reported test-retest reliability (*r* = .89), internal consistency (α = .81 - .93), and norms for athletes and non-athletes. To measure coaching identity (CI), the phrasing of the seven items were modified to reflect identification with the coaching role (e.g., ‘I consider myself a coach,’ ‘I have many goals related to coaching’). This version of the inventory was previously applied and showed adequate internal consistency (Samuel et al. 2016). The total AIMS internal consistency coefficient in this study was α = 0.70 (AI α = 0.64, CI α = 0.72).

***Procedure***

Following the ethical committee’s approval, potential participants were recruited through the researchers’ professional contacts. Participants who agreed to participate were sent the consent form and survey via WhatsApp text messaging and email messages, while the voluntary nature of participation was stressed. The participants electronically signed a consent form and then completed the survey in the respective language (Hebrew, English, and Croatian). The instructions first explained that athletes and coaches tend to experience various change-events in their careers which require attention and consideration. They were then instructed to focus on their personal experiences concerning the modifications of judo regulations since 2013 (i.e., refereeing system, penalties, scoring, ne-waza, golden score, kumi-kata, leg-grabbing) and to respond as honestly and accurately as possible. Data collection procedures ensured the participants’ confidentiality as well as data security.

***Data Analysis***

Preliminary data analyses included data inspection, statistical assumption testing, internal consistency evaluations, descriptive statistics, and crosstabs analyses. Examining the distributions of the variables, we found that the skewness and kurtosis values were relatively small and did not indicate major normality distribution violations. Secondly, comparative analyses were performed to examine differences in selected variables between athletes and coaches, and between participants from different countries (i.e., Israel, Croatia, UK). Thirdly, we examined the participants’ perceptions of the change-event and the relationship with athletic/coaching identity. We then examined the participants’ decision-making process and the results of the change process. Common statistical analyses were used, including correlations, non-parametric tests, and multivariate analyses of variance. When MANOVA was applied, Pillai’s Trace was used in case that the assumptions of homoscedasticity or homogeneity of variance-covariance matrices were violated.

**Results**

***Perception of the Change-Event***

Descriptive statistics of all study variables in general as well as distribution for athletes and coaches, and the three main sub-cultures (i.e., Israeli, Croatian, UK) are shown in Table 1. It is evident from the data that participants perceived the modifications of judo regulations as moderately significant (*M* = 3.48, *SD* = 0.93) in the context of their careers and somewhat negative (*M* = 2.76, *SD* = 0.71). Their emotional (*M* = 2.46, *SD* = 0.79) and cognitive reactions (*M* = 2.87, *SD* = 1.00) (and those of significant others, *M* = 2.35, *SD* = 0.62) were also moderate and reflected a negative change-event.

[Table 1 near here]

Most of the participants (61.4%) reported that they had not experienced a similar change-event in judo prior to the current modifications of the years 2013-2018. Furthermore, athletes’ perception of how their coaches perceived this change-event (i.e., as positive or negative), was correlated to their own perception of the severity of this change-event (*r*(53) = .38, *p* < .01), their emotional response (*r*(53) = .36, *p* < .01) and their cognitive response (*r*(53) = -.28, *p* < .05; i.e., as the coaches’ perception was more negative the judokas were more concerned). It is also noticeable from Table 1, that participants’ perceived control over this change-event (i.e., modifications of judo rules and refereeing when initially presented) was low (*M* = 1.86, *SD* = 1.01), particularly for athletes (*M* = 1.69, *SD* = 0.92). As athletes aged, their perceived control was lower, *r*(53) = -.33, *p* < .05. A similar effect was not observed for the coaches (*p* =.24).

To examine differences between athletes and coaches, as well as cultural differences in the perception of (i.e., perceived significance, perceived severity, perceived control) and reaction to (i.e., emotional reaction, cognitive reaction) this change-event, two separate MANOVAs were performed. First, the MANOVA with participants’ status (i.e., athlete or coach) as a between-subjects factor was not significant, *Wilk’s λ* = 0.93, *F*(5,77) = 1.17, *p* = .33. Second, the MANOVA with the country (i.e., Israel, Croatia, UK) as a between-subjects factor was significant, *Pillai’s Trace* = 0.33, *F*(14,126) = 1.84, *p* < .05, *ɳp*2 = 0.17. Follow-up univariate ANOVAs for each dependent variable indicated a significant difference for cognitive reaction and perceived control. Pairwise comparisons were conducted using the least square difference (LSD), indicating that the UK participants were significantly more concerned than the Israeli participants (*p* < .01) and showed less perceived control than the Israeli (*p* < .05), as well as Croatian (*p* < .01) participants.

