

Motivation-Centred Innovative Coaching for Taekwondo and Karate Athletes in Yogyakarta and Bujumbura Cities

Entrenamiento innovador centrado en la motivación para atletas de taekwondo y karate en las ciudades de Yogyakarta y Bujumbura

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Abstract. Martial arts coaching techniques that are research-evidenced create engaging and fulfilling training environments for athletes. This descriptive quantitative research investigated Taekwondo and Karate coaching practices focused on athletes' sports participation achievement motivation. The study includes 188 Karate and Taekwondo athletes (100 boys, 88 girls) from Yogyakarta and Bujumbura cities, selected through probability sampling method and simple random sampling techniques. The data collection instrument was a Sport Achievement Motivation Scale, adapted from the Achievement Motivation Scale. Data analysis procedure using Two-Way ANOVA with R program and descriptive statistics. Findings indicate significant differences in sport participation achievement motivation between Taekwondo and Karate martial artists from Bujumbura and Yogyakarta. In addition, motivational drives vary between male and female athletes, irrespective of country. The dominant motivational profile is Approach-Success in Training (MST), with 8 out of 14 agreed items falling within this dimension. Overall, athletes display an "Agree" level of sports participation achievement motivation ($\bar{x} = -0.473$ logits), highlighting the importance of motivational profile-centred coaching for enhanced success. These findings may guide Taekwondo and Karate coaches in tailoring methods and interventions to align with athletes' motivational profiles.

Keywords: athletes, achievement motivation, martial arts, karate, taekwondo

Resumen. Las técnicas de entrenamiento de artes marciales que están comprobadas por la investigación crean entornos de entrenamiento atractivos y satisfactorios para los atletas. Esta investigación cuantitativa descriptiva investigó las prácticas de entrenamiento de Taekwondo y Karate centradas en la motivación de los atletas por participar en el deporte, lograr logros. El estudio incluye a 188 atletas de Karate y Taekwondo (100 niños, 88 niñas) de las ciudades de Yogyakarta y Bujumbura, seleccionados a través del método de muestreo probabilístico y técnicas simples de muestreo aleatorio. El instrumento de recolección de datos fue la Escala de Motivación de Logro Deportivo, adaptada de la Escala de Motivación de Logro. Procedimiento de análisis de datos mediante ANOVA de dos vías con programa R y estadística descriptiva. Los resultados indican diferencias significativas en la motivación de logro de la participación deportiva entre los artistas marciales de Taekwondo y Karate de Bujumbura y Yogyakarta. Además, los impulsos motivacionales varían entre los atletas masculinos y femeninos, independientemente del país. El perfil motivacional dominante es el Enfoque-Éxito en la Formación (MST), con 8 de los 14 ítems acordados dentro de esta dimensión. En general, los atletas muestran un nivel de "Acuerdo" de motivación para el logro de la participación deportiva ($\bar{x} = -0,473$ logits), lo que destaca la importancia del entrenamiento motivacional centrado en el perfil para mejorar el éxito. Estos hallazgos pueden guiar a los entrenadores de Taekwondo y Karate en la adaptación de métodos e intervenciones para alinearse con los perfiles motivacionales de los atletas.

Palabras Clave: atletas, motivación de logro, artes marciales, karate, taekwondo

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Introduction

Nowadays, martial arts are getting more and more interest (Fuller & Lloyd, 2020). These are gaining progressively significant popularity as a sport while attracting diverse participants of all ages (Andreasson & Johansson, 2019). Such sports encompass disciplines like judo, karate, taekwondo, Wushu, and mixed martial arts (MMA). While these disciplines provide both physical fitness and self-defence skills to athletes, they also hold cultural and historical significance, (Benesch, 2020; Nauright & Zipp, 2020).

Indeed, practising martial arts have a profound impact on athletes (Lipowski et al., 2019). Three dimensions attached to such a sport include, as we mentioned earlier, the physical, mental, and cultural (Tulendiyeva et al., 2021). As far as the physical dimension is concerned, it is inherent to the fact that athletes engage in rigorous physical training.

