# Brand Authenticity in a Digital World

(Hootsuite, 2019b)

Analysing the Impact of Social Media Marketing on the Authenticity of Sport Brands
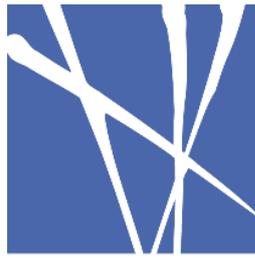
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Brand Authenticity in a Digital World

Analysing the Impact of Social Media Marketing on the Authenticity of Sport Brands

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Abstract

Purpose: For sport marketers, celebrity athletes as brand endorsers are important collaboration partners to exert influence on consumers' brand associations. With the emergence of social media, social media influencers as a new type of potential collaboration partners arose. Along with market developments, consumers increasingly long for authenticity when interacting with brands. The purpose of this study is to investigate the effect of brand endorsers, such as celebrity athletes and social media influencers, on a sport brand's authenticity in a social media context along with other factors that might have moderating effects.

Design/methodology/approach: The study applies a deductive research approach where existing theory is utilized to derive hypotheses, which are tested using a quantitative mono method approach. A survey research strategy and the technique of online questionnaires is chosen to gather quantitative data. This data is then analysed by applying statistics in form of regression analyses.

Findings: The results suggest that both, celebrity athletes and social media influencers as brand endorsers, have a positive effect on consumers' authenticity perceptions of a sport brand. Celebrity athletes are able to exert a higher positive effect compared to social media influencers. Further, especially celebrity athletes' trustworthiness and brand congruence evaluations are crucial for the measured effectiveness. For social media influencers, consumers' evaluations of expertise and also trustworthiness are focal for their impact on brand authenticity. Lastly, the moderators of sport involvement and social media advertising scepticism did not show an effect on the relationships between the two types of brand endorsers and brand authenticity.

Originality/Value: The study is able to contribute to the research fields of sport brands, brand authenticity, and social media marketing. Other researchers have investigated the effect of endorsers on other branding construct, but not in relation to brand authenticity so far. In addition, research on social media influencers and Instagram, a growing social media marketing channel, is limited. Thereby, this study can contribute with additional knowledge in these fields.

Keywords: Brand authenticity, social media marketing, sport brands, brand endorsers, celebrity athletes, social media influencers.

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List of abbreviations

α	Cronbach's alpha
A-1	Assumption 1
A-2	Assumption 2
A-3	Assumption 3
A-4	Assumption 4
β	Regression coefficient
BA	Brand authenticity
CA	Celebrity athlete
CBS	Copenhagen Business School
CSR	Corporate social responsibility
e.g.	example given
i.e.	in example
n.s.	not significant
p	Significance level
r	Pearson correlation coefficient
SMI	Social media influencer
SoMeAdScept	Social media advertising scepticism
SportInv	Sport involvement
SPSS	Statistical package for the social sciences
VIF	Variance inflation factor
Q-Q plot	Quantile-quantile plot

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1 Introduction

Consumers' longing for authenticity is regarded as "one of the cornerstones of contemporary marketing" (Brown, Kozinets, & Sherry, 2003, p. 21), making it essential for marketers to know what authenticity stands for, what it is driven by and what are its resulting effects (Morhart, Malär, Guèvremont, Girardin, & Grohmann, 2015).

Because brands can help consumers to express themselves and by this develop their identities, consumers quest brands that show in particular characteristics of originality and genuineness i.e. brands that are authentic. Furthermore and due to increasing commercialization, resulting in a vast supply of brands to choose from, consumers select brands based on certain criteria (Morhart et al., 2015). Gilmore & Pine (2007) claim that "authenticity has overtaken quality as the prevailing purchasing criterion, just as quality overtook cost, and as cost overtook availability" (p. 5).

One can argue that the sport industry in particular is concerned by this phenomenon. Against the backdrop that commercialization negatively affects perceived authenticity (Grayson & Martinec, 2004), one can assume that sport brands should be especially concerned about what they can do to achieve authenticity as it is known that the commercialization of the sport industry has immensely grown in the past (O'Boyle & Bradbury, 2017). Moreover, due to the highly competitive nature of the industry with regard to engaging fans, obtaining authenticity becomes key for sport brands (Junghagen & Lillo, 2017).

Along with the growing importance of authenticity for sport marketers and their brands, social media has emerged as a new media channel and marketing domain. Marketers use social media as a two-way communication channel, thereby giving consumers increased power regarding their opportunities to act online (Parganas, Anagnostopoulos, & Chadwick, 2015). Especially the social media network and photo- and video sharing platform Instagram has gained popularity among consumers and, thus, also aroused marketers' interest (Breves, Liebers, Abt, & Kunze, 2019; Ellis, 2017). If carried out right, social media can provide tremendous benefits for marketers. These include lower costs compared to traditional marketing, the ability to directly interact with customers and thereby strengthen the relationship with them, while at the same time gain more insights about them which can be used to provide more personalized communication messages, to name a few examples (Batra & Keller, 2016; A. J. Kim & Ko, 2012; V. Kumar, Choi, & Greene, 2017; Ledford, 2012).

Within social media, so-called social media influencer (SMI) endorsers are increasingly adopted by marketers for marketing and branding purposes. SMIs as endorsers present a rather new form of

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marketing compared to traditional celebrity athlete (CA) endorsers who are, however, also increasingly used within social media recently (Gräve, 2017; Hambrick & Mahoney, 2011; Peetz & Lough, 2015).

A well-known sport brand that heavily relies on marketing through social media is PUMA. This became especially apparent when in November 2019 marketing manager Rutger Hagstad, responsible for PUMA Nordic, held a presentation about PUMA's marketing strategy as part of the 'Sport Management and Marketing' course at Copenhagen Business School (CBS). During the presentation, the importance of brand collaborations with CAs as endorsers was highlighted. Further, the usage of digital media is another crucial aspect of PUMA's marketing strategy. This had also led to extending the range of brand endorsers with SMIs (PUMA, 2019b). In addition, PUMA's target segment, what they call generation hustle, expects brands to be authentic as they have developed a mental filter to unveil phony brands (PUMA, 2018).

1.1   Problem statement

Based on the previously explained developments, following problems for sport marketers and researchers might arise.

Because of the highly competitive sport industry, sport marketers face the problem of keeping brands relevant and attractive, thus authentic, for consumers (Junghagen & Lillo, 2017). In addition, social media has become a crucial element of the media landscape, which poses the challenge for brands of having to deal with this new marketing channel and deciding between different social media marketing forms (Godey et al., 2016; A. Levin, 2020; Parganas et al., 2015) that might have a differing effect on consumers' brand authenticity perceptions. In relation to this, CAs as endorsers are of special interest due to their relevance for sport brands (Peetz & Lough, 2015). But also, emerging social media platforms, such as Instagram, and SMIs as a new endorser type have aroused interest of brands (Breves et al., 2019). Further, the question might arise what other factors could have an impact on the relationship between endorsers and brand authenticity.

As research of the brand authenticity concept is still limited in the context of social media (Morhart et al., 2015), this study seeks to further investigate the impact of social media marketing as a driver of brand authenticity. The aim is to examine whether endorsers on social media can impact consumers' brand authenticity perceptions, which endorser type is most effective and which endorser attributes are most relevant regarding their impact on brand authenticity. In addition, potential

moderators are taken into account. Based on these considerations, following research question is intended to be answered:

How does social media marketing, in form of celebrity athlete and social media influencer endorsers, on Instagram affect consumer-perceived authenticity of sport brands?

1.2   Thesis outline

After having introduced the thesis topic in the first chapter by emphasizing its relevance and specifying the problem field at hand, the second part of this chapter aims to give an overview of this study. As illustrated in figure 1, the content is divided into ten chapters. An adapted version of this figure will be placed in the beginning of each chapter marking the current position to give the reader a point of orientation.
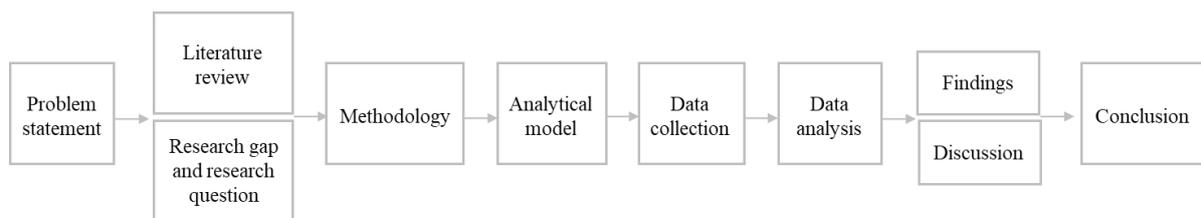
Figure 1: Thesis outline, based on Kothari (2004, p. 11).

Chapter two contains a literature review covering the fields of sport brands, brand authenticity, and social media marketing. Based on this and additional literature, that combines the three research fields, a research gap is detected in chapter three. Drawing on the research gap, a research question is formulated, which will lead the further course of the thesis. Chapter four gives the reader relevant information to understand how the determined research field and research question will be investigated from a research philosophical perspective. Further, the chosen research approach is presented to describe the way how theory is utilized. In line with the research approach, a research strategy is defined to determine an appropriate strategy for collecting data. Chapter five presents the developed analytical model, which describes and illustrates the different variables of the model. Based on existing theory, the relations between the variables in the model are hypothesized as well as the impact of potential moderators. Chapter six contains a thorough description of how data is collected while chapter seven shows how the gathered data is statistically analysed. In chapter eight the findings of the before conducted data analysis are presented. Afterwards, in chapter nine, the

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findings are discussed in the light of existing research. Further, scientific and managerial implications of the study at hand are presented. Moreover, the study is critically evaluated by pointing out its limitations and proposing aspects that should be further investigated. The thesis finishes off with a conclusion in chapter ten.

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2 Literature review
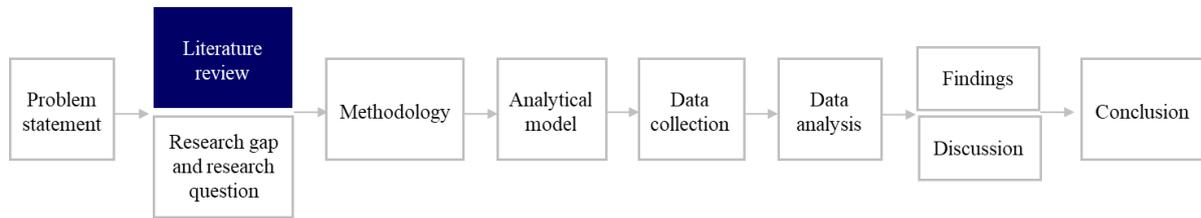
The literature review covers the three research fields of sport brands, brand authenticity, and social media marketing. The presented theoretical findings of existing research are relevant for approaching the later identified research gap and formulated research question. Further, it builds the basis of understanding the research study at hand.

2.1 Sport brands

As aforementioned, the study focuses on investigating effects on a sport brand's authenticity perceptions. The following part starts off with a classification of sport brands. Afterwards, a brief introduction to the global sporting goods industry as a part of the overall sport industry is given. This is followed by a general explanation of how marketing in the sporting goods industry looks like. The sport brand PUMA is chosen as an example brand and representative for sport corporate brands. Therefore, in the final part, some more specific information about PUMA is provided.

2.1.1 A classification of sport brands

Sport brands can be classified into three major categories which are: sport-specific brands, certification and label brands, and classical brands (Bouchet, Hillairet, & Bodet, 2013).

The first category represents sport-specific brands which mainly refer to brands that are only present in the sport sector (club brands such as Manchester United and organisation brands like the National Football League, NFL). However, they also include celebrity brands (e.g. Roger Federer), event brands (e.g. Tour de France) and media brands (e.g. TV broadcasters such as Eurosport) which are highly relevant in the sport industry but can also be found in other sectors (Bouchet et al., 2013).

The second category includes certification and label brands (e.g. Surfers Against Sewage), which are employed by e.g. sport corporations, organisations, or governments to certify adherence to e.g. ethical principles, ecological awareness, or quality, thereby aiming to make certain products more credible for consumers (Bouchet et al., 2013).

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The third category refers to classical brands such as corporate brands, service brands, retail store brands, industrial brands, and E-brands. These brands are generally present in all industry sectors. Sport corporate brands are often linked to the manufacturer or the founder. The sport corporate brand's products are usually labelled under the same name. Prominent examples of sport corporate brands are Nike or adidas (Bouchet et al., 2013). Hence, PUMA can be considered as another example.

2.1.2 The global sporting goods industry

Pitts (2017) speaks of the sporting goods industry as the second biggest segment of the sport industry, placed right behind the participation sport industry segment. The major product categories covered by the sporting goods industry are: sport equipment (e.g. balls, bikes, but also medicine), sport footwear (e.g. running shoes, mountain shoes), and textiles and accessories (e.g. specialist apparel, sportswear, backpacks) (Desbordes, Aymar, & Hautbois, 2019; Lipsey, 2006; Pitts, 2017). More recently and in the course of new digital and technical developments, sport-related mobile applications or console games can be also regarded as sporting goods (Smith, 2017), such as the Nike Run Club app for example.

When determining the industry value, it must be considered that as market definitions vary, so does the value of the industry. Regarding the industry value, most reports treat the three categories, including sport equipment, sport footwear, and textiles and accessories i.e. apparel, separately. Therefore, the industry value of each sub-category is presented.

In 2018, the global sport apparel category, with a value of $173.7 billion, was responsible for the highest share of the overall industry value (Statista, 2019c). This was followed by the global sport equipment market, which accounted for $60.9 billion in 2018 (Industry Research, 2019). The global sport footwear market had a value of $48.8 billion in 2018 (Statista, 2020). Summing up the three market values results in a total global sporting goods industry value of $283.4 billion. All three markets are forecasted to further rise in the next few years (Industry Research, 2019; Statista, 2019c, 2020).

2.1.3 Marketing in the sporting goods industry

In general, sport marketing is understood as organizational activities that aim to serve consumers' needs and wants in relation to sport products and services. These activities can either seek to market the latter themselves, which is called marketing *of* sport. Or they can aim to market other products

and services through the association with sport, which is described as marketing *through* sport. Marketing *of* sport usually refers to marketing activities aiming to promote sport clubs, teams, leagues, events, individuals, and sporting goods. Marketing *through* sport, in turn, describes the case when companies collaborate with players of the sport sector to market their product and brand through them (Fetchko, Roy, & Clow, 2019; Newman, Peck, Harris, & Wilhide, 2013; Smith, 2017).

In the specific case of the sporting goods industry it can be argued that marketing activities usually refer to the marketing of sporting goods, thus marketing *of* sport (Smith, 2017). However, sport brands such as Nike or PUMA also set up sponsorship and endorsement agreements, thereby practicing marketing *through* sport (ISPO, 2018; PUMA, 2020c).

2.1.4 PUMA

PUMA is chosen as an example brand, because it can be classified as a sport brand, more specifically a sport corporate brand that is active in all three segments of the sporting goods industry. A brief introduction to the history of PUMA and their marketing strategy is given below.

Rudolf Dassler together with his brother, Adolf Dassler, founded the 'Dassler Brothers Shoe Factory' in 1919 in Herzogenaurach, Germany. The company gained international success after several Olympic athletes wore their shoes, winning medals and breaking records. After a fight between the two brothers, they separated and Rudolf Dassler built his own shoe company, which is known as PUMA since 1948. Adolf Dassler kept the initial factory and later renamed the company, which is nowadays commonly known as adidas. Throughout the years, PUMA has followed the common theme of collaborating with successful athletes (PUMA, 2020d). As the history has shown, this marketing strategy has granted success since the early days of the business.

PUMA's mission 'Forever Faster' relates to the goal to be the fastest sport brand on the market by providing fast designs for fast athletes. In order to achieve this, PUMA states five strategic priorities: brand heat, product, women's, distribution, and organization. Brand heat is the strategic priority that highlights the importance of collaborations with athletes and cultural icons to strengthen the PUMA brand (PUMA, 2020a).

Some years ago, PUMA's marketing strategy shifted from a functional product to a more lifestyle focus. Thereby, the brand positions itself on a more personal level to consumers (Chernev, 2011). It can be assumed that as a result of this, PUMA also decided to not heavily invest in traditional ads anymore, but to increase budgets for brand collaborations with real personalities, such as CAs (Sweeney, 2018). Each product category is equipped with a number of matching CA collaborations,

who endorse PUMA products across their individual network of fans. PUMA equips top athletes, such as the football players of Borussia Dortmund and other top clubs, formula one driver Louis Hamilton, or sprinter Usain Bolt, just to name a few (PUMA, 2019a).

In 2017, the PUMA marketing manager for Germany, Austria, and Switzerland has stated that 90% of PUMA's marketing budget is invested into digital channels. This means that PUMA is not only present in all important social media channels (e.g. Facebook, YouTube, and Instagram), they also invested into brand collaborations with SMIs. As part of this shift, PUMA has extended their portfolio of brand endorsers with SMIs, such as fitness SMI Pamela Reif (Rentz, 2017). Their social media marketing strategy seems to be successful, because PUMA has been among the most influential and most mentioned brands and ranks better in comparison to competitors, such as adidas or Nike (Bernardo, 2017; Williams, 2018).

In conclusion, following reasons have been taken into account, when choosing PUMA as an example sporting goods brand. Among worldwide sporting goods companies, PUMA is placed fourth in terms of revenues of 2018, after adidas, Nike, and the VF corporation (Statista, 2019b). In addition to financial success, PUMA ranks also high among brand awareness rankings (Statista, 2018d, 2018a). Lastly, based on the outlined marketing strategy, PUMA can be understood to be one of the pioneers in digital marketing. Hence, the brand created a large portfolio of CA and SMI endorsers to choose from for the study at hand.

2.2   Brand authenticity

In the following part, some leading conceptualizations and views regarding brand authenticity are presented to build a general theoretical understanding of this phenomenon as a basis for the further course of the study. In a first part, the background of the term 'authenticity' in different scientific areas is explained and commonly used definitions are presented. This also includes the introduction of the term brand authenticity. This is followed by an overview of the different concepts, drivers, dimensions and consequences of brand authenticity. The main points are summarised in table 1 at the end of this part.

2.2.1   Nature and definition of authenticity

The term authenticity originates from the Latin word 'authenticus' and refers to something complying with the original opposed to being a copy (Cappannelli & Cappannelli, 2004; Schallehn, Burmann, & Riley, 2014). For instance, a picture by Picasso would then be authentic when he is the one who

actually painted it. In a case like this, authenticity is deemed to be something objective and "is inherent in the object itself" (Schallehn et al., 2014, p. 193). From this perspective, authenticity is "dictated to people by experts, laws, or institutions" (Beverland, 2009, p. 6). Yet, according to more recent research, authenticity is described from a more subjective perspective and seen as something being socially formed as it is "given to an object by consumers, marketers, and others" (Beverland, 2009, p. 16).

The concept of authenticity has been discussed across different scientific areas. For anthropologists, authenticity means that cultural principles are protected and maintained (Bruhn, Schoenmüller, Schäfer, & Heinrich, 2012; Fritz, Schoenmueller, & Bruhn, 2017). In philosophy, authenticity refers to the human trait of "being self-reliant as well as true-to-self" (Bruhn et al., 2012, p. 568), which is similar to the view of social psychologists. According to Schallehn et al. (2014), social psychologists associate authenticity with the term self-fulfilment, implicating that authentic individuals behave in a way that is mainly based on their personal identity. Yet, taking into account humans and their identity are being affected by influences from their social environment, authenticity is defined as "the degree to which a person is true to his or her own identity in the face of corrupting external pressures" (Schallehn et al., 2014, p. 193).

Authenticity has also gained attention in a branding context from both, researchers and marketers, as consumers increasingly long for authenticity in their consumption (Grayson & Martinec, 2004; Morhart et al., 2015; Napoli, Dickinson, Beverland, & Farrelly, 2014). Authenticity in the context of brands is known as brand authenticity and can be defined as „the perceived consistency of a brand's behaviour that reflects its core values and norms, according to which it is perceived as being true to itself, not undermining its brand essence or substantive nature, whereby the perceptual process involves two types of authenticity (i.e. indexical and iconic authenticity)" (Fritz et al., 2017, p. 327). These two types of brand authenticity will be explained in more detail in the next part.

Within brand management, researchers have examined brand authenticity in the light of the identity-based brand management model (Schallehn et al., 2014). This model evolves around the two components of brand identity and brand image. In its basic form it says that a brand's identity is shaped by internal stakeholders, such as marketers, who determine a brand's essence and core attributes. On the other side, a brand's image is shaped by external stakeholders, such as consumers, who hold mental impressions related to brands (Beverland, 2005; Guèvremont & Grohmann, 2018; Schallehn et al., 2014).

According to Schallehn et al. (2014), brands can benefit from authenticity, if a brand is transparently communicating its essence and core attributes using an inside out approach. Only if brands show their real identity, they can be perceived as authentic from consumers. Inauthentic brands are described to follow each trend and try to take all external stakeholders' desires into account. As brand identity is not directly observable, researchers have investigated how consumers form an image of a brand to be authentic. Based on the researchers' understanding, consumers' image of brand authenticity is dependent on consumers' perception of brand authenticity drivers (Schallehn et al., 2014).

2.2.2 Concepts of brand authenticity

A core conceptualization of brand authenticity is the one from Grayson & Martinec (2004) presenting two types of authenticity: indexical and iconic authenticity. Generally, indexicality determines what is deemed to be real and original. To be assessed as an indexically authentic brand, it must be ensured that a factual and spatio-temporal link to the past exists (Grayson & Martinec, 2004). A 400-year old Bordeaux wine, for example, can indicate indexical authenticity due to its spatio-temporal link with where and when it has been produced (Dwivedi & McDonald, 2018). Unlike indexical authenticity, which refers to "the real thing" (Grayson & Martinec, 2004, p. 297), iconic authenticity relates to "authentic reproduction" or "authentic recreation", meaning that something is regarded as authentic if its "physical manifestation resembles something that is indexically authentic" (Grayson & Martinec, 2004, p. 298). Grayson and Martinec (2004) present an example, which helps to distinguish the two authenticity concepts: The original US declaration of independence was not maintained very well and therefore had been fading throughout the years. In order to keep the memory of this artefact, a well-made replicate was produced. Nowadays many books show the replicate, because of the higher quality of detail and because it resembles more the original at the point of time when it was signed than the actual declaration looks now. In this case, the original declaration represents indexical and the replicate iconic authenticity. This example illustrates the two different concepts of indexical and iconic authenticity. However, the researchers also highlight that indexical and iconic authenticity are not mutually exclusive, meaning that brands can possess both (Grayson & Martinec, 2004). This further adds to the complexity of the understanding of brand authenticity.

Leigh, Peters, & Shelton (2006) distinguish three types of authenticity: objective, existential and constructive authenticity. In their work, Leigh et al. (2006) further acknowledge similarities with previously described brand authenticity concepts of Grayson & Martinec (2004). These similarities are described in the following.

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Objective authenticity is based on the degree of originality of things, which requires an objective reference point to judge this. The researchers further conclude that this authenticity type is in line with Grayson & Martinec's (2004) concept of indexical brand authenticity. While objective authenticity seeks comparison with the historic origin, existential authenticity rather describes a social concept that is context dependent. It is based on individuals' "dreams, fantasies, stereotypes, and expectations" (Leigh et al., 2006, p. 483), which are projected onto an object and by this create a symbolic form of authenticity. Existential authenticity, which allows different interpretations of reality, can be compared with Grayson & Martinec's (2004) concept of iconic brand authenticity, according to which it is not only something proofed by evidence but also something that is socially formed. Leigh et al. (2006) further introduce the novel concept of constructive authenticity. This authenticity type revolves around the concept of individuals' urge to find their real authentic selves and how experiences and market offers can help them to achieve this.

2.2.3   Drivers of brand authenticity

Drivers of brand authenticity are cues that can appear in form of evidence-based facts or subjective interpretations. Thereby, cues help consumers to assess the degree of authenticity (Fritz et al., 2017). Grayson & Martinec (2004) described indexical and iconic cues that lead to corresponding authenticity types. Indexical cues are evidence-based facts, while iconic cues are formed through individuals' perceptions.

Some more specific examples can be found in the study of Morhart et al. (2015), who examined drivers of brand authenticity, both indexical (e.g. no existing brand scandals, brand-conform behaviour of employees) and iconic cues (e.g. interpretation of marketing stressing the brand's virtue and history) were identified.

In another study on brand authenticity, Beverland (2009) recognized seven habits of authentic brands, which lead to increased brand authenticity and thereby can be understood as drivers. They included storytelling (e.g. multi-layered stories about non-perfect brand heroes), appearing as artisanal amateurs (e.g. highlighting non-commercial motives), sticking to your roots (e.g. communicating the founding history), loving the doing (e.g. passion for craftsmanship), market immersion (e.g. getting input from consumers), being one with community (e.g. being a partner for and giving back value to community members), and indoctrinating staff into the brand cult (e.g. leadership to support talent). Dwivedi and McDonald (2018) investigated how brand authenticity is influenced by consumers' perception of different marketing communication dimensions. They examined four marketing

communication dimensions as drivers of authenticity: advertising, social media, sponsorships and CSR activities.

2.2.4   Dimensions of brand authenticity

Over time, researchers have developed various dimensions to examine brand authenticity. Morhart et al. (2015) developed a scale with 15 items to assess perceived brand authenticity in terms of four dimensions: continuity, credibility, integrity, and symbolism. Likewise, in their study, Bruhn et al. (2012) developed a brand authenticity measurement scale capturing four dimensions including continuity, naturalness, originality, and reliability. Even though most of the four dimensions are named differently, some overlaps with the aforementioned dimensions can be observed (Dwivedi & McDonald, 2018). Thus, Bruhn et al.'s (2012) dimension of a brand's reliability seems to concur with Morhart et al.'s (2015) credibility dimension. In both cases, it is referred to a brand's trustworthiness and adherence to its promises (Bruhn et al., 2012; Morhart et al., 2015). Furthermore, the continuity dimension, in both cases, refers to what could be explained with the brand's lastingness. While Morhart et al. (2015) point to "a brand's timelessness, historicity, and its ability to transcend trends" (p. 202), Bruhn et al. (2012) speak of the brand's continuity in terms of staying true to itself and following an explicit idea over time. This is similar to Beverland's (2006) notion of heritage and pedigree, categorized as one of six attributes of brand authenticity, and understood as reverting to the brand's former times. Besides heritage and pedigree, relationship to place, stylistic consistency, downplaying commercial motives, quality commitments, and method of production also constitute attributes of brand authenticity.