The above cultural differences could also be reflected in the coaches’ personal comments about the rule modifications of judo. For example, one Israeli coach criticized the scoring system: ‘one new rule that I’m not in agreement with is that two wa-zari are equal to an ippon. Today wa-zari is not the same score as it used to be, so in my opinion, this rule is needless.’ Yet another Israeli coach felt that ‘judo now looks better; more attractive.’ Two Croatian coaches provided negative views about the modifications: ‘most of them are redundant changes which contribute to the attractivity of judo only in small percentages’ and ‘with the modification we lost more than we gained as a sport.’ Finally, one of the UK coaches provided an important comment on how these modifications have more positive

effects at the elite level, but not at the youth level:

Most rule changes are tested at the high level then implemented poorly and unnecessarily at low level and junior. The ‘care system’ [i.e., the video aid and referee review board used as part of the new refereeing system] is often employed without the cameras at low-level competitions (so 2 refs sitting on one side vs the old corner judges), this is neither safer or more effective. Additional rules are usually unnecessary at u16 level and don’t benefit the 99% of Judo players not at the highest level.

This coach also referred to the coaches’ need to keep up with these frequent changes, and consequently change their coaching: ‘Most UK coaches and refs are volunteers, so it is an additional unpaid headache to keep up with when we have no control or input into such changes.’

Examining the role of athletic/coaching identity in the perception of this change-event (see Table 1), athletes’ total AI mean was 40.68 (*SD* = 5.57). An analysis of variance revealed a significant cross-cultural difference in AI, *F* (2, 40) = 4.49, *p* < .05, *ɳp*2 = .18. Pairwise comparisons were conducted using the least square difference (LSD), indicating that Israeli judokas had higher AI mean (*n* = 20, *M* = 43.15, *SD* = 5.66) than Croatian (*n* = 14, *M* = 38.07, *SD* = 4.81) or U.K. (*n* = 9, *M* = 39.00, *SD* = 5.64) judokas, yet only the former comparison reached significance (*p* < .01). The coaches’ total CI mean was lower (*M* = 36.43, *SD* = 6.77) than the athletes. There were no significant correlations between the participants’ AI/CI and the perceived significance of this change-event.

To examine which of the eight modifications areas were most influential a repeated-measures analysis of variance was performed with the eight areas of modifications used as within-subject factors and participant’s status (i.e., athlete or coach) used as a between-subject factor. The general analysis resulted in a significant modification main effect, *Wilk’s λ* = 0.50, *F*(7,75) = 10.76, *p* < .01, *ɳp*2 = .50. Pairwise comparisons confirmed that the modifications of the leg-grabbing, the penalty system, the kumi-kata (grip), and the refereeing system were the most influential ones (i.e., in that order). The interaction between the participant’s status and the area of modification was not significant.

***Coping with the Change-Event***

Referring to Table 1, the participants felt they coped well (*M* = 3.96, *SD* = .70), though their past experience with rule or refereeing modifications was only moderately helpful (*M* = 3.50, *SD* = .89). The participants also reported high motivation for change (*M* = 4.17, *SD* = .86) (i.e., make the necessary adjustments to cope with the rule and refereeing modifications) and positive coach-athlete cooperation (*M* = 4.08, *SD* = .68). The coach-athlete cooperation positively correlated with the effectiveness of coping, *r*(83) = .32, *p* < .01. In terms of areas in which they needed to change (i.e., technique, fighting style and tactics), the participants mainly recognized the tactical aspect of the fight. Interestingly, concerning the area of technical changes, there was a noticeable difference between the athletes (*M* = 3.09, *SD* = 1.04) and the coaches (*M* = 3.53, *SD* = .66); the latter felt this area was more influenced by the modifications of regulations.

