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The sky is the limit: a motivation and event attribute typology of trail runners

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ABSTRACT

Trail running is currently one of the world's fastest-growing running categories. Unfortunately, limited research has focused on trail running as part of sport tourism. Therefore, this research segmented athletes based on their motives to participate and the event attributes they seek when choosing a trail running event in South Africa. An online questionnaire was developed and shared on the social media platforms of the SkyRun event, and 131 responses were obtained. The factor analysis revealed respectively five motives and trail attributes as the segmentation bases. The cluster analysis revealed three distinctive segments (the "all-in" trail finders, "stand-out" trail finders and "trail friend" finders). Each of these segments is extremely viable to consider by both event organizers and destination marketers. The results can help event organizers, and destination marketers develop cost-effective marketing strategies to attract and retain each segment.

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Trail runners; market segmentation; event attributes; participant motives; endurance sport tourism; South Africa; event management and marketing

1. Introduction

As an outdoor sport, trail running offers a unique experience derived from the landscape's genuineness and the simplicity of enjoying nature while challenging one's mind and body (Perić & Slavić, 2019). Trail running appeals to both elite and amateur runners despite the need for considerable commitment and lifestyle adaption in terms of training, work schedule, healthy lifestyle, and personal life. Trail races are organized in a self-sufficient or partially self-sufficient formula, meaning that the runner needs to be independent between aid stations in terms of clothing, communication, food and drink. Trail runners are a fascinating target group for destinations and are regarded as the new active sport tourists who can help counteract seasonality (McKay

et al., 2019). According to World Athletics, trail running has been one of the world's fastest growing sports, with an estimated 20 million participants since 2010. From 2013 to 2019, ITRA [International Trail Running Association] recorded more than 25,700 races in 195 countries with nearly 2 million competitors, a testament to its enormous success (Plard & Martineau, 2021). Trail running events belong to a fast-growing segment of so-called non-elite events and offer high potential for regions (Hodeck et al., 2018). Chalip and Costa (2005) believe that these events bear the potential to become brand extensions of a destination.

The most prevalent type of trail running is mountain running, of which skyrunning is a popular category. The technical definition of skyrunning is the following: "[It is] an extreme

sport of mountain running above the elevation of 2,000 metres, where the incline exceeds 30% and climbing difficulty does not exceed 11 degrees" (Rodríguez-Marroyo et al., 2018, p. 60). Skyrunning has expanded worldwide, with races taking place in the Himalayas, mountains in Africa and North America. Despite the popularity of trail running, specifically skyrunning, it, unfortunately, comes with built-in growth limitations. A skyrunning event cannot allow thousands of people on a single track in the mountains. Smaller numbers of participants lead to big-name brands turning away from trail events sponsorship, leading to budget constraints for trail running event organizers (Doke, 2017). Perić and Slavić (2019) researched two trail events in Croatia and found that both event organizers mentioned that the races are not currently sustainable, as fees and smaller sponsorship cannot always cover all the costs involved.

Furthermore, the substantial increase in trail running events has led to poor organization, last-minute cancellations and the trail being a secondary objective when the event is organized (Doke, 2017). Added to these challenges is a lack of knowledge about these small-scale events (Kaplanidou & Gibson, 2010), trail runners, and the sport in general (Getz & McConnell, 2014). Event organizers must know the key components contributing to a satisfying event experience (Larson & Won, 2012; Perić & Slavić, 2019). Identifying event attribute preferences and how these preferences vary across potential participants' degrees of sport involvement and behaviour can guide managers and marketers in event design and promotion (Larson & Won, 2012).

The aforementioned is especially vital during the current coronavirus pandemic. The coronavirus (COVID-19) rapidly expanded worldwide, and in March 2020, the WHO declared it a pandemic (Scheer et al., 2021). In order to reduce the spread of the virus and decrease the pressure on health care facilities, countries around the world implemented travel

restrictions, closed borders, and imposed local and national lockdowns of varying degrees (Scheer et al., 2021). Unfortunately, these measures resulted in numerous cancellations of outdoor running events and series around the world. For example, in 2020, the Ultra-trail World Tour did not award a title and both the Golden Trail World Series and Skyrunning World Series were cancelled. Though all the repercussions of this pandemic are unknown, the impacts will certainly have to be considered since they could cause the permanent cancellation of some sport events (Plard & Martineau, 2021).

Especially, considering trail and ultra-endurance running events as a whole, the vast majority of races are smaller events (e.g. the Al Andalus Ultra Trail in Spain or the Isle of Wight Ultra Challenge in the UK) with fewer participants and less revenue at individual races; nevertheless, they represent an integral part of the sporting community and the wider sporting tourism branch (Scheer et al., 2021). In addition, companies such as Asics and Strava and event organizers have created digital solutions that offer virtual challenges or races. These "phygital" events allow runners to participate from home or close to home. Another striking phenomenon for trail running is the renewed interest in the practice of so-called "Off" or "FKT" (fastest-known time) challenges originating from lockdown. These challenges represent record-setting attempts on long-distance hiking (LDH) trails or the creation of new running routes in the great outdoors (Plard & Martineau, 2021). Nevertheless, the combination of the COVID-19 pandemic and the ongoing climate crisis have jeopardized the development of this discipline (Plard & Martineau, 2021).

Considering the challenges mentioned above in terms of limited participant numbers and revenue, and the implication of the COVID-19 pandemic and filling the gap in the current literature regarding the trail running market, the purpose of this exploratory research is to apply market segmentation in order to profile

skyrunning participants in South Africa. This research applies a multi-segmentation approach and segments trail runners based on their motives and the trail and event attributes participants regard as important when selecting a trail running event. The research also includes participants' socio-demographic and behavioural characteristics to identify and profile the different segments.

Segmentation divides a heterogeneous market into smaller, more homogeneous markets (Kotler et al., 2009) that are usually distinguished by their consumer needs, characteristics, and behaviour (Kotler et al., 1993), allowing event organizers to maximize their investment by targeting the most desirable and profitable segments (Perdue, 1996). As one of the primary data-driven approaches to grouping tourists into distinctly discernible typologies, psychographic segmentation is based on idiosyncratic and subjective variables such as perceptions, beliefs, values, and attitudes (Pesonen, 2012). Thus, psychographic variables may be considered more effective and practical for marketers than other conventional segmentation bases. They reflect "personality nuances" that better explain the heterogeneity in consumers' affective and conative behaviour(s) (Barry & Weinstein, 2009). Hence, the application of psychographic segmentation in this research.