Guèvremont (2018) recognized that among definitions of authenticity, the temporal element seems to be pervasive. This goes in line with the before presented dimensions of authenticity, which almost all included a time-related element in form of either continuity, timelessness, pedigree, or heritage (Beverland, 2006; Bruhn et al., 2012; Morhart et al., 2015). In this regard, Guèvremont (2018) investigated in a social media context the authenticity of younger brands that usually, by nature, miss a brand historical element. As a result of the study, three dimensions of consumer-perceived authenticity were determined: brand transparency, brand virtuousness, and brand proximity (Guèvremont, 2018).

While virtuousness has already been identified as a brand authenticity dimension by other researchers such as in form of Morhart et al.'s (2015) integrity dimension, transparency and proximity appear as novel in this context. Brand transparency applies to a brand that "openly and spontaneously shares its

emotions as well as its weaknesses, imperfections, doubts, and mistakes" (Guèvremont, 2018, p. 510), whereas brand proximity refers to a brand being "close to consumers and accessible" (Guèvremont, 2018, p. 510).

The research of Guèvremont (2018) stands out from the other presented studies, because her work has examined brand authenticity in a social media context. The study thereby provides evidence that the temporal element of a brand is not vital for a brand to be perceived as authentic. Rather, brands can contribute to perceived authenticity through close and spontaneous online interactions with their audiences (Guèvremont, 2018).

2.2.5 Consequences of brand authenticity

Understanding authenticity and excelling in incorporating the concept will eventually help brands to achieve a differentiating advantage over their competitors (Dwivedi & McDonald, 2018). This reasoning is supported by the fact that it has been scientifically proven that authenticity is able to favourably impact other related brand constructs such as brand trust (Hernandez-Fernandez & Lewis, 2019; Schallehn et al., 2014), brand attachment (Choi, Ko, Kim, & Mattila, 2015; Morhart et al., 2015), word-of-mouth, brand choice likelihood (Morhart et al., 2015), brand commitment and brand loyalty (Choi et al., 2015). Furthermore, Guèvremont and Grohmann (2018) recently found that consumer reactions to a brand scandal were more positive in the case of authentic brands compared to less authentic brands. Although the authentic brands were not without any damage, it was proven that brand authenticity is capable to lower the negative effect of a brand scandal.

Following these considerations, it can be stated that increased brand authenticity also leads to increased brand equity (Napoli, Dickinson-Delaporte, & Beverland, 2016).

In table 1, the afore presented concepts, drivers, dimensions and consequences of brand authenticity are outlined.

Researchers	Concepts	Brand context
Grayson & Martinec (2004)	Indexical (evidence-based) and iconic (socially constructed) authenticity.	Tourist attractions
Leigh et al. (2006)	Objective, existential and constructive authenticity.	Car brand

Researchers	Drivers	Brand context
Grayson & Martinec (2004)	Indexical cues: evidence-based facts. Iconic cues: perceptions.	Tourist attractions

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Beverland (2009)	Seven habits of authentic brands: storytelling, appearing as artisanal amateurs, sticking to your roots, loving the doing, market immersion, being one with community, indoctrinating staff into the brand cult.	Various brands
Morhart et al. (2015)	Indexical cues: no brand scandals, brand-congruent employee behaviour. Iconic cues: marketing stressing the brand's virtue and history.	Various brands
Dwivedi & McDonald (2018)	Marketing communications: advertising, social media, sponsorship, and CSR activities.	Energy drink brands

Researchers	Dimensions	Brand context
Beverland (2006)	Heritage and pedigree, stylistic consistency, quality commitments, relationship to place, method of production, and downplaying of commercial motives.	Premium wine brands
Bruhn et al. (2012)	Continuity, originality, reliability, naturalness.	Various brands (from the sport apparel and the soft drinks industry)
Morhart et al. (2015)	Continuity, credibility, integrity, and symbolism.	Various brands
Guèvremont (2018)	Brand transparency, brand virtuousness, and brand proximity.	Online brand (a cooking blog)

Researchers	Consequences	Brand context
Schallehn et al. (2014)	Brand trust.	Fast-food and beer brands
Choi et al. (2015)	Brand attachment, brand commitment, and brand loyalty.	Sport shoe brands
Morhart et al. (2015)	Brand attachment, word-of-mouth, and brand choice likelihood.	Various brands
Guèvremont (2018)	Lower negative effect of a brand scandal.	Online brand
Hernandez-Fernandez & Lewis (2019)	Brand trust.	Craft beer brands

Table 1: Relevant concepts, drivers, dimensions and consequences of brand authenticity; table structure based on Dwivedi & McDonald (2018, p. 1389).

2.3   Social media marketing

In the following part, an outline of existing literature in the field of social media marketing is presented. After a short review of the development of social media is given. Further, different social media platforms will be elaborated, in particular Instagram, as well as objectives and measures of social media marketing. Afterwards, possible opportunities and challenges of social media marketing are discussed. SMI and CA endorsers as two types of collaboration partners for social media marketing are presented. Finally, some key concepts and models related to social media marketing and brand endorsers are presented.

2.3.1   Emergence of social media platforms

Since the 1990s, technical developments have been changing the media environment and have pushed the arrival of digital media (e.g. websites and e-mails). Characteristics of digital relative to traditional media (e.g. print, radio, TV) are increased interactivity, advanced direct communication possibilities and decreased response times (Labrecque, vor dem Esche, Mathwick, Novak, & Hofacker, 2013; Newman et al., 2013; Pickton & Broderick, 2005). With the emergence of Web 1.0, online information was attainable "for anybody at any time" (Hiremath & Kenchakkanavar, 2016, p. 707). However, Web 1.0 did not offer any form of interaction as content was only distributed statically in one direction and websites could only be visited passively (Hiremath & Kenchakkanavar, 2016). Through the rise of Web 2.0, it has become possible to interact with people online. Along with the expansion of Web 1.0, social media appeared, marking a key element of today's Web 2.0 (Mamic & Almaraz, 2013).

Kaplan and Haenlein (2010) define social media as a "group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (p. 60). Social media can be described as a collection of online platforms that enable the connection between users, the creation of online communities and sharing of information (V. Kumar et al., 2017; Newman et al., 2013). Parganas, Anagnostopoulos, and Chadwick (2015) speak of social media as "a set of online tools that facilitate two-way communication among users, allowing people to interact and share information with each other as well as with organizations and brands" (p. 553).

Certain types of social media platforms exist, such as web blogs, microblogs, forums, wikis, social bookmarking websites, video- or photo-sharing sites, social networks, virtual game worlds, and review websites (Kaplan & Haenlein, 2010; A. J. Kim & Ko, 2012; Newman et al., 2013). Some of

the first social media platforms that launched in early 2000 were Friendster, MySpace and Facebook. These platforms were mostly about the creation of own profiles and the connection with other user profiles. The later appearing platforms focused in addition on content creation and sharing, such as YouTube, Instagram and Snapchat (A. Levin, 2020; Newman et al., 2013). Since the early days, these social media platforms have gained popularity and user numbers have increased.

In 2010, 0.8 billion and in 2017 2.5 billion users were active on social media. For 2021 this number is expected to grow to 3.1 billion users (Statista, 2018b). Among the most popular social media platforms with the highest number of active users are Facebook (2.4 billion), YouTube (2 billion), WeChat (1.1 billion) and Instagram (1 billion) (Statista, 2019a). With strongly increasing private user numbers, also corporations and organizations started to create and manage their own social media profiles with having the marketing purpose as an objective (A. J. Kim & Ko, 2012). For example, in 2018 social media was able to generate revenues from advertising of $2.8 billion in the UK, $1.3 billion in Germany and $0.2 billion in Denmark (Statista, 2018c).

2.3.2 Objectives of social media marketing

As already mentioned, corporations and organizations increasingly use social media for marketing and branding purposes (Ashley & Tuten, 2015; A. J. Kim & Ko, 2012). Social media marketing can be described as a form of marketing that aims to raise brand awareness, recognition and recall by the use of various social media platforms (Vikas Kumar & Pradhan, 2015). Marketing utilises social media as a two-way communication online tool to strengthen existing emotions and to create new brand value by sharing information and messages between users (A. J. Kim & Ko, 2012). Objectives for marketers to use social media as a marketing tool include to increase engagement, sales, loyalty, word-of-mouth, traffic on other platforms, or to lower overall marketing costs (Ashley & Tuten, 2015; Felix, Rauschnabel, & Hinsch, 2017; Vikas Kumar & Pradhan, 2015). Social media can also be used for market research and as a tool or for promotional activities (Ashley & Tuten, 2015).

Common measures for assessing social media activities are the number of likes, subscriptions, or sales, for example. Other desirable results are brand mentions and sharing of content (Ashley & Tuten, 2015). Those measures are commonly known as key performance indicators (Tuten & Solomon, 2018).

2.3.3   Opportunities and challenges of social media marketing

There are various advantages of social media marketing. First, social media is lower in cost compared to more traditional media campaigns, e.g. TV commercials (Batra & Keller, 2016; Ledford, 2012). Second, social media marketing gives brands the possibility to be more transparent towards the consumer (Ledford, 2012). It also allows communication in real time across continents and time zones (Batra & Keller, 2016). Instead of one-way communication, consumers and brands have the chance to get into direct contact and interact with each other. Brands can benefit from this by increased exposure and strengthened relationships (V. Kumar et al., 2017). Third, brands can use social media as a tool to learn more about their consumers (Filo, Lock, & Karg, 2015). By utilizing collected data, consumers can be more easily segmented and then targeted. Communication messages can be better personalized in terms of content, time and place, which increases the chance that consumers react positively towards these message (Batra & Keller, 2016). Gained insights can also be used to improve existing or to co-create new products, services, processes and customer value (A. J. Kim & Ko, 2012). Finally, social media can be understood as a complement to other digital and traditional media by increasing brand awareness and reaching a larger audience (Batra & Keller, 2016).

But there are also some disadvantages or challenges marketers should be aware of when using social media as a digital media channel. First, social media as an industry and marketing tool is relatively new and experience on the company side as well as from a research perspective is often limited, therefore the impact on key brand measures is still difficult to predict (Godey et al., 2016). Second, marketers must be aware of interaction effects when mixing social media with other digital or traditional media channels to make sure that brand messages are coherent (Batra & Keller, 2016; Manser Payne, Peltier, & Barger, 2017). Third, digital media makes it easy for various stakeholder to share content in relation to brands which might be out of marketers' control or even attention (Batra & Keller, 2016; Ledford, 2012). This negative word-of-mouth can spread faster on social media compared to traditional media (Pfeffer, Zorbach, & Carley, 2014). Fourth, because social media platforms are highly dynamic and platform updates are controlled by platform providers, strategies need to be continuously adapted to ensure effectiveness of social media activities (Felix et al., 2017). Lastly, marketers that decide to be active on social media face a creativity challenge to develop engaging and to the consumer relevant content. Also in relation to this, social media must be understood as an own channel and not just an extension to traditional mass media (Ashley & Tuten, 2015; Chaffey & Ellis-Chadwick, 2012; Sheehan & Morrison, 2009).

2.3.4 Social media marketing on Instagram

Instagram belongs to the type of social media platform that is known as a photo- and video sharing social networking site, mentioned earlier in part 2.3.1. It was introduced in 2010 and is usually accessed via a mobile application but can be also used online (Clement, 2019; Moon, Lee, Lee, Choi, & Sung, 2016; Thompson, 2017). The platform provides users the opportunity "to take photos or videos, customize them with filter effects, and share them with friends and followers in a photo feed or send them directly to friends" (MarketLine, 2020, p. 1). Throughout the years, Instagram has added several new features, including Instagram Direct, Instagram Stories, Live Videos, Instagram TV (IGTV), or Instagram Shopping (Instagram, 2020a; Instagram Business, 2016).

Today, Instagram is no longer solely used for private consumption. Rather, it enables companies to set up a business account for commercial purposes (Instagram Business, 2020b). Besides publishing organic content, business profile owners can also place ads in form of stories, photos, videos, carousels, or ads on the explore page (Instagram Business, 2020a). Results of a recently conducted survey show that Instagram has grown a lot in popularity among marketers. An amount of 69% of surveyed marketers aims to expand their organic activities on Instagram. Further, it is also the platform where most marketers answer that they want to gain more knowledge about (Stelzner, 2019). As mentioned earlier, social media platforms provide marketers the opportunity to connect with a high number of people (part 2.3.1). In 2018, Instagram counted 1 billion active accounts for the first time. However, this number does not tell the amount of unique users (Kemp, 2019). For 2019, the addressable advertising audience for marketers using social media included a slightly lower, but still impressive, amount of 878.8 million people. Among these people, the number of males and females was roughly the same. Regarding their age group, most people addressable through Instagram belonged to the age groups of 18-24 (30%) years-olds and 25-34 years-olds (35%) (Hootsuite, 2019a).

2.3.5 Celebrity athletes and social media influencers

In the following, two types of social media marketing that are employed by sport marketers are presented. First CAs are introduced, who are not only used in traditional media anymore but increasingly within social networks to endorse a brand. Afterwards, SMIs are presented as another way for brands to promote themselves within social media. Even though both types are utilized as brand endorsers, specific differences between the two exist, which are explained in the end of this part.

Celebrity athletes

The history of CA endorsers goes back to the late 19th century where brands started to collaborate with celebrities for the first time. Besides actors and entertainers, former pure athletes have turned into CAs and thereby also fit the role of being brand endorsers (Braunstein-Minkove, Zhang, & Trail, 2011; Erdogan, 1999; Gauns, Pillai, Kamat, Chen, & Chang, 2018; Y.-J. Kim & Na, 2007).

The use of celebrity endorsers has constantly risen over the years. In 2016, it was estimated that celebrity endorsements account for approximately 20-25% of overall advertisements (Knoll & Matthes, 2017). Some researchers even consider it as "one of the most important tools of advertising" (Gauns et al., 2018, p. 45). Companies spend considerably large amounts of their budget on endorsement deals with CAs (Martin, 1996). According to the 2019 ranking of the world's highest-paid athletes by Forbes (2019), Roger Feder as the best-paid athlete earned an outstanding amount of $86 million solely through endorsements besides a considerably lower, but still impressive, amount of $7.4 million in prize money. Those substantial sums make clear how important this form of marketing has become especially within the sport industry.

With the rise of social media, also sport marketers have recognised the importance of this new communication channel (Brison, Byon, & Baker, 2016; Hambrick & Mahoney, 2011; Smith, 2017). Thus, marketers started to expand their endorsement agreements with CAs to social media channels (Peetz & Lough, 2015). Because one of the advantages of online social networks is that CA endorsers can directly link and interact with their fans and potential consumers, they provide a fruitful tool for brand collaborations (Hambrick & Mahoney, 2011).

In general terms, a celebrity endorser can be described as an "individual who enjoys public recognition and who uses this recognition on behalf of a consumer good by appearing with it in an advertisement" (McCracken, 1989, p. 310). According to Carrillat and D'Astous (2014), CA endorsement can be considered as a form of celebrity endorsement. Thus, the public recognition or fame they enjoy stems from "the sport that they are in" (Martin, 1996, p. 29) and "their on-field achievements" (McDonald, 2016, p. 248). In practice, endorsements by CAs generally imply that "the athlete […] wears apparel that features the company's logo, uses the company's products/services, and makes appearances on behalf of the company" (McKelvey & Masteralexis, 2013, p. 59). Further, CAs actively endorse the brand through advertising messages (Carrillat & D'Astous, 2014). In return, CA endorsers receive a monetary reward from the brand they endorse (McKelvey & Masteralexis, 2013).

Based on the definition of endorsement from above, similarities with the concept of sponsorship seem to exist. In fact, they both involve a relationship where one part of the relationship receives a financial or material support and the other part gains public awareness (Carrillat & D'Astous, 2014). However, it is important to make a distinction between endorsements and sponsorships as a particular difference seems to be present. Generally, sponsorship refers to a relationship between "a sponsor and a sponsee whereby the latter receives a fee, or value, and the former obtains the right to associate itself with the activity sponsored" (Cornwell, 2017a, p. 173). Considering for example the case where the sponsored activity is a sport event, then the sponsor has the right to expose itself to the people attending or watching the event and to relate itself with the event and its characteristics (Peetz & Lough, 2015). Besides events, the sponsee can also be leagues, teams, or individuals (Cornwell, 2017b). Regarding the case of individual i.e. athlete sponsorship, Carrillat and D'Astous (2014) argue that opposed to the definition of CA endorsement from above, which states that the CA actively promotes the brand in form of advertising messages, athlete sponsorship implies that athletes utilize the brand's products but do not always explicitly advocate them through advertising messages.

CA endorsers can provide several benefits. Besides raising the brand's awareness among consumers (Hambrick & Mahoney, 2011), they can be used to establish links between them and the endorsed product or brand (Y.-J. Kim & Na, 2007). As a consequence, many other benefits can be achieved, including enhanced product and brand image (Erdogan, 1999; Martin, 1996), reach of particular target markets, higher revenue (Peetz & Lough, 2015), as well as brand loyalty (Bush, Martin, & Bush, 2004).

Apart from the benefits of using CAs as endorsers, there are also a number of risks and challenges involved with this marketing strategy. As aforementioned, collaborations with CAs are an extremely costly marketing strategy (Hughes & Shank, 2005; Martin, 1996; Peetz & Lough, 2015). Furthermore, considering the case that the CA endorser breaks the law and violates moral values, e.g. through taking performance-enhancing drugs, it would cause difficulties and might ultimately harm the brand. Particularly in the digital age, one single insensitive post from the CA endorser on social media might have far reaching consequences (Lipsey, 2006; Peetz & Lough, 2015). Another risk is posed when CA endorsers become avid to earn more money and therefore enter collaborations with many different brands, leading to overexposure of the CA. As a consequence, the CA can lose credibility in the eyes of consumers who become increasingly sceptical about the entire endorser-brand relationship (Erdogan, 1999; Peetz & Lough, 2015).

2 Literature review

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Social media influencers

Besides CAs, brands also collaborate with SMIs and use their reach to followers for marketing purposes (De Veirman, Cauberghe, & Hudders, 2017). Advances in technology and affordability of camera equipment have enabled a wide range of people to produce their own content. Paired with social media networks, also publishing and sharing content has never been easier than today. This increases the power of individuals with a large number of followers and decreases the power of traditional media (A. Levin, 2020). Instagram has been the most popular social media network for SMIs to connect with followers. This is, because of the platform's features for immediate interaction and thus increased engagement between SMIs and followers (Casaló, Flavián, & Ibáñez-Sánchez, 2018). Already in the US, in July 2019 there have been 38,500 creators on Instagram with more than 100,000 followers. In relation to July 2017, numbers have increased by four times, which is a huge growth rate (A. Levin, 2020).

These individuals are referred to as SMIs and from a marketing perspective have become valuable collaboration partners for brand endorsements (De Veirman et al., 2017, p. 789). In a survey, 86% of marketers stated to make use of the power of SMIs (Breves et al., 2019). They commission SMIs "to create and/or promote their branded content to both influencers' own followers and to the brands' target consumers" (Lou & Yuan, 2019, p. 58). Thereby, they can benefit from SMIs' ability "to influence the attitudes, decisions and behaviours of the audience followers" (De Veirman et al., 2017, p. 801). Even though they are obliged to mark content that displays brands with 'sponsored' or 'ad', their audience is still likely to listen. This is because SMIs are able to seamlessly incorporate brands into their daily narratives (Breves et al., 2019).

Some general definitions of SMIs that can be found in research literature are presented in the following. Freberg, Graham, McGaughey, and Freberg (2011) state that SMIs "represent a new type of independent third party endorser[s] who shape audience attitudes through blogs, tweets, and the use of other social media" (p. 90). Others call them "trusted tastemaker[s] in one or several niches" (De Veirman et al., 2017, p. 798). Abidin (2015) defines SMIs as "everyday, ordinary Internet users who accumulate a relatively large following on blogs and social media through the textual and visual narration of their personal lives and lifestyles, engage with their following in digital and physical spaces, and monetise their following by integrating "advertorials" into their blog or social media posts" (paragraph 1). Brands can benefit from SMIs' creative output as "content generator[s]" with the addition of having expertise in a specified field and a sizable following on social media (Lou & Yuan, 2019, p. 59). Enke and Borchers (2019) investigated SMIs as primary stakeholders of firms

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that can provide external resources and skills. Apart from the production and distribution of content, SMIs' can also provide their competence to interact with and influence others. In addition, they provide a public persona with potential valuable relationships.

Apart from these compelling advantages that SMIs as brand endorsers can convey, marketers should also consider challenges that might arise in relation to managing SMI collaborations. Some of them will be presented in the following. For marketers one of the biggest challenges is to choose from the high amount of SMIs on social media the ones that seem to promise most effective collaborations in relation to influencing consumers (Breves et al., 2019; De Veirman et al., 2017). Simple measures to classify and select SMIs are the number of posts and followers, but also quality and relevance of content are important (Freberg et al., 2011). A more advanced formula was developed by Levin (2020) to measure the influence of an individual: "*Influence = Audience Reach x Affinity (Expertise, Credibility) x Strength of Relationship with Audience (Engagement)*" (p. 21). Because SMIs are different from pure content producers, such as photographers, marketers need to give suited briefings for SMIs, which leave enough room for creativity and to express themselves. Based on this, it can be challenging to find the right balance between precise instructions to enforce marketing objectives, but not to restrict too much of the SMI's creative freedom (A. Levin, 2020). Following this, another challenge is the measuring of SMI collaboration performance. In relation to SMIs, sole conversion rate has not been proven to be the best performance indicator. Although, this is an often-used performance measure for more traditional marketing forms and when number of sales are the objective, it might not be the best for social media marketing. Other objectives, such as brand awareness, should be taken into consideration. Then, impressions, likes and comments can be evaluated to measure the performance of collaborations with SMIs on Instagram (A. Levin, 2020). Lastly, just as much as social media networks and consumer trends change, also the profession and abilities of SMIs continuously develop. Marketers need to stay ahead of these developments to be able to create and manage successful SMI collaborations (A. Levin, 2020).

Distinguishing athlete endorsers and influencer endorsers

CAs and SMIs should be distinguished from each other, although they share some characteristics which are shortly explained in the following.

Some SMIs have reached celebrity status, but also CAs can exert influence on social media transferring their success from traditional media (Lou & Yuan, 2019). Both can be potential collaboration partners for brands. In this context, SMIs are also called "micro-endorsers" in relation

to macro "celebrity endorsers" (Lou & Yuan, 2019, p. 60). This shows that, because of the rising popularity of SMIs and CAs' usage of social media, the distinction between these two types of brand endorsers can become blurred.

Apart from these overlaps, SMI endorsers should be distinguished from CA endorsers (Breves et al., 2019; Gräve, 2017). Athletes are known in the public for their professional talent, therefore they can be associated as traditional celebrity endorsers (Schouten, Janssen, & Verspaget, 2020). On the other side, SMIs have risen to success by "branding themselves as experts on social media platforms" (Schouten et al., 2020, p. 259). Thereby, they turned this into their primary job (Schouten et al., 2020). Further, athletes become known through media coverage in traditional media. In contrast, SMIs are common individuals who have created an online presence and generated a following by sharing content on social networks (Lou & Yuan, 2019). This is in line with Gräve (2017), who points out that celebrities can only reach their audience when being supported by other institutions, e.g. the media or sport industry. SMIs are much more independent and have not to rely on these.

For this study, both SMIs and CAs are seen as potential collaboration partners for brand endorsements. But these two types of endorsers are distinguished based on above characteristics. In sum, it can be said that CAs have built their career on sporting activities supported by institutions and later adopted social media as a channel to reach out to fans. In contrast, SMIs mostly started as content creators and niche experts on social networks building their careers based on an online reputation and follower numbers.

2.3.6   Related theoretical constructs

Related theories and models from established researchers support the understanding of social media and brand endorsers. The chosen theories and models, which seem to be the most relevant for this study, are presented in the following.

Brand associations and social influence theory

From a company perspective, brand authenticity is especially valued for increasing brand equity (Napoli et al., 2016). Customer-based brand equity can be defined as "the differential effect of brand knowledge on consumer response to the marketing of the brand" (Keller, 1993, p. 8). In his work, Keller (1993) describes brand knowledge as a two-dimensional construct consisting of brand awareness and brand image. Brand image is further understood to be made of consumers' associations, which can be specified regarding associations' type, strength, favourability and

uniqueness. Brands can develop marketing programmes to support consumers' brand awareness, but also to increase the development of positive, strong and unique brand associations. Apart from a brand's direct marketing efforts, such as the communications of a brand's positioning and identity, other sources, e.g. reference groups, can be used to shape consumer's brand perceptions to build brand equity. More specifically, celebrity endorsements have become a popular source to lever secondary associations. This form of collaboration is used to build an association between the brand and the celebrity. As a result, associations related with the celebrity (e.g. credibility) can be transferred onto the brand (Keller, 1993).

Social influence theory says that individuals are influenced by social sources around them. This means that individuals, such as consumers, base their own behaviour on other people's opinions and decisions (Flanagin, 2017). These other people do not need to be direct family and friends. Also, celebrities and SMIs possess the ability to have an effect on individuals' behaviour (Hoonsopon & Puriwat, 2016).

In relation to social influence theory the domain of persuasion has developed. Persuasion is described as "the use of symbols (sometimes accompanied by images) by one social actor for the purpose of changing or maintaining another social actor's opinion or behavior" (James P. Dillard, 2010, p. 203). Another author defines it as "noncoercive attitude or behavioural change in response to appeals from others" (Flanagin, 2017, p. 453). Marketers have been interested in the domain of persuasion to find answers to the following question. How, why and when does media produce effects (Holbert, 2012)? Reference groups and opinion leaders are both concepts that are said to have a strong influence on the communication of marketing messages and its effectiveness (Pickton & Broderick, 2005) and are therefore explained in the next two parts.

Reference groups and the model of meaning transfer

A reference group is defined as "a group whose presumed perspectives, attitudes, or behaviours are used by an individual as the basis for his or her perspectives, attitudes, or behaviours" (Arnould, Price, & Zinkhan, 2005, p. 609). Therefore, reference groups can be regarded as a source of influence. Members of a reference group can be family, friends, or colleagues (Pickton & Broderick, 2005). Apart from these private reference groups, also public reference groups can exert influence. Celebrities or SMIs are among these public reference groups and by endorsing products, consumers may adapt their attitudes towards a brand (Hoonsopon & Puriwat, 2016).