In terms of decision-making involved in the change process, most participants (62.7%) consulted with others in response to the modifications of regulations and refereeing whereas 27.7% coped independently. The athletes mainly consulted with their club teammates and with their coach and assistant coach. The coaches mainly consulted with other coaches and their national Union staff. To examine potential differences between the participants who made different strategic decisions (i.e., ignore, cope alone, consult with others) in the perception of the change-event (i.e., perceived significance, perceived severity, perceived control) a MANOVA was conducted. The analysis was significant, *Pillai’s Trace* = 0.17, *F*(6,158) = 2.44, *p* < .05, *ɳp*2 = 0.09. Follow-up univariate ANOVAs for each dependent variable indicated a significant difference (*p* < .01) for the perceived significance variable. Pairwise comparisons were conducted using LSD, indicating that the participants who consulted with others (*M* = 3.72, *SD* = 0.89) perceived this change-event as more significant compared with those who ignored (*M* = 2.69, *SD* = 1.03) the change-event or coped independently (*M* = 3.21, *SD* = 0.78).

In addition, most participants reported making a conscious decision to change (65.0%). Additionally, participants reported listening to others (21.7%). Furthermore, the relationship between the participants’ strategic decision in response to the appearance of a change-event and their subsequent decision to initiate change was examined using a Pearson chi-square test. The results indicated that those athletes, whose initial reaction involved consulting with others, also tended to make the necessary adjustments to cope with their change-events, or in other words, to initiate a change (38.5% of the total participants), χ2(8, *N* = 83) = 25.49, *p* < .01, Φ = .55.

***The Outcome of the Change-Event and Participants’ Motivation***

As can be noticed in Table 1, the participants perceived the outcome of this change-

event as neutral-to-positive in the context of their careers (*M* = 3.29, *SD* = 0.71). Only a few participants perceived it as very negative or very positive. The participants were moderately satisfied with their professional results since these modifications took place (*M* = 3.49, *SD* = 0.86). The perceived outcome of this change-event correlated positively and moderately to participants’ motivation after the modifications (*r*(83) = .53, *p* < .01) and to their perceptions of professional achievements since these modifications took place (*r*(83) = .42, *p* < .01).

The participants’ motivation after learning about the modifications of judo regulations remained relatively high. Nevertheless, we compared their sport motivation prior to and following this change-event, using a repeated measure analysis of variance. The participants’ status (i.e., athlete or coach) was a between-subjects factor. Both athletes and coaches reported significant decreases (i.e., for both athletes and coaches *Cohen’s d* = 0.31) in their motivation for judo participation/coaching following the modifications of regulations, *Wilk’s λ* = 0.88, *F*(1,80) = 11.05, *p* < .01, *ɳp*2 = .12. No significant interaction was found between participant’s status and the change in motivation.

***Availability of Support***

Referring to Table 1, the participants had moderate to high resources of support in their environment (e.g., coach, union staff, psychologist, refereeing committee) (*M* = 5.17, *SD* = 1.55). They were also only moderately knowledgeable about these modifications by the IJF or their local federations (*M* = 3.68, *SD* = 1.09). To examine differences between athletes and coaches as well as cultural differences in these two variables, two separate MANOVAs were performed. First, the MANOVA with participants’ status (i.e., athlete or coach) as a between-subjects factor was not significant, *Pillai’s Trace* = 0.05, *F*(2,80) = 2.23, *p* = .11. Secondly, the MANOVA with the country (i.e., Israel, Croatia, UK) as a between-subjects factor was significant, *Pillai’s Trace* = 0.19, *F*(4,138) = 3.51, *p* < .05, *ɳp*2 = 0.09. Follow-up univariate ANOVAs for each dependent variable indicated significant differences for both variables. Pairwise comparisons were conducted using the LSD, indicating that the UK participants were significantly less knowledgeable about these modifications than the Israeli participants (*p* < .01) and the Croatian participants (*p* < .05). Similarly, the UK participants had significantly less resources of support than the Israeli participants (*p* < .01) and the Croatian participants (*p* < .05). There were no significant differences between the Israeli and Croatian participants in both variables. Finally, the participants indicated that they did not consider using sport psychology services as part of their coping (*M* = 1.72, *SD* = 1.08) and considered sport psychology support as moderately useful (*M* = 3.85, *SD* = 2.04).