The authors argue that their sport-motivation pushes participants and they are pulled to an event because of certain features. Therefore, knowledge of the factors that draw participants to an event is critical for managing and marketing events and is acknowledged as a critical research area for academic researchers and event practitioners (see, e.g. Allen et al., 2008; Tkaczynski & Rundle-Thiele, 2011).

2. Theoretical background and literature review

The research's conceptual framework is illustrated in Figure 1 and the indicated elements guide the rest of the discussion.

2.1 Small-scale sport events and participants

When looking at this study's context, it is clear that trail running events can only accommodate a small number of participants due to infrastructure restrictions; therefore, these events can be classified as small-scale sport events [shown in the centre of Figure 1]. According to Giampiccoli et al. (2015), small-scale events have more value for the development of a country than larger events, seeing that these events take place on a much more regular basis and are not as reliant on public funding. These events are also less vulnerable to global economic downturns, as they attract a niche market of regular international and local participants and spectators.

Knowing that small-scale sport events are of great importance to a country's economic development, it is important to understand who the trail running participants are [Figure 1]. Since participants' motivation and the factors that push them to participate are linked closely to their socio-demographic and sport participation behaviour, and consequently, their event selection (pull attributes), the literature related to these aspects are provided. In addition, research questions (RQs) are provided, guiding the discussion of the results.

2.2 Push-and-pull attributes in a sport context

From a sport business management perspective, it is essential that service providers (i.e. sport event organizers) consciously approach all tangible and intangible elements of a sport tourism product, which (in the case of the present research) consists of the event and its level of importance for the participants (Perić & Slavić, 2019). In the social psychology of recreational travel research done by Iso-Ahola (1980, 1983), the author highlights that with leisure behaviour in general, recreational

travel is a dialectical optimizing process, in which two forces simultaneously influence a person: the desire to leave the personal and interpersonal environment behind oneself and the desire to pursue or gain certain personal and interpersonal rewards. When attempting to link tourism and sport motives with destination choice, Dann (1977) and Crompton (1979) propose using a push-and-pull approach that analyses how destination attributes reinforce a traveller's core socio-psychological motives to travel.

Push motivations are a tourist's internal or emotional factors, whereas pull motivations are the external, cognitive or situational factors (Gnoth, 1997). Research on intrinsic motives is rooted in two prominent theories: the self-determination theory (Ryan & Deci, 2000) and the flow theory (Nakamura & Csikszentmihalyi, 2014). Extrinsic motives are usually related to awards, recognition and prize money that, along with participants' intrinsic motives, "push" them towards a specific event. In this regard, Figure 1 shows that participants are simultaneously pushed and pulled towards an event. Therefore, the study aims to determine: *RQ1: What are the push and pull motives of trail runners?*

There are, however, additional "pull" aspects that can attract participants to select an event. In this research, these aspects

include the trail and event management features of the event. Intuitive behaviour is an important feature of how a consumer analyses a product or service's distinct characteristics to decide whether to purchase/consume. A sporting event setting would also lead to similar decision-making (Larson & Won, 2012). Therefore, it becomes important to look at event attributes as event preference choice variables (shown on the far right of Figure 1). The reason for this is that the event manager might have control over at least some of the event attributes that could significantly influence potential participants in deciding to take part in the event (Harrison-Hill & Chalip, 2005; Larson & Won, 2012). The terrain, route and character of the race all have considerable variability and can be adapted per the event promoter's choices, for example, where the event is usually located and then changing the locality to be in closer proximity to the main targeted segments (Buning & Gibson, 2016b).

Larson and Won (2012) point out that event managers can also choose the structure of their races' incentives and prices; this can be done through the type and size of the price offered or the affiliated types of events/championships. The authors state that when an event manager chooses the event characteristics, it can align with the participants' preferences and attract

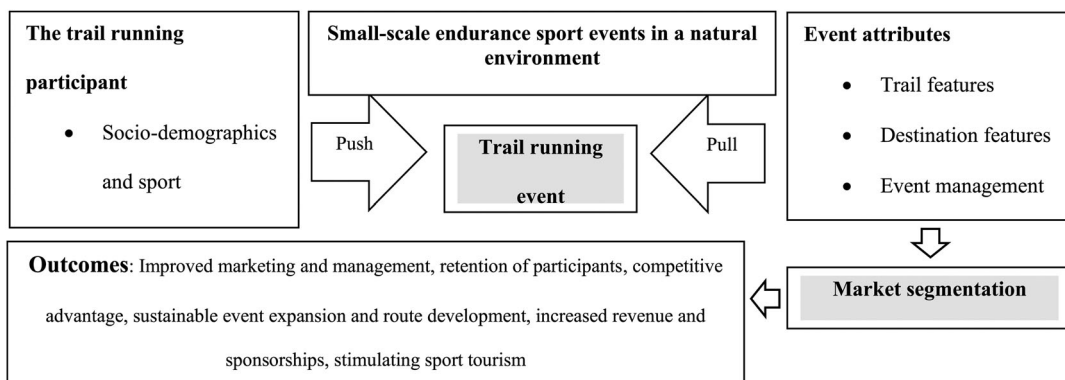


Figure 1. Conceptual framework for the research. Source: Developed by the authors.

more participants; simultaneously, it will maximize participant fee revenue and create a more attractive event to sell to potential sponsors.

According to Perić and Slavić (2019), distinct event attributes can be considered the building blocks of a sport event's business model and contribute to its value and success. Therefore, the sport event experience is conceptualized mainly by considering event attributes/preferences, service quality, event satisfaction and behavioural loyalty (see, e.g. Buning & Gibson, 2016a, 2016b; Newland & Aicher, 2018; Yoshida, 2017).

The attributes mentioned above are closely related to the trail attributes. As trail running events are distinct in that they mainly occur in the natural environment, the connection between participants and nature will most definitely play a role. Many authors have agreed that the natural environment can be seen as a physical resource that sport and tourism share intensively and as an attraction in its own right (see Han et al., 2015; Hinch et al., 2016). Although the event is paramount to the decision-making process, the combination of the event and destination attributes can be the determining factor when choosing a sport event (Getz & McConnell, 2014). Subsequently, the second research question for this research paper is, *RQ2: What are the trail and event attributes trail runners consider when selecting an event?*

However, it is essential to remember that considerable market intelligence is required to create and sustain (ideally profitable) sport events. Therefore, one facet of an event can take precedence over another, making it important to develop an improved understanding of the characteristics that differentiate active sport tourism segments. For this reason, from a demand perspective, it is essential to recall that sport tourism participants are not a homogeneous group of people with comparable motivations, especially in a natural area where trail running occurs that delivers a wide range

of physical, psychological and social benefits (Stewart et al., 2003).