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Arnould et al. (2005) describe reference groups along the dimension of membership and attraction. Along these dimensions four types of reference groups can be explained: Avoidance, disclaimant, contactual and aspirational reference groups. Due to their relevance for the study at hand, only the latter two will be explained. When individuals hold membership of a group and attach positive feelings with it, this describes the contactual reference group, e.g. sport clubs. The aspirational type describes a reference group to which the individual does not belong, but still feels positively attracted towards it. One example of this reference groups are CAs, who are admired by others. Hence, they also possess the ability to influence consumers' perception towards a product or brand. In relation to this, the model of meaning transfer can be used to further explain influence of the aspirational reference group (Arnould et al., 2005).

McCracken (1989) offers a model to explain celebrity endorser effectiveness. Based on Mc Cracken's (1986) model of meaning transfer, celebrity endorsers are individuals that possess cultural meaning, which they can transfer onto products by being present in advertisements. Then consumers, who constantly search for meaning in their lives, can fulfil this need by the consumption of meaningful products (McCracken, 1989). In comparison to mannequins, celebrities possess some superior characteristics. Celebrities can offer "a range of personality and lifestyle meanings", which mannequins are not able to deliver (McCracken, 1989, p. 315). Further, celebrities are delivering meaning more powerful compared to mannequins who are perceived as more artificial and in a way only act out meaning (McCracken, 1989).

In comparison to Arnould et al. (2005), McCracken (1986) does not directly refer to reference groups in relation to the model of meaning transfer. But the latter proposes opinion leaders as a tool to transfer meaning onto products. Opinion leadership is a concept which is similar to the concept of reference groups and will be explained in the following.

Opinion leaders and the two-step flow of communication model

Opinion leaders are another concept that seeks to describe how individuals' attitudes and behaviour can be influenced by others. Opinion leaders are possessing one or more of these following characteristics. They are seen as experts in their field of knowledge, have public recognition, are active members of a community, make frequent contributions or act as role models for others. Due to these characteristics, opinion leaders are known for diffusing information or communication messages to others. This can be related to the understanding of the two-step flow of communication model, where opinion leaders take a mediator role between the mass media and the audience of a

communication message. It is further described that with the rise of online activities, the power of opinion leaders might have increased even more (Casaló et al., 2018). These online opinion leaders are part of online networks and by this possess the ability to reach many, sometimes even millions, more people compared to offline opinion leaders. With the rise of social media, online opinion leaders are now able to post and share brand related content. By this, followers of the online opinion leaders are exposed to the related marketing message and can be influenced (Solomon, Bamossy, Askegaard, & Hogg, 2016).

The two-step flow of communication model, developed by Katz and Lazarsfeld (1966), conceptualizes that within a communication system, individuals acquire information from the mass media with having one step in form of other individuals in between. These middlemen, called opinion leaders, have the special role of connecting mass media with interpersonal communication. The two-step flow of communication model can help marketers to understand flows of information and how to take advantage of it for their own purposes, such as identifying influential opinion leaders of their target segment (Windahl & Signitzer, 2009).

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3   Research gap and research question
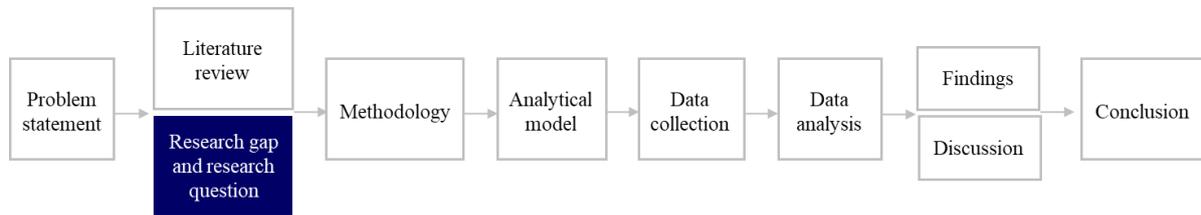
In the previous chapter, literature was reviewed to gain general knowledge about the theoretical foundations of the three individual research fields. In order to identify a research gap, additional literature is reviewed in the overlapping research fields: brand authenticity and social media marketing, social media marketing and sport brands, sport brands and brand authenticity. Following this, literature is reviewed that combines all three research fields. Based on literature introduced in this as well as in the previous chapter, a research gap and research question are formulated. Figure 2 gives a visual overview of the overlapping research fields and the resulting research gap.

Figure 2: Overlapping research fields and research gap, own illustration.

First, literature in the fields of brand authenticity and social media marketing is reviewed. Morhart et al. (2015) claim there is the need to further investigate brand authenticity with regard to a company's online activities, e.g. on social networks. Some researchers have touched upon the topic of authenticity in relation to their social media studies (Asmussen et al., 2016; Batra & Keller, 2016; A. Levin, 2020; Pérez-Latrel & Tsourvakas, 2013). Other researchers investigated authenticity in

relation to stakeholders that are involved in activities on social media, such as individual users (Marwick, 2005) and SMIs (Audrezet, Caffier de Kerviler, & Moulard, 2018; De Veirman et al., 2017). But only few researchers investigated brand authenticity dimensions in a social media context (Guèvremont, 2018). In addition, those who investigated social media as a driver of brand authenticity treated social media as an overall construct (Dwivedi & McDonald, 2018) and did not distinguish between different forms of social media marketing, such as the use of SMI or CA endorsers. Researchers, who investigated SMIs and CAs, focused on their effect on a number of brand constructs such as brand awareness, purchase intention (Hambrick & Mahoney, 2011; Lou & Yuan, 2019), and brand loyalty (Bush et al., 2004), but not on the construct of brand authenticity.

Second, literature in the field of social media marketing and sport brands is reviewed. Sport marketers use social media to interact with consumers to support brand messages, strengthen relationships and communities, and to generate sales (Filo et al., 2015; Smith, 2017). Researchers examined in more detail social media usage of athletes (Hambrick & Mahoney, 2011; Pegoraro, 2010), sport club (Parganas et al., 2015), and fans (Clavio, 2011; Clavio & Walsh, 2014). After reviewing some relevant literature, it can be concluded that research rather describes general developments in social media and its impact for sport marketers (Newman et al., 2013; Smith, 2017). Those researchers, who investigated brand endorsers of sport brands, mainly focused on CAs as potential collaboration partners (Brison et al., 2016; Hambrick & Mahoney, 2011; Peetz & Lough, 2015), but only limited literature seems to exist that also takes into account SMIs. In addition, it becomes apparent that most of this research concentrates on social media platforms such as Facebook and Twitter while Instagram seems to be neglected in the sport context (Thompson, 2017).

Third, literature in the field of sport brands and brand authenticity is reviewed. Junghagen and Lillo (2017) believe that the sport industry, in particular, is concerned by authenticity due to the highly competitive nature of the industry. Only little research has been conducted in the combined field of sport brands and authenticity. Either researchers only touched upon the topic of authenticity in relation to sport team personality dimensions (Tsiotsou, 2012). Or researchers investigated the role of authenticity in very specific contexts, such as the case of outdoor sports conducted indoors (e.g. rock climbing, skiing). The researchers' study consisted of interviews with indoor sport centre providers to see how they deal with the issue of an artificialized setting and consumers' need for authenticity (Salome, 2010). However, none of the reviewed studies has examined the impact of different marketing activities on a sport brand's authenticity.

Already by reviewing literature in these three overlapping research fields, it becomes apparent that there might be a gap in existing literature.

Lastly, literature in the combined fields of brand authenticity, social media marketing, and sport brands is reviewed. Pronschinske, Groza and Walker (2012) examined the relation between professional sport teams' Facebook page attributes and user participation. They found that attributes that signal authenticity, such as logos and official page statements, are among the ones that have the strongest impact on user participation. In their study, they understood authenticity as something that indicates that the Facebook page is associated with the official sport team instead of being a fake account. Firgolska and Kucharska (2019) conducted a survey among users, who followed a football player and the associated football club on social media. They investigated the influence of football player's personal and the football club's brand authenticity on attitudinal loyalty towards the football sport as a whole. The researchers concluded that players' and clubs' brand authenticity on social media is a crucial factor for the football sector's overall success. Söderman and Persson (2016) collected data from online forums, websites and podcasts to investigate football supporters' perception of a sport clubs' authenticity in the context of stadium relocations. They found that a football club's stadium relocation affects mainly objective (e.g. based on perceived originality) and not so much subjective (e.g. based on personal experiences) authenticity perceptions.

It can be concluded that research often focuses on an athlete's personal or a sport club's brand authenticity (Firgolska & Kucharska, 2019; Söderman & Persson, 2016). Among the presented researchers, brand authenticity was mainly investigated in relation to sport on websites, forums, podcasts, or Facebook (Pronschinske et al., 2012; Söderman & Persson, 2016).

By reviewing current research literature, it becomes apparent that following aspects have been neglected so far.

First, none of the reviewed literature has examined CA and SMI endorsers as social media marketing types in relation the construct of brand authenticity. Second, even though a lot of researchers have acknowledged the importance of social media for sport brands, only a few have focused on the social media platform Instagram. Lastly, authenticity in the context of sport seems to be limited on investigations regarding the authenticity of athletes or sport clubs. It seems that only little research has been conducted in relation to authenticity of sport corporate brands. By connecting these aspects, it can be concluded that there seems to be a lack of research in relation to the effect of a sport brand's social media marketing efforts, such as the use of CA and SMI endorsers, on brand authenticity.

Especially in regard to Instagram, which is a growing social media platform, this has not been researched to a large extent.

The literature reviews of the individual and overlapping research fields were conducted to gain knowledge and to detect a research gap, which leads to the following research question:

How does social media marketing, in form of celebrity athlete and social media influencer endorsers, on Instagram affect consumer-perceived authenticity of sport brands?

Following research purpose can be deduced. By answering the proposed research question, the study aims to add knowledge to the individual and combined research fields of sport brands, brand authenticity, and social media marketing. More specifically, the to be conducted research seeks to investigate the effects of a sport brand's social media marketing efforts, in form of CA and SMI endorsers, on the brand's authenticity. This will be examined with regard to Instagram as a social media platform. Furthermore, it is sought to give recommendations to practitioners, such as brand managers and marketers of the sport industry.

Delimitations

Due to the scope and the posed research question of the thesis, certain delimitations seem to be reasonable.

First, as explained in part 2.2 several understandings of authenticity exist in literature. For the course of the study at hand, authenticity is regarded from a brand image perspective rather than from a brand identity point of view. This implies that a brand's authenticity is determined by consumer perceptions (Morhart et al., 2015) opposed to marketers' own definition of the brand's core attributes (Beverland, 2005). Thereby, authenticity is not only understood to be an objective construct, but also as something subjectively formed in consumers' minds (Leigh et al., 2006). Thus, drawing on Grayson & Martinec's (2004) two authenticity types, indexical and iconic authenticity; the latter will be the focal aspect for the study at hand. Based on these considerations, in the later course of the study, when brand authenticity is mentioned, it is spoken of consumer-perceived brand authenticity also if not explicitly said otherwise.

Second, the aim of the study is to examine how the authenticity of a sport brand is affected. Therefore, the focus solely lies on the brand's authenticity rather than on the authenticity of the brand's products and services. Further, investigations regarding the authenticity of people is not part of this study.

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Third, part 2.1.1 has given an overview of different sport brand categories. This study focuses on the group of classical brands, more specifically on sport corporate brands that produce and sell sporting goods. By this, it is clear that whenever it is referred to sport brands in the study at hand, sport corporate brands are addressed and not sport-specific brands (club, organisation, event, celebrity, and media brands) or certification and label brands.

Fourth, in part 2.3.5 the concept of CAs and SMIs in relation to social media marketing has been introduced. Both are widely utilized as endorsers by brands. For this study, whenever it is referred to CAs and SMIs, they are understood in their role as brand endorsers.

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4   Methodology
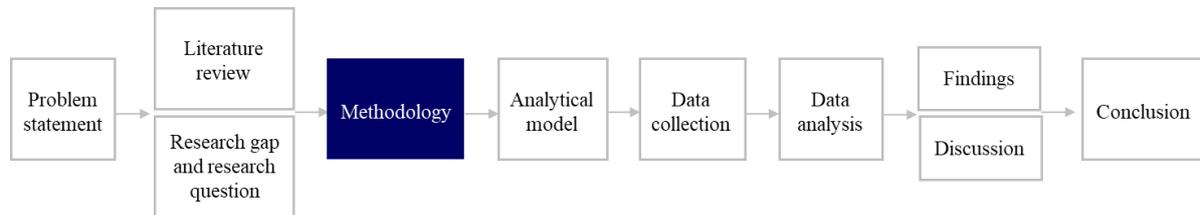
Research methodology is concerned with how research is done scientifically. It describes how the research problem and research question is scientifically approached and what the logic behind these considerations is (Kothari, 2004). In this chapter, the aim is to describe the chosen research philosophy, research approach, and research strategy to investigate the posed research question.

4.1   Research philosophy

A research philosophy is about the "development of knowledge and the nature of that knowledge" (M. Saunders, Lewis, & Thornhill, 2009, p. 107). Thereby, it addresses assumptions that are made about how the world works, what is accepted as knowledge, and researchers' own values (M. Saunders et al., 2009). In the following, assessments of the three key components (ontology, epistemology, and axiology) regarding the chosen research philosophy are presented and discussed in the context of the study at hand. These three components can be used to describe the research philosophies of positivism, interpretivism, and pragmatism which are taken into account.

Ontology "is concerned with nature of reality" (M. Saunders et al., 2009, p. 110) and relating assumptions that researchers have when conducting their studies.-In the study at hand, the intention is to examine the effect of SMIs and CAs on brand authenticity. One could argue that brand authenticity is dependent on consumers' perceptions (Morhart et al., 2015). Therefore, brand authenticity can be regarded as a social phenomenon that corresponds with subjectivism and, thus, can be related to interpretivism. Subjectivism states that "social phenomena are created from the perceptions and consequent actions of social actors" (M. Saunders et al., 2009, p. 111). It is further understood to be an ongoing process of social interaction by which these social phenomena are formed (M. Saunders et al., 2009).

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Epistemology describes "what constitutes acceptable knowledge in a field of study" (M. Saunders et al., 2009, p. 113). Researchers, who adopt a positivist view observe reality to produce data that leads to credible generalisations. In order to generate hypotheses, researchers take existing knowledge and theories. In the process of these studies, formed hypotheses have to be tested and then fully or partly confirmed or denied. The research is designed to produce additions of existing theories, which can then lead to subsequent research. Overall positivism adopts a fact-based and almost natural scientific-like view on research (M. Saunders et al., 2009). The study at hand matches this view, because relevant literature in the research fields of sport brands, brand authenticity, and social media marketing is reviewed. Based on this, a research gap is detected, and a research question is formulated. Drawing on theory, hypotheses are built in order to be tested within the process of the present study. For this, a deductive research approach is chosen that seeks to collect and analyse data in a way to enable generalisable findings.

Axiology is concerned with researchers' values. This is of importance as values are the basis for many of researchers' decisions, such as in terms of choosing a research topic and research design. Researchers following a positivist philosophy conduct studies in a value-free way. This means that researchers are external to their collected data, in the sense of not influencing or being influenced by the outcome of conducted studies. Although complete externalization of the researcher is probably not possible, positivist research is trying to mitigate this by applying a highly structured research design, quantitative data collection methods and statistical data analysis (M. Saunders et al., 2009). This view is adopted by choosing online questionnaires for collecting data and statistics for analysis purposes. Thereby, it can be ensured that the researchers do not influence the data outcome. However, as previously stated it could be argued that by phrasing the questionnaire and defining the confirmation and rejection of hypotheses, it is almost impossible to be completely external towards the research study.

For the study at hand it can be summarised that two of three components, epistemology and axiology, adhere to the philosophy of positivism. Despite of this, the ontology component of this study rather follows the interpretivist philosophy.
Mixing different components of positivism and interpretivism is supported by the philosophy of pragmatism. Pragmatism is about finding the research philosophy components that are best suited to

answer the research question. Therefore, mixing different views of ontology, epistemology and axiology is supported (M. Saunders et al., 2009).

4.2   Research approach

The research approach describes how existing theory is utilized in order to derive new knowledge (M. Saunders et al., 2009). The study at hand is designed according to the deductive approach, which is often related to the positivist research philosophy. Deductive research follows the concept of developing hypotheses based on existing theory, which are then tested using a suited research strategy and by this allow to make generalisations (Moses & Knutsen, 2012; M. Saunders et al., 2009). According to Robson (2002), there are five steps when conducting deductive research.

First, hypotheses are formed on the basis of existing theory, where hypothesis are "testable propositions about the relationship between two or more concepts or variables" (M. Saunders et al., 2009, p. 124). Based on existing knowledge in the field of sport brands, social media marketing, and brand authenticity hypotheses are built that presume an effect of CAs and SMIs on brand authenticity. Secondary data, such as scientific books and journal articles, are collected using the databases of CBS Libsearch and Google scholar. Further, the PUMA company website and magazine articles were utilized to derive brand- and endorser-specific information.

Second, the hypotheses must be operationalized, which means explaining how the concepts or variables from step one are sought to be measured (M. Saunders et al., 2009). Also based on existing research, variables are defined to measure evaluations of CAs and SMIs as well as perceptions of brand authenticity.

Third, the operationalized hypotheses are tested (M. Saunders et al., 2009). By conducting a survey in form of an online questionnaire, primary data is gathered, which builds the basis for further analyses and testing the hypotheses.

Fourth, the outcomes of the test in step three are analysed, which will then lead to a confirmation or rejection of the stated hypotheses (M. Saunders et al., 2009). The outcome of the statistical analysis enables the confirmation or rejection of the stated hypotheses.

Fifth, in case of a rejection, the theory can be adapted according to the research findings (M. Saunders et al., 2009). In case of having to reject the stated hypotheses, possible reasons for this are proposed and recommendations for further research are given.

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4.3   Research strategy

Determining a research strategy will, to a large extent, depend on what the research question is about, what is the underlying philosophical understanding and what resources are accessible (M. Saunders et al., 2009). For the study at hand, a survey strategy is chosen due to the reasons outlined below.

First, according to M. Saunders et al. (2009), the survey strategy usually belongs to the deductive research approach. As outlined in the previous part, the study at hand applies a deductive research approach, meaning that, based on existing literature, hypotheses and an analytical model are developed to explain consumers' evaluations of CAs and SMIs and perception of brand authenticity. Second, a mono method approach is applied, meaning that only quantitative data is gathered. The quantitative method is mostly related to data collection techniques, such as questionnaires, and analyses procedures, such as statistics, that gather or calculate numerical values (M. Saunders et al., 2009).In order to investigate the research problem and research question at hand, the quantitative method is chosen for both, data collection and data analysis. Surveys are capable to gather quantitative data that can then be used to be analysed through statistics (M. Saunders et al., 2009) and therefore seem suitable.

Finally, time and monetary resources are limited for the study at hand. The research process concerning the study at hand started in January 2020. The online questionnaire was distributed between 12th March – 2nd April 2020. The study ends with the thesis submission on the 15th May 2020. Due to the time constraints and the scope of the thesis, the outlined research question is investigated in this given time frame, but not beyond. Thereby, the research can be labelled as a cross-sectional study, because data collection and analysis are bound to one specific timeframe. Survey strategies are commonly used for this type of study and therefore considered as suitable, because they allow that data is collected without high costs and much time (M. Saunders et al., 2009).

For the study at hand, an online questionnaire was chosen as a technique to collect data. Questionnaires belong to the most popular data collection procedures when surveys are used (M. Saunders et al., 2009). More detailed information regarding the questionnaire design for the study at hand is provided in chapter 6.

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5   Analytical model
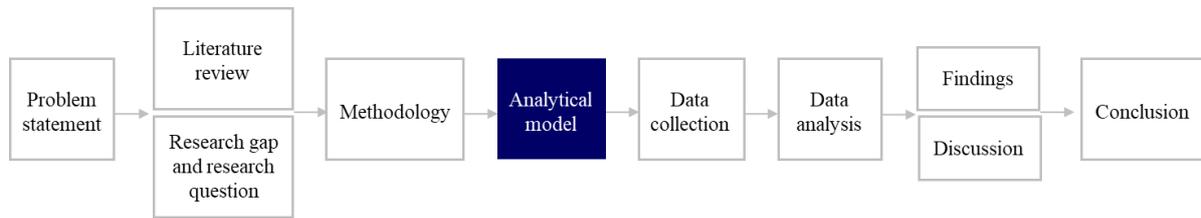
In order to investigate the stated research question, hypotheses are formulated based on existing theory and research literature, leading to a preliminary analytical model, which is sought to be investigated with the study. Further, the measurement variables for CA and SMI evaluations and brand authenticity perceptions are determined and described.

5.1   Hypotheses

As a deductive approach is applied to the study at hand, which is explained in part 4.2, in a first step, hypotheses must be developed based on previous literature (M. Saunders et al., 2009).

Drawing on the before presented theoretical foundations, five hypotheses can be deduced which will aid answering the research question. Hypotheses are unconfirmed assertions regarding a particular phenomenon or a relationship between different variables (Malhotra, Nunan, & Birks, 2017; Matthews & Ross, 2010). Concerning the case at hand, hypotheses are formulated with regard to investigating the relationship between two different forms of social media marketing, employed by a sport brand, and consumer-perceived authenticity of this brand. Furthermore, moderating effects of sport involvement and social media advertising scepticism are hypothesized. The hypotheses are derived from existing literature that has examined endorsers, also in relation to effectiveness on other branding constructs, but not in connection to brand authenticity. In addition, the model of meaning transfer and two-step flow of communication model in combination with the concepts of reference groups and opinion leaders are used to suggest a potential effect of CAs and SMIs on brand authenticity. To derive the hypotheses for the moderating effects, literature was mainly used from researchers who investigated similar moderators but in a different context.

As stated before, opinion leaders are individuals that are active members of a community, make frequent contributions and are publicly recognized. Additionally, they are perceived as experts in their field of knowledge, are linked to many others and can act as role models. Based on this, they are

valued from consumers as information sources and possess the ability to exert influence (Casaló et al., 2018; Windahl & Signitzer, 2009). Online opinion leaders that are active in online networks are said to be even more powerful in influencing others (Solomon et al., 2016).

Based on the description of opinion leaders, CAs can be regarded as a form of online opinion leaders when used within social media, which will be presented in the following.

Drawing on the in part 2.3.5 stated definition of a celebrity endorser, a key characteristics is that he or she "enjoys public recognition" (McCracken, 1989, p. 310), meaning that he or she has gained "popularity and exposure within society" (Peetz & Lough, 2015, p. 136). CAs have reached this fame due to their talent, which is the sport they professionally and successfully practice (Martin, 1996; McDonald, 2016; Schouten et al., 2020). Once they have achieved recognition within society, they are considered as experts who "provide expert opinions on a number of products, but especially on products they use during competition" (Peetz & Lough, 2015, p. 130). Besides their occupational membership in a sport club, CAs can also be members of online social media networks where they are directly connected to their fans (Pegoraro, 2010). Apart from promotional content, they share content about their personal and professional lives, their sport or react to questions from fans (Pegoraro, 2010) and thereby constantly make contributions. By being active within these virtual networks, CAs are able to reach up to millions of fans and potential consumers (Hambrick & Mahoney, 2011).

The influence of opinion leaders can be explained by means of Katz and Lazarsfeld's (1966) two step-flow of communication model (Casaló et al., 2018), which was introduced in 2.3.6. Considering CAs as online opinion leaders, this would mean that marketing messages from brands are mediated by CAs to fans and consumers within social media. CAs would thereby be able to exert a certain influence on consumers' brand perceptions. Taking into consideration that in the study at hand brand authenticity is viewed as consumer perceptions, it seems reasonable to conclude that opinion leaders and, hence, CAs are capable to influence consumers by affecting their perceptions of brand authenticity.

Moreover, CAs can also be regarded as a reference group, consumers connect to. Reference groups are people, whose attitudes and behaviours have an influence on other individuals' attitudes and behaviours. Researchers distinguish between reference groups along the dimensions of attraction and membership. When individuals are not part of a group but have positive feelings towards this group and wish to be a part of it, then this is an aspirational reference group (Arnould et al., 2005; Hoyer & MacInnis, 2008).

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When CAs are perceived as likable and skilled in the sport they practice, consumers' resulting favourable perceptions of the CAs can positively influence their purchase behaviour of the promoted product (Hambrick & Mahoney, 2011). Furthermore, a CA is often described as "a figure to which the consumer base aspires" (Ruihley, Runyan, & Lear, 2010, p. 134). Drawing on these considerations, one can argue that CAs can be viewed as part of consumers' aspirational reference group.

The influence of the aspirational reference group can be explained by the model of meaning transfer (Arnould et al., 2005). On the basis of the model, CAs are capable to transfer meanings they carry to the endorsed product and, hence, to the consumer when the product is purchased (McCracken, 1989; Peetz & Lough, 2015).

Based on these considerations, it is assumed that CAs, as part of consumers' aspirational reference group, are able to affect consumers' perceptions and, thus, their perceptions of brand authenticity. The first hypothesis therefore states:

H1: **Evaluations of celebrity athlete endorsers as a form of social media marketing on Instagram will positively affect the authenticity perceptions of a sport brand.**

When evaluating SMIs, it is easy to assume that a high number of followers indicates a high effectiveness when it comes to influencing others. But in addition, consumers' evaluation of seeing SMIs as opinion leaders is related to their effectiveness in influencing others (De Veirman et al., 2017). SMIs can be understood as online opinion leaders, because of the following aspects. They are active members of social media networks, such as Instagram, and make frequent contributions by posting content about their daily life or other fields of interest. SMIs are perceived as experts and a valuable information source due to specialising in one specific knowledge field (Lou & Yuan, 2019). Apart from building a solid group of followers, SMIs are often known beyond that loyal group of followers and, thus, can be associated to be publicly recognized (Djafarova & Rushworth, 2017). They act as role models, visionaries and trendsetters and by this influence others (A. Levin, 2020). Thus, SMIs can be regarded as opinion leaders.

In the light of the two-step flow of communication model, this indicates that SMIs as opinion leaders can act as middlemen between brands and consumers. By spreading marketing messages, they can have an influence on consumer's perception of a brand. As brand authenticity is understood as a

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construct that is largely shaped by consumers' perceptions, it can be expected to be also influenced by opinion leaders and, thus, SMIs.