**Discussion**

The modifications of judo regulations that were initiated by the IJF since 2013, posed a unique within-career change-event (Samuel and Tenenbaum 2011a) for judokas and coaches. This change-event involved various potential demands pertaining to the training and performance of technical repertoire, fighting style, and tactical approach (Adam et al. 2012; Chirazi 2013; Escobar-Molina et al. 2014; Lincoln et al. 2015; Santos et al. 2015). Previous studies have shown that rule modifications in the sports of taekwondo (Moenig 2015) and pole vault (Lobinger and Groß 2005; Lobinger and Solomon 2010) were perceived negatively by athletes and coaches, as these potentially led to side effects, necessitating them to adapt their technical repertoires and pre-performance routines. Also, these modifications occurred over time, challenging athletes (and coaches) with a constant need for adaption. For senior, high-level athletes, the need to modify their judo can be challenging in terms of motor skills and mental flexibility. Judokas who were once highly successful under certain rules were required to change their favourite techniques (e.g., leg grabbing, see Lincoln 2015). Stambulova (2000) suggested that such modifications might result in an athlete’s *situation-related crisis*. For coaches, to adapt their training and invest in new technical and tactical approaches, was also demanding (e.g., invest more time in teaching arm techniques). As Arias et al. (2011) suggested:

the rules [of any sport] allow for a degree of variability in the players’ motor behaviours. This means that the players’ personal adaptation or the way they execute their motor behaviours produces different responses because all the players interpret the game actions according to their own experience, capabilities, knowledge of the opponent, etc (p. 1).

The results of the present study indicated that the athletes and coaches perceived this change-event as moderately significant in the context of their careers, with a moderate-negative emotional profile of severity and reactions. These findings provided support for our hypotheses. According to the SCSPP (Samuel and Tenenbaum 2011a), the perception of a change-event in the context of the athletic career is determined, among other things, by the nature of the event; how much influence it has on AI/CI. It is assumed that change-events that greatly modify athletes’ status and AI are perceived as more significant in the context of the athletic career. As modifications of sport regulations do not directly influence athletes’ or coaches’ identification with their roles (unless they lead to a major reduction in motivation or performance) we predicted a moderate emotional profile. However, unlike our hypothesis, the perceived significance did not correlate with AI or CI. This may be attributed to the high AI/CI levels reported in this study, which corresponded to the 60th percentile of athletes (Brewer and Cornelius 2001) as well as to the AI mean of the Olympic athletes reported in Samuel et al.’s (2016) study. The coaches’ total CI mean was comparable to the one found in Samuel et al.’s (2016) study on Olympic and Paralympic coaches. The use of the CEI in a retrospective format and the AIMS in a concurrent format might have also obscured any existing correlation. Also, previous studies on AI indicated cross-cultural differences (Visek et al. 2010) which were also evident in the present study and could have obscured the results. Additionally, the judokas and coaches had low perceived control over this change-event, as it was primarily determined by the IJF, without genuinely involving them in decision-making. Particularly, as the judokas were older, they felt less perceived control. This effect could be related to the difficulty in changing one’s motor habits, including technical repertoire and fighting style, at an older age in sport. Interestingly, Lobinger and Solomon (2010) found that more experienced pole vaulters appeared to be less affected by the imposed time limit introduced to their sport, than the less experienced athletes, potentially as a result of having established pre-performance routines. In the case of a closed-skill sport, such as pole-vaulting, having a well-established routine might buffer against technical rule modifications. Judo, however, is an open-skill sport, and perhaps having well-established techniques or motor behaviors, developed over many years, can be debilitative when a new technical restriction is presented. This finding highlights the contextual nature of rule modifications in different sport disciplines. Still, additional research is required to examine this age-related effect in judo. Therefore, the IJF’s (2016) statement of ‘wide consensus for the adapted rules of the next Olympic Cycle’ should be questioned considering this study’s findings.

The athletes’ emotional reactions to this change-event were associated with the way their coaches perceived it. This finding is meaningful in that judo is a sport heavily based on coaching and tradition (Santos et al. 2015). It is not unusual that judokas and coaches spend their entire careers together, from childhood to the senior level. Therefore, the coach is the person in the athlete’s career who mediates and interprets events and experiences to the athlete, including successes and failures, transitions (e.g., moving between weight classes, moving between levels) and change-events (e.g., injuries), and in this case – modifications of the sport.

Considering the vast number of modifications introduced to the sport, we wished to examine which modifications were perceived as the most influential. The findings indicated that the leg-grabbing, the penalty system, the kumi-kata (grip), and the refereeing system were the most influential ones. These findings are not surprising, considering that the main purpose of the modifications was to distance judo from wrestling and from Russian Sambo, and bring it closer to the traditional Japanese style (Majendie 2018). Many judokas (and coaches) who are now active seniors developed their judo at times where leg-grabbing was still permitted (e.g., Lincoln 2015). This had a significant influence on their technical repertoire and fighting style. As Lincoln (2015) commented: ‘Understandably, it takes on average two to four years to develop a competition-effective technique at the least. To give up one’s favourite techniques and develop another will prove a tough transition for many competitors.’