2.3 Trail runners' characteristics and traits

According to Mowen et al. (1998), trail users have many things in common, but, at the same time, differences also exist based on their characteristics and preferences. Table 1 summarizes the characteristics, motives, event, and trail attributes relevant to trail runners as found in the literature.

Table 1 shows that trail runners resemble specific socio-demographic characteristics and definite participation motives. Due to the events' distinct nature, specific event and trail running attributes and destination attributes are also deemed important. However, these athletes also regard specific push-and-pull attributes as unimportant and event, and destination managers need to be aware of them.

Concerning market segmentation of trail runners, Hungenberg et al. (2016) segmented active sport tourists according to their social-psychological motives and identified the following three segments: *the sport tourism enthusiast group* (to whom both sport- and tourism-related motives are important); *the travel-orientated group* (to whom travel exploration and destination attributes are important), and *the sport-oriented group* (to whom participation, to master a skill, is important, but tourism-related motives such as destination attributes are less important).

Bichis-Lupas and Moisey (2001) identified four types of participants based on a benefits segment approach, namely the *fitness seekers* (mostly males interested in exercise and health benefits), the *typical trail users* (interested in both fitness and nature and appreciate all outdoor activities available), the *group naturalists* (place more value on the trail from a nature appreciation perspective than from an exercise perspective) and the *enthusiasts* (the largest segment who rated all aspects

Table 1. Previous research on trail runners.

Trail runner characteristics	Findings	Authors
Socio-demographic characteristics	Participants are better educated, have higher income levels, are male, relatively young to middle-aged, and prefer to travel with others. In addition, they tend to adopt a healthy lifestyle and are wage earners who have finished university and reside in the same province where the event takes place.	Bichis-Lupas and Moisey (2001); Nelson et al. (2002); Perić and Slavić (2019); Torbidoni et al. (2015)
Motivation to compete	Trail runners motivated by nature spend less money than those motivated by other motives. They tend to spend more than other tourists on food but less on accommodation. The experience in and the perfection of nature are paramount, not the finishing line. They seek adventure. Participants run for relaxation and a way to get exercise. The primary motivation is not about prizes/awards but self-achievement and enjoying the natural environment. Trail runners see it as a personal challenge. They do it for enjoyment, relaxation, to disconnect, and to maintain or improve physical fitness. They prefer to participate in sport in the natural environment and see trail running as a personal challenge.	Cordente-Rodríguez et al. (2014); Perić et al. (2019) Robillard (2014) The Outdoor Foundation (2010) Perić and Slavić (2019) Getz and McConnell (2014) Farias-Torbidoni et al. (2018)
Sport participation	Trail running increases in participation among the youth as they age. They are likely to participate in multiple outdoor activities, e.g. road running, day hiking and cycling.	Getz and McConnell (2014)
Event attributes	Participants prefer a well-organized event, a scenic, interesting route, and ample event-related information presented on a user-friendly website. Entry fees and social considerations (entertainment), prize money, the size or exclusivity of the event, gifts, media attention and major sponsors are unimportant attributes. They prefer specific physical and landscape characteristics, e.g. beautiful landscapes (natural and rural), natural beauty, scenic variety, historical and cultural features, route length and nearness to cities. The degree of difficulty is essential. Safety is also important. Trail runners prefer specific surface characteristics such as elevated relief, challenging topography, hilliness or other drastic changes in elevation. Difficult terrain can discourage trail users or draw them to a specific trail. Good-quality signage is important. Ablution facilities and drinking fountains are also necessary. Available routes, accessibility of the destination and offered accommodation are important. Participants prefer favourable weather conditions and available travel packages. However, its image as a world-class city or destination is unimportant.	Getz and McConnell (2014) Timothy and Boyd (2015) Torbidoni et al. (2015) Buning and Gibson (2016a) Starnes et al. (2011) Starnes et al. (2011) Nelson et al. (2002) Beritelli et al. (2014) Getz and McConnell (2014)

Source: Compiled by the authors, based on the literature

important, including nature, fitness, getting away, exploring and family time).

Hodeck et al. (2018) identified three segments, namely the *sport-orientated trail runners* (interested in trail running, travel long distances and spend the most money at the destination), the *want-it-all runners* (highly motivated by all aspects), and the *health-orientated trail runners* (the oldest, and are motivated

by the regeneration factor and a healthy lifestyle).

By identifying the unique characteristics of trail runner segments, this research will better equip event managers with the information necessary to tailor event elements that will enhance participant satisfaction and lead to higher retention. The last research question this study aims to answer is, *RQ3: Can a typology*

of trail runners be identified through market segmentation based on participants' motives and important trail and event attributes? Moreover, a competitive and successful event will help ensure the tourism destination's economic stability over time. If events and destinations identify and adhere to their niche consumers' needs, more accurately designed event elements, organizational processes, and marketing communication content can be delivered, leading to competitive events (Hungenberg et al., 2016).

3. Methodology

The K-Way SkyRun is one of the most challenging trail runs in South Africa. Participants can choose from three distances, including 38 km, 65 km and 100 km, during which athletes need to navigate and self-support themselves through various checkpoints on the route (Kuschke, 2014). The event's biggest challenge is that it is only one of few races where the route is unmarked and unsupported, making it a must-do run. The K-Way event is held annually in Lady Grey in the Eastern Cape Province of South Africa, and entries are limited to 250 athletes. This event was the case study in the research.

This research was quantitative, and a structured online questionnaire was used to collect the data. Section A focused on the demographic details as well as spending behaviour. Section B measured the number of trail events athletes participate in, whether they visit tourist attractions in the area, their preferred sport category, the type of athlete trail runners classify themselves as, the training hours, and trail running travel behaviour. Section C measured 30 motives for participating in the SkyRun on a 5-point Likert scale of importance (where 1 represents "not important at all" and 5 "extremely important") and was based on the research summarized in Table 1. Finally, section D measured 27 event attributes

trail runners seek when choosing an event on a 5-point Likert scale of agreement (where 1 represents "do not agree" and 5 "totally agree"). The statements were based on the research done by Getz and McConnell (2014) and Hungenberg et al. (2016).