This affects their physical strength, agility, and coordination. It is also common for martial artists to have sound mental discipline, concentration, and emotional control; the latter are crucial in terms of their optimal performance.

Moreover, the cultural dimension attached to most martial arts embodies traditions and values often deeply embedded in each martial arts discipline. Such cultural elements enhance the athletes' personal growth, character development, and a sense of identity to pioneers or renowned practitioners (Bloom et al., 2020).

Motivation plays a very important role in sports, including martial arts disciplines that can affect various aspects of an athlete's performance (Chu & Zhang, 2018). Thanks to its strong bond with goal setting, motivation urges athletes to set challenging and specific goals for themselves. Such plans are like the guide map during their training and competition sessions. These goals become inspirational and help athletes stay focused and committed to their practice (Kim & Cruz, 2021; McCardle et al., 2019).

In addition, it has been proven that motivation affects an athlete's training commitment. If athletes are intrinsically motivated, their internal desires and enjoyment of the sport are more likely to exhibit consistent and dedicated training behaviours (Heydari et al., 2018). Motivated athletes are willing to invest time and effort into their martial arts

practice, which can lead to skill development and improved performance over time.

Moreover, motivational techniques have legendarily enhanced skills. Bores-garcía et al., (2021) highlight that those motivational techniques are instrumental in optimizing performance outcomes. Moreover, the study (Ortega et al., 2016) reveals that self-compassion and emotional regulation can mediate emotional reactions to failure in martial arts. Again, this emphasizes the role of motivation in resilience and performance in martial arts like Karate, Wushu, Taekwondo, and Judo.

Malchrowicz-Mośko et al., (2020) investigated the motivations of martial arts enthusiasts in Poland. The findings uncovered a strong connection between motivations and other factors such as gender, age, and training experience. Still in the athletes' engagement motivations, a study by (Aniago, 2019) examined health-related behaviours among youth martial arts athletes.

The emphasis was to further study the role of coaches in providing support and guidance for athlete. Through offering a safe and supportive training environment, and providing constructive feedback, as the findings revealed, coaches can foster motivation and appropriate goals settings for their athletes, which corroborates Strachan, (González et al., 2021). Equally, since positive emotions were linked to engagement motivations in martial arts, it is also crucial to underline the role that coaches play in promoting such positive emotions and hope among martial arts players. Note that these emotional and hope-related factors, if well-addressed, coaches can reduce pre-competition anxiety and enhance performance (Yang et al., 2020).

However, there is no study so far that generalizes unique motivational factors for all martial arts disciplines or physical activities (Molanorouzi et al., 2015). This leads to the view that different martial arts disciplines may have varying motivational factors. Dongoran et al., (2019) compared psychological skills between two martial arts disciplines: the Pencak Silat and Boxing. In that study, the analysis of the differences between athletes in the two disciplines revealed that the Taekwondo athletes showed a higher emphasis on achievement motivation compared to Pencak Silat athletes. Coaches should consider the specific motivational dynamics within their respective martial arts disciplines to effectively guide and motivate their athletes.

Over time, factors such as self-awareness and motivation for success appeared to influence martial artists (Kostorz & Sas-nowosielski, 2021). When coaching, the athletes' behavioural self-regulation and self-awareness should be addressed. Still, in factors affecting the martial artists' growth, the coach-athlete relationship is another important factor. It influences athletes' motivation and passion for the sport as (Gullu et al., 2020) observed. These researchers found a strong bond between the coach-athlete relationship and sports passion among athletes. If coaches provide athletes with choices and opportunities for self-determination, which is autonomy-supportive coaching, enhanced self-motivation and engagement in training follow

gradually. Coaches who foster a positive and supportive relationship with their athletes can enhance athletes' motivation and passion.

Next, achievement motivation and state anxiety are other factors that should be addressed. These affect the extent of physical training. Carpentier & Mageau, (2016) investigated the relationship between physical training and the effect on achievement motivation and state anxiety in Judo athletes. The results revealed the importance of designing physical training sessions that enhance achievement motivation (Wegner et al., 2016), which can then foster confidence and reduce anxiety. Coaches who design training programs that progressively challenge and develop athletes' physical skills can contribute to increased achievement motivation and reduced anxiety levels (Low et al., 2023).