In relation to the penalty system, previous research did not show a coherent trend. Specifically, whereas Calmet et al. (2017a) and Franchini et al. (2013) reported an increase in the number of penalties, more recent analyses (Calmet et al. 2017b; Ceylan and Balci 2017) indicated a decrease. The current tendency is for referees to give shido rapidly so fights end quickly. This modification had changed many judokas’ tactical approach because nowadays you can win relatively quickly by showing activity and causing your opponent to be seen as passive. Escobar-Molina et al. (2014) examined fights of 12 tournaments valid to the IJF 2013 World Ranking List. They found that receiving a shido was associated with match outcome, increasing the likelihood of being defeated, particularly in heavier weight categories. These authors suggested that enhancing judokas’ combativeness through training is essential to avoid being penalized during the fight.

Modifying the kumi-kata (grip) regulations in terms of length, breaking of grips, and using an unconventional grip (i.e., one-sided grip) further required judokas to adapt their judo style and techniques. Previous research indicated that using a same-side kumi-kata is beneficial and increase the likelihood to throw (Courel et al. 2014), so judokas who were used to this type of fighting were now penalized in case they did not immediately attack. Finally, the change of the refereeing system and the use of video review is considered by the judokas and coaches as a meaningful modification. This finding is in line with Moenig’s (2015) findings concerning the refereeing modifications in taekwondo. In a similar fashion to judo, as a result of introducing the video replay system, taekwondo moved in the direction of becoming a point sport rather than a genuine tactical, full-contact combat sport. Using technological aids in sport might undermine the authority of the referee, interfere with the flow of the fight, and even create injustice when on-mat decisions are overruled by the video review (Kolbinger and Lames 2017). Consistency in referees’ rule interpretation is another related issue which might be of concern to judokas and coaches (Lincoln 2015).

Regarding the participants’ change process, most judokas and coaches consulted with others in response to this change-event as well as made a decision to change. Those who consulted with others perceived this change-event as more significant in the context of their careers. These findings are in line with the SCSPP’s model assumptions (Samuel and Tenenbaum 2011a), as well as the findings of previous studies (e.g., Samuel and Tenenbaum 2013; Samuel et al. 2015; Samuel, Stambulova, and Ashkenazi 2019). Consulting with others indicates that the participants recognized the complexity of this change-event and their need to receive professional support. Samuel et al. (2019) reported a case study of the Israeli national youth team handball players who were given an opportunity to join a unique training abroad program. They also tended to consult with others in response to this complex situation. This indicates that in technical-performance change-events athletes will seek the advice of others. Furthermore, the decision to change reflects the willingness of the participants to apply the necessary adjustments to their judo in order to effectively respond to these modifications. Mostly, these adjustments were in the tactical aspects of judo. This is not surprising, considering that the more influential modifications occurred in the penalty system, the kumi-kata (grip), and the refereeing system, which all related directly to the way judokas tactically manage their fighting. The coaches also perceived the technical aspect as requiring modifications. This might be related to their need to develop technical repertoires with athletes (Chirazi 2013; Santos et al. 2015) in response to the prohibition of leg-grabbing and kumi-kata changes.

One of the main concerns, when a governing body in sport decides to modify the rules, is that the participants’ motivation will be negatively affected (Arias et al. 2011). The present study’s findings revealed that both judokas and coaches reported reduced motivation because of experiences related to the modifications of regulations. This negative effect might have resulted from athletes’ and coaches’ disapproval of the new rules or as a result of their need to adapt their technical repertoire and fighting style. It is possible that athletes also perceived the new rules as reducing their future success potential, by debilitating their current advantages (e.g., Lincoln 2015). It should be acknowledged, that this was a highly competitive sample, with high AI/CI, so their basic motivation was high; a reduction in motivation for this sample, even if it reflects only a small effect size, is meaningful. In line with the SCSPP model assumptions, the participants’ perceptions of the outcome of this change-event were associated with their motivation, so those who experienced a positive outcome also maintained a higher motivation. In addition, the participants’ perceptions of the outcome of this change-event correlated with satisfaction from professional results. This finding is on par with a previous study which examined the Olympic Games as a career change-event (Samuel et al. 2016).