SMIs can be also understood to be part of consumers' reference group. SMIs are perceived to be "verbal, smart, ambitious, productive, and poised" (Freberg et al., 2011, p. 91). These are all positive characteristics, which lead to consumers' admiration of, association with and aspiration for SMIs (Djafarova & Rushworth, 2017). Based on this, it can be argued that SMIs are part of consumers' aspirational reference group. As such a reference group, SMIs can also be related to the model of meaning transfer. This infers that SMIs are eligible as endorsers to transfer cultural meaning onto products (McCracken, 1989).

SMIs communicate to consumers via posting textual and visual content on social media platforms and by this share large parts of their personal life (Abidin, 2015). By posting continuously content, consumers are likely to connect and identify with SMIs. Because both, consumers and SMIs are users of social media networks, e.g. Instagram, SMIs can also be seen as part of consumers' contactual reference group.

This further supports the reasoning that SMIs are able to influence consumers' perceptions of brand authenticity. Based on these considerations, our second hypothesis reads as follows:

H2: **Evaluations of social media influencers as a form of social media marketing on Instagram will positively affect the authenticity perceptions of a sport brand.**

Even though the overall effectiveness of SMIs for endorsement purposes has not been sufficiently investigated yet, one can notice a shift from celebrities to SMIs for advertising efforts (Schouten et al., 2020).

Researchers examined perceptions of both celebrities and SMIs. Their findings allowed them to draw further implications. It is suggested that SMIs are more effective endorsers on social media platforms, such as Instagram, than celebrities, who seem to be more appropriate for traditional advertising. Considering that SMIs, unlike CAs, have only emerged with the advent of social media and without any institutional setting such as the sport industry (Gräve, 2017), they can be regarded as more suitable for endorsements within this new medium, such as Instagram. As one of a few studies, Schouten et al. (2020) directly compared celebrities and SMIs as endorsers. The researchers provided evidence that SMIs have a higher influence on marketing effectiveness, understood in terms of purchase intentions, than celebrities. For their studies, celebrities and SMIs were chosen from

different sectors, one of them being the fitness category. Furthermore, some researchers argue that SMIs provide more credible, relatable, and authentic messages than celebrities in the eyes of consumers. Thus, they were also perceived as more influential, especially with regard to purchase intentions (Breves et al., 2019; Djafarova & Rushworth, 2017).

Based on this, it could be reasoned that SMIs are also more effective in influencing consumers' brand authenticity perceptions compared to CAs. Therefore, it is hypothesized that:

H3: **Evaluations of social media influencers have a more positive effect on authenticity perceptions of a sport brand than evaluations of celebrity athletes.**

Mullin, Hardy, and Sutton (2014) distinguish three forms of involvement with regard to sport: behavioural, cognitive and affective involvement. Behavioural involvement means the actual execution of activities (e.g. doing exercise), whereas cognitive involvement describes the acquisition of knowledge (e.g. reading sport magazines) and affective involvement evolves around emotions (e.g. feelings associated with sport).

Due to the in part 2.3.5 stated similarity between sponsorship and endorsement, following findings in relation to sport sponsorship could also be relevant in the context to endorsers of a sport brand. Researchers found out that the level of consumers' involvement in sport affects the overall outcome of sport sponsorship. More precisely, the sponsorship was more effective for consumers, who showed high levels of knowledge about and interest in the sport. The effectiveness of sport sponsorship was measured in terms of consumer attitude and recall (A. M. Levin, Joiner, & Cameron, 2001).

Furthermore, Fritz, Schoenmueller, and Bruhn (2017) propose that consumers with high brand involvement are more prone to spend more cognitive exertion for evaluating a brand. As authenticity is regarded as something subjective, according to the authors, cognitive exertion from consumers is needed to assess a brand's authenticity. In addition, as suggested by Beverland (2006), involvement with a product category could have a moderating impact on brand authenticity perceptions.

Drawing on these considerations, it is expected that the to be investigated influence of CAs and SMIs on brand authenticity differs in terms of strength between consumers depending on their individual level of sport involvement. Therefore, the study seeks to examine involvement as a moderator in line with Fritz et al. (2017) who tested the influence of brand involvement on the effects of brand authenticity drivers. Based on the aforementioned arguments, it is hypothesized:

H4a: **Sport involvement strengthens the effect between celebrity athletes and the authenticity of a sport brand.**

H4b: **Sport involvement strengthens the effect between social media influencers and the authenticity of a sport brand.**

Throughout the years, consumers have developed knowledge about marketers' attempts to influence their attitudes and behaviours, such as through advertising (Friestad & Wright, 1994; Shrum, 2012). As a result of this knowledge, consumers have developed advertising avoidance techniques, such as skipping of ads. Thus, they became to some degree resistant to marketers' influence (Arnould et al., 2005). Also, with the emergence of digital media, users have developed strategies to avoid advertising, such as the installation of ad-blockers (De Veirman et al., 2017). Social media networks have opened up new ways to integrate marketing messages into social media content to decrease advertising avoidance (Breves et al., 2019). When consumers interact with a celebrity on social media, they foremost see them as an admired personality who endorses a lifestyle and not the brand endorsement in focus (Lueck, 2015). Further, the collaboration with SMIs can help brands to bypass consumers' advertising avoidance, because product recommendations from SMIs are perceived as less intrusive (De Veirman et al., 2017).

Although this sounds like a suitable way to mitigate advertising scepticism, recently also SMIs and CAs have been urged to mark content as ads, if it has been posted as part of a brand collaboration (Boerman, Willemsen, & Van Der Aa, 2017, p. 83). This might again raise consumers' scepticism and thus resistance towards the marketing message. In addition, consumers are cautious when brand authenticity cues are used in advertising, such as relating new product versions to the original version. Consumers closely evaluate, if it really represents a brand's essence (Brown et al., 2003; Guèvremont & Grohmann, 2018). In their study, Morhart et al. (2015) have similarly tested, if scepticism towards marketing has a moderating effect on the relation between drivers of brand authenticity and brand authenticity itself. Their findings support that advertising scepticism has a negative moderating affect when communication is highlighting a brand's virtue and values, but not in relation to a brand's history and continuity.

Based on the aspects above, it can be argued that when consumers are aware and, thus, sceptical towards social media advertising, they could have generated some degree of resistance towards brand endorsements on social media and, hence, the effect on brand authenticity would be lowered.

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Therefore, it should be tested, if social media advertising scepticism shows a negative moderating effect on the relationship between CAs, SMIs and brand authenticity. Hence, it is hypothesized:

H5a: **Social media advertising scepticism weakens the effect between celebrity athletes and the authenticity of a sport brand.**

H5b: **Social media advertising scepticism weakens the effect between social media influencers and the authenticity of a sport brand.**

Based on the aforementioned research question and hypotheses, a preliminary analytical model, shown in figure 3, was conceptualised and is sought to be examined by the study at hand. The derivation of the measurement variables will be explained in the following part.
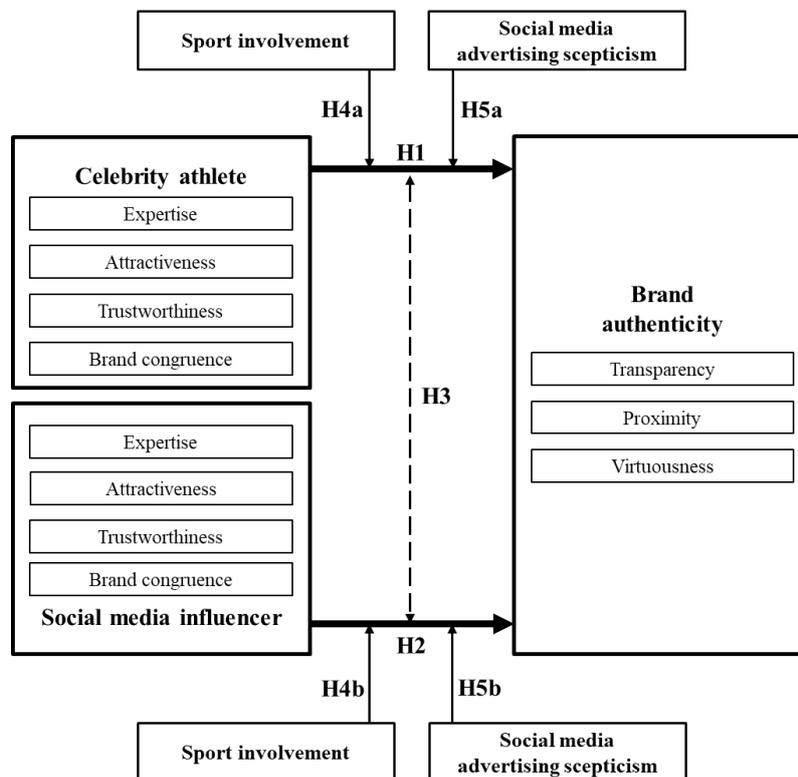

Figure 3: Preliminary analytical model, own illustration.

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5.2 Measurement variables

The deductive approach requires that, after having developed hypotheses, those hypotheses are defined in operational terms (M. Saunders et al., 2009). For the case at hand, it means that the two endorser types, CAs and SMIs, as well as brand authenticity must be described in a way that makes them measurable. In the following two sub-sections the chosen measurement variables for CAs, SMIs, and brand authenticity are explained.

5.2.1 Measurements variables for celebrity athletes and social media influencers

For the study at hand expertise, trustworthiness, attractiveness, and brand-influencer congruence were chosen to be the most relevant variables to measure consumers' evaluation of CAs and SMIs on social media. This decision is based on previous research work from Ohanian (1990) and her developed tri-component scale to evaluate endorsers. The scale's three components consisting of expertise, trustworthiness, and attractiveness have been deduced from the source credibility model and the source attractiveness model. Both models originate from the field of social psychology and have been developed for research within communication. Over time, they have also become highly relevant for the endorsement process. The source credibility model states that expertise and trustworthiness are the decisive factors that a source is perceived as credible and persuasive. The source attractiveness model, in turn, suggests that if a source is viewed as attractive it is persuasive (McCracken, 1989; Ohanian, 1990). Attractiveness means that a source is "known to, liked by, and/or similar to the consumer" (McCracken, 1989, p. 311).

The two source models, on which the tri-component scale builds, can be criticized for relating an endorser's persuasiveness solely to the endorser itself and thereby neglecting the relation to the endorsed product (McCracken, 1989). Congruence between the endorser and the product or the brand is regarded as another crucial determinant concerning the success of endorsements (Chadwick, Chanavat, & Desbordes, 2015; Min, Chang, Jai, & Ziegler, 2019). Therefore, in addition to the endorser's expertise, attractiveness, and trustworthiness, the fit between the brand and the endorser is deemed to be relevant with regard to the CA and SMI evaluation in the study at hand. Thus, brand–congruence is added as a fourth variable for evaluating CAs and SMIs on Instagram.

In the following, each variable is being explained and related to the context of CAs and SMIs.

Expertise

From research within the field of communication, expertise is defined as "the extent to which a communicator is perceived to be a source of valid assertions" (Ohanian, 1990, p. 41). Others describe expertise as the perceived competence of endorsers to make certain claims based on their experience, knowledge and skills (Munnukka, Uusitalo, & Toivonen, 2016). In literature, it is often more generally spoken of "a source's competence or qualification, including the source's knowledge or skills, to make certain claims relating to a certain subject or topic" (Lou & Yuan, 2019, p. 61).

Expertise in relation to CAs can be described as athletic expertise, meaning that CAs' expertise stems from their sport success as well as from the skills and proficiency they possess in their field of sport (Arai, Ko, & Ross, 2014). By this, they can "provide expert opinions on […] products they use during competition" (Peetz & Lough, 2015, p. 130).

Transferred to the case of SMIs, expertise can be defined as "knowledge in a particular field" (A. Levin, 2020, p. 21), which is often based on experience with a certain product category (Casaló et al., 2018). SMIs usually hold expertise in a specialized field, such as healthy living, food, travel, beauty or fashion (Lou & Yuan, 2019).

Attractiveness

Apart from physical attractiveness (Arai et al., 2014; Lou & Yuan, 2019; Ohanian, 1990), attractiveness has been also defined from a broader perspective (Simmers, Damron-Martinez, & Haytko, 2009). Drawing upon the source attractiveness model, attractiveness encompasses three dimensions: similarity, familiarity, and likeability (Peetz & Lough, 2015).

With regard to possible effects on brand authenticity, the focus will be on only one dimension of attractiveness, which is similarity. In relation to endorsers, similarity can be described "as a supposed resemblance between the source and receiver of the message" (McCracken, 1989, p. 311).

In the context of CAs, Peetz (2012) suggests that consumers are likely to identify with endorsers who share similarities. They may also identify if they only have the feeling that they share commonalities regarding opinions or their way of life, for example. As a consequence of consumers' identification with endorsers, those become influential (Peetz, 2012). In this context, Schouten et al. (2020) argue that consumers' identification with celebrities, such as athletes, often emerges through consumers' admiration for the celebrity and their pursuit to be like them rather than through actual commonalities. Individuals are more likely to bond with people that are similar to themselves. Thus, the more consumers perceive SMIs to be similar to themselves, the more likely they are to interact with them.

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As consumers often compare themselves to admired SMIs, they are more likely to develop positive brand perceptions when products are shown by SMIs, who share similarities with the them (Lee & Watkins, 2016).

Trustworthiness

Within research on communication, trustworthiness refers to "the degree of confidence in the communicator's intent to communicate the assertions he considers most valid" (Ohanian, 1990, p. 41). Most findings on trustworthiness suggest a positive impact on message effectiveness and attitude change when the communicator is regarded as trustworthy (Ohanian, 1990). Concerning endorsers, in order to be perceived as trustworthy, they need to show "honesty, integrity and believability" (Erdogan, 1999, p. 297).

Researchers suggest that CAs are required to hold characteristics that signal trustworthiness in order to be an effective endorser (Ruihley et al., 2010; Stone, Joseph, & Jones, 2003). In the particular case of CAs, sportsmanship can be considered as a factor of trustworthiness that becomes crucial in gaining consumers' trust. Sportsmanship is commonly understood as athletes acting respectful, ethical and fair (Arai et al., 2014).

Trust in SMIs' honest opinion is a focal aspect why consumers follow them (A. Levin, 2020). Those, who are perceived as trustworthy, are expected to have a higher impact on their audience's behaviours (Lim, Mohd Radzol, Cheah, & Wong, 2017).

Brand congruence

According to the product match-up hypothesis, endorsers are deemed to be more effective when there is congruence between them and the product. Apart from product congruence, the effectiveness of the endorsement is influenced by the perceived congruence between the endorser and the brand (Erdogan, 1999). This means that congruence benefits also occur when a personality fit exists between endorsers and brands (Breves et al., 2019). Although most researchers distinguish product and brand congruence, it can be assumed that high product-endorser congruence, also leads to higher perceived brand-endorser congruence.

According to Min et al. (2019), the fit between the brand and the celebrity endorser is a critical aspect for the success of the endorsement. Similarly, Kim and Na (2007) state that consumers respond more positively to an endorsed product in cases where congruence between the CA and the endorsed

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product is given. Therefore, sport brands often select professional athletes for endorsing their products (Braunstein-Minkove et al., 2011; Min et al., 2019).

Likewise regarding SMIs, brand-influencer fit positively affects advertising effectiveness (Lim et al., 2017). The brand-influencer fit is seen as important for SMI endorsements, because SMIs' messages are often not perceived as advertising and therefore a mismatch might irritate their audience (Breves et al., 2019).

5.2.2 Measurements variables for brand authenticity

To operationalise the brand authenticity construct, it will be drawn on the dimensions of brand authenticity. After gaining an overview of various researchers' understanding of brand authenticity models in part 2.2, it had to be decided with which dimensions brand authenticity will be described and examined in this study. Guèvremont (2018) was found to be the only researcher, who has investigated brand authenticity dimensions in an online context. Therefore, it was decided to use the three identified dimensions of brand transparency, proximity and virtuousness for the research at hand.

The literature review has shown that many researchers incorporate a time-related dimension (e.g. continuity) to measure brand authenticity (Bruhn et al., 2012; Morhart et al., 2015). However, the fact that a cross-sectional study was conducted means that data was collected within a short time frame. Thereby, it would have become difficult to measure time-related dimensions such as continuity, further supporting the above stated decision.

Brand transparency

According to Guèvremont (2018), brand transparency is in place when a brand is perceived as honest, open, intuitive and spontaneous. Yoo (2014) defines brand transparency as "consumers' perceived levels of a brand's strategic communication effort to make information available - whether positive or negative in nature - for the purpose of enhancing their understanding and making a brand accountable for marketing practices" (p. 11). Brands that are perceived as transparent communicate emotions and not only show successes but also reveal negative aspects about themselves, such as "weaknesses, imperfections, doubts, and mistakes" (Guèvremont, 2018, p. 510). In line with this is the following argument. Transparency is more than speaking the truth, it is about open communication of critical issues, such as labour conditions along the supply chain. By being transparent about these critical issues a competitive disadvantage might arise. But researchers claim

that transparency increases consumers' trust and by this offsets disadvantages (Hustvedt & Kang, 2013).

Brand proximity

Brand proximity means that a brand is perceived to be real, caring and accessible. The brand seeks to create "familiarity and closeness within the community" (Guèvremont, 2018, p. 510). Gahlot Sarkar and Sarkar (2016) relate brand proximity to the concept of interpersonal attachment and intimacy. In this vein, brands are understood to possess the ability to elicit a feeling of closeness and by this connect with consumers on an emotional level. The researchers further distinguish between three forms of brand proximity. First, there is subconscious cognitive brand proximity, which is largely shaped by consumers emotions. Second, social brand proximity is built when consumers perceive brands to be enhancing their own social image. Third, cultural brand proximity is increased when consumers perceive brands to possess favourable cultural meanings (Gahlot Sarkar & Sarkar, 2016).

Brand virtuousness

Brand virtuousness stands for brands that follow moral principles and have high values. It is not only about having these principles and values written down, but to really put them into action and living up to them. Virtuous brands are perceived to be following an intrinsic motivation, seeking to help people and thereby have a positive impact on society (Guèvremont, 2018). Brand virtuousness is furthermore understood as a brand's externally viewed integrity (Fritz et al., 2017). According to Morhart et al. (2015), integrity refers to "moral purity and responsibility of the brand" (p. 203), meaning that it follows the 'right' values and is concerned about treating consumers thoughtfully (Morhart et al., 2015).

6   Data collection
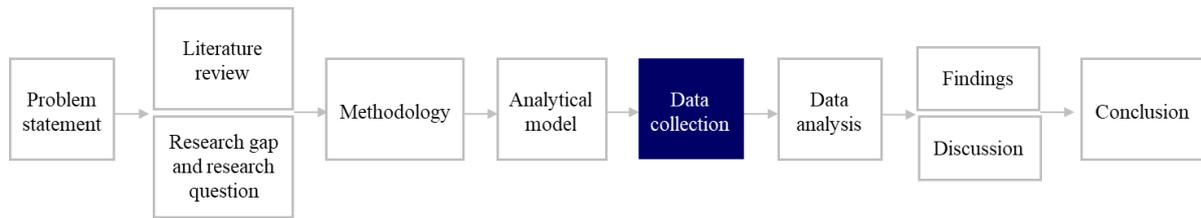
The following chapter describes how data is collected for the study at hand. First, the chosen sample design is outlined. Then PUMA brand endorsers, whose posts are used as stimuli are described. Afterwards, questionnaires and the Qualtrics software as a tool to gather quantitative data are introduced. After outlining the pilot-test, the components of the main study are described. The chapter finishes off with some ethical considerations regarding the chosen data collection method.

6.1   Sampling

Gathering and examining data from an entire population often turns out to be unfeasible for researchers because it can be quite time-consuming, expensive or difficult to get access to the whole population (M. Saunders et al., 2009). Instead, it is common to use the data from a number of selected elements of the population. The group of elements that has been chosen is known as the sample (Kothari, 2004; M. Saunders et al., 2009). Before the actual data collection takes place, the sample design must be defined (Kothari, 2004, p. 14).

The first step of the sample design process requires to determine a target population (Malhotra et al., 2017). With regard to the research question developed earlier, the target population for the study at hand consists of consumers, who have an Instagram account. This is decided, because participants without an Instagram account are most likely unfamiliar with social media marketing on Instagram and therefore not able to make a reliable assessment of the social media marketing types queried in the survey. Consumers' gender and age are of minor importance and therefore not seen as reasons for exclusion.

After the target population has been defined, a sampling frame is required. The sampling frame is a list including all the elements of the before determined target population (Malhotra et al., 2017). Because the target population for the study at hand is defined rather broadly, it is not possible to obtain a list which identifies each single person who has an account on Instagram. The missing sampling frame affects the following decision regarding an appropriate sampling technique.

The two main sampling techniques are probability and non-probability sampling (Malhotra et al., 2017).

In the case of probability sampling, each element "has a known (and usually equal) chance of being selected for the sample" (Matthews & Ross, 2010, p. 154). The selected sample usually represents the population quite well. Therefore, this sampling technique is also called representative sampling (Matthews & Ross, 2010; M. Saunders et al., 2009). In general terms, probability sampling is utilized in cases where a quantitative research approach is applied and the collected data is statistically analysed (Matthews & Ross, 2010).

Considering the study at hand, where the collected data is quantitative in nature, probability sampling seems to be most appropriate at first sight. However, for some particular reasons a non-probability sampling technique is applied. When using non-probability sampling, elements are not selected randomly as it is the case for probability sampling. Instead, they are chosen based on the researcher's decision (Malhotra et al., 2017). In other words, "the researcher can arbitrarily or consciously decide which elements to include in the sample" (Malhotra et al., 2017, p. 419). Therefore, non-probability sampling is also known as judgemental sampling (M. Saunders et al., 2009). As already indicated, one of the reasons why non-probability sampling is chosen is that probability sampling requires to be able to identify all the elements in the population and to have a population list available which was not the case for the study at hand (Matthews & Ross, 2010). Furthermore, non-probability sampling involves lower costs than probability sampling and can be therefore considered to be appropriate for research projects conducted by students. Besides that, it requires less time and is therefore more suitable for cross-sectional research (Malhotra et al., 2017; Matthews & Ross, 2010).

Among non-probability sampling techniques, convenience sampling is chosen. Convenience sampling refers "to select[ing] a sample on the basis of its convenience or ease of access" (Matthews & Ross, 2010, p. 164). Compared to other sampling techniques, convenience sampling is low in cost and takes less time (Malhotra et al., 2017; Matthews & Ross, 2010). However, convenience sampling entails limitations regarding representativeness and generalisation (M. Saunders et al., 2009), which will be discussed in part 9.4.

Applied to the study at hand, convenience sampling means that the questionnaire is published online on social media. It is shared with the researchers' personal networks on Facebook as well as within carefully selected Facebook groups. The groups include fitness groups or groups which were created by SMIs and serve as a place where their followers can interact. Furthermore, groups that were particularly created for student online surveys are utilized. Apart from convenience reasons, it is also

expected to have a high percentage of active Instagram users among Facebook users as both are social media networks. Finally, the questionnaire is also shared with the researchers' private network via e-mail.

A further step of the sampling design process is to define a sample size (Malhotra et al., 2017). Based on the quantitative research approach that was chosen, a sample size of at least 30 is required to conduct a statistical analysis (M. Saunders et al., 2009). Given the scope of this study, the resources and time available, it is aimed to reach a sample size of at least 100.

6.2 Brand endorser selection

For the study at hand, six carefully selected Instagram posts from a CA and a SMI serve as cues for assessing brand authenticity. It is assumed that each post was published as part of the CA's and the SMI's endorsement agreement with PUMA. Sprinter Usain Bolt is chosen to represent CAs while fitness SMI Pamela Reif is selected to represent SMIs. The following part provides some background information about both, Usain Bolt and Pamela Reif, as well as arguments for their choice.

Usain Bolt

Usain Bolt was born 1986 in Montego Bay, Jamaica. After being encouraged from his high school coaches to focus on athletics, he climbed his way up by taking part in junior championships and winning first medals. Usain Bolt's international breakthrough came in 2008 at the Olympic Games in Beijing where he not only won gold at sprinting the 100 metres and 200 metres, he also marked new world record times in these disciplines. His success continued at the Olympic Games in London and Rio de Janeiro and the Athletic World Championships (Lindstrom, 2019). After having finished his active career in 2017, Usain Bolt can look back at an astonishing athletic achievement, which gave him the nick name of being the "world's fastest man" (Sheldrake, 2017).

Apart from his athletic activities, which only make 6% of his income, Usain Bolt has several brand endorsement agreements with major brands across different product categories, which account for the rest of his income (Holder & Kommenda, 2017). Among these brands are Gatorade, Hublot, Champion Shave, and Virgin Media. He also collaborates with PUMA, which has the highest share in his brand collaboration income. When choosing collaboration partners, the brands have to match Usain Bolt's image, which evolves around "speed, gold, coolness and lightness" (Becker, 2017).

PUMA has been collaborating with Usain Bolt since he was 16 years old. He has been equipped with the latest athletic wear and running shoes for his training and competitions. Further, Usain Bolt was

the face of several PUMA marketing campaigns. Also, after retiring from his active career Usain Bolt stayed with Puma for product concept and communication campaign purposes. This collaboration sounds like a win-win situation for both. For Usain Bolt, PUMA has been great support especially during his early years (PUMA, 2013). In return, throughout the years, he has shown loyalty towards the brand supported by the statement "we've been together for years now, they are my family, so I don't want to start with a new family" (Becker, 2017). On the other side PUMA CEO Bjoern Gulden said "Usain is the perfect ambassador of the PUMA brand" (PUMA, 2013) and "he's the perfect posterchild for us" (Becker, 2017).

Usain Bolt is chosen as an CA, because he is an active brand endorser of PUMA. He can be expected to be well known, because of his success as a world record sprinter and at the Olympic Games. Apart from his athletic career, he is also active on social media networks, such as Instagram, where he publishes content related to PUMA.

Pamela Reif

Pamela Reif is among the most successful German fitness SMI with a following of 5.5 million users on Instagram (HypeAuditor, 2020; Instagram, 2020b).

Pamela Reif, born in 1996 in Karlsruhe, Germany, has developed a career through social media. She started her Instagram channel when she was still at high school. In the beginning, she shared content about food, nature, and quotes. But soon she figured out that fitness related content and photos showing herself create the most engagement among her followers. Quickly the follower numbers of Pamela Reif's Instagram account grew. In an interview she said that after reaching 500,000 followers on Instagram, more and more brands contacted her with collaboration requests, such as GHD, Calzedonia and NA-KD (Dawkins, 2019; Gardt & Peterson, 2016). After finishing high school, Pamela Reif decided to dedicate her time for further growing her business on social media instead of pursuing an academic career. In an interview, she said that she is very selective when it comes to brand collaborations and that she would reject 99% of incoming requests (Gardt & Peterson, 2016).