While investigating the link between psychological well-being and martial arts, findings are clear: for instance, the influence of taekwondo practice on psychological well-being is even. Documenting coaching techniques in taekwondo and karate based on athletes feedback and motivation is an innovative approach that has been less explored in the existing literature. Traditionally, coaching methods have focused on Delphi techniques to get experts' opinions on a particular martial arts-related topic, use of physical conditioning or reliance on technical skills. Mekler et al., (2017) highlight the importance of providing informative and frequent feedback to athletes and reducing external rewards to maintain motivation in training. This shift towards a motivation-centred coaching approach acknowledges the role of athletes' feedback and intrinsic motivation in optimizing performance outcomes.

The innovative aspect of this research lies in the adoption of a novel approach to documenting coaching techniques based on Burundian and Indonesian athletes' feedback and motivation. While traditional coaching methods have focused primarily on getting coaching insights through experts' views, athletes' technical skills or their physical conditions, the consideration and understanding of the athletes' motivations in martial arts training is a participative approach rare in the existing literature. By incorporating athletes' feedback and intrinsic motivation into coaching techniques, this study can collect insights meant to guide coaches in determining the most effective training methods for taekwondo and karate athletes. This means that the dynamic issue of coaching becomes sustainable if only coaches consider or imagine their athletes and base on those martial artists' presence before planning any coaching program.

In Karate and Taekwondo, coaching and motivation are the backbone: these factors play a great role in athletes' development and success in the two sports disciplines. That is why when coaches who understand the athletes' motivations (Berntsen & Kristiansen, 2019), they can optimally manage to tailor their coaching to the athletes' needs, which also enhances engagement and performance. Zeng et al., (2015) conducted a study exploring the motivations of Taekwondo athletes in New York City. The findings

emphasized the influential role of instructors and coaches in shaping the participation motivations of Taekwondo students. From those findings, it became obvious that coaches have a significant impact in nurturing positive motivations and engagement during martial arts training.

The purpose of this research was to document Taekwondo and Karate coaching practices centred on the athletes' sports participation achievement motivation. This is expected to guide Taekwondo and Karate coaches to tailor their training methods and interventions to the needs and motivational profiles of their athletes.

So, by documenting coaching techniques that take into account the motivational aspects of taekwondo and karate, coaches can create a more engaging and fulfilling training environment for athletes this becomes a coach's motivation-centred leadership style (Reynders et al., 2019). Such an innovative approach considers the importance of understanding and catering to the unique motivations of athletes in martial arts training: based on that, coaches can tailor their training programs to meet individual needs, engagement, goal-setting, commitment, and other motivational factors. These considerations can lead to improved performance outcomes for athletes. This study aims to analyze how the motivation profile of taekwondo and karate, regarding the dimensions of achievement motivation and the level of suitability of the existence of achievement drivers in Bujumbura City and Yogyakarta.

Material and Methods

This is a descriptive research type utilizing a quantitative approach. The research subjects were 188 ($n=188$) Karate and Taekwondo athletes (100 boys, 88 girls) from Yogyakarta and Bujumbura cities. The probability sampling method and simple random sampling techniques were used. This research has been approved and meets the research code of ethics. To collect data, the researchers used a Sport Achievement Motivation Scale, a Modified Likert Rating Scale (four-response options ranging from strongly agree to strongly disagree) adapted from the Achievement Motivation Scale, AMS (Yaman et al., 2015). By using this scale, the researchers managed to measure the athletes' five dimensions of achievement motivation namely the Approach-Success (MSO), Avoidance-Failure (MFO), Approach-Success in Competition (MSC), Approach-Success in Training (MST), and Avoidance-Failure in Competition (MFC). Two-Way ANOVA was conducted using the R program and descriptive statistics provided data summaries, with a level of significance $\alpha=0.05$. What is more, to transform ordinal data into a higher logistic scale (interval data), the researchers used the Winsteps computer program. Using the data in logits, the researchers were able to categorize the Taekwondo and Karate Athletes' Sports Achievement Motivation profiles: this was done based on the items or statements to which the research respondents agreed. The use of logistic data minimizes the standard error measurement (SEM).