The judokas and coaches in our study were only moderately knowledgeable about the

modifications of rules and refereeing. This finding was of no surprise, considering that there were frequent modifications, which were not always clear. In fact, one of the motives for the present study was our impression that judokas and coaches did not know how to handle these modifications. We have no doubt that the IJF’s intentions in modifying the rules are to promote judo. Yet, from a change perspective (Samuel and Tenenbaum 2011a), the governing body should realize that initiating vast modifications so frequently creates a toll for stakeholders. Future studies should examine how judo referees perceive these modifications and whether they affected their motivation for refereeing. Guillén and Feltz (2011) identified ‘knowing the rules of their sport’ as one of the key features related to the *game knowledge* dimension of refereeing self-efficacy. It is possible, therefore, that the frequent modifications of judo rules might challenge referees’ efficacy beliefs. Also, as the present study focused on high-level senior athletes, additional studies are required to examine these effects in younger as well as in amateur judokas. For example, a study with young volleyball players found that when official game rules were applied, the players failed to perform well, indicating the importance of matching rule modifications to the specific age-related skills and abilities (Buekers and Billiet 1998). The presents study’s findings somewhat imply that regulations and refereeing modifications in judo were conducted from the perspective of the elite professional level, not necessarily considering the influence on the youth or amateur levels.

There were several sub-cultural effects in this study, according to which, the UK judo population experienced this change-event more negatively than the Israeli or Croatian ones, had fewer resources of support, and were less knowledgeable about the modifications. These findings were also reflected in the coaches’ open responses. Predominantly, the coaches in the UK are volunteers, working in clubs spread across the UK, and this makes the dissemination of information crucial. The British Judo Association is tasked with sharing this information from the IJF, which is often done electronically, through emails and the application of the rules is sent out via a MEMO. From a coach’s perspective, they will then read and apply their perception of what has been sent out. It is not a surprise that this interpretative element results in varying levels of knowledge of the rules being shared. Greater clarity is needed as to if and when the rules come in, and how much time should be given to adjusting, not just for athletes but coaches and officials also.

***Practical Implications***

This study presents several meaningful practical implications. First, if coaches mediate the modifications of regulations to their judokas, then much attention should be devoted to the education of coaches and to persuading coaches that these modifications benefit their athletes and themselves. The coaches are the ones who need to be innovative in designing adequate training methods and developing technical and tactical repertoires to enable effective adaptation. Yet, as one of the UK coaches commented, many of them are not full-time professionals and these modifications pose a heavy toll on them. Therefore, the IJF can provide judo coaches with statistics and additional professional data as well as expert reports to support their training efforts. Conducting online sessions designed to educate coaches about the new modifications, and how they might respond to them, can make these modifications more accessible, and reduce potential resistance. Furthermore, in line with Arias et al.’s (2011) recommendations, we advise the IJF as well as the continental and national governing bodies to perform a reflective process before additional modifications are introduced. Conducting an open discourse with judokas and coaches from various backgrounds is critical to ensure that rule modifications positively affect judo at all levels, and not only at the elite level. In this context, national bodies must provide support for coaches in their efforts to positively respond to these changes. However, considering our findings, we also advise coaches to mediate future modifications of a positive manner to their judokas, as this has a significant influence on their interpretations.

Like previous studies (e.g., Samuel and Tenenbaum 2011b; Samuel et al. 2016), judokas and coaches in this study did not consider using sport psychology services in response to this change-event and considered such support as moderately helpful in this context. This finding is somewhat odd, especially since the participants reported low perceived control over this change-event. Also, this change-event had a psychological influence which translated into a reduction in motivation. Thus, it is possible that the participants did not feel a sport psychologist might assist in this type of change-event, that was very technical/tactical. Also, the participants reported they did have professional resources of support in their environment. Finally, it is possible that in general, the participants’ perceptions concerning sport psychology services were not favourable, regardless of the specific context (Martin et al. 2004). Future research is required to determine the exact reason athletes and coaches are reluctant to use sport psychology services in such change-events. Nevertheless, in view of the potential effect on athletes’ motivation, we strongly advise the judo governing bodies as well as the coaches to consider the psychological aspect of these modifications, how judokas respond to them, and how to maintain an effective change process. The coaches are important in this aspect, as they need to explain to their judokas in the ways in which new modifications will influence their judo and set specific goals accordingly. Reaching a decision to change (i.e., independently or through sport psychology support) is important, so judokas are motivated for change and ready to adjust their judo, as well as cope with potential frustrations in training and competition. In case that a crisis develops, there are several types of intervention to facilitate effective coping (see Stambulova 2017).