It was impossible to conduct a destination-based survey, because participants usually register online and only arrive at the starting point a few hours before the event starts. SkyRun participants can, therefore, be regarded as a hard-to-reach target market. So instead, a convenience snowball sampling method was used to gain access to the participants. An electronic survey was developed in Google Forms, and the questionnaire's link was shared on The SkyRun's official Facebook page, which has over 6 400 followers. Posting the link on the events' Facebook page was the most effective way to reach participants, as it can be assumed that those who follow the page have participated in the race previously.

The survey was hosted online from 14 June to 16 July 2018, and 131 participants completed the survey. The race can only accommodate 250 participants; therefore, according to Krejcie and Morgan's (1970) formula, for a population (N) of 250, a sample of 152 respondents would be representative and could consequently validate the results. The authors acknowledge the limitation of an unrepresentative sample; however, since this is exploratory research, the results are nonetheless considered relevant and significant to consider.

3.1 Discussion and results

The data were exported to Microsoft Excel[®] and analyzed by using SPSS Version 26 (2019).

3.1.1 Profile of the respondents

Descriptive statistics were used to profile the respondents. As shown in Table 2, most of the respondents were educated with either a

diploma or degree (34%) or a post-graduate qualification (30%), male (81%), English (55%) or Afrikaans-speaking (42%), more than half (54%) of the participants was between 35–49 years of age, and the average age was 39 years. Respondents were from either Gauteng

(40%) or the Western Cape (24%) provinces. On average, respondents travelled in groups of three people, arrived one day before the event and stayed two days in the area after the race. Most of the respondents participated in the SkyRun 100 km (89%) and spent on

Table 2. Profile of the respondents.

Demographic profile	Participants 2018
Gender	Female (19%); Male (81%)
Age	< 19 years (0%); 20–24 years (3%); 25–34 years (29%); 35–49 years (54%); 50–64 years (13%); 65+ years (1%) Average: 39 years
Marital status	Married (67%); Single (13%); In a relationship (8%); Divorced (5%); Engaged (4%); Living together (3%)
Home language	English (55%); Afrikaans (42%); Other (3%)
Province of residence	Gauteng (40%); Western Cape (24%); Free State (9%); KwaZulu-Natal (8%); North West (6%); Mpumalanga (5%); Northern Cape (2%); Eastern Cape (1%)
Annual gross income	>R772 001 (32%); R305 001 – R431 000 (15%); R552 001 – R672 000 (12%); R140 001 – R221 000 (11%)
Level of education	Diploma, degree (34%); Post-graduate (30%); Professional (21%); Matric (15%)
Economic profile	
Number of people in the travelling group	Average: 3.27 people
Entry details	Skyrun 100 km (89%); Skryrun 65 km (8%); Skryrun 38 km (3%)
Number of days arrived before the event	Average: 1.42 days
Number of days staying in the destination after the event	Average: 1.68 days
Expenditure per group	Average: R17 905.30 (\$1204)*
Event participation behaviour	
Number of years competitively participating in trail running	Average: 4.81 years
Number of trail running events participating in per year	Average: 3.47 events
Heard about the event (marketing channels)	Word-of-mouth (94%); Event website (71%); Facebook (64%); Magazines (61%)
(Percentages for Yes indicated).	
Participation involvement	
Training per week	8–12 h (49%); 4–8 h (37%); More than 12 h (9%); Less than 4 h (5%)
Participant classification	<i>Beginner</i> (I have always been physically active, but I have only recently started participating in competitive trail running events. I plan to progress on the endurance ladder and participate in a variety of trail running events.) = 3% <i>Average athlete</i> (I would not consider myself a serious athlete, but I strive to do my best or reach a higher level of fitness. I occasionally take part in competitive trail running events.) = 21% <i>Obstacle challenger</i> (I only participate in extreme events such as obstacle courses or events that challenge me and push me to my limits.) = 5% <i>Fitness participant</i> (I participate in trail running events to help me achieve weight loss goals or to get in shape.) = 9% <i>Social participant</i> (I participate in events to have fun, for charity or to spend time with friends, family, colleagues and other participants.) = 0% <i>Intermediate athlete</i> (I have been taking part in competitive events for a few years and I now want to progress to more challenging events and disciplines. I am working towards attaining the goals I have set for myself.) = 35% <i>Hard-core athlete</i> (I consider myself a serious/professional athlete. I train intensively for the events I participate in, aiming to set my personal best or even win the event.) = 14% <i>Veteran athlete</i> (I am an older athlete. I have been participating in trail running events my whole life. I keep on participating because it gives me self-fulfilment and is part of my lifestyle.) = 24%

*1USD = R15.

average R17 905,30 (\$1,204) participating in the race. Based on the 2018 participant figures (250 completed), 53% participated in the 100 km, while 40% participated in the 65 km and 12% in the 38 km race categories. This could explain the high percentage of 100 km participants in our survey. Furthermore, respondents indicated that they had already participated competitively in trail running for five years and ran in an average of three events per year. Regarding participation involvement, respondents said that they train between 8-12 h a week (49%) or between 4-8 h a week (37%) and regard themselves as *intermediate* (35%), *average* (20%), or *hard-core* (14%) athletes. The profile characteristics are supported by previous research that focused on trail users (see Table 1). The results also support the notion that trail runners increase their participation as they get older (Getz & McConnell, 2014). When analyzing the participants' behaviour, it becomes clear that trail runners have a high level of involvement with their sport, which is clear from their higher average spending, high training levels, the distance category that the majority of participants selected (100 km), and the number of events these participants take part in annually.

3.1.2 EFA results (segmentation variables)

Exploratory principal component factor analyses (EFA) were performed on the motivation and trail and event attributes items. An oblimin rotation with Kaiser normalization was done to improve each factor structure's interpretability. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to determine whether the covariance matrix was suitable for factor analysis. A KMO value above 0.7 is deemed acceptable, and Bartlett's test of sphericity should be significant (i.e. a significance value of less than .05). Kaiser's criteria for extracting all factors with eigenvalues larger than one were used, and all items with a factor loading greater than 0.3 were considered contributing to a factor. All factors with a reliability

coefficient above 0.6 and average inter-item correlations between 0.15 and 0.55 were considered acceptable in this study (Cohen, 1988). Mean values were calculated as the average of all items contributing to a factor.