In 2016, Pamela Reif met PUMA at an event and only one year later they collaborated to launch a PUMA gym wear collection. Due to its success, in 2019, they launched another collection (Kern-Miereisz, 2019; Oberschür, 2017). On their website, PUMA acknowledges Pamela Reif as being Germany's most successful fitness SMI and fashion role model (PUMA, 2020b). Apart from developing and advertising new products, Pamela Reif is creating other fitness related content, such as hosting live workouts for PUMA's Instagram channel (PUMA, 2020e).

Pamela Reif is chosen as a SMI, because she is an active brand endorser of PUMA and embodies a typical SMI prototype. Throughout the years, she has built a large following on Instagram, therefore it can be expected that she is known across many consumers. Further, because she creates content about PUMA in English, it can be expected that she is also known to Instagram users from other countries. Lastly, Pamela Reif has also been used as a representative for SMIs in other research studies, such as the ones of Breves et al. (2019) and Gräve (2017).

6.3   Questionnaires

A questionnaire is commonly defined as "a structured technique for data collection consisting of a series of questions, written or verbal, that a participant answers" (Malhotra et al., 2017, p. 374). The questions, including their sequence, wording, and answer options, are equal for all respondents (Matthews & Ross, 2010). Questionnaires where there is no direct contact between the interviewer and the respondent are known as self-administered questionnaires. These include postal questionnaires or online (Internet-mediated) questionnaires (M. Saunders et al., 2009). For the study at hand, the latter is chosen. Using online questionnaires for data collection brings several advantages. Collecting data from participants, especially when it is a large sample, will be much more efficient as the way how data is collected is the same for all participants. It will not only save time but will also lead to more accurate data collection and will make participants' responses better to compare (Malhotra et al., 2017; Matthews & Ross, 2010; M. Saunders et al., 2009). This applies to all self-administered questionnaires but particularly to Internet-mediated questionnaires as the recording and analysis of data is carried out by a software and not manually (M. Saunders et al., 2009).

For this study, it is decided to use a software called Qualtrics to which CBS provides free access for its students. Qualtrics is a software that is designed for gathering, analysing and depicting quantitative data when conducting surveys (Copenhagen Business School, 2019). The main requirements for an appropriate software are to be capable of including visuals into the questions and providing an adequate format of results that can be used for subsequent analysis. Furthermore, it was taken into account that participants will use different devices, Internet browsers and display screens for responding the online questionnaire and that it is therefore particularly important to guarantee that the layout of the questionnaire is lucid and that visuals are not displayed distortedly (M. Saunders et al., 2009). Hence, it was looked for a software which does not only provide a desktop format but also a mobile-optimized option. All these requirements are met by the chosen software, thus supporting the decision of using Qualtrics.

However, there are also some disadvantages of online questionnaires that should be taken into account. Applying a quantitative approach and using online questionnaires entails some limitations such as the fact that respondents might talk about the questions with others before giving an answer which distorts their response (M. Saunders et al., 2009). Further, by utilizing closed questions, respondents have fewer options "to answer questions in their own way" (Matthews & Ross, 2010, p. 217). In addition, it is not possible to pose further, more detailed questions which could reveal more information about respondents' feelings (Matthews & Ross, 2010; M. Saunders et al., 2009).

6.4 Pilot-test

Before conducting the main study, researchers highly recommend "testing the questionnaire on a small sample of participants" (Malhotra et al., 2017, p. 398). The aim of such pilot-testing is to avoid issues of question-answering and data-recording. Furthermore, it will help to get prior information about how valid and reliable the collected data will be (M. Saunders et al., 2009).

Therefore, a pilot-test was carried out in which participants, after having completed the questionnaire, were asked on a face-to-face basis about the content and difficulty of each question, the wording in the questionnaire as well as the questionnaires' layout and structure. A face-to-face basis was chosen to see how participants behave when they responded (Malhotra et al., 2017) and thereby to get more detailed feedback. Participants of the pilot-test were chosen from a convenience sample. In total, five participants took part in the pilot-test. Convenience sampling is suitable to use for pilot-testing because it neither requires much time nor high costs compared to other sampling methods (Malhotra et al., 2017). Based on the results of the pilot-testing, it was only necessary to undertake minor changes regarding the wording of some questions and the order of questions.

6.5 Main study

The questionnaire of the study at hand is divided into different parts as recommended by Malhotra et al. (2017). Each part is based on and serves to test the afore developed preliminary theoretical framework. For testing the effect of the two different forms of social media marketing, content published by CAs and SMIs is investigated separately. The evaluation of SMI Pamela Reif is measured first, then consumers' perceptions of PUMA's brand authenticity. Afterwards, respondents are asked the same questions in relation to CA Usain Bolt and also in relation to perceptions of PUMA's brand authenticity. Hence, the overall structure consisting of six parts reads as follows.

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(1)   Introduction

(2)   Demographics and behavioural information

(3.1) Social media influencer evaluation – Pamela Reif

(3.2) PUMA brand authenticity perception

(4.1) Celebrity athlete evaluation – Usain Bolt

(4.2) PUMA brand authenticity perception

(5)   Moderating effects

(6)   Concluding brand authenticity question

Throughout the questionnaire, questions are only posed in form of closed questions, also called forced-choice questions, where respondents are asked to select from a set of pre-defined answers. Closed questions are relatively simple and fast to answer and answers are comparable across questionnaires (M. Saunders et al., 2009; Schaeffer, Mendenhall, Ott, & Gerow, 2012). However, different types of closed questions are used for different parts of the questionnaire.

In part (2), which concerns demographics and behavioural information, category questions are used. This means that respondents can only decide for one of different answer options. Because category questions are suitable for questions that ask about peoples' behaviour or attributes, they seem appropriate for this part of the questionnaire (M. Saunders et al., 2009).

For questions in part (3.1) to (6) rating questions are used. This question type is usually utilized for gathering data concerning respondents' opinions. Because the parts (3.1) to (6) of the questionnaire are designed to measure consumers' evaluations and perceptions, rating questions seem suitable. For rating questions, the Likert-style rating scale can be utilized. By this, respondents can indicate their degree of agreement or disagreement with a given statement (M. Saunders et al., 2009).

In the study at hand, a six-point Likert scale is used that ranges from *strongly disagree*, *somewhat disagree*, *disagree*, *agree*, *somewhat agree,* to *strongly agree*. Because a no-opinion option is missing, respondents are forced to make a judgement. Thereby, the aim is to avoid that respondents use this option "as an easy way out" (Schaeffer et al., 2012, p. 34). This scale-design only makes sense when respondents have enough information for making a choice (Schaeffer et al., 2012). In the study at hand, respondents build their opinion on their previous knowledge, the shown Instagram posts from Pamela Reif and Usain Bolt, and the information given in the instruction. Therefore, excluding a no-opinion option seems reasonable. This also applies for cases where the respondent

does not know Usain Bolt or Pamela Reif, because the given information about occupation and the Instagram posts are considered to be sufficient as stimuli and, thus, to make an assessment.

Regarding the coding of the scale, a numerical value is assigned to each scale point ranging from -3 (*strongly disagree*) to 3 (*strongly agree*). The numerical values are not visible for respondents because they only serve analysing purposes. Numerical values from -3 to 3 are chosen because they more clearly indicate whether respondents' attitudes are rather favourable (positive values) or unfavourable (negative values) towards a given statement. For each of the analytical model's variable a total score is calculated by summing up the individual item scores. Mean values are calculated by dividing the total score by the number of items. Table 16 provides detailed information about which items are aggregated and thereby determine the value of one variable.

It should be mentioned that for ordinal scales, such as Likert scales, the median is usually used rather than the mean value when determining central tendency (Kothari, 2004). This is, because "ordinal scales only permit the ranking of items from highest to lowest" (Kothari, 2004, p. 71), implicating that it is not possible to determine the real differences between the scale points. Scales that permit measuring differences between scale points and, hence, calculating mean values, are called interval scales (Kothari, 2004). Although, literature about research methods argues that Likert scales are not to be treated as interval scales and, hence, not suitable for more advanced statistical calculations (Kothari, 2004), it is a widely used measurement tool among researchers conducting empirical studies. Researchers investigating brand endorsers (Breves et al., 2019; De Veirman et al., 2017; Gräve, 2017; Munnukka et al., 2016), as well as brand authenticity (Dwivedi & McDonald, 2018; Fritz et al., 2017; Napoli et al., 2014; Schallehn et al., 2014) have widely used Likert scales to measure consumers' evaluations and perceptions.

In this study, the Likert scale can be considered as symmetrically formulated, meaning that the differences between the scale points should be perceived as the same. This allows to treat the scale as an interval scale and to calculate mean values, which can then be used in the statistical analysis (M. Saunders et al., 2009). In the following, each part of the questionnaire will be shortly explained. The full questionnaire can be found in appendix A.

(1)   Introduction

Before the actual questionnaire starts, participants are directed to an introduction page. In a short text, the purpose and title of the study are explained, and the approximated amount of time required to complete the questionnaire is stated. Further, participants are informed about confidentiality and

anonymity regarding the use of collected data. Lastly, they are thanked in advance for participating. As a title, 'Social Media and Sport Marketing' was chosen. The term 'Brand Authenticity' is not mentioned at this part to avoid biasing effects in the later responses. However, participants are informed that the questions deal with the sport brand PUMA, thereby aiming to arouse their interest (M. Saunders et al., 2009).

(2)   Demographics and behavioural information

After the introduction, the actual questionnaire starts. First, so-called classification information about the participants are gathered. As the name suggests, these information serve the purpose of classifying respondents. It is also used for validating the sample, meaning that participants who do not fulfil specific criteria, i.e. do not show characteristics that are in line with the target population, are excluded (Malhotra et al., 2017).

Because classification information refer to demographic data (Malhotra et al., 2017), participants are asked to indicate which gender they are and to which age group they belong. Besides demographics, also a question concerning the participants' behaviour is inserted by asking them whether or not they have a social media account on Instagram. Participants, who answered "no" are not automatically filtered out even though they do not belong to the target population and will not be considered in the later course of this study. The reason why their data is nevertheless collected is that, thereby a larger data set for extended analyses can be accessed.

(3.1) + (4.1)   Social media influencer (Pamela Reif) and celebrity athlete (Usain Bolt) evaluation

In this part, information is gathered that "relates directly to the research problem" (Malhotra et al., 2017, p. 394). The research question aims to examine the effect of CAs and SMIs as brand endorsers on brand authenticity. Thus, brand authenticity is the dependent variable while evaluations of CAs and SMIs based on Instagram content are the independent variables.

To measure the effect, participants are shown three Instagram posts, consisting of a photo and caption, of each endorser as a stimulus. This means they see three posts from Pamela Reif and three posts from Usain Bolt, in which they endorse the PUMA brand by wearing PUMA clothes and mentioning PUMA in the post's caption (figure 5 and 6).

Beforehand, screenshots were taken of the two endorsers' public Instagram profiles. Some of the posts included a tag that the post is sponsored. As not all posts included this, the tag was removed before inserting the photos into the questionnaires in order to prevent respondents' potential biasing.

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In a short description, the names of the SMI and CA and their profession is mentioned. Further information about their career or other information is not provided to avoid biasing effects. It is assumed to be sufficient for respondents to understand that, in the first case, content is published by a SMI and, in the second case, content is published by a CA. The individual characteristics of the two endorsers are of lower importance. The following two figures show the posts that are selected for the questionnaire.

Figure 4: SMI posts - Pamela Reif (Instagram, 2020b).

Figure 5: CA posts - Usain Bolt (Instagram, 2020c).

After participants are shown the Instagram posts, they are asked to indicate their agreement or disagreement with statements regarding their evaluation of the particular SMI and the particular CA. In doing so, the earlier presented tri-component scale developed by Ohanian (1990) is used, which takes into account the endorser's expertise, attractiveness and trustworthiness. In addition, the congruence between the endorser and PUMA is included as a further variable, leading up to a total set of four measurement variables to determine consumers' evaluation of SMIs and CAs. For each variable, two items, are developed. As recommended by Saunders et al. (2009), the items are formulated based on previous studies. All four items regarding expertise and attractiveness are drawn from Munnukka et al.'s (2016) study, which was conducted to investigate the credibility of peer-endorsers and their impact on attitude formation. The first item regarding trustworthiness is also used

from Munnukka et al. (2016). The second trustworthiness-concerned item is adopted from Breves et al.'s (2019) study. Descriptions of brand congruence in Breves et al.'s (2019) study were used as basis for developing both brand congruence items.

Even though two items describe the same variable, these items are not asked one after another. Instead, the order of items is mixed to avoid response biases as respondents have a tendency to answer consistently (Schaeffer et al., 2012). An overview of the items used in the questionnaire can be found in table 2.

Variable	Items	Source
Expertise	Pamela Reif/Usain Bolt is knowledgeable in her/his field of sport.	Munnukka et al. (2016)
	Pamela Reif/Usain Bolt is an expert in her/his field of sport.	Munnukka et al. (2016)
Attractiveness	I have a lot in common with Pamela Reif/Usain Bolt.	Munnukka et al. (2016)
	I can identify with Pamela Reif/Usain Bolt.	Munnukka et al. (2016)
Trustworthiness	Pamela Reif/Usain Bolt is an honest person.	Munnukka et al. (2016)
	Pamela Reif/Usain Bolt is a reliable person.	Breves et al. (2019)
Brand congruence	Pamela Reif/Usain Bolt and PUMA follow the same values.	Breves et al. (2019)
	Pamela Reif/Usain Bolt and PUMA have a lot in common	Breves et al. (2019)

Table 2: Items to measure endorser variables.

(3.2) + (4.2)   PUMA brand authenticity perception

After measuring participants' evaluations of each endorser type, they are asked to indicate their perceptions regarding PUMA-related statements. The statements are formulated to examine how authentic participants perceive the PUMA brand depending on the afore shown social media posts. Therefore, items are defined in line with the definition of Guèvremont's (2018) three brand authenticity dimensions, which were described earlier and chosen to describe brand authenticity in this study (part 5.2.2). In the case of the virtuousness dimension, items are in addition formulated based on the item description from Morhart et al. (2015) and their developed integrity dimension which shows similarity with Guèvremont's (2018) virtuousness dimension (part 2.2.4). For each of the three brand authenticity dimensions two items are developed, which are summarized in table 3.

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Variable	Items	Source
Transparency	PUMA is an open-minded brand.	Guèvremont (2018)
	PUMA allows imperfections.	Guèvremont (2018)
Proximity	PUMA is accessible.	Guèvremont (2018)
	PUMA seeks to connect with consumers.	Guèvremont (2018)
Virtuousness	PUMA acts in accordance with moral principles.	Guèvremont (2018); Morhart et al. (2015)
	PUMA cares about the society.	Guèvremont (2018); Morhart et al. (2015)

Table 3: Items to measure brand authenticity dimensions.

(5) Moderating effects

Part (5) of the questionnaire is concerned with the measurement of moderating effects. A moderating effect is caused when the relationship between a dependent and an independent is affected by a third moderating variable. It means that a dependent variable can be more or less strongly influenced by an independent variable (Kuß, 2012). Two moderating variables are chosen to be relevant to investigate as outlined in part 5.1. These are the degree of participants being involved with sport and their degree of scepticism about social media advertising. The degree of sport involvement is measured with three items which are based on Mullin et al.'s (2014) definition of sport involvement. Accordingly, one item measures behavioural sport involvement, another item measures cognitive sport involvement and a third item measures affective sport involvement. Furthermore, participants' social media scepticism is measured with two items that are defined based on investigations from Morhart et al. (2015). The items for measuring moderating effects are outlined in table 4.

Variable	Items	Source
Sport involvement	I practice a certain sporting activity.	Mullin et al. (2014)
	I consider myself as knowledgeable in a certain field of sport.	Mullin et al. (2014)
	I feel emotionally involved when practising or watching a sport.	Mullin et al. (2014)
Social media scepticism	Most advertising on social media is annoying.	Morhart et al. (2015)
	Most advertising on social media makes false claims.	Morhart et al. (2015)

Table 4: Items to measure moderator variables.

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(6)   Concluding brand authenticity question

In part (6), a question is included, in which participants are asked to indicate their agreement or disagreement with PUMA being an authentic brand. The purpose of this measurement is to get a tendency how suitable the three brand authenticity dimensions are for measuring the perceived authenticity of PUMA by consumers. If respondents rate PUMA's brand authenticity predominantly positive in part (3.2) and (4.2), it is assumed that they agree with the statement in this measurement part. The used item can be found in table 5.

Variable	Items	Source
Brand authenticity	PUMA is an authentic brand.	-

Table 5: Item to measure brand authenticity.

6.6   Ethical considerations

Whenever conducting research, it is of crucial importance to take into account ethical principles. Ethical research is understood as how decently researchers conduct projects while protecting themselves, other researchers, and "the rights of those who become the subject of […] the work" (M. Saunders et al., 2009, p. 202). Ethical principles should be considered across all phases of a research project. In particular during the phase of data collection, numerous ethical issues arise. Two key ethical principles are confidentiality and anonymity. They especially concern respondents' personal data such as names or addresses (M. Saunders et al., 2009).

In the questionnaire of this study, which can be found in appendix A, no personal data such as names, addresses or telephone numbers are asked. The only personal data respondents are requested to indicate concerned their gender and their age. This information does not enable to draw any specific conclusions regarding their identity. Furthermore, in the introduction respondents are informed that all gathered data will be treated confidentially and will be solely used for scientific research purposes. By this, neither confidentiality nor anonymity principles are violated.

Besides that, it is important to be especially cautious when collecting sensitive data. Examples of sensitive information include questions concerning income, personal hygiene, political attitude, drug use, or involvement in crimes. It can be helpful to ask questions concerning sensitive topics at the end when a certain level of trust has been built (Malhotra et al., 2017; Matthews & Ross, 2010).

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The questionnaire designed for this study contains no insensitive questions such as outlined above. Questions regarding respondents' gender and age are not considered as sensitive and, therefore, the fact that they are posed in the beginning of the questionnaire should not cause a problem.

7   Data analysis
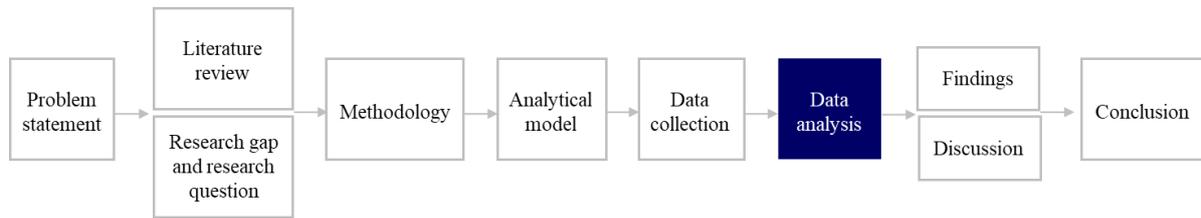
In the following, the results of the online survey are presented and statistically examined. For this, a linear regression analysis was conducted by means of the computer software Statistical Package for the Social Sciences (SPSS). In advance, the sample of the study is described. The chapter finishes off with an evaluation of the study's validity and reliability.

7.1   Sample description

The total number of responses in the survey amounted to 272. However, 92 of them were not fully completed by respondents and were therefore eliminated from the sample. Besides incomplete responses, 27 respondents indicated that they do not have an account on Instagram, thus, are not part of the target population that was determined earlier in part 6.1. Therefore, they were also omitted from the sample. As a sample size of at least 30 is commonly recommended for statistical analyses (M. Saunders et al., 2009), the final sample of 153 respondents can be considered to be sufficient in size for the subsequent statistical analysis.

Among the 153 respondents 112 were female, translating into 73.2% of the sample, which is almost three-quarters. The remaining 41 people were male and made up only 26.8% of the sample (figure 6). Regarding the age of respondents, five age groups were pre-defined among which respondents had to choose. The age groups were determined based on generations and their corresponding birth years. The first group includes people _<18 years_ (younger Generation Z), the second group consists of people in the age between _18-23 years_ (older Generation Z), the third group refers to people who are in the age between _24-39 years_ (Generation Y), the fourth group incorporates the ages _40-55_ (Generation X), and the fifth group includes all those who are _>55 years_ (baby boomers) (Chaney, Touzani, & Ben Slimane, 2017). The results show that most respondents belong to only two groups: either Generation Y (68%) or older Generation Z (30.1%). The age groups _<18 years_ and _40-55 years_ are extremely underrepresented with only 0.7% and 1.3%, respectively. No one of the respondents is _>55 years_. Furthermore, the results show that women are only present in the two dominating age

groups and with a higher proportion than men. A graphical illustration including the detailed numbers is presented in figure 6.


	< 18	18-23	24-39	40-55	> 55	Sum
Female	0.0%	25.5%	47.7%	0.0%	0.0%	73.2%
Male	0.7%	4.6%	20.3%	1.3%	0.0%	26.8%
Sum	0.7%	30.1%	68.0%	1.3%	0.0%	100.0%
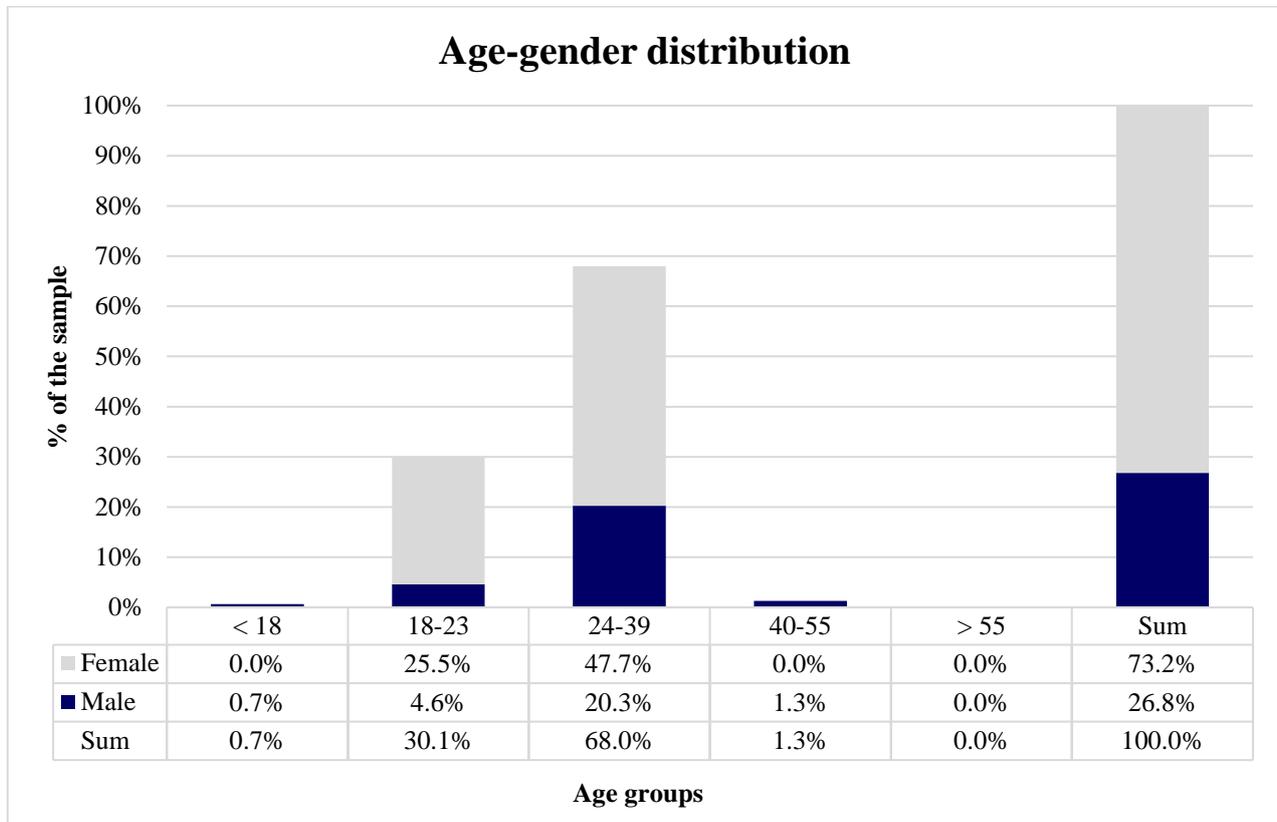
Figure 6: Age-gender distribution, Excel figure based on SPSS data.

As stated before in part 6.1, total Instagram users have been defined to be the population for this study. In 2019, global Instagram users had a gender split of 50.8% female and 49.2% male users. Further, 65% of users are between 18 and 34 years old (Hootsuite, 2019a). After comparing the population with the sample, it becomes apparent that, in terms of age, the sample represents the population quite well. Regarding gender distribution in the sample, females are also dominating as it is the case for the population. However, they amount to almost three-quarters whereas in the actual population, there is only a slight difference between the number of females and males. This issue is further touched upon in part 9.4.

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7.2   Linear regression

Drawing on the research question and hypotheses, which intend to investigate the influence of social media marketing on Instagram, in form of CA and SMI brand endorsers, on consumer-perceived brand authenticity, a regression analysis seemed appropriate for analysing the results and was therefore carried out.

Regression models are widely used to investigate statistical relations between one or more independent variables and a dependent variable. More specifically, running a regression analysis aims to examine whether a variation in the dependent variable can be accounted by the independent variable(s) and what portion of this variation can be accounted by the independent variable. This refers to the questions of whether there is an association between the variables and how strong this association is, respectively (Malhotra et al., 2017). Furthermore, a regression analysis enables "to predict the values of a dependent variable given the values of one or more independent variables" (M. Saunders et al., 2009, p. 462). Therefore, independent variables are also called predictors (Gujarati, 2015).

The number of independent variables considered determines whether it is a bivariate regression, also called simple regression, or a multiple regression. Bivariate regression refers to the case where there is one dependent variable and only one independent variable in the model. In in a multiple regression model more than one independent variable are used (Malhotra et al., 2017; Miah, 2016).