Results

Since most of the variables are of a latent nature, it is better to run an exploratory factor analysis (EFA) to evidence the existence of a principal factor (sport achievement motivation, in this context) and how the five dimensions are associated with it. Below is the EFA loading factors.

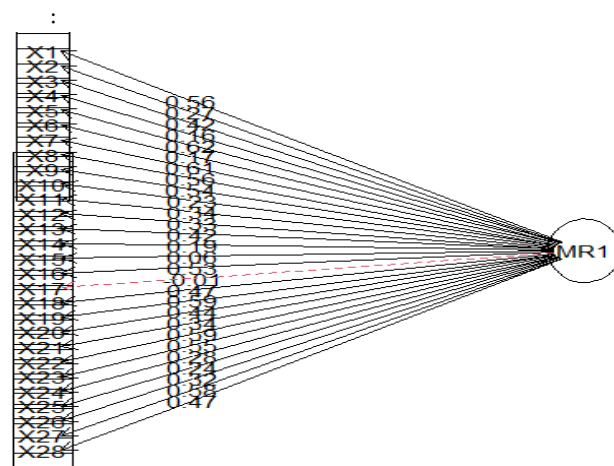


Figure 1: EFA Loading Factors

As the EFA is mainly used to explore the underlying factor structure and identify the latent factors or constructs represented by the observed variables, it seems that MR1 (the sport).

Based on figure 1 Exploratory Factor Analysis Contains Coefficients (Calculated by Program R) achievement motivation) related to five dimensions or variables measured by the Sports Achievement Motivation Scale. Items 2, 4, 6, 10, 14, 15, 17, 25, and 25 have low loading factors or coefficients, indicate irrelevance or other parameters that require further theoretical analysis.

After the researchers gathered evidence that the five-dimension variables were related to sports achievement motivation, they proceeded to further the Two-Way ANOVA. The results are listed according to pairwise sets dimmed worth mentioning given their contribution in answering the research questions.

The Pairwise comparisons for Sport

```
> R summary output(sport_contrast_pairs)
```

```
Contrast estimate SE df t. ratio p.value Karate - Taekwondo -0.287 0.138 167 -2.081 0.0390.
```

Given the p-value ($p=0.0390$) that is less than the typical significance level of 0.05, there is an indication of noticeable statistically significant differences in the achievement motivation drive for Karate and Taekwondo athletes, irrespective of the country and gender factors. The achievement motivational drive for the martial artists in these two disciplines differs.

The Pairwise comparisons for Gender

```
R summary(gender_contrast_pairs)
```

```
Contrast estimate SE df t. ratio p.value Female - Male 0.439 0.149 167 2.9540.0036
```

For this pairwise comparison, $p = 0.0036$ (<0.05), which suggests that there is a statistically significant difference in the achievement motivation factors between Females and Males, regardless of the country and sports factors.

The Country-Sport Interaction

Table 1. Summary (country_sport_contrast_pair)

| Contrast | Estimate | SE | df | t.ratio | p.value |
|---------------------------------|----------|-------|-----|---------|---------|
| Buru Karate - Indo Karate | 0.3168 | 0.146 | 167 | 2.165 | 0.1375 |
| Buru Karate - Buru Taekwondo | -0.2872 | 0.138 | 167 | -2.081 | 0.1636 |
| Buru Karate - Indo Taekwondo | 0.0296 | 0.203 | 167 | 0.146 | 0.9989 |
| Indo Karate - Buru Taekwondo | -0.6040 | 0.200 | 167 | -3.024 | 0.0152 |
| Indo Karate - Indo Taekwondo | -0.2872 | 0.138 | 167 | -2.081 | 0.1636 |
| Buru Taekwondo - Indo Taekwondo | 0.3168 | 0.146 | 167 | 2.165 | 0.1375 |

The output above output for pairwise comparisons for Country and Sports interaction, we can interpret the results as follows:

The null hypothesis, in this case, would state that there is no significant difference between the countries (Burundi and Indonesia) and their respective sports (Karate and Taekwondo) in terms of the measured achievement motivation factors. The alternative hypothesis would suggest that there is a significant difference between these pairwise comparisons.