The first EFA identified five motives for participating in trail running [Table 3] (RQ1). *Personal and environmental challenge* ($M = 4.17$) is the most important motive to participate, followed by *mental and physical benefits* ($M = 3.42$), *socialization and group identity* ($M = 3.32$), *performance advancement* ($M = 3.32$), and *pride and prestige* ($M = 3.19$).

It is vital to identify distinct attributes (e.g. the SkyRun is self-supported and self-navigational) and highlight them in the event's marketing to give the event a competitive advantage and attract and retain participants (RQ2). The EFA extracted five factors [Table 4]. *Trail features* ($M = 3.42$) is the most important attribute when selecting a trail running event, followed by *trail and event management* ($M = 3.10$) and *event and destination features* ($M = 3.05$). *Affordability* ($M = 2.92$) and *event status* ($M = 2.03$) are regarded unimportant attributes.

3.1.3 Results of the cluster analysis

An exploratory cluster analysis was performed in Statistica on the motives [Table 3] trail and event attribute factors [Table 4]. A three-cluster (segment) solution was the most discriminatory [Figure 2]. Although there is no rule of thumb regarding cluster sample sizes, the number of respondents per cluster was meaningful (Sarstedt & Mooi, 2019).

ANOVAs with Tukey's HSD tests indicated that all five motives and trail and event attribute factors contributed to the differentiation between the three segments ($p < 0.05$) with large effect sizes differences ($d > 0.8$) [Table 5]. The segments were labelled to resemble each segment's ratings of the motives and trail and event attributes they deem important to create a typology of trail runners (RQ3). Each segment's socio-demographic, trail running

Table 3. Results of the factor analysis on motives to participate.

Motives to participate	Factor 1: Personal and environmental challenge	Factor 2: Mental and physical benefits	Factor 3: Socialization and group identity	Factor 4: Pride and prestige	Factor 5: Performance advancement
It is a personal challenge	0.870				
To test my level of fitness and endurance	0.825				
For the adventure of it	0.755				
To explore the environment and see new things	0.754				
To make me physically stronger	0.752				
To test my skills against nature, others and myself	0.752				
I have fun while participating	0.741				
To reconnect with nature	0.674				
It is stimulating and relaxing	0.650				
To escape and relax	0.520				
Because trail running is less strenuous on my body compared to road running	0.403				
To improve my navigation skills		0.808			
To feel independent		0.727			
Because trail running is a spiritual experience		0.675			
Because of the risk involved		0.563			
To ease my breathing		0.545			
To feel mentally in control of my body		0.502			
I do it annually		0.417			
To socialize with other trail runners			0.778		
To share a group identity with other trail runners			0.751		
To compete against others			0.523		
To earn respect from peers				0.513	
To make my family and friends proud of me				0.754	
To improve my self-esteem				0.679	
To feel proud of myself				0.601	
To improve my previous time and speed					0.700
To improve my running time					0.601
To prepare for other events					0.330
Reliability coefficient	0.94	0.84	0.73	0.78	0.64
Average inter-item correlation	0.59	0.43	0.48	0.47	0.37
Mean value (M)	4.17	3.42	3.32	3.19	3.32

* KMO: 0.89; Bartlett's test of sphericity was significant [$\chi^2 (378) = 2601.08, p < 0.05$]; 66% of the total variance explained.

and spending behaviour were also used to support the descriptive labels (typology). Average age ($p = 0.003$; medium effect size differences between Segment 1 and 2 and 3, $d = 0.60$, respectively) was the only socio-demographic variable that indicated a statistically significant difference, whereas the number of non-competitive trail running events

participated in per year ($p < 0.055$; medium effect sizes) was statistically significant at a 10% level of significance. Since the motives and trail and event attributes are the segmentation bases, these variables are listed first in Table 5, followed by each segment's socio-demographic, trail running and spending behaviour characteristics.

Table 4. Results of the EFA on trail and event attributes.

Trail and event attribute statements	Factor 1: Trail features	Factor 2: Event status	Factor 3: Affordability	Factor 4: Trail & event management	Factor 5: Event & destination features
The self-supported and self-navigational element of the event	0.902				
The trail's technical attributes	0.816				
Many natural features	0.587				
Exclusiveness and limited entries	0.562				
Trails on various elevations	0.396				
An attractive location and exciting course	0.377				
Incentives and prize money		0.850			
Media exposure of the event		0.813			
Competing against well-known (famous) trail runners		0.752			
Loyalty programme		0.685			
Event sponsor(s)		0.579			
Difficulty of qualifying for the event		0.434			
Travel costs			0.906		
Affordability of event registration			0.871		
Proximity of the event to my home city or town			0.812		
Well-organized checkpoints on the trail				0.781	
User-friendly event website				0.652	
Well-maintained trail				0.619	
Accessibility of the event (e.g. available information and easy registration process)				0.576	
Assistance with travel arrangements				0.474	
Climate and altitude of the event location					0.848
Many things to do and see at the destination					0.691
Various distance categories					0.677
Providing a new experience every time					0.526
Weather conditions					0.427
The event's reputation					0.311
Reliability coefficient	0.85	0.86	0.87	0.83	0.78
Average inter-item correlation	0.46	0.52	0.69	0.50	0.38
Mean value (M)	3.42	2.03	2.92	3.10	3.05

* KMO: 0.85; Bartlett's test of sphericity was significant [$\chi^2 (351) = 2086.72, p < 0.05$]; 63% of the total variance explained.

3.1.4 A typology of trail running participants

Based on Table 5, Segment 1, was labelled the "All-in" trail finders since this segment's characteristics and overall higher ratings imply they are serious competitors. This was second largest segment with 44 respondents and this segment rated all the trail attributes the highest. The "All-in" trail finders are the youngest (average of 36 years) train the most hours per week, participate in the most non-competitive and competitive trail running events a year, have been participating competitively in trail

running the longest and also arrive the most days at the destination before an event to prepare. Overall, this segment has higher average spending, making it a very lucrative market. Moreover, they spend more on club membership and equipment and gear than the other two segments' members. Regarding their motives to participate, this segment again rated all five motivational factors the highest. Similar to the EFA results, *personal and environmental challenge*, followed by *mental and physical benefits* and *socialization and group identity*, is their primary motives.