***Limitations***

This study had several limitations. First, the internal consistency coefficients of some inventory subscales were not adequate. This can be attributed to the relatively long inventory, to the use of online measurements, and to the use of three languages in this study (i.e., English, Hebrew, and Croatian). This prevented us from performing a certain predictive analysis which required using a less reliable sub-scale. Also, it is common in cross-cultural studies to have differences in Cronbach’s alphas coefficients between the various samples (Ryba et al. 2013; Visek et al. 2015). Therefore, the cross-cultural findings should be regarded with a degree of caution. Second, while we considered (and explained to the participants) the change-event in this study as ‘the modifications of rules and refereeing that occurred in competitive judo since 2013’ we must acknowledge that this is a longitudinal change-event. There were several occasions of regulation modifications occurring between 2013 and 2018, and we cannot be certain to which of these modifications each participant was referring to in his or her response. Therefore, it might be that the participants referred to different aspects of this change-event in their CEI responses. In the future, when referring to such a complex change-event it might be better to have participants specify to which aspects they are referring to. Finally, although our sample was adequate for our purposes, it was not fully balanced in terms of gender and cultural background. For example, there were significantly more male coaches than female coaches. While this difference might reflect a population difference (i.e., in general, there are more male judo coaches), perhaps female coaches tend to perceive and respond to this change-event differently. As our sample of coaches did not include enough female coaches, appropriate gender-based analyses were not possible. Similarly, there were more Israeli participants than Croatian or UK ones. As UK participants had more negative perceptions of this change-event, their under-representation might have influenced some of the findings. Thus, future research in this area should be more culturally and gender-balanced.

**Conclusions**

The modifications of judo regulations that occurred between 2013 and 2018 were not perceived favourably by judokas and coaches and resulted in reduced motivation. This may be related to the influence these modifications had on the tactical approach of judokas, and to the coaches’ need to elaborate their technical repertoires. Also, the judo participants were not well-informed about these frequent modifications. This study adds to the literature on athletic career transition, by examining a change-event previously overlooked. Although this change-event is a quasi-normative transition (see Stambulova 2016; Stambulova and Samuel in press), as it applies only to a specific group of judo participants, other sport populations might experience similar change-events. The study’s findings also provide additional support for the SCSPP (Samuel and Tenenbaum 2011a). Governing bodies are advised to conduct a reflective process (Arias et al. 2011) prior to introducing regulation modifications and mediate those to their stakeholders more sensibly.

**Disclosure statement**

The authors have no conflict of interest.