These contrasts have p -values >0.05 :

Buru Karate vs. Indo Karate: The p -value is 0.1375

Buru Karate vs. Buru Taekwondo: The p -value is 0.1636

Buru Karate vs. Indo Taekwondo: The p -value is 0.9989

Indo Karate vs. Indo Taekwondo: The p -value is 0.1636

Buru Taekwondo vs. Indo Taekwondo: The p -value is 0.1375

For these particular contrasts, there is no significant difference between Indonesian.

Karate and Burundi Taekwondo athletes' achievement motivation, except the contrast Indo Karate vs. Buru Taekwondo with $p = 0.0152$ ($p < 0.05$). Only this particular contrast is a significant difference in achievement motivation between Indonesian Karate and Burundian Taekwondo athletes.

Sport and Gender Contrasts

For this particular pairwise interaction, there are six contrasts:

Table 2. Summary (sport_gender_contrast_pairs)

| contrast | estimate | SE | df | t.ratio | p.value |
|-----------------------------------|----------|-------|-----|---------|---------|
| Karate Female - Taekwondo Female | -0.287 | 0.138 | 164 | -2.081 | 0.1636 |
| Karate Female - Karate Male | 0.439 | 0.149 | 164 | 2.954 | 0.0187 |
| Karate Female - Taekwondo Male | 0.152 | 0.198 | 164 | 0.767 | 0.8692 |
| Taekwondo Female - Karate Male | 0.726 | 0.207 | 164 | 3.502 | 0.0033 |
| Taekwondo Female - Taekwondo Male | 0.439 | 0.149 | 164 | 2.954 | 0.0187 |
| Karate Male - Taekwondo Male | -0.287 | 0.138 | 164 | -2.081 | 0.1636 |

Given the p -values, the following observations can be

made, starting with contrasts that have p -values >0.05 :

Karate Female vs. Taekwondo Female: The p -value is 0.1636,

Karate Female vs. Taekwondo Male: The p -value is 0.8692

Karate Male vs. Taekwondo Male: The p -value is 0.1636

For these three contrasts and irrespective of the country of origin, there is no significant the difference in achievement motivation between female or male Karate and female or male Taekwondo athletes.

On the contrary, these contrasts have $p < 0.05$, suggesting a significant difference in achievement motivation between female Karate athletes and male Karate athletes regardless of the country of origin:

Karate Female vs. Karate Male: The p -value is 0.0187

Taekwondo Female vs. Karate Male: The p -value is 0.0033,

Taekwondo Female vs. Taekwondo Male: The p -value is 0.0187

Again, the reader must notice that the analysis was averaged over the country levels, which hints at the fact that the observed differences or similarities exclude or do not consider the country factor.

Comparisons for Country, Sport, and Gender interaction

Table 3. Summary Country_Sport_Gender_Contrast_Pairs²

| Pairwise Comparison | p-value | Decision |
|---|---------|-------------|
| Indo Karate Female - Indo Karate Male | 0.0268 | Significant |
| Buru Karate Female - Indo Karate Male | 0.0268 | Significant |
| Buru Taekwondo Female - Buru Karate Male | 0.0135 | Significant |
| Buru Taekwondo Female - Indo Karate Male | 0.0041 | Significant |
| Buru Taekwondo Female - Indo Taekwondo Male | 0.0268 | Significant |
| Buru Karate Male - Indo Taekwondo Male | 0.0268 | Significant |

On the one hand, there were 24 pairwise comparisons, among which 18 were insignificant, indicating that there was not enough evidence to reject the related null hypothesis. On the other² Summary statistically significant Pairwise Comparisons tested based on the country, sports & gender factors hand, 6 pairwise comparisons were significant: their respective p -values were less than 0.05 ($p < 0.05$), which was an indication of significant differences between the groups being compared.