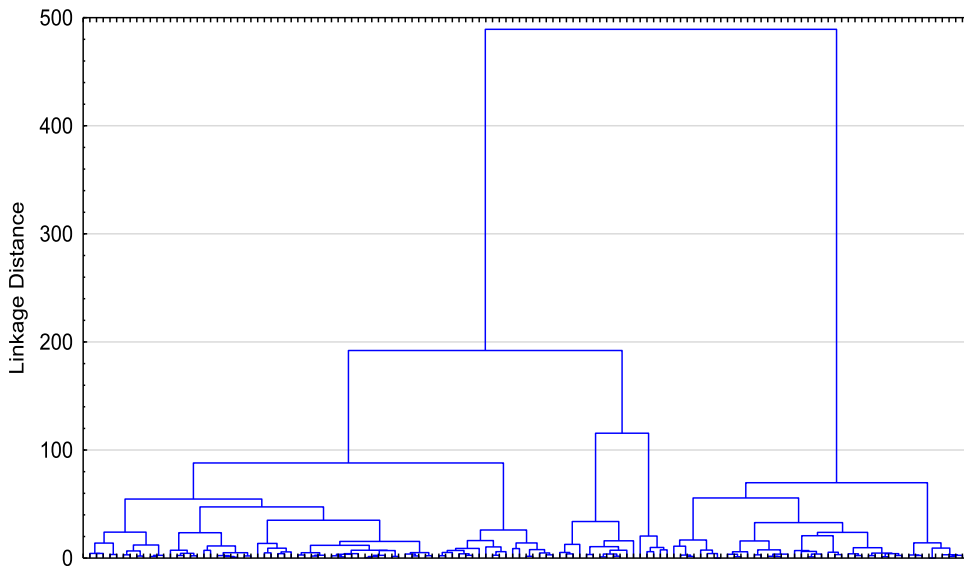


Figure 2. Three-segment (cluster) solution: Ward's method with squared Euclidean distance measures. Source: TIBCO Statistica Version 13.6.0 (2019).

The most important attribute was *trail features*, followed by *trail and event management* and *event and destination features* like the EFA results.

Segment 2, with 17 respondents, is the smallest. This segment's members are scaling down on their competitive trail running participation and, instead, seek events to participate in for fun, especially the socialization associated with participation. Therefore, this segment was labelled the "*Trail friend*" finders. The "*Trail friend*" finders travel in the largest group sizes (average of 3.35 people), supporting their desire to participate with friends. Furthermore, these runners are the oldest, train the fewest hours per week, and compete in the fewer competitive trail running events a year, even though they have been competing in trail running an average of four years. They have the highest average spending in terms of their spending behaviour compared to the other two segments and spend significantly more on event registration, making them another very lucrative segment to attract and retain. They had the lowest mean values for all five

motives, and the trail and event attributes were also rated much lower than the other two segments. *Personal and environmental challenges* were also their main motive; however, *socialization and group identity* were their second-most important motive and *pride and prestige* were their third motive, unlike the other two segments' preferences. Unlike the other two segments, *trail features* was not the most important attribute. Instead, they regard *affordability* and *event and destination features* as more important. They, therefore, seek a different set of attributes when selecting an event.

Segment 3 is the largest segment, with 70 respondents. This segment's runners seek appealing and attractive events to improve overall performance and were labelled the "*Stand-out*" trail finders. Regarding their socio-demographic and behavioural characteristics, the "*Stand-out*" trail finders also travel in larger groups and, like the "*Trail friend*" finders, also participate in fewer competitive trail running events a year even though they have been participating competitively the

Table 5: Results of ANOVA and Tukey's post hoc multiple comparisons for identified trail runner segments based on segmentation bases, socio-demographic, behavioural and spending behaviour

Segment characteristics	Segment 1: "All-in" trail finders N = 44	Segment 2: "Trail friend" finders N = 17	Segment 3: "Stand-out" trail finders N = 70	F-ratio	Sig.level	Effect size differences (d) [†]		
						1&2	1&3	2&3
Motives to participate								
<i>Personal and environmental challenge</i>	4.55 ^a	2.85 ^b	4.24 ^a	52.371	0.001*	1.31	0.75	1.07
<i>Mental and physical benefits</i>	3.90 ^a	2.18 ^b	3.41 ^c	47.252	0.001*	2.02	0.79	1.45
<i>Socialisation and group identity</i>	3.89 ^a	2.76 ^b	3.10 ^c	18.658	0.007*	1.04	0.96	0.31
<i>Pride and prestige</i>	3.82 ^a	2.60 ^b	2.93 ^b	25.556	0.001*	1.10	1.32	0.29
<i>Performance advancement</i>	3.74 ^a	2.53 ^b	3.24 ^c	15.643	0.004*	1.16	0.62	0.69
Event and trail attributes								
<i>Trail features</i>	4.05 ^a	2.18 ^b	3.33 ^c	64.932	0.001*	3.25	1.21	1.92
<i>Event status</i>	2.83 ^a	1.28 ^b	1.71 ^c	46.176	0.001*	1.67	1.20	0.75
<i>Affordability</i>	3.53 ^a	2.43 ^b	2.65 ^b	17.775	0.001*	1.30	1.03	0.26
<i>Trail and event management</i>	3.85 ^a	1.95 ^b	2.91 ^{xc}	47.986	0.001*	2.26	1.23	1.14
<i>Event and destination features</i>	3.72 ^a	2.22 ^b	2.83 ^c	41.544	0.001*	2.23	1.32	0.94
Socio-demographic and behavioural characteristics								
Av. Age	35.50	41.47	41.10	6.049	0.003*	0.60	0.64	0.04
Av. group size	2.50	3.35	3.04	2.104	0.126	0.36	0.30	0.13
Av. no. of hours training per week	2.73	2.53	2.54	0.989	0.375	0.25	0.25	0.02
Av. no. of non-competitive trail running events annually	1.77	1.47	1.51	2.970	0.055**	0.48	0.43	0.07
Av. no. of competitive trail running events annually	3.64	3.47	3.37	0.555	0.576	0.12	0.19	0.07
Av. no. of years participating competitively	5.49	4.35	5.58	0.462	0.631	0.18	0.02	0.30
Av. length of stay (before event)	1.37	1.40	1.28	0.421	0.657	0.04	0.13	0.17
Av. length of stay (after event)	1.34	1.08	1.47	1.019	0.365	0.35	0.12	0.37
Av. spending [currency displayed in ZAR (1US\$ = R15)]								
Event registration	2304.76	4253.13	2721.23	2.063	0.132	0.31	0.14	0.24
Club membership	585.83	537.50	521.43	0.192	0.826	0.10	0.13	0.05
Nutritional products	1261.63	1683.33	943.75	1.875	0.158	0.22	0.18	0.38
Equipment and gear	3975.00	3346.67	3553.85	0.264	0.769	0.15	0.20	0.07
Sports clothes and accessories	2311.90	2476.67	2298.44	0.031	0.969	0.05	0.00	0.07
Return transport to the event	1826.83	1556.25	1916.13	0.478	0.621	0.19	0.06	0.28
Accommodation	2081.40	2756.25	1869.40	1.075	0.344	0.14	0.12	0.19
Medical services	2432.46	2430.00	2170.31	0.050	0.951	0.00	0.06	0.11
Total spending	15302.77	16367.65	13523.70	0.643	0.527	0.06	0.17	0.17