Sometimes moderators are included in a regression analysis. Moderators are variables that have a systematic impact on the relationship strength between independent and dependent variables. The moderator variable itself is independent of the other two variables (D. R. Saunders, 1956). In order to quantify the effect of a potential moderator, a regression analysis is applied that has the independent variable, the moderator variable, and the product of the previous two as predictor variables. To assess the effect of the moderator, only the regression coefficient of the third variable, which is the interaction term, is relevant (Baron & Kenny, 1986). The interaction term has a higher risk to show multicollinearity with the other variables as it is the product of the independent and moderator variable. Therefore, researchers suggest working with mean-centred independent variables, which is done by subtracting a variable's mean from its initial value, in order to decrease multicollinearity (Iacobucci, Schneider, Popovich, & Bakamitsos, 2016).[1]

An overview and a description of the dependent and independent variables used in the study at hand are provided in table 6.

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[1] The mean-centred variables used in the moderator equations are marked with a subscripted "mc".

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Variable	Variable Description
x_{A_Total}	Overall evaluation of the athlete
x_{A_Exp}	Athlete expertise
x_{A_Attr}	Athlete attraction
x_{A_Trust}	Athlete trustworthiness
x_{A_Cong}	Athlete-brand congruence
y_A	Overall brand authenticity based on the athlete evaluation
x_{I_Total}	Overall evaluation of the influencer
x_{I_Exp}	Influencer expertise
x_{I_Attr}	Influencer attraction
x_{I_Trust}	Influencer trustworthiness
x_{I_Cong}	Influencer-brand congruence
y_I	Overall brand authenticity based on the influencer evaluation
$m_{SportInv\_mc}$	Sport involvement
$m_{SoMeAdScept\_mc}$	Social media advertising scepticism
c_1	Concluding brand authenticity evaluation

Table 6: Description of variables

Among regression approaches, linear regression models are most often employed (Weisberg, 2014). Based on the preliminary analytical model (chapter 5), the following equations describe the models, which the hypotheses propose and the regression analyses seek to test:

(1)   Simple CA-BA regression model

$$y_A = \beta_0 + \beta_1 * x_{A\_Total} + e$$

(2)   Simple SMI-BA regression model

$$y_I = \beta_0 + \beta_1 * x_{I\_Total} + e$$

(3)   Multiple CA-BA regression model

$$y_A = \beta_0 + \beta_1 * x_{A\_Exp} + \beta_2 * x_{A\_Attr} + \beta_3 * x_{A\_Trust} + \beta_4 * x_{A\_Cong} + e$$

(4)   Multiple SMI-BA regression model

$$y_I = \beta_0 + \beta_1 * x_{I\_Exp} + \beta_2 * x_{I\_Attr} + \beta_3 * x_{I\_Trust} + \beta_4 * x_{I\_Cong} + e$$

(5)   Moderated regression model SportInv→CA-BA [2]

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[2] Calculation of $m_{xATotal\_mSportInv}$ → $x_{A\_Total\_mc} * m_{SportInv\_mc}$

$$y_A = \beta_0 + \beta_1 * x_{A\_Total\_mc} + \beta_2 * m_{SportInv\_mc} + \beta_3 * m_{xATotal\_mSportInv} + e$$

(6)   Moderated regression model SoMeAdScept→CA-BA [3]

$$y_A = \beta_0 + \beta_1 * x_{A\_Total\_mc} + \beta_2 * m_{SoMeAdScept\_mc} + \beta_3 * m_{xATotal\_mSoMeAdScept} + e$$

(7)   Moderated regression model SportInv→SMI-BA [4]

$$y_I = \beta_0 + \beta_1 * x_{I\_Total\_mc} + \beta_2 * m_{SportInv\_mc} + \beta_3 * m_{xITotal\_mSportInv} + e$$

(8)   Moderated regression model SoMeAdScept→SMI-BA [5]

$$y_I = \beta_0 + \beta_1 * x_{I\_Total\_mc} + \beta_2 * m_{SoMeAdScept\_mc} + \beta_3 * m_{xITotal\_mSoMeAdScept} + e$$

Before running a linear regression, it is important that the following assumptions are satisfied (Aljandali, 2016; Gujarati, 2015; M. Saunders et al., 2009).

A-1: Linear relationship between dependent and independent variables;

A-2: No multicollinearity between the independent variables;

A-3: Normal distribution of residuals; and

A-4: Absence of heteroscedasticity

Two additional requirements should be mentioned. The first requirement refers to the fact that statistical analyses, including linear regression, require that data are interval scaled (Kuß, 2012). In part 6.5, it was argued that the Likert scale can be treated as an interval scale, because the scale is defined symmetrically, meaning that the differences between the scale points are the same and, hence, measurable. The second requirement concerns the sample nature. More specifically, regression analyses assume that the sample elements are randomly drawn from the population (Wooldridge, 2013). As explained in part 6.1, probability sampling was not possible for the case at hand.

As already indicated, the following part concerns the test of the four assumptions. A thorough explanation of the four assumptions and related test measures for the study at hand can be found in appendix B.

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[3] Calculation of $m_{xATotal\_mSoMeAdScept} \rightarrow x_{A\_Total\_mc} * m_{SoMeAdScept\_mc}$

[4] Calculation of $m_{xITotal\_mSportInv} \quad\rightarrow x_{I\_Total\_mc} * m_{SportInv\_mc}$

[5] Calculation of $m_{xITotal\_mSoMeAdScept} \rightarrow x_{I\_Total\_mc} * m_{SoMeAdScept\_mc}$

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7.2.1   Results of the assumption tests

Each of the eight regression models was tested whether the assumptions can be met. The data, on which the assumption tests are based, is provided in appendix C. In cases, where no linear relationship between the dependent and independent variables (A-1) was given, are not further considered. The results of the assumption tests are presented below.

Simple regression models

In the case of the simple CA-brand authenticity (BA) model, all four assumptions are met (table 7). A linear relationship between x_{A_Total} and y_A can be confirmed as the Pearson correlation value of r=0.362 shows to be significant as the p-vlaue takes a value below 0.001 (appendix C1). Further, the scatter plot using the loess smoother graphically indicates that a linear relationship between x_{A_Total} and y_A exists (appendix C2). Multicollinearity was not further examined as a simple regression only investigates if there is a relationship between one independent and one dependent variable. The histogram indicates that residuals are fairly normally distributed as the histogram shows a kind of bell-shaped curve. The skewness value of -0.438 indicates that residuals are slightly shifted to the right. The relatively low kurtosis value of 0.041 means that residuals are only slightly more peaked than in the case of normal distribution (appendix C4). When looking at the quantile-quantile plot (Q-Q plot) it becomes apparent that the points are placed on or close to a straight line, thereby supporting a normal distribution of residuals (appendix C5). Finally, the scatter plot of the residuals show that the points seem to be relatively randomly distributed, indicating the absence of heteroscedasticity (appendix C6). This can be confirmed with the result of the White test, which shows a significance level of p>0.05 and therefore accepting the null hypothesis which suggests homoscedasticity (appendix C7).

The assumption tests for the simple SMI-brand authenticity (BA) regression model yielded that, besides one exception, all four assumptions can be confirmed (table 7). The results suggest that a linear relationship exists between x_{I_Total} and y_I due to a significant Pearson correlation value of r=0.465 (p<0.001) (appendix C1). Further, the scatter plot using the loess smoother indicates graphically that a linear relationship between x_{I_Total} and y_I can be assumed (appendix C2). Multicollinearity is not examined due to the same reason as stated above in the simple CA-BA model. To test whether residuals are normally distributed, the histogram and the Q-Q plot were inspected. The graphical test yielded that residuals are reasonably well normal distributed, meaning that the data mostly follow a bell-shaped curve in the histogram. The skewness value of -0.369 indicates that

residuals are slightly shifted to the right and therefore not fully symmetrical. The low kurtosis value of 0.014, which is almost zero, shows that residuals are only a little bit more peaked than in the case of normal distribution (appendix C4). The normal distribution of residuals can be also supported by the Q-Q plot which indicates that the points are placed on a straight diagonal line with only a few deviations in the outer ends (appendix C5). Finally, the scatter plot of the residuals seems to indicate homoscedasticity as the points are fairly random distributed without any clear pattern (appendix C6). However, the result of the White test cannot support this by showing a significance level of $p<0.05$, meaning that the null hypothesis is rejected and heteroscedasticity seems to be present (appendix C7). Table 7 provides an overview of the results of the assumption test for the two simple regression models.

	Simple regression	
	CA - BA	**SMI - BA**
A-1: Linearity between independent and dependent variables		
Scatter plot (between x and y) $\rightarrow$ line with gradient, no curvature	✓	✓
Correlation (between x and y) $\rightarrow$ significant values	✓ r=0.362****	✓ r=0.465****
A-2: No perfect multicollinearity between independent variables		
Correlation (between x and x) $\rightarrow$ <0.9	Not applicable	Not applicable
Tolerance $\rightarrow$ >0.1	Not applicable	Not applicable
VIF $\rightarrow$ <10	Not applicable	Not applicable
A-3: Normal distribution of residuals		
Histogram $\rightarrow$ bell-shaped curve	✓ Skewness: -0.438 Kurtosis: 0.041	✓ Skewness: -0.369 Kurtosis: 0.014
Q-Q Plot $\rightarrow$ straight diagonal line	✓	✓
A-4: No heteroscedasticity of residuals		
Scatter plot $\rightarrow$ no pattern	✓	✓
White test $\rightarrow$ H0 is accepted if p>0.05	✓ p=0.190>0.05 $\rightarrow$ H0 is accepted	X p=0.001<0.05 $\rightarrow$ H0 is rejected

Significance levels (*$p<0.1$, **$p<0.05$, ***$p<0.01$, ****$p<0.001$)

Table 7: Assumption test simple regression (for details see appendix C).

Multiple regression models

For the multiple CA-BA model, the results of the Pearson correlation matrix show that the variables of x_{A_Exp} and x_{A_Attr} seem to have no significant correlation ($p>0.1$) with y_A. The remaining variables show correlation with y_A ($0.272<r<0.418$, $p<0.01$) (appendix C1). By examining the scatter plots and loess smoother lines, the independent variables x_{A_Trust} and x_{A_Cong} seem to have linear relationships with y_A. The loess smoother lines of the variables x_{A_Exp} and x_{A_Attr} are almost horizontal and therefore these variables might not be linearly related with y_A (appendix C2). Based on this x_{A_Exp} and x_{A_Attr} will be removed from the set of independent variables for the further analysis. When evaluating multicollinearity of the remaining two variables x_{A_Trust} and x_{A_Cong} the Pearson correlation value is below 0.9 ($r=0.351$, $p<0.001$) (appendix C1). For both variables, the VIF value is below 10 (VIF=1.140) and tolerance is above 0.1 (tolerance=0.877) (appendix C3). Based on these values, it can be assumed that the chance of multicollinearity between the independent variables of the multiple CA-BA model is low. The residual histogram shows deviations from the bell-shaped curve. The skewness and kurtosis values can give some further insights from a quantitative perspective. The model has a skewness of -0.682 indicating that the residual values are rather shifted to the right compared to the normal distribution curve. Also, the relatively high kurtosis value of 0.488 means that values are growing above the normal distribution curve (appendix C4). In comparison to the skewness and kurtosis values of the other conducted analyses, these are rather high and therefore this assumption is negatively evaluated. Accordingly, the points in the Q-Q plot also show a few more deviations, especially in the lower and upper part. Nevertheless, the points are still mostly placed close to a straight line (appendix C5). Based on the Q-Q plot normal distribution of residuals would be approved. The residual scatterplot shows no clear pattern, letting one assume that heteroscedasticity will not be a problem (appendix C6). This is supported by the White test ($p=0.354>0.05$) which accepts the null hypotheses and thereby suggests homoscedasticity (appendix C7). In conclusion, based on the conducted tests and after removing non-linear variables, three of four regression assumptions can be approved (table 8). The test for normal distribution of residuals did show some critical skewness and kurtosis values, although the graphical examination of the histogram and Q-Q plot showed sufficient normal distribution.

For the multiple SMI-BA model, the results of the Pearson correlation matrix show for all x_I-variables significant Pearson correlation with y_I ($0.332<r<0.405$, $p<0.01$) (appendix C1). When evaluating the scatter plots and loess smoother of the independent variables of x_I and dependent variable y_I, all variables seem to have a linear relationship with y_I without any obvious curvatures (appendix C2).

The independent variables can be considered not to be strongly correlated with each other, because all r-values are below 0.9 ($0.411 < r < 0.652$, $p < 0.001$) (appendix C1). The VIF values ($1.636 < VIF < 2.062$) are below 10. Further, all tolerance values are above 0.1 ($0.485 < tolerance < 0.611$) (appendix C3). Based on these values, it can be assumed that the chance of multicollinearity between the independent variables of the SMI-brand authenticity model is low. The histogram for testing normality of residuals shows that residuals are overall following a bell-shaped curve with only a few more visible deviations. This is also supported by the skewness value of -0.389 indicating that the residual values are rather shifted to the right compared to the normal distribution curve. Comparably low kurtosis of -0.095 means that only few values are below the normal distribution curve (appendix C4). Drawing on the Q-Q plot, the points are mostly placed on or close to a diagonal straight line (appendix C5). The residual scatterplot for testing the absence of heteroscedasticity shows that the residuals are fairly randomly plotted, hence suggesting homoscedasticity (appendix C6). The White test result confirms this due to a p-value of $0.058 > 0.05$ (appendix C7).

In conclusion, all four regression assumptions can be approved for the multiple SMI-BA model (table 8).

	Multiple regression	
	CA - BA	**SMI - BA**
A-1: Linearity between independent and dependent variables		
Scatter plot (between x and y) → line with gradient, no curvature	**X** **X** ✓ ✓	✓ ✓ ✓ ✓
Correlation (between x and y) → significant values	**X** r_{Exp} =0.085 n.s. **X** r_{Att} =0.131 n.s. ✓ r_{Trust} =0.418**** ✓ r_{Con} =0.272***	✓ r_{Exp} =0.400**** ✓ r_{Att} =0.344**** ✓ r_{Trust} =0.405**** ✓ r_{Cong} =0.332****
A-2: No perfect multicollinearity between independent variables		
Correlation (between x and x) → <0.9	✓	✓
Tolerance → >0.1	✓ $Tolerance_{Trust}$ =0.877 ✓ $Tolerance_{Cong}$ =0.877	✓ $Tolerance_{Exp}$ =0.485 ✓ $Tolerance_{Att}$ =0.611 ✓ $Tolerance_{Trust}$ =0.548 ✓ $Tolerance_{Cong}$ =0.533
VIF → <10	✓ VIF_{Trust} =1.140 ✓ VIF_{Cong} =1.140	✓ VIF_{Exp} =2.062 ✓ VIF_{Att} =1.636 ✓ VIF_{Trust} =1.826 ✓ VIF_{Cong} =1.876

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A-3: Normal distribution of residuals		
Histogram → bell-shaped curve	**X**	✓
	Skewness: -0.682 Kurtosis: 0.488	Skewness: -0.389 Kurtosis: -0.095
Q-Q Plot → straight diagonal line	✓	✓
A-4: No heteroscedasticity of residuals		
Scatter plot → no pattern	✓	✓
White test → H0 is accepted if p>0.05	✓	✓
	p=0.354>0.05 H0 is accepted	p=0.058>0.05 H0 is accepted

Significance levels (*p<0.1, **p<0.05, ***p<0.01, ****p<0.001)

Table 8: Assumption test multiple regression (for details see appendix C).

Moderated regression models

For the assumption test regarding the four moderated regression models (SportInv→CA-BA; SoMeAdScept→CA-BA; SportInv→SMI-BA; SoMeAdScept→SMI-BA), the mean-centred variables were used. The linearity test, consisting of evaluating the Pearson correlation and scatter plots using the loess smoother, indicates that linear relationships exist between $m_{xATotal\_mSportInv}$ and y_A, and $m_{xITotal\_mSportInv}$ and y_I (appendix C1 and C2). The moderator combinations regarding social media advertising scepticism did not let assume that a linear or other relationship with the dependent variable exists and were therefore not further investigated. Hence, subsequent assumptions were only tested for the SportInv→CA-BA and SportInv→SMI-BA models.

For the SportInv→CA-BA model, the multicollinearity test based on the Pearson correlation (-0.227<r<0.269), tolerance values (0.857<Tol<0.909) and VIF values (1.101<VIF<1.166) show that none of the predictor variables seem to be correlated with each other (appendix C1 and C3). Next, residuals can be regarded to be normally distributed due to the graphical evaluation of the histogram and Q-Q-plot. The model has a skewness of -0.465 indicating that the residual values are slightly shifted to the right compared to the normal distribution curve. The kurtosis value of 0.166 means that values are slightly higher than the normal distribution curve (appendix C4 and C5). Lastly, heteroscedasticity is not critical due to the results of the graphical evaluation of the residual scatter plot and the White test result which showed a significance level of p>0.05 (appendix C6 and C7). In conclusion, the investigation showed that all regression assumptions are met.

For the SportInv→SMI-BA model, the multicollinearity test based on the Pearson correlation (-0.046<r<0.376), tolerance values (0.857<Tol<0.998) and VIF values (1.002<VIF<1.167) show that none of the predictor variables seem to be correlated with each other (appendix C1 and C3). Further, residuals are understood to be normally distributed due to the graphical evaluation of the normal distribution histogram and Q-Q-plot. The model has a skewness of -0.379 indicating that the residual values are slightly shifted to the right compared to the normal distribution curve. The kurtosis of -0.098 means that values are only slightly lower than the normal distribution curve (appendix C4 and C5). Finally, heteroscedasticity seems not to be a problem due to the results of the graphical evaluation of the residual scatter plot and the White test which showed a significance level of p>0.05 (appendix C6 and C7). In conclusion, the investigation showed that all regression assumptions are met. An overview of the assumption test results is provided in table 9 below.

| | **Moderated regression** | | | |
	SportInv ↓ CA-BA	SoMeAdScept ↓ CA-BA	SportInv ↓ SMI-BA	SoMeAdScept ↓ SMI-BA
A-1: Linearity between independent and dependent variables				
Scatter plot (between x and y) → line with gradient, no curvature	✓	X	✓	X
Correlation (between x and y) → significant values	0.147*	-0.023 n.s.	0.274***	0.130 n.s.
A-2: No perfect multicollinearity between independent variables				
Correlation (between x and x) → <0.9	✓	-	✓	-
Tolerance → >0.1	=0.888 =0.857 =0.909	-	=0.857 =0.998 =0.859	-
VIF → <10	=1.126 =1.166 =1.101	-	=1.167 =1.002 =1.165	-
A-3: Normal distribution of residuals				
Histogram → bell-shaped curve	✓ Skewness = -0.465 Kurtosis = 0.166	-	✓ Skewness = -0.379 Kurtosis = -0.098	-
Q-Q Plot → straight diagonal line	✓	-	✓	-
A-4: No heteroscedasticity of residuals				

Scatter plot → no pattern	✓	-	✓	-
White test → H0 is accepted if p>0.05	✓ p=0.386>0.05 H0 is accepted	-	✓ p=0.053>0.05 H0 is accepted	-

Significance levels (*p<0.1, **p<0.05, ***p<0.01, ****p<0.001)

Table 9: Assumption test moderated regression (for details see appendix C).

7.2.2 Linear regression analyses

The above carried out assumption tests have shown that assumptions for a linear regression are widely met. Therefore, six regression analyses are conducted and the results are presented in the following. As all variables have the same standardized units (steps between -3 and +3, without 0), only the unstandardized regression coefficients will be reported in the text. In case of interest, the standardized regression coefficients can be found in the tables.

Simple regression

Regarding the simple regression of the CA-BA model, in which brand authenticity (y_A) presents the dependent variable and the overall CA perception (x_{A_Total}) is the independent variable, results indicate that the effect of x_{A_Total} on y_A shows to be positive and significant due to a regression coefficient of $\beta=0.552$ (p<0.001). The coefficient of determination (R^2), which provides information about the adequacy of the model, takes a value of 0.131, meaning that only 13.1% of the variation in y_A can be explained by x_{A_Total} (Miah, 2016). In general terms, the explanatory power of a model increases with a higher R^2 (Miah, 2016). Furthermore, the analysis shows a F-value of F=22.829 (p<0.001), which assesses the overall model to be significant and hence useful (Miah, 2016). An overview of the results is provided in table 10.

	Effect on y_A		
	Unstandardized Coefficients		Standardized Coefficients
Variable	B	Std. Error	Beta
Constant	0.150 n.s.	0.160	
x_{A_Total}	0.552****	0.115	0.362****
R^2	0.131		
adjusted R^2	0.126		
F (df= 1;151)	22.829****		

Significance levels (*p<0.1, **p<0.05, ***p<0.01, ****p<0.001)

Table 10: Simple regression analysis CA-BA model, based on SPSS output (appendix D).

The regression analysis for the simple SMI-BA model, in which brand authenticity (y_I) is the dependent variable and the overall perception of the SMI (x_{I_Total}) presents the independent variable, shows that the regression coefficient takes a value of $\beta=0.422$ ($p<0.001$), thereby indicating a significant positive effect of x_{I_Total} on y_I. The R^2 takes a value of 0.216, meaning that 21.6% of the variation in y_I can be explained by x_{I_total}. Besides that, with a F-value of F=41.710 ($p<0.001$) the overall model shows to be significant. Table 11 summarizes the results of the simple regression analysis.

	Effect on y_I		
	Unstandardized Coefficients		Standardized Coefficients
Variable	B	Std. Error	Beta
Constant	0.455****	0.077	
x_{I_Total}	0.422****	0.065	0.465****
R^2	0.216		
adjusted R^2	0.211		
F (df= 1;151)	41.710****		

Significance levels (*$p<0.1$, **$p<0.05$, ***$p<0.01$, ****$p<0.001$)

Table 11: Simple regression analysis SMI-BA model, based on SPSS output (appendix D).

Multiple regression

The assumption test for a multiple regression of the CA-BA model has indicated that the independent variables of x_{A_Exp} and x_{A_Attr} have no linear relationship with y_A. Also, the regression analysis shows that the adjusted R^2 increases from 0.174 to 0.182 when the two independent variables are removed (appendix D). The adjusted R^2 is taken into account in the multiple regression as the value of R^2 automatically grows the more independent variables are included in the model (Miah, 2016; Wooldridge, 2013). The multiple regression indicates that x_{A_Trust} has a positive effect of $\beta=0.363$ ($p<0.001$) and x_{A_Cong} has a moderate positive effect of $\beta=0.140$ ($p<0.1$) on y_A. Due to a F-value of F=17.911 ($p<0.001$) the overall model shows to be significant. The results of the multiple regression can be found in table 12.

	Effect on y_A		
	Unstandardized Coefficients		Standardized Coefficients
Variable	B	Std. Error	Beta
Constant	0.088 n.s.	0.164	
x_{A_Trust}	0.363****	0.077	0.368****
x_{A_Cong}	0.140*	0.077	0.143*
R^2	0.193		
Adjusted R^2	0.182		
F (df=2;150)	17.911****		

Significance levels (*$p<0.1$, **$p<0.05$, ***$p<0.01$, ****$p<0.001$)

Table 12: Multiple regression analysis CA-BA model, based on SPSS output (appendix D).

Based on the assumption test for the SMI-BA model, all independent variables are used to test the potential effect on y_I. The multiple regression indicates that x_{I_Trust} has a moderate positive effect of $\beta=0.146$ ($p<0.05$) on y_I. In addition, $x_{I\_Exp,}$ shows to have a positive effect on y_I as well due to a regression coefficient of $\beta=0.137$ ($p<0.1$). The other two independent variables x_{I_Attr} and x_{I_Cong} show insignificant values and therefore no statistical influence on y_I. Drawn on the adjusted R^2 of 0.202, it can be concluded that 20.2% of the variation in y_I can be explained by the four independent variables. Finally, the F-value of F=10.603 ($p<0.001$) suggests that the whole model is significant. All results of the multiple regression can be found in table 13.

	Effect on y_I		
	Unstandardized Coefficients		Standardized Coefficients
Variable	B	Std. Error	Beta
Constant	0.456***	0.149	
x_{I_Exp}	0.137*	0.071	0.202*
x_{I_Attr}	0.094 n.s.	0.074	0.118 n.s.
x_{I_Trust}	0.146**	0.072	0.199**
x_{I_Cong}	0.043 n.s.	0.069	0.062 n.s.
R^2	0.223		
Adjusted R^2	0.202		
F (df=4;148)	10.603****		

Significance levels (*$p<0.1$, **$p<0.05$, ***$p<0.01$, ****$p<0.001$)

Table 13: Multiple regression analysis SMI-BA model, based on SPSS output (appendix D).

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Moderated regression

Based on the results of the assumption test for the moderated regression models, a regression analysis was used to test the potential moderating effect of $m_{SportInv}$ on the relationship between x_{A_Total} and y_A. When assessing the regression output (table 14), it shows no significant effect for the interaction term $m_{\_xATotal\_mSportInv}$ ($\beta=0.115$, n.s.).

	Effect on y_A		
	Unstandardized Coefficients		Standardized Coefficients
Variable	B	Std. Error	Beta
Constant	0.807****	0.077	
$x_{A\_Total\_mc}$	0.58****	0.122	0.381****
$m_{SportInv\_mc}$	-0.087 n.s.	0.068	-0.105 n.s.
$m_{\_xATotal\_mSportInv}$	0.115 n.s.	0.125	0.073 n.s.
R^2	0.151		
Adjusted R^2	0.134		
F (df=3;149)	8.813****		

Significance levels (*p<0.1, **p<0.05, ***p<0.01, ****p<0.001)

Table 14: Moderated regression analysis SportInv→CA-BA model, based on SPSS output (appendix D).

Next, a regression analysis was used to test the potential moderating effect of $m_{SportInv}$ on the relationship between x_{I_Total} and y_I. After running the regression, the data in table 14 5hows no significant effect of $m_{SportInv}$ on the relationship between x_{I_total} and y_I due to the regression coefficient's p-value ($\beta=0.112$, n.s.).

	Effect on y_I		
	Unstandardized Coefficients		Standardized Coefficients
Variable	B	Std. Error	Beta
Constant	0.405****	0.077	
$x_{I\_Total\_mc}$	0.381****	0.070	0.420****
$m_{SportInv\_mc}$	-0.040 n.s.	0.066	-0.044 n.s.
$m_{\_xITotal\_mSportInv}$	0.112 n.s.	0.075	0.116 n.s.
R^2	0.23		
Adjusted R^2	0.214		
F (df=3;149)	14.819****		

Significance levels (*p<0.1, **p<0.05, ***p<0.01, ****p<0.001)

Table 15: Moderated regression analysis SportInv→SMI-BA model, based on SPSS output (appendix D).