Following the number of pairwise contrasts that are not statistically significant, the researchers further investigated the items or statements to which the research respondents agreed. Since the data collected were ordinal, the researchers transformed them into logistic ones to minimize the standard error measurement (SEM). The data then were run using the Winsteps computer program. To categorize the level of agreement, for each item on the Sport Achievement Motivation Scale, the logistic continuum or scale -4 to 4 what divided into four equal units and for those units, the researchers formulated the following interval categories:

Table 4. Agreement or Disagreement Categorizing Criteria

| Rating Scale | Interval | Category |
|--------------|-------------------|---------------------|
| 4 | $-4 \leq X < -2$ | : Strongly Agree |
| 3 | $-2 \leq X < -1$ | : Agree |
| 2 | $-1 \leq X < 1$ | : Disagree |
| 1 | $1 \leq X \leq 4$ | : Strongly Disagree |

Out of 28 items, the respondents only agreed with 14 items; all found to be in the “Agree” category It10, It11, It16, It21, It19, It28, It5, It1, It13, It22, It7, It9, It3, and It27.

| ENTRY NUMBER | TOTAL SCORE | TOTAL COUNT | MEASURE | MODEL S.E. | INFIT | OUTFIT | PT-MEASURE | EXACT MATCH | ITEM |
|--------------|-------------|-------------|---------|------------|-------|--------|------------|-------------|------|
| 11 | 480 | 168 | -.05 | .09 | 1.37 | 3.7 | 1.38 | 3.4 | It10 |
| 12 | 484 | 168 | -.08 | .09 | 1.07 | .7 | 1.01 | .1 | It11 |
| 17 | 484 | 168 | -.08 | .09 | .96 | -.3 | .95 | -.5 | It16 |
| 22 | 487 | 168 | -.10 | .09 | .83 | -1.9 | .84 | -1.6 | It21 |
| 20 | 490 | 168 | -.12 | .09 | .96 | -.4 | .91 | -.9 | It19 |
| 29 | 506 | 168 | -.25 | .09 | 1.01 | -.1 | 1.01 | .2 | It28 |
| 6 | 508 | 168 | -.27 | .09 | .59 | -5.0 | .62 | -3.9 | It5 |
| 2 | 523 | 168 | -.40 | .09 | .95 | -.4 | .85 | -1.3 | It1 |
| 14 | 523 | 168 | -.40 | .09 | 1.29 | 2.7 | 1.35 | 2.8 | It13 |
| 23 | 525 | 168 | -.41 | .09 | 1.02 | -.3 | 1.29 | 2.3 | It22 |
| 8 | 536 | 168 | -.51 | .10 | .96 | -.3 | .99 | -.1 | It7 |
| 10 | 539 | 168 | -.54 | .10 | 1.10 | -.9 | 1.08 | -.7 | It9 |
| 4 | 540 | 168 | -.55 | .10 | 1.08 | .7 | 1.35 | 2.6 | It3 |
| 28 | 580 | 168 | -.98 | .11 | .96 | -.3 | .98 | -.1 | It27 |

Figure 2. Item measure in Logist

The aforementioned items are located in the $-2 \leq X < -1$ interval, that is, in the “Agree” category. It should be noted that knowledge of the research subjects’ agreement to particular items or statements is a key to analysing the dimension of Sports Achievement Motivation they adhere to. After matching each item that met the respondents’ agreement, the researchers managed to categorize the Karate and Taekwondo athletes’ motivational profiles. Table 5 is illustrative:

Table 5. Matching Respondents’ Agreement with Related Motivation Dimension

| No | Dimension | Item No and Variable |
|----|--|--|
| 1 | Approach-Success (MSO) | Item 10: Inclining to solve a sporting problem that may arise |
| | | Item 11: Concerned about performance goals they are not sure to achieve |
| 2 | Avoidance-Failure (MFO) | Items 15: Avoiding competitive situations that require maximal effort |
| | | Item 19: Competing with maximum effort |
| 3 | Approach-Success in Competition (MSC) | Item 3: Liking competition situations whereby one can put their abilities to test |
| | | Item 1: Belief in the importance of achieving one's sporting goals |
| | | Item 5: Experiencing challenging sporting situations requiring one to test their abilities |
| | | Item 7: Trying uncommon sporting activities during training |
| 4 | Approach-Success in Training (MST) | Item 9: Aiming to Sports Personal Success |
| | | Item 16: Like training whereby one can track improvement |
| | | Item 21: Enjoy challenging tasks during training |
| | | Item 27: Readiness or self-confidence during training |
| 5 | Avoidance-Failure in Competition (MFC) | Item 28: Worries about competition readiness |

In Table 5 one can see that the sampled Taekwondo and Karate athletes, irrespective of gender and country of origin, agree that they stick to solving a sporting problem that may arise, experience fear for performance goals, track their

improvement in training, enjoy challenging sporting tasks, compete with maximum effort, and may experience worries rooting in doubts about their competition readiness. Equally, such athletes are reported to be motivated, make exploration during their training, enjoy sporting challenges, and feel at ease when they get an opportunity to test their martial arts skills level. What is more, they revealed their will of being successful at sporting tasks, without considering whether there is someone who knows about it or not. They also expressed their readiness to do their best during training.

Discussion

In this section, we will discuss the main findings and answer the research questions that guided this study. Since the Karate and Taekwondo athletes’ Sports Achievement motivation is a latent variable, it is better to explore and see whether the five dimensions explain that same main factor for athletes from the two cities: Yogyakarta and Bujumbura.

Factor loading coefficients were used to verify whether the five dimensions explained the same variance in the factor “Sports Achievement Motivation”, referred to as MR1. The results showed that the significance of MR1 in understanding and explaining the athletes’ motivation levels or feedback as a crucial approach in documenting coaching techniques that are athletes’ motivation-centred. This finding mainly corroborates (Iermakov et al., 2016). However, it is worth mentioning that 9 items (out of 28) displayed low loading factor coefficients: this may suggest a weak association or other factors that may require further theoretical analysis.

The gender factor was found to have a statistically significant influence on sports achievement motivation among the participating athletes, irrespective of the country of origin and sport discipline variables. Female athletes demonstrated different motivational profiles compared to their male counterparts, a finding that is similar to (Molanorouzi et al., 2015). Based on this particular finding, coaches are expected to consider gender-specific factors when designing training programs for Karate and Taekwondo in those cities’ athletes.

As we said earlier, this indicates a statistically significant difference in the achievement motivation drive for Karate and Taekwondo athletes, irrespective of the country and gender factors. With this in mind, the researchers managed to answer research question No 1 formulated as “What are the statistically significant group differences between the Bujumbura and Yogyakarta cities Taekwondo and Karate athletes?”

The Sports Participation Achievement Motivation for the martial artists in these two disciplines differs. This finding brings us to the point of supporting an existing study finding that “athletes in different martial arts disciplines may have varying motivational factor (Molanorouzi et al., 2015). For instance, in Indonesia, athletes of Pencak Silat and Boxing displayed noticeably different achievement motivational

factors: Dongoran, Nopiyanto, Saputro, and Wiyono found out that the Taekwondo athletes showed a higher emphasis on achievement motivation compared to Pencak Silat athletes.

Research question No 2 is about motivation profiles of the sampled athletes. The question reads as follows: "What are the Bujumbura and Yogyakarta cities' Taekwondo and Karate athletes' motivational profiles?" To establish the sampled athletes' Sports Achievement Motivation profiles, the researchers presented the respondents with 28 statements/items to rate, whereby they had to agree or disagree with each. Respondents agreed only on 14 statements out of the 28. All the 14 items they agreed on are in the "Agree" category.