*Statistically significant difference: $p \leq 0.05$; *** Statistically significant difference: $p \leq 0.10$.

^aSegment differs significantly from another segment (in a row) where ^b and ^c are indicated.

[†]Effect sizes: small effect: $d = 0.2$; medium effect: $d = 0.5$ and large effect: $d = 0.8$ (Sarstedt & Mooi, 2019); 1 = Segment 1, 2 = Segment 2 and 3 = Segment 3.

longest (an average of six years), indicating that they are more selective when choosing events. They furthermore stay the longest at the event destination after an event. In terms of their spending, they have the lowest average spending but spend especially more on return transport, indicating that they are willing to travel further to participate in the event. This segment rated the trail and event

attributes lower than the "All-in" trail finders but higher than the "Trail friend" finders, which had the lowest ratings. Although this segment rated the motives *personal and environmental challenge* and *mental and physical benefits* similar to the "All-in" trail finders, they had a higher rating for the *performance advancement* motive. *Trail features* was the most important attribute, followed by *trail*

and event management and event and destination features.

4. Findings and implications

This research has the following significant findings and implications.

4.1 Distinct trail running motives

Regarding RQ1, it is essential to understand what motivates a participant, but it is even more crucial to match these motives with the corresponding attributes, as these are the aspects management and marketing teams of events can adapt and develop (Allen et al., 2008; Tkaczynski & Rundle-Thiele, 2011). Although challenge has been prevalent in previous endurance sport research, this is the first time respondents do not just want a personal challenge but want to test themselves against nature and have an adventure as part of the challenge. Previous motivation studies on trail runners focused more on self-achievement, personal challenge and enjoying the natural environment (Farias-Torbidoni et al., 2018; Getz & McConnell, 2014; Perić & Slavić, 2019). Therefore, the connection between the trail runners and the environment cannot be ignored by event managers.

4.2 Important trail and event attributes

In answering RQ2, the results show that trail running participants are simultaneously pushed and pulled towards an event. This is fundamental knowledge event managers and marketers must use when organizing and marketing their events. Trail runners are mainly pushed by *environmental challenge* and pulled by *trail features*. These factors are interlinked, and if specific attributes are adapted or added to the event, they will directly influence the runners' perception of whether their needs are fulfilled. In the case of the SkyRun, participants are pushed by personal challenge and

the need to explore a new environment and experience a certain sense of adventure.

On the other hand, they seek *trail features*. Event managers must ensure that the event is self-supported (for a personal challenge), the race takes part on a technical trail (for adventure), and the trail has many natural features (to explore a new environment). The current findings support Trauer and Ryan (2005), who believe that event location (i.e. destination) is a secondary consideration. For trail runners, the focus is less on the destination itself and more on the trail's technical and natural features, how the trail is maintained, and whether it is exciting and fun. This supports the notion that highly involved consumers search for more unique and self-fulfilling experiences and require special facilities (e.g. well-organized checkpoints) or natural settings (e.g. an exclusive trail and limited entries).

4.3 Attracting and retaining trail running segments

Motives and trail and event attributes are favourable segmentation bases, especially as Larson and Won (2012) mentioned that this would allow events to use each segment's attribute preference to develop distinct marketing plans and customize the event design. A typology of trail runners can therefore be proposed answering RQ3. Figure 3 summarizes the key characteristics of each segment.

The *"all-in" trail finders* segment is similar to Hungenberg et al. (2016) *"sport tourism enthusiasts"* and Hodeck et al.'s (2018) *"want-it-all"* segment. The authors also found that both sport and tourism-related motives were important to these groups. According to Park and Yoon (2009), as well as Konu et al. (2011), the 'want-it-all' tourists can be found in all studies dealing with (sport) tourists.

From an event attribute perspective, Bichis-Lupas and Moisey (2001) identified the *"enthusiasts"* in their trail running research and, similar to the *"all-in" trail finders*, they rated all

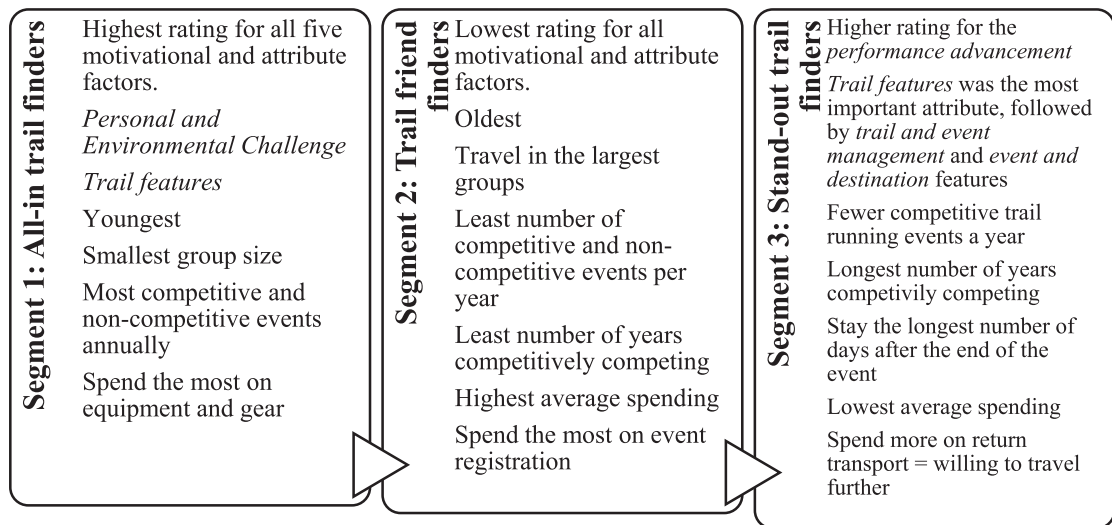


Figure 3. Trail-runner segment characteristics.