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7.3   Validity and reliability

Validity and reliability are concerned with the credibility of research results (M. Saunders et al., 2009). In this realm, validity investigates whether a test measures what was intended to measure (Kothari, 2004). This starts with an advanced understanding of what is sought to be measured and how this measurement can be correctly executed (Hair, Black, Babin, & Anderson, 2014). In this study, it is sought to measure the chosen variables of the analytical model by conducting a survey, and by applying statistical analyses of the gathered data. According to Kothari (2004), three types of validity exist: content validity, criterion-related validity, and construct validity.

Content validity is evaluating whether the right measuring instrument has been chosen in relation to the research problem (Kothari, 2004). For surveys, content validity means how well the formulated measurement questions match the overall research question (M. Saunders et al., 2009).

In order to test the hypotheses and answer the associated research question, the preliminary analytical model and included variables build the basis of what is sought to be measured (part 5). Furthermore, the variables have to be operationalised. The definition of independent variables of SMI and CA evaluations is based on existing literature and related items are based on existing measurement scales. The same procedure was repeated for the brand authenticity scale and definition of moderator variables. When no existing pre-defined questionnaires could be detected, own statements for the questionnaires were developed based on items derived from reviewed literature. The formed variables were then measured by conducting a survey and statistical analysis of the gathered data.

Further, a pilot-test was conducted. This ensures that the length of the questionnaire is appropriate. In addition, the sequence and wording of questions were adjusted, so they are easy to understand. By forming variables and developing survey questions based on existing research literature in combination with running a pilot-test, content validity can be sufficiently provided.

In addition, to test the validity of the chosen brand authenticity dimensions and their ability to measure perceived brand authenticity, a concluding question was asked in the end of the questionnaire, whether PUMA is perceived as authentic. By comparing the mean values of participants' answers of y_{I_Total} (0.40), y_{A_Total} (0.83) and the concluding question c_1 (1.16) the validity of the brand authenticity measurement can be assessed (appendix E). Doubts might arise when comparing y_{I_Total} (0.40) with the control value of c_1 (1.16), if the used brand authenticity dimensions adequately measure consumers' perceptions of brand authenticity. But it can also be said that all means show a positive value and thereby supports content validity.

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Criterion-related validity mainly refers to the ability to predict an outcome (Kothari, 2004). Survey questions should be tested to what extent they are actually able to predict what they are supposed to do (M. Saunders et al., 2009).

The collected data is analysed by applying simple and multiple regression analyses. This type of analysis is an acknowledged procedure to assess the predictability of dependent by independent variables. Before running the regression analysis, related assumptions were tested and independent variables removed that did not show linearity with the dependent brand authenticity variable. The aim of this procedure is to increase the explanatory power of the model. Eventually, this is expected to increase the criterion validity of the models.

Lastly, significance and confidence levels are two related terms and can offer further information for the assessment of a criterion-related validity. In research often a significance level of 5% is chosen (Kothari, 2004). However, it was decided to increase the level of significance to 10%. When the significance level of 10% is chosen, it leads to a 10% chance that the sample results do not represent the true population. This goes in hand with a confidence level of 90%, which means that there is a 90% chance that the sample results present the true conditions of the population. This should be taken into consideration for the interpretation of results.

Construct validity is said to be the most complex and abstract validity type. It is about the extent of confirming predicted correlations with other theoretical constructs and measurement scales. This means, that when other measuring instruments are used and results show common findings, it can be assumed that construct validity exists (Kothari, 2004).

Due to the scope of the study, only the measuring technique of the online questionnaire was chosen. Therefore, construct validity could be limited. Further research should investigate, if results can be confirmed using other measuring instruments.

Reliability is concerned with accurate and precise measurement procedures. This can be confirmed when measuring instruments generate consistent data under varying circumstances (M. Saunders et al., 2009). According to Kothari (2004) reliability consists of following two components that are worth mentioning: stability and equivalence. Equivalence is concerned with the comparison of results of differing researchers' observations. The stability aspect relates to the generation of consistent data when the same participant is asked at different points of time.

Suggestions for further research will be proposed in part 9.4 and provide possibilities to enhance equivalence and by this reliability. The questions of the survey are standardized and can be

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completely found it the appendix. This means it can be easily administered by other researchers and be used to gather data from other samples.

As the master thesis is written in pairs, two researchers were involved. Although one common data set was used, the knowledge and experience of two people have been a central aspect throughout the entire thesis process. It can be assumed that by this a certain degree of equivalence is integrated in the finished thesis.

Re-tests are a proposed tool to test stability (M. Saunders et al., 2009). However, as participants answered anonymously, it is not possible to repeat the survey using the same participants. Therefore, stability over time cannot be granted, but instead internal consistency can be evaluated.

Internal consistency refers to consistency among items, which can be tested by calculating Cronbach's alpha (M. Saunders et al., 2009). In order to provide internal consistency, alpha values should not be lower than 0.60 (Hair et al., 2014).

For the CA evaluation, the Cronbach's alpha values are between $0.586 < \alpha < 0.858$. For the SMI evaluation, the values are between $0.683 < \alpha < 0.869$. For both evaluations, x_{A_Cong} and x_{I_Cong} score the lowest and x_{A_Cong} is even under the limit of 0.6. Therefore, this variable only shows limited internal validity. Despite of this knowledge, no item was removed, also because the general number of two items is already very low to be further decreased. For the moderator variables the α-values varied between 0.720 for $m_{SportInv\_mc}$ and 0.592 for $m_{SoMeAdScept\_mc}$. Also here, the latter value is below the limit of 0.6 and thereby only limited internal validity exists. The Cronbach's alpha values of both authenticity measurements show a value of higher than 0.6 and therefore brand authenticity items can be regarded to have high internal consistency. All Cronbach's alpha values can be found in table 16.

Variable	Items	α-values
x_{A_Total}	All items of x_A variables	0.646
x_{A_Exp}	Usain Bolt is knowledgeable in her/his field of sport.	0.665
	Usain Bolt is an expert in her/his field of sport.	
x_{A_Attr}	I have a lot in common with Usain Bolt.	0.858
	I can identify with Usain Bolt.	
x_{A_Trust}	Usain Bolt is an honest person.	0.767
	Usain Bolt is a reliable person.	
x_{A_Cong}	Usain Bolt and PUMA follow the same values.	0.586
	Usain Bolt and PUMA have a lot in common.	
y_A	PUMA is an open-minded brand.	0.821
	PUMA allows imperfections.	
	PUMA is accessible.	
	PUMA seeks to connect with consumers.	

	PUMA acts in accordance with moral principles.	
	PUMA cares about the society.	
x_{I_Total}	All items of x_I variables	0.869
x_{I_Exp}	Pamela Reif is knowledgeable in her/his field of sport.	0.820
	Pamela Reif is an expert in her/his field of sport.	
x_{I_Attr}	I have a lot in common with Pamela Reif.	0.848
	I can identify with Pamela Reif.	
x_{I_Trust}	Pamela Reif is an honest person.	0.808
	Pamela Reif is a reliable person.	
x_{I_Cong}	Pamela Reif and PUMA follow the same values.	0.683
	Pamela Reif and PUMA have a lot in common.	
y_I	PUMA is an open-minded brand.	0.834
	PUMA allows imperfections.	
	PUMA is accessible.	
	PUMA seeks to connect with consumers.	
	PUMA acts in accordance with moral principles.	
	PUMA cares about the society.	
$m_{SportInv}$	I practice a certain sporting activity.	0.720
	I consider myself as knowledgeable in a certain field of sport.	
	I feel emotionally involved when practising or watching a sport.	
$m_{SoMeAdScept}$	Most advertising on social media is annoying.	0.592
	Most advertising on social media makes false claims.	

Table 16: Cronbach's alpha values of independent, dependent and moderator variables, based on SPSS output.

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8 Findings
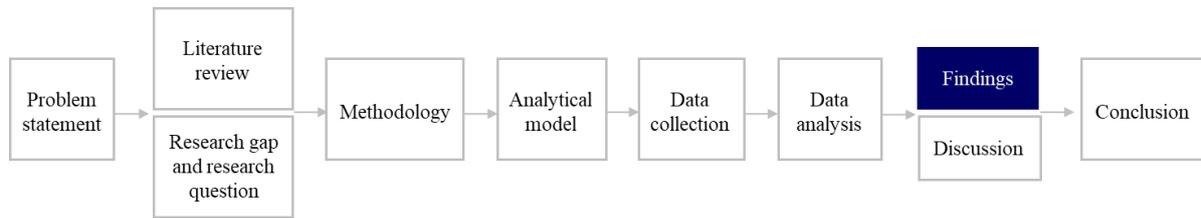
In this chapter the results of the regression analysis will be used to either confirm or reject the stated hypotheses. As both, the values of independent and dependent variables, are measured by the same units, the unstandardized regressions coefficients will be used as indicators for this. Based on the findings, the revised model is presented in figure 7.

H1: **Evaluations of celebrity athlete endorsers as a form of social media marketing on Instagram will positively affect the authenticity perceptions of a sport brand.**

The outcome of the simple regression analysis shows that a one-unit change in x_{A_Total} results in a 0.552 unit change in y_A ($p < 0.001$). This is supported by the results of the multiple regression. Because of the neglected linearity assumption and in order to improve the adjusted R^2 from 0.174 to 0.182 (appendix D), the variables x_{A_Exp} and x_{A_Attr} were removed from the further multiple regression analysis. The results indicate that especially trustworthiness, but also brand congruence of CAs are crucial when it comes to influencing brand authenticity. A one-unit change in x_{A_Trust} results in a 0.363 unit change in y_I ($p < 0.001$). A one-unit change in x_{A_Cong} results in a 0.140 change in y_I ($p < 0.1$). All regression coefficients show significant and positive values, thus H1 can be supported.

H2: **Evaluations of social media influencers as a form of social media marketing on Instagram will positively affect the authenticity perceptions of a sport brand.**

The outcome of the simple regression analysis shows that a one-unit change x_{I_Total} results in a 0.422 unit change in y_I ($p < 0.001$). This is supported by the results of the multiple regression, which further indicates that especially trustworthiness and expertise of SMIs are important factors that possess the ability to influence brand authenticity. A one-unit change in x_{I_Trust} results in a 0.146 unit change in y_I ($p < 0.05$). Further, a one-unit change in x_{I_Exp} results in a 0.137 change in y_I ($p < 0.1$). The variables of x_{I_Attr} and x_{I_Cong} show regression coefficients of $\beta = 0.094$ and $\beta = 0.043$. As both p-values are above 0.1, these effects can be considered to be not significant. In sum, the simple regression as well

as two of four independent variables of the multiple regression show significant and positive regression coefficients. Therefore, H2 can be supported.

H3:   Evaluations of social media influencers have a more positive effect on authenticity perceptions of a sport brand than evaluations of celebrity athletes.

The regressions coefficients of the simple regression, as well as regression coefficients of the independent trustworthiness variable will be compared to test this hypothesis. The analysis shows that the CA scores higher regression coefficient values for the overall effect (0.422<0.552), as well as the trustworthiness variable (0.146<0.363) in comparison to the SMI. Based on this, H3 must be rejected.

H4a: Sport involvement strengthens the effect between celebrity athletes and the authenticity of a sport brand.

H4b: Sport involvement strengthens the effect between social media influencers and the authenticity of a sport brand.

The regression analysis for the moderators $m_{xATotal\_mSportInv}$ and $m_{xITotal\_mSportInv}$ were taken into consideration to decide whether sport involvement has an effect on the relationship between endorsers and brand authenticity. The regression coefficients of β=0.115 and β =0.112 have a p-value above 0.1. Thus, no significant moderating effect can be detected for sport involvement. Based on this, H4a and H4b must be rejected.

H5a: Social media advertising scepticism weakens the effect between celebrity athletes and the authenticity of a sport brand.

H5b: Social media advertising scepticism weakens the effect between social media influencers and the authenticity of a sport brand.

In order to test the hypotheses regarding moderators $m_{xATotal\_mSoMeAdScept}$ and $m_{xITotal\_mSoMeAdScept}$, regression analyses were conducted to check the influence of interaction effects. Because of the negative assumption tests for linearity, H5a and H5b are rejected.

Based on the above presented findings, a revised version of the analytical model, that now contains the β-values derived from the regression analysis, is presented in figure 7.

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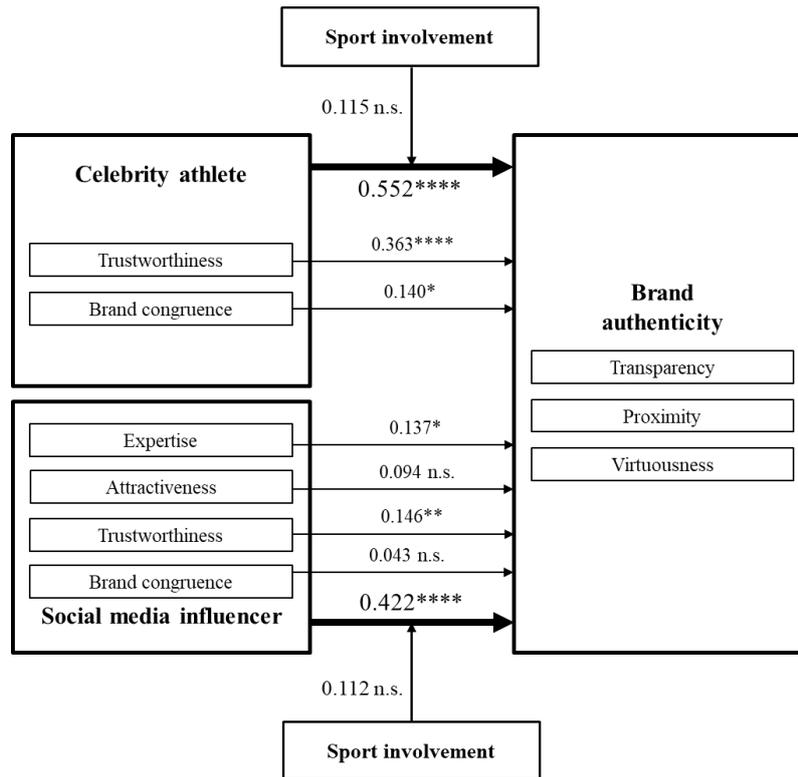
Significance levels (*p<0.1, **p<0.05, ***p<0.01, ****p<0.001)

Figure 7 Revised analytical model, own illustration.

Regarding the CA-BA model from the multiple regression analysis, the non-linear variables, including x_{A_Exp} and x_{A_Attr}, were removed in the revised model. Further, the moderators for social media advertising scepticism, $m_{xATotal\_mSoMeAdScept}$ and $m_{xITotal\_mSoMeAdScept}$, are not included in the revised analytical model due to non-linearity.

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9 Discussion
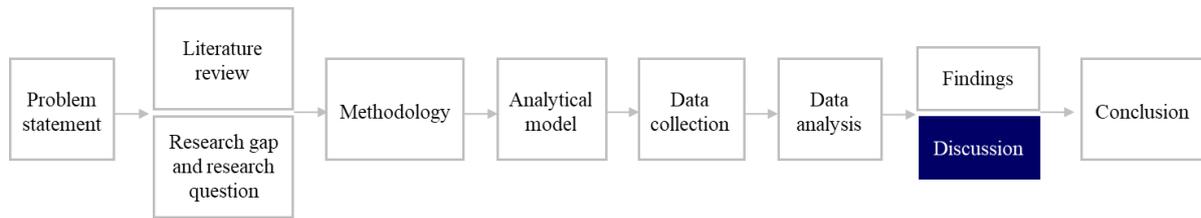
In this chapter, the findings of the study will be discussed in light of existing theory and literature, which has been used to derive hypotheses in part 5.1. Afterwards, scientific contributions and managerial implications for practitioners will be presented. The chapter finishes with some limitations and proposals for further research.

9.1 Discussion of findings

Based on the statistical analyses, hypotheses were confirmed or rejected in the previous chapter. These findings will now be discussed in light of existing research. In addition, if findings are not in line with existing research, potential reasons are proposed.

The previous part has shown, that some effects exist between endorser evaluations as independent variables and brand authenticity perceptions as the dependent variable. For significantly tested values, the findings suggest that a positive change of the independent variables results in a positive change of the dependent variable. For this part, it is assumed that CAs and SMIs have positive evaluations and, thus, positive effects on brand authenticity. Therefore, only this option will be referred to in the following. However, the option where a negative evaluation of CAs and SMIs lead to decreased brand authenticity perceptions will be further elaborated on in part 9.3 when managerial implications are proposed.

9.1.1 Effect of celebrity athletes on brand authenticity

The results of the study at hand reveal that H1 is accepted. By this, it can be confirmed that CAs have a positive influence on consumers' perception of brand authenticity. The findings coincide with previous research, suggesting a positive effect of CAs on consumer perceptions. Researchers have shown before that CAs are capable to influence brand-related constructs, such as brand awareness (Hambrick & Mahoney, 2011) or brand loyalty (Bush et al., 2004), for example. By the findings of this study, brand authenticity is added as another concept on which CAs can exert an influence.

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Taking into account that H1 is supported, the theories, which were used to deduce H1, will now serve as basis for the explanation of the positive effect of CAs on consumers' perceptions of brand authenticity.

By doing so, it can be said that CAs actually present a form of online opinion leaders whose influence can be explained by means of the two-step flow of communication model (Katz & Lazarsfeld, 1966; Solomon et al., 2016).

By applying the two-step flow of communication model to CAs and the context of Instagram, this would mean that when CAs are employed to endorse a brand, they would function as a mediator who communicates the brand's marketing message in form of Instagram posts to numerous people i.e. mainly to their fans who follow them on Instagram. When their fans and potential consumers are exposed to the Instagram post including a marketing message, which for example highlights a brand's authenticity, it is likely that they would be influenced due to the fact that CAs can be considered as online opinion leaders. Their expertise in sport makes them a highly rated source of information for their followers.

Drawing on the other theories used for deducing the hypotheses, it is now argued that CAs can also be regarded as a reference group for consumers and that their influence on consumers' perceptions can be therefore reasoned by applying the model of meaning transfer (Arnould et al., 2005; McCracken, 1989), which will be done in the following in the context of Instagram.

Marketers increasingly use CAs within social media networks for endorsement purposes (Peetz & Lough, 2015). Thus, besides content about their personal life and their sport, CAs publish promotional content, which involves endorsement of a particular brand or product (Hambrick & Mahoney, 2011; Pegoraro, 2010). On Instagram, CAs would then publish photos of themselves wearing or showing a product from a specific brand. By this, the meanings of the CA, including for example traits like honest or open-minded, would be transferred to the product i.e. to the brand. When consumers are exposed to the content, in which a CA endorses a brand, they would be likely to relate the brand with the meaning of the CA. In other words, consumers would then regard the endorsed brand as honest or open-minded, hence, transparent and increasingly authentic.

As stated in chapter 8, the results further indicate that, among the four variables for evaluating the CA, trustworthiness and brand congruence have a significant positive effect on consumers' brand authenticity perception. However, it should be mentioned that the influence of brand congruence on consumer-perceived brand authenticity is only significant at a 90% confidence level while the

influence of trustworthiness is significant at a 95% confidence level. Hence, interpretations of the influence of brand congruence regarding consumers' brand authenticity perceptions are treated with caution.

The findings regarding the positive effect of trustworthiness on consumer perceptions are in line with existing literature. Researchers have acknowledged that for effective endorsements, CAs are required to show characteristics of being trustworthy (Ruihley et al., 2010; Stone et al., 2003), which could for example be the CAs' sportsmanship (Arai et al., 2014). This is supported by the source credibility model which states that consumers are more likely to be persuaded when the marketing message is communicated by an endorser who is trustworthy (Ohanian, 1990). By the study at hand it can be further said that a CA's trustworthiness positively influences consumers' perceptions of brand authenticity.

As further suggested by the findings, the positive effect of brand congruence on consumer-perceived brand authenticity appears in line with previous literature that highlights the importance of brand-endorser congruence with regard to favourable attitudes and purchase intention (Min et al., 2019).With the study at hand it can be added that congruence between the brand and the CA endorsers leads to favourable perceptions of brand authenticity.

Concerning the two remaining variables for evaluating the CA, which include the CA's attractiveness, in terms of similarity with the consumer, as well as expertise, it was found that their relationship with consumers' brand authenticity perception is non-linear, meaning these attributes of the CA do not exert an influence (part 7.2.1). Possible reasons for this non-linearity are provided in the following.

The findings show that, based on the determined measurement scale ranging from -3 to 3, the CA is overall judged extremely high in expertise (mean $x_{A\_Exp} = 2.80$), but brand authenticity perceptions differ (appendix C2 and E), which leads to a non-linear relationship, thus suggesting no influence. Due to the fact that Usain Bolt, who has won multiple championships and can be considered as one of the most successful and iconic athletes in history (part 6.2), is assessed as overall highly knowledgeable and as an expert appears to be less surprising. If other less outstanding athletes, who still fulfil the characteristics to be considered as an CA, were chosen perhaps the results would have been less extreme and an influence on consumers' brand authenticity perceptions could have been detected.

Regarding attractiveness, researchers have claimed that based on the source attractiveness model, the attractiveness of the source plays a crucial role when it comes to the effectiveness of the message (Ohanian, 1990). This also accounts for CAs as researchers argue that consumers are more likely to

be influenced if there are similarities between them and the endorser (Peetz, 2012). As indicated by the results, CAs are assessed as rather low in attractiveness (mean x_{A_Attr}=-1.11), but brand authenticity perceptions differ (appendix C2 and E), which leads to a non-linear relationship, thus, no influence. An explanation for the CA's poor evaluation regarding attractiveness could be that, based on Schouten, Janssen, & Verspaget's (2020) reasoning, in the case of CAs, identification does not stem from actual similarities but from consumers' admiration for the CA. Hence, it could be that the CA would have been ranked higher in attractiveness if consumers were asked about their admiration for the CA.

9.1.2 Effect of social media influencers on brand authenticity

The findings suggest that SMIs have a positive influence on consumers' perception of brand authenticity.

This finding is in line with existing theory on social influence and related models, that propose that SMIs have an influence of consumers' perceptions. In existing literature, several constructs related to brands have been examined on which SMIs could have an influence. Among the tested constructs are brand awareness (Lou & Yuan, 2019), perceived brand uniqueness (De Veirman et al., 2017), and purchase intention (Djafarova & Rushworth, 2017; Lim et al., 2017; Lou & Yuan, 2019). With this study existing findings are extended by the notion of brand authenticity.

The derived hypothesis is based on existing research literature and proposed theories. These can be now used to explain the positive influence of SMIs on consumers' brand authenticity perceptions.

Apparently, SMIs can be regarded as opinion leaders. The two-step flow of communication model can be applied to further explain our findings. Due to their knowledge, SMIs are regarded as a valuable information source from consumers. The model would then imply that SMIs act as middlemen between brand and consumers. When collaborating with brands, SMIs often get campaign briefings with background information about the brand, but also specific marketing messages that should be integrated into the content. Then SMIs implement this marketing message into their content in a creative, interesting and relevant way for consumers (A. Levin, 2020). When the published content reaches many of SMIs' audience or even becomes viral, they have successfully acted as middlemen and delivered the marketing message to consumers. Consumers are then likely to be influenced with regard to the underlying meaning of the marketing message, such as increased perception of brand authenticity.

Further, SMIs can be regarded as a reference group that has positive influence on consumers' attitudes. Depending on consumers' feeling of closeness towards the SMI, such as through direct messages and comments, SMIs can be either regarded as a contactual or aspirational reference group. Therefore, the model of meaning transfer can be applied.

When SMIs collaborate with brands, they usually create content in form of photos, videos or stories showing how they incorporate the brand into their daily lives. By this, SMIs transfer meaning onto the brand. When the content is posted and shared on social media, such as in this case Instagram, consumers can be exposed to this content and influenced. Consumer are then more likely to associate a product or brand with a certain meaning, such as brand authenticity.

The findings further suggest that SMIs' trustworthiness and expertise have a positive influence on brand authenticity perceptions. Consumers follow SMIs because they have trust in them that they tell their honest opinion about a brand they show in their content (A. Levin, 2020). The findings are in line with existing research claiming that endorsers' trustworthiness as part of the source credibility model has an impact on the persuasiveness of communication (Ohanian, 1990). Thus, research can be extended by the findings of this study, which allow to say that SMIs' trustworthiness has an impact on brand authenticity perceptions.

Furthermore, the findings show that expertise of SMIs has an effect on brand authenticity perceptions. But due to the higher significance level ($p<0.1$), this result should be interpreted with some more cautiousness. Similar as for trustworthiness, the findings are in line with existing research saying that endorsers' expertise as part of the source credibility model has an effect on consumers' attitude change (Ohanian, 1990). This knowledge is extended by saying that expertise of SMIs has an influence on brand authenticity. The importance of SMIs' expertise can be also explained in relation to opinion leadership, where expertise is an important characteristic and thus a driver of influence (Casaló et al., 2018).

The findings do not suggest an effect of SMIs' attractiveness, in form of similarity with consumers, on brand authenticity. This finding is not consistent with existing research.

Previous research has suggested that endorsers' attractiveness has an impact on message effectiveness (McCracken, 1989; Ohanian, 1990). Also for SMIs, researchers assessed the similarity with consumers and suggest an effect on brand perceptions (Lee & Watkins, 2016).

Reasons for this contradiction might be the following. The latter referred to study investigated SMIs on YouTube and examined female consumers' brand perceptions of a luxury brand. In this study the focus is on sport brands and on Instagram as a social media platform. Further, participants of this

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study were male and female, although female participants made almost three quarters of our sample. This could indicate that the importance of SMI similarity for brand perceptions might differ depending on the chosen social media platform, product category of the brand, and gender. This might be a reason for apparent differences in our findings, but this aspect should be further investigated.

Further, despite of researchers' claiming that SMIs' congruence with a product or brand is crucial for advertising effectiveness (Breves et al., 2019; Lim et al., 2017), the findings do not support this for brand authenticity.

Some earlier research findings support that endorsers' product and brand match up has an impact on attitude perceptions towards the brand. Here, it should be highlighted that in one study the examined brand was from the beauty industry and endorsers' physical attractiveness was found to be crucial for the perceived product congruence (Kamins, 1990). Based on this, the findings could be different, because this study investigated a sport brand for which the determining factors of brand congruence might be different.

Another explanation could be that a SMI was selected, who specialized on fitness and thereby congruence with a sport brand is understood to be given and does not further influence brand perceptions and thus brand authenticity. Further research should investigate this by using SMIs with different levels of brand congruence.