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Table 1

*Descriptive Statistics (M, SD) of Study Variables*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Total (n=83)** | **Athletes (n=53)** | **Coaches (n=30)** | **Israel (n=31)** | **Croatia (n=23)** | **UK (n=18)** |
| Changes in the refereeing system | 3.40 (0.99) | 3.34 (1.00) | 3.50 (0.97) | 3.45 (1.00) | 3.30 (0.87) | 3.22 (0.88) |
| Changes in the penalty system | 3.57 (1.03) | 3.68 (1.05) | 3.37 (0.96) | 3.55(1.15) | 3.61 (1.03) | 3.22 (0.81) |
| Change in scoring system | 3.17 (1.21) | 3.21 (1.23) | 3.10 (1.19) | 2.87 (1.23) | 3.22 (1.17) | 3.11 (1.18) |
| Changes in ne-waza (groundwork) | 2.87 (1.24) | 2.75 (1.29) | 3.07 (1.14) | 3.13 (1.23) | 2.35 (1.30) | 3.00 (0.77) |
| Changes in golden score | 3.24 (1.23) | 3.30 (1.27) | 3.13 (1.17) | 3.16 (1.32) | 3.22 (1.29) | 3.39 (1.15) |
| Changes in kumi-kata (grip) | 3.45 (1.11) | 3.36 (1.79) | 3.60 (0.97) | 3.52 (1.29) | 3.43 (1.04) | 3.11 (0.83) |
| Changes in leg-grabbing | 3.61 (1.49) | 3.47 (1.54) | 3.87 (1.38) | 3.32 (1.72) | 3.74 (1.36) | 3.72 (1.36) |
| Changes in the fighting area | 2.40 (1.18) | 2.25 (1.21) | 2.67 (1.09) | 2.13 (1.23) | 2.61 (1.23) | 2.50 (1.04) |
| Perceived significance | 3.48 (0.93) | 3.44 (1.01) | 3.55 (0.78) | 3.47 (1.09) | 3.35 (0.79) | 3.50 (0.95) |
| Perceived severity | 2.76 (0.71) | 2.78 (0.69) | 2.72 (0.76) | 2.97 (0.76) | 2.70 (0.58) | 2.78 (0.65) |
| Perception of others | 2.35 (0.62) | 2.34 (0.59) | 2.37 (0.69) | 2.52 (0.72) | 2.41 (0.54) | 2.17 (0.42) |
| Emotional reaction | 2.46 (0.79) | 2.48 (0.75) | 2.42 (0.86) | 2.74 (0.82) | 2.48 (0.73) | 2.31 (0.73) |
| Cognitive reaction | 2.87 (1.00) | 2.91 (0.97) | 2.80 (1.06) | 2.50 (0.92) | 2.74 (1.08) | 3.33 (0.86) |
| Perceived control | 1.86 (1.01) | 1.69 (0.92) | 2.15 (1.11) | 1.92 (0.93) | 2.35 (0.98) | 1.28 (0.73) |
| Motivation prior to change of rules | 4.42 (0.69) | 4.45 (0.65) | 4.37 (0.76) | 4.69 (0.51) | 4.33 (0.67) | 4.31 (0.82) |
| Motivation after change of rules | 4.18 (0.84) | 4.22 (0.82) | 4.12 (0.87) | 4.61 (0.65) | 4.15 (0.66) | 3.81 (1.05) |
| Effects on technique | 3.25 (0.94) | 3.09 (1.04) | 3.53 (0.66) | 3.26 (0.83) | 3.11 (1.01) | 3.33 (0.84) |
| Effects on fighting style | 3.40 (0.99) | 3.36 (1.09) | 3.48 (0.77) | 3.48 (0.81) | 3.37 (0.98) | 3.17 (1.10) |
| Effects on tactics | 3.74 (0.92) | 3.71 (1.03) | 3.80 (0.70) | 3.79 (0.91) | 3.52 (1.01) | 3.75 (0.88) |
| Motivation for change | 4.17 (0.86) | 4.13 (0.93) | 4.23 (0.75) | 4.60 (0.62) | 4.04 (0.98) | 3.78 (0.79) |
| Effectiveness of coping | 3.96 (0.70) | 3.97 (0.70) | 3.95 (0.70) | 4.16 (0.69) | 3.78 (0.86) | 4.00 (0.49) |
| Helpfulness of past experience in similar change-events | 3.50 (0.89) | 3.38 (0.92) | 3.72 (0.82) | 3.52 (0.97) | 3.46 (0.93) | 3.47 (0.88) |
| Coach-athlete cooperation | 4.08 (0.68) | 4.11 (0.70) | 4.03 (0.64) | 4.06 (0.68) | 4.17 (0.70) | 4.11 (0.72) |
| Knowledge about the rule modifications | 3.68 (1.09) | 3.51 (1.22) | 3.97 (0.75) | 4.13 (0.97) | 3.87 (1.04) | 3.08 (1.11) |
| Satisfaction with professional achievements | 3.49 (0.86) | 3.34 (0.90) | 3.77 (0.73) | 3.56 (0.97) | 3.30 (0.75) | 3.58 (0.93) |
| Outcome of change process | 3.29 (0.71) | 3.26 (0.71) | 3.33 (0.71) | 3.56 (0.69) | 3.20 (0.56) | 3.14 (0.90) |
| Availability of professional resources | 5.17 (1.55) | 4.94 (1.55) | 5.57 (1.48) | 5.71 (1.30) | 5.35 (1.55) | 4.39 (1.61) |
| Considering using sport psychology consultation |  | 1.72 (1.08) |  | 1.70 (1.22) | 1.86 (1.03) | 1.33 (0.50) |
| Considering sport psychology consultation as useful |  | 3.85 (2.04) |  | 4.55 (2.01) | 4.29 (1.98) | 2.78 (1.86) |
| Total athletic/coaching identity (AI/CI) | 39.14 (6.33) | 40.68 (5.57) | 36.43 (6.77) | 42.58 (5.70) | 36.83 (4.92) | 35.06 (6.23) |

*Word count*: 10854

1. We could not find studies which examined the effects of these latest rule modifications. [↑](#footnote-ref-1)