aspects of the trail important. Although it represents a relatively small group in the study, this segment is one of the most lucrative markets to be retained. This can be done in two ways, namely (1) creating “packages”, including accommodation as well as additional services such as training courses, discounts on equipment and gear, and medical support, as these initiatives can assist in increasing the duration of stay at the destination (Hodeck & Hovemann, 2016); and (2) offering loyalty programmes by creating an exclusive club to which these participants can belong if they return to the event a specific number of times or if they have completed a particular selection of events in one year (e.g. all the 100 km races).

Regarding the marketing of the SkyRun, this market can be retained and attracted by focusing on the trail details, in other words, highlighting the trail features in terms of distances, technicality, and elevation. It is important to point out challenges such as weather conditions, unmarked trails, and navigating oneself in the dark. Management teams need to design a new course annually to ensure that trail runners return each year; in the design, they need to focus on the technical difficulty, variety of natural features and

landscapes, and a trail that develops and tests a particular skill set.

The “stand-out” trail finder segment, is like the “fitness seekers”, identified by Bichis-Lupas and Moisey (2001). This segment’s members want to experience progress in their performance and are interested in exercise and the health benefits of participating in the trail. Events need to highlight the physical and mental benefits of participating in a trail running event (e.g. less strenuous on the knees, promoting mental strength and endurance, and eases breathing).

This segment is very selective when it comes to trail running events. Therefore, event marketers can persuade these participants by launching campaigns at other endurance events and exposing them to their distinct trail running event. Technology (such as virtual reality classes focusing on drone footage) can be employed for this purpose. In addition, marketing campaigns should focus on the unique features of the specific event that cannot be found at other events (e.g. waterfalls, snowy peaks). From a destination marketer’s perspective, it is essential to collaborate with event marketers and focus on the event destination’s unique attractions.

For the “*trail friend finders*”, both the sport itself and the event are essential, but evident from their higher rating of the socialization/ group identity motive is their need to participate in an enhanced social setting. This market is the most lucrative, and to ensure that these trail runners do not abandon the sport, event managers must develop categories and distances specifically for them to participate in a group format (e.g. relays/ teams of two). Event marketers can also design group packages with discounts for groups that travel together to save on accommodation and transport and pre- and post-event activities. This will motivate these participants to travel in larger groups, stay longer, and spend more.

5. Conclusion

This research segmented trail runners based on their motives to participate and the attributes of the events they regard as important when choosing a trail running event. The following conclusions can be made:

- The research contributes to trail running literature in a tourism context, particularly underdeveloped in South Africa and other developing countries.
- The research shows that the push-and-pull theory, developed by Dann (1977) and Crompton (1979), is still relevant, especially from a sport event perspective. By understanding what pushes a participant, an event organizer can link the corresponding pull factor and develop it as an event attribute, ensuring that both motivation levels are catered for at the event.
- Trail management is one of the most important aspects an event should consider, as the trail is just as important as the event itself. Therefore, keeping the trail in good condition and environmentally sustainable should be a high priority for all stakeholders (e.g. private landowners, local municipalities and event organizers). The results showed

that it is all about the challenge within a natural environment; therefore, if there is a degradation of the natural environment where the event is held, the trail runner will most likely decide not to return to the event.

- Trail running is a “destination event” (McKay et al., 2019), as the natural environment of the destination in which these events are hosted is critical. Therefore, it is essential that smaller towns and rural areas that do not have other tourism “draw-cards” realize that trail running is a cost-effective way of developing an attraction within that area (Perić et al., 2019). This is especially beneficial for South Africa, which has underdeveloped tourism potential in some of its provinces. By hosting trail running events, greater awareness of these provinces can be created; it can also lead to spin-off opportunities (e.g. hiking tourism) to contribute to local communities’ well-being. However, when developing new trail running events, event organizers must realize the importance of understanding their market and their wants when choosing an event, thus highlighting its importance and similar research.

As the research of McKay et al. (2019), this research shows that trail running as part of the sport tourism industry in South Africa has significant growth potential, but further research is needed on the following themes:

- Future research will need to focus on whether virtual races that have been an appealing favourite during the pandemic (COVID-19) will become more popular than genuine trail running itself or remain temporary. It is also important to research if trail running stakeholders have plans to integrate virtual events within the trail running event sector
- The juncture of climate and health crises is a moment of truth for the trail-running community. Trail running events must stay

environmentally responsible, and research focusing on policies and creating awareness among trail runners and spectators needs to be a leading research theme for the years to come.

- As Maditinos et al. (2021) suggested, research will need to focus on measuring the event and destination attributes that will influence trail runners' behaviour and decision-making during and after the pandemic. Furthermore, research from both a supply and demand perspective is needed to understand if what an event plans to implement to convince trail runners to come back to events aligns with what participants expect regarding health and safety measures (Seraphin, 2021).
- At the same time, a serious concern for both sport tourism and event stakeholders is to understand the impact of the COVID-19 pandemic on the sport tourism industry. Furthermore, how events will motivate trail runners to return to events and the runners' intention to return and participate in events must be investigated (Maditinos et al., 2021).

6. Research limitations

Several limitations should be considered when interpreting the results of this study. First, the study focused on one trail running event in South Africa. The results can therefore not be generalized to other events. Second, the survey was exclusively conducted online, and thus, it did not accommodate potential respondents without internet access. Furthermore, due to various limitations, the survey instrument utilized was only in English, possibly excluding potential respondents who were not fluent English speakers. Future studies with research funding may benefit from translation services and utilize multi-lingual questionnaires to be more inclusive. Third, even after numerous attempts to increase the sample size, the response rate remained low.

Future researchers may need to consider following a qualitative approach when researching sport participants, especially in small-scale events such as the SkyRun, which can accommodate less than 300 participants.

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