Based on what the respondents agreed on and, in an attempt, to establish their motivational profiles by matching the items with the motivation dimensions, we can highlight that the Taekwondo and Karate athletes in Yogyakarta and Bujumbura cities:

- incline to solve a sporting problem that may arise: Approach-Success (MSO)
- are concerned about performance goals they are not sure to achieve: Avoidance-Failure (MFO)
- avoid competitive situations that require maximal effort: Avoidance-Failure (MFO)
- compete with maximum effort: Approach-Success in Competition (MSC)
- like competition situations whereby one can put their abilities to the test: Approach-Success in Competition (MSC)
- believe in the importance of achieving one's sporting goals: Approach-Success in Training (MST)
- experience challenging sporting situations requiring one to test their abilities: Approach-Success in Training (MST)
- try uncommon sporting activities during training: Approach-Success in Training (MST)
- aim to Sports Personal Success: Approach-Success in Training (MST)
- like training whereby one can track improvement: Approach-Success in Training (MST)
- enjoy challenging tasks during training: Approach-Success in Training (MST)
- are ready or self-confident during training: Approach-Success in Training (MST)
- worry about competition readiness: Avoidance-Failure in Competition (MFC)

There are two main groups: the success strivers and failure avoiders. Athletes can strive to succeed during training or competition. Equally, athletes can avoid failure in training and/or competition. The common ground for both the success strivers and failure avoiders is that they are both driven by sport achievement motivation but from different angles. Whether an athlete succeeds thanks to failure avoidance or success-striving drives; the end destination is a success (Holden et al., 2019). This also has fully answered research question No 2 about those athletes' motivational

drive profiles.

What is more, out of the 14 statements the athletes agreed on, 8 are categorized in the MST dimension. So, the Approach-Success in Training (MST) motivation dimension is dominant, irrespective of sport, gender or country factors. This also fully answers research question No 3 "Which Sports Achievement Motivation dimension is dominant for the Bujumbura and Yogyakarta cities' Taekwondo and Karate athletes?" as with such profiles, one can see that the Approach-Success in Training (MST) motivation dimension related items are the ones mostly agreed by the sample athletes, irrespective of sport, gender or country factors.

Although the Bujumbura or Yogyakarta Taekwondo and Karate athletes' achievement motivational profiles are clear, further analyses are needed. Coaches should be also aware of the classic findings by (Hannan et al., 2019). Those researchers found out that athletes may be driven by a positive achievement motivation in training while not liking competitions; they may feel negative about the competition (Hannan et al., 2019).

Research question No 4 was formulated as follows: "What are the Bujumbura and Yogyakarta cities' Taekwondo and Karate athletes' agreement levels in terms of the existence of achievement motivation driving them?" By selecting certain items from the Sports Achievement Motivation Scale, the athletes implicitly agreed on the existence of a motivational drive attached to the martial arts they practice. That is why it is also crucial to categorize those athletes' overall Sports Achievement Motivation level.

By addressing the unique motivations of their athletes, the coaches would succeed in leading their athletes to success and meaningfulness in coaching those martial arts disciplines.

Conclusion

To conclude, there are four key findings in this research: 1) There are varying sports achievement motivational drives for the Taekwondo and Karate martial artists sampled in Bujumbura and Yogyakarta. Statistically significant differences between those two martial arts disciplines were observed, irrespective of the country and gender factors. 2) Motivational drives to commit to a particular martial arts discipline among male and female athletes were found to be different too, irrespective of the country factors. Some pairwise comparisons displayed statistically significant differences. 3) Irrespective of the country factor, the sampled Taekwondo and Karate athletes' motivational profiles were dominantly of the Approach-Success in Training (MST) nature as, out of the 14 the athletes agreed on, 8 are categorized in that MST dimension. 3) In overall, the sampled Athletes from Bujumbura (Burundi) and Yogyakarta (Indonesia) cities "Agreed" to have a given Sports Achievement Motivation behind the commitment or dedication to the martial arts discipline they practice. This is a great hint that coaches of those martial arts disciplines should consider more motivational profile centred-coaching to foster their martial

artists' training and/or competition success. As a recommendation, further studies should consider redoing content validity through expert judgement for data collection tools resulting from the adaptation of those widely used.

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