Although some explanations for the findings that are not in line with prevailing research, this should be further examined. There might be reasons that are specific to SMIs, sport brands, or brand authenticity.

9.1.3   Comparison of the effects of celebrity athletes and social media influencers

With regard to hypothesis three, the findings do not support existing research. The results of the simple regression, comparing overall effects of CAs and SMIs, indicate that CAs have a stronger effect on consumers' brand authenticity perceptions compared to SMIs. Also, the multiple regression implies that CAs' trustworthiness has a stronger effect on brand authenticity than SMIs. Reasons for our opposite findings might be the following.

Researchers found that social media endorsers are more influential compared to celebrities. This has been claimed especially with regard to purchase intentions (Breves et al., 2019; Djafarova & Rushworth, 2017; Schouten et al., 2020). The study at hand measured the influence of CAs and SMIs on consumers' brand authenticity perceptions. This implies that consumers' behaviour in relation to brand authenticity is different compared to purchase intention, which has been examined by previous

research. This might be the case, because measured dimensions of brand authenticity contain transparency, proximity and virtuousness. The findings indicate that with regard to the chosen dimensions, CAs are more effective.

Another reason could be that when consumers evaluate sport brands, CAs are still preferred as brand endorsers. In the past, CAs have been the prevailing endorsement type in traditional media and marketing campaigns. Therefore, consumers might be still more accustomed to this type of influence, which might transfer onto social media. This is supported by CAs' higher trustworthiness levels compared to SMIs' as the findings show.

The findings might add to the research on the model of meaning transfer and the two-step flow of communication model (Katz & Lazarsfeld, 1966; McCracken, 1989).

First, the findings indicate that CAs are a more powerful reference group in comparison to SMIs. Hence, in relation to the model of meaning transfer, CAs are also more effective in transferring meaning, in form of brand authenticity, onto sport brands.

Second, it can be also said that CAs are stronger opinion leaders than SMIs. In the light of the two-step flow of communication model, it means that compared to SMIs, CAs are more effective in transferring messages, such as brand authenticity, from sport brands to consumers. This implies that CAs are not only strong as offline opinion leaders, but also as online opinion leaders on Instagram.

9.1.4 Moderating effect of sport involvement

The results show that the presumed moderating influence of sport involvement on the effect between CAs, SMIs and consumers' brand authenticity perceptions does not hold true for either of the two cases. These findings are not in line with previous literature highlighting the role of consumer involvement (Fritz et al., 2017; A. M. Levin et al., 2001).

A. M. Levin et al. (2001) found out that sport sponsorship was more effective, in terms of consumer attitude and recall, when consumers' degree of involvement with the sponsored sport was high. As indicated by the study at hand, consumers' involvement with sport did not strengthen (neither weakened) the positive effect of CAs and SMIs on consumers' brand authenticity perceptions. A possible explanation for this could be that in the case of A. M. Levin et al. (2001), the sport i.e. the activity itself was the sponsored object. In the case at hand, however, humans who are related to sport are the object that is used to transfer meanings onto the brand. Hence, in this case involvement with sport in general may be not strong enough to exert a moderating effect. Perhaps, the results would

have been different if consumers' involvement with the CA's and the SMI's specific field of sport was measured, meaning their involvement with track and fields and fitness, respectively.

Further, it must be taken into account that even though sponsorship and endorsement have similarities, there some important differences which were outlined in part 2.3.5 and which could be an explanation why research from the sport sponsorship cannot be assumed to have the same effects in endorsement research.

Another reason that sport involvement does not show a moderating influence on the effect between CAs, SMIs and brand authenticity perceptions could be that in the survey, cognitive sport involvement shows the lowest mean value compared to affective and behavioural involvement (appendix E). Researchers argue that to assess a brand's authenticity, consumers' cognitive effort is required which depends on consumers' level of involvement (Fritz et al., 2017). The low level of consumers' cognitive involvement in sport could therefore be an explanation that its influence is not strong enough to exert a moderating effect on the relationship between the CA, the SMI and brand authenticity.

9.1.5   Moderating effect of social media advertising scepticism

The findings of the data analysis suggest that social media advertising scepticism has no moderating effect on the relationship between the perception of endorsers and brand authenticity, neither for CAs nor for SMIs.

This is not in accordance with research, which claims that consumers' awareness of advertising causes resistance towards this marketers' influence (Arnould et al., 2005; De Veirman et al., 2017). Possible explanations why the findings for collaborations with SMIs and CAs as a form of social media marketing are contradicting with research might give the following aspects.

A more general cause might be the use of Instagram as a social media marketing platform. By integrating a marketing message into Instagram content, it doesn't stand out and is not as interruptive as more traditional forms of marketing, e.g. TV ads. Thereby, the ad is not perceived as such and does not lead to increased scepticism (Breves et al., 2019, p. 441). On Instagram, marketing content blends in with non-sponsored content social. Thus, it does not affect perceptions of brand authenticity.

Another reason could be the age of the sample. The participants of our survey mainly belonged to Generation Y or Z, which means that they have in general a positive attitude towards social media (A. Levin, 2020). Although they indicated in the survey a mean value of 1.30 for social media

advertising scepticism (appendix E), it could be that values need to be higher in order to result in a moderating effect. This should be further examined.

More specifically for the CA, there might be no moderating effect, because in the case of athletes, consumers are mostly interested to find out more about their personality and achievements in sport when consuming content. Therefore, brand collaborations are rather seen as a presentation of their lifestyle but not as advertising (Lueck, 2015).

An explanation for the non-moderating effect of social media advertising scepticism on the effect between SMIs and brand authenticity could be that brand endorsements with SMIs are still a rather new form of marketing. Therefore, consumers do not have extensive knowledge about it compared to traditional advertising (e.g. TV or print) and thus do not perceive it as a persuasion attempt. Further, consumers often see SMIs as online friends (Breves et al., 2019). Thus, SMIs' opinions about brands are perceived as honest and do not raise scepticism.

9.2 Scientific contributions

Based on existing research, a research gap was detected in chapter 3, which indicates a lack of research in the combined fields of sport brands, brand authenticity and social media marketing. More specifically, a research gap seems to be existing regarding the effect of a sport brand's social media marketing efforts on Instagram, such as the use of CAs and SMIs, on its brand authenticity.

The study at hand was conducted in order to make contributions to closing the identified research gap. This was done by investigating the effect of consumer evaluations of CAs and SMIs on brand authenticity perceptions. Further, potential moderating effects of sport involvement and social media advertising scepticism were taken into account. Although not all hypotheses were able to be confirmed, the study is still able to contribute to some extent to existing research in the research fields of sport brands, brand authenticity and social media marketing in the following ways.

First, as described, the effect of CA and SMI endorsers, as a form of social media marketing, on brand authenticity was examined. Previous research has examined the effect of brand endorsers on other branding constructs, e.g. brand awareness and purchase intention (Hambrick & Mahoney, 2011; Lou & Yuan, 2019), but an influence on brand authenticity has not been investigated so far. Other researchers have taken social media as an overall construct into account and examined its effect on brand authenticity (Dwivedi & McDonald, 2018), but did not further specify the different forms of social media marketing. In addition, the study at hand examined potential moderating effects on the relationship between endorsers and brand authenticity. Hence, it can be concluded that this study

adheres to existing research. In addition, it is also able to contribute some more novel aspects by investigating CAs' and SMIs' effectiveness as a driver of brand authenticity that have not been investigated in this combination and in depth so far.

Second, by measuring evaluations of CAs and SMIs as endorsers, as well as brand authenticity perceptions in the context of Instagram, this adds to the research literature of social media networks. More knowledge is added to the understanding of Instagram as a growing social media network, as well as SMIs as a new type of endorser (Breves et al., 2019; Casaló et al., 2018; De Veirman et al., 2017). Likewise, it adds to the understanding of how brands can benefit from the use of CAs on social media (Brison et al., 2016; Hambrick & Mahoney, 2011), by focusing on Instagram.

Third, CAs as endorsers for sport brands play an important role. Previous research has often focused on CAs solely (Peetz & Lough, 2015), but studies that also examine SMIs as endorsers for sport brands are limited. SMIs are a new type of endorser, who emerged with the development of social media networks. For the study, the effects of these two endorser types were compared in relation to a sport brand. Thus, the findings of the study contribute to the knowledge in the field of marketing for sport brands in relation to brand endorsers.

Fourth, previous research has investigated brand authenticity dimensions mostly in traditional media settings. The study conducted by Guèvremont (2018) therefore appears to be novel in this context, as she investigated dimensions in a social media context. Because of this, the study at hand contributes to the reliability of Guèvremont's (2018) identified brand authenticity dimensions by applying the identified dimensions in a research setting.

Fifth, evaluations of CAs and SMIs were measured using existing theory, such as the source credibility and source attractiveness models (Ohanian, 1990). Thereby, this study can further contribute to test whether they can be applied to other contexts, such as SMIs, which have just emerged with social media networks. Further, the concept of opinion leaders and reference groups in combination with the two-step flow model and model of meaning transfer have been used to derive hypotheses and to explain the findings (Arnould et al., 2005; Casaló et al., 2018; Katz & Lazarsfeld, 1966; McCracken, 1989). This study shows that theories of a time where the internet has not even existed yet, can still be transferred onto the modern context of social media to explain branding phenomena.

9.3 Managerial implications

The results of the study at hand provide a number of useful implications for sport marketers. Choosing the right endorser can be a challenge for brands. When marketers at the same time seek to optimize consumers' brand authenticity perceptions, the findings of this study can provide insights about relevant factors and, thus, support marketers' decision making.

First, the study shows that social media marketing in form of endorsement collaborations with CAs and SMIs functions as a driver of brand authenticity and can thereby contribute to the authenticity perceptions of a sport brand. Considering the importance of authenticity in regard to a brand's success (Bruhn et al., 2012; Morhart et al., 2015), the results suggest that CAs and SMIs present effective marketing instruments for sport brands. This is important for sport marketers to know as it will guide their brand's social media strategy.

Second, the findings reveal that CAs seem to be even more suitable than SMIs on social media and with regard to their effect on brand authenticity perceptions. Even though collaborations with SMIs have become a quite popular social media marketing strategy for many marketers recently (Breves et al., 2019), they cannot compete with CAs when it comes to brand authenticity perceptions, not even if the SMI employed stems from the field of sport such as fitness. In the specific case of sport brands, it is therefore recommended to focus on collaborations with CAs rather than with SMIs to foster brand authenticity perceptions. However, at the same time marketers should not neglect other important factors that must be considered before a specific social media marketing strategy is implemented. These include for instance a brand's marketing budget. Especially in the case of smaller brands, unlike PUMA, this becomes crucial as they might not have the same resources as bigger brands do. In the course of the commercialization of sport, money spent on collaborations with CAs has become immense (Hughes & Shank, 2005; Peetz & Lough, 2015), meaning that often smaller brands can simply not afford to collaborate with CAs. In such cases, SMIs might be a more suitable and, hence, a more successful approach.

Third, the study has further shown that varying evaluation variables of CAs and SMIs have an influence on consumers' brand authenticity perceptions. Apart from choosing endorsers that rank high on these specific evaluation variables, the endorsement collaboration should have a concept that supports the nurturing of these characteristics. When brands seek to start new collaborations with endorsers, trustworthiness seems to be an important factor for CAs as well as for SMIs. Therefore, marketers should pick CAs and SMIs that already possess high levels of trustworthiness. But also, the collaboration with brand endorsers should be designed in a way to further increase consumers'

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trustworthiness evaluations. To give a more specific example, this could mean for the CAs to be transparent about the collaboration. More precisely, the CAs could for example take over the PUMA Instagram account for one day and share parts of how a day in the life of a professional athlete looks, e.g. with regard to their training sessions or their diet. By sharing that information, the CAs' sportsmanship would be communicated as well, because they will be regarded as passionate athletes who train hard to become successful instead of using unsportsmanlike means to meet success faster. In turn for the SMI, the collaboration should give SMIs the freedom to create content that allows them to express their honest opinions.

For CAs, brand congruence is another aspect that has an impact on brand authenticity perceptions. Apart from choosing CAs that have a high personality fit with a brand besides a functional fit with the product, marketers should motivate CAs to actively communicate values and other similarities they share with the brand when publishing content on social media. In the case of SMIs, expertise has shown to have an effect on brand authenticity perceptions. SMIs should be evaluated, if they can provide real expertise in relation to sport, instead of just showing a superficial copy of it. Further, throughout the collaboration, brands should offer opportunities to further increase sport related expertise, such as through the provision of digital material or personal education at events.

Fourth, endorsers can be used to influence consumers' brand authenticity perceptions regardless of their level of sport involvement and social media advertising scepticism. This means that CAs and SMIs as endorsers can be used for a variety of consumer segments.

Lastly, the study has shown that the higher CAs and SMIs are evaluated, higher brand authenticity perceptions can be expected. However, the findings also imply that CAs and SMIs, who are less positively evaluated, can be expected to correspondingly lower the brand's perceived authenticity. This means that CAs and SMIs need to be positively evaluated to be beneficial for brands. Considering the case that a CA or SMI for example publishes an insensitive or controversial photo on social media which then spreads within a short time among millions of followers, this could considerably lower the endorser's evaluation and, thus, the perceived brand authenticity. Therefore, brands are advised to constantly monitor how their CAs and SMIs are being perceived in order to be able to quickly react, if necessary.

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9.4   Limitations and further research

As with any study, the work at hand is subject to certain limitations which need to be critically assessed. However, at the same time it paves the way for numerous new research opportunities within the fields of sport brands, brand authenticity, and social media marketing.

A first limitation concerns the sample of this study. Due to constraints in time and resources, the sample was selected through convenience sampling. Thus, respondents were not drawn based on probability but rather depending on who was accessible. As a consequence, the representativeness of the sample is considerably lowered (M. Saunders et al., 2009). For the case at hand, females are clearly overrepresented with 73.2% of the sample while recent numbers show that the proportion of males and females is roughly the same among worldwide Instagram users (Hootsuite, 2019a). Hence, generalisations regarding the entire population, i.e. worldwide Instagram users should be approached with caution. Future research should test the construct with a sample that shows more variety to ensure representativeness and, thus, allows to generalise results. It could be also interesting to cluster respondents into followers and non-followers to examine potential disparities between them regarding brand authenticity perceptions.

A second limitation evolves from the quantitative mono method approach which was chosen for the study at hand. Thereby, it was only possible to reveal whether CAs and SMIs have an influence on brand authenticity as well as the strength of the influence. It was also possible to examine which specific characteristics of the CA and the SMI appeared to be highly relevant with regard to brand authenticity perceptions. Although possible reasons were proposed in part 9.1 why certain characteristics of CAs and SMIs do and others do not show an effect on brand authenticity, qualitative data is needed to investigate more deeply what consumers felt when they were exposed to the social media content and what were the reasons for their decision regarding the brand's authenticity.

Third, for the study at hand, brand authenticity was defined in terms of three brand authenticity dimensions, including transparency, proximity and virtuousness, developed by Guèvremont (2018). Due to the fact that Guèvremont's (2018) research work on the three brand authenticity dimensions is rather new and has not yet been tested for many other companies than the one in her study (Guèvremont, 2018), certain weaknesses regarding validity cannot be excluded. Nevertheless, to the best of the authors' knowledge, there are no other brand authenticity dimensions particularly developed for cases where brand authenticity is influenced through social media, which reasons the decision to use Guèvremont's (2018) brand authenticity dimensions. Further, the three brand authenticity dimensions used in the study at hand were only tested with regard to how brand

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authenticity as an overall construct is influenced by social media marketing. However, it was not tested how the three dimensions are affected individually. Future research should therefore examine which brand authenticity dimension is especially positively or negatively influenced by social media marketing.

Fourth, this study utilized the sport brand PUMA as an example brand. No other sport brands were considered due to constraints regarding time and resources. Hence, application of findings to other sport and non-sport brands should be approached with caution. The same concerns the CA and SMI selection. Even though reasonable arguments were provided for choosing Usain Bolt and Pamela Reif, they only represent the case of one single CA and SMI. Therefore, future research could examine the proposed construct for other sport brands and other CAs. Regarding SMIs, besides macro influencers also micro influencers could be included. For drawing even more general conclusions, the construct could be tested in another, non-sport-related, context.

Finally, it must be considered that social media marketing presents a relatively new research field that is subject to constant change. Therefore, research conducted today could be obsolete in the next year, because new social media platforms have emerged. Based on these considerations, future research should focus on testing the construct in the context of new and highly unexplored social media platforms such as TikTok for example.

10 Conclusion
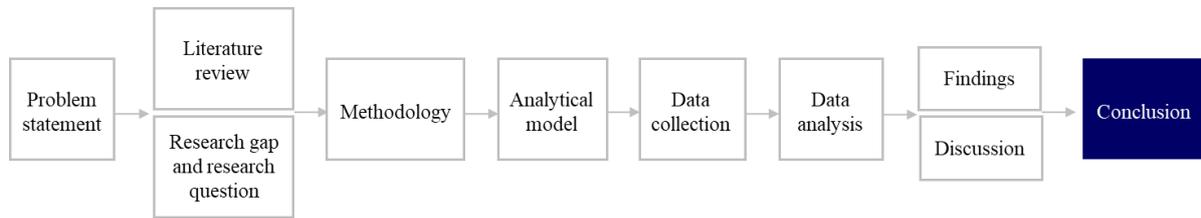
The aim of the study was to provide new knowledge in the combined field of sport brands, brand authenticity, and social media marketing. This was sought to be achieved by investigating the following research question: *How does social media marketing, in form of celebrity athlete and social media influencer endorsers, on Instagram affect consumer-perceived authenticity of sport brands?*

This question was first approached by reviewing relevant research literature, which also guided the development of hypotheses and an analytical model. Part of this was also to define measurements of brand endorsers, as well as dimensions of brand authenticity that are relevant with regard to social media. A survey strategy in form of online questionnaires was chosen to investigate the proposed analytical model. During the course of the study, quantitative data was collected and analysed by applying statistical methods.

The interpretations of the results of the regression analyses built the basis to answer the stated research question. The findings of the study support that evaluations of CAs, as well as of SMIs, have both positive effects on brand authenticity perceptions of sport brands. More specifically, trustworthiness evaluations of both types of endorsers show an effect brand authenticity. In addition, for CAs, congruence with the endorsed brand has an effect on brand authenticity, whereas for SMIs, expertise evaluations show an effect on brand authenticity. Although both types of endorsers show a positive effect on brand authenticity, it was also found that CAs were able to exert a stronger influence on consumers than SMIs in this study. Both tested moderators, sport involvement and social media advertising scepticism, did not show an effect on the relation between endorsers and brand authenticity.

Finally, the findings have been discussed in light of existing research literature. Afterwards scientific contributions were highlighted. In addition, managerial implications were presented with recommendations that marketers should take into account when they plan to or already collaborate with CAs and SMIs as endorsers on social media and at the same time seek to increase brand

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authenticity. As a last part, some limitations of the study at hand and proposals for further research were stated.

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Appendices

Appendix A: Qualtrics online questionnaire

Hi,

We are Aenne and Nadja. We are currently master students in the programme Brand and Communications Management at Copenhagen Business School. As part of our master thesis, we are conducting a study in the field of social media and sport marketing, using **PUMA** as an example brand.

It will take you approximately 5-10 minutes to answer the questions. The data will only be used for scientific research purposes and all data will be edited anonymously.

Thanks in advance for taking part in our survey and by this supporting our study.

Best regards,
Aenne and Nadja

→

How old are you?

< 18

18 - 23

24 - 39

40 - 55

> 55

What is your gender?

Female

Male

Other

Do you have an account on the social media platform Instagram?

Yes

No

→

Please thoroughly look at the Instagram posts from the **fitness influencer Pamela Reif** below.

pamela_rf ● • Follow

pamela_rf ● Monday Motivation 😬 wearing my #PamelaxPuma Collection - direct link in my bio 💢 I wear all tops in S & all bottoms in XS 🖤 #pumagirl #legday

pamela_rf ● • Follow
London, United Kingdom

pamela_rf ● I don't come to London often .. but when I do, I buy one suitcase full of snacks & train with the @pumaperformance family 😬 #qualitytime .

The event was all about HIIT workouts and heart rates, because the new Zone XT shoe is especially designed for high-intensity training 🔋 Starting at a „resting heart rate" of 45 beats per minute, I had 3 minutes to speed my heart rate up till 163 bpm 😵 (Jump Squats and Burpees were my best friends 😬) .. this was the called the „uncomfortable zone" - challenging the body, boosting endurance and increasing the metabolism.

pamela_rf ● • Follow

pamela_rf ● Off to my hometown again .. #qualitytime 😬 my #PamelaxPuma Sports Bra got restocked in all sizes!! Direct link in my bio 🖤 you can also get the collection all over Europe on puma.com 🙏 I'm wearing size Small 😬 #pumagirl #happysunday

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Please indicate to what extent you agree or disagree with the following statements.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
Pamela Reif is knowledgeable in her field of sport.	○	○	○	○	○	○
I have a lot in common with Pamela Reif.	○	○	○	○	○	○
Pamela Reif is an honest person.	○	○	○	○	○	○
I associate Pamela Reif with running and training products.	○	○	○	○	○	○
Pamela Reif is an expert in her field of sports.	○	○	○	○	○	○
I can identify with Pamela Reif.	○	○	○	○	○	○
Pamela Reif is a reliable person	○	○	○	○	○	○
Pamela Reif and the sport brand PUMA have a lot in common.	○	○	○	○	○	○

→

Based on the Instagram posts from Pamela Reif, please indicate to what extent you agree or disagree with the following statements regarding the **sport brand PUMA**.

	Strongly Agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
PUMA is an open-minded brand.	○	○	○	○	○	○
PUMA is accessible.	○	○	○	○	○	○
PUMA acts in accordance with moral principles.	○	○	○	○	○	○
PUMA allows imperfections.	○	○	○	○	○	○
PUMA seeks to connect with consumers.	○	○	○	○	○	○
PUMA cares about the society.	○	○	○	○	○	○

→

Please thoroughly look at the Instagram posts from the **sprinter Usain Bolt** below.

Please indicate to what extent you agree or disagree with the following statements.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
Usain Bolt is knowledgeable in his field of sport.	O	O	O	O	O	O
I have a lot in common with Usain Bolt.	O	O	O	O	O	O
Usain Bolt is an honest person.	O	O	O	O	O	O
I associate Usain Bolt with running and training products.	O	O	O	O	O	O
Usain Bolt is an expert in his field of sport.	O	O	O	O	O	O
I can identify with Usain Bolt.	O	O	O	O	O	O
Usain Bolt is a reliable person.	O	O	O	O	O	O
Usain Bolt and the sport brand PUMA have a lot in common.	O	O	O	O	O	O

→

Based on the Instagram posts from Usain Bolt, please indicate to what extent you agree or disagree with the following statements regarding the **sport brand PUMA**.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
PUMA is an open-minded brand.	O	O	O	O	O	O
PUMA is accessible.	O	O	O	O	O	O
PUMA acts in accordance with moral principles.	O	O	O	O	O	O
PUMA allows imperfections.	O	O	O	O	O	O
PUMA seeks to connect with consumers.	O	O	O	O	O	O
PUMA cares about the society.	O	O	O	O	O	O

→

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Please indicate to what extent you agree or disagree with the following statements.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
I practice a certain sporting activity.	O	O	O	O	O	O
Most advertising on social media is annoying.	O	O	O	O	O	O
I consider myself as knowledgeable in a certain field of sport.	O	O	O	O	O	O
Most advertising on social media makes false claims.	O	O	O	O	O	O
I feel emotionally involved when practising or watching a sport.	O	O	O	O	O	O

→

Please indicate to what extent you agree or disagree with the following statement.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
PUMA is an authentic brand.	O	O	O	O	O	O

→

Appendix B: Assumption test explanations for the regression analysis

Assumption 1: Linear relationship between dependent and independent variables

Linearity between the dependent and the independent variable(s) can be explained by "the degree to which the change in the dependent variable is related to the change in the independent variables" (M. Saunders et al., 2009, p. 462).

The Pearson correlation is taken into account as a first test and indicator for bivariate linearity. Values can lie between -1 and +1, whereas values close to these marks indicate strong linearity and values close to 0 indicate no or only little linearity. However, it should be noted that also variables with a Pearson correlation close to 0 can be related in another way than linear, such as curved relationships (Aljandali, 2016).

Additionally, scatter response plots showing the values of independent and dependent variables can be used as a tool to detect linear or other relationships (Aljandali, 2016; Olive, 2017). The shape in the plot should make the viewer think to be able to draw a straight line with some degree of incline or decline through the scatter plot. This is understood to be an indicator of linearity. Other curved shapes may indicate non-linear relationships (Olive, 2017). For the viewer it can be difficult to make this decision. Therefore, the nonparametric loess (acronym for locally weighted regression) smoother is used. The term refers to the *lowess* technique, which stands for *lo*cally *we*ighted *s*catterplot *s*moother. By using the loess smoother, a line is drawn through the scatter plot that visualizes the central tendency of the dependent variable. The resulting line can be evaluated more easily compared to the sole scatter plot (Jacoby, 2000).

Assumption 2: No multicollinearity between the independent variables

The second assumption states that the independent variables should not show high values for multicollinearity. To test for possible multicollinearity, it is looked at bivariate correlations of the independent variables. The Pearson correlation between independent variables should not be higher than 0.9 (M. Saunders et al., 2009). It is further advised to take other factors into consideration as bivariate correlations do not take multiple variables into account (Gujarati, 2015). Therefore, it is tested for the variance inflation factor (VIF), which should not be higher than 10 (Chen & Rothschild, 2010; M. Saunders et al., 2009) and the tolerance value which should not be lower than 0.1 (Lin, 2008; M. Saunders et al., 2009).

Assumption 3: Normal distribution of residuals

The third assumption concerns the residuals in the regression model, stating that the distribution of residuals should equal a normal distribution (Aljandali, 2016; Greene, 2012; Gujarati, 2015). For testing that residuals are normally distributed both, a graphical and an analytical approach, can be used. Histograms can be used to evaluate normal distribution visually. If the data follows a bell-shaped curve, the residuals can usually be considered as normally distributed (Aljandali, 2016). Additionally, the values of skewness and kurtosis can be taken into consideration to examine the normal distribution of residuals in an analytical way. Kurtosis measures the height of the distribution shape while skewness measures whether data is symmetrically distributed or shifted to the left or right side. Given the case of a normal distribution of residuals, kurtosis and skewness would take the value of zero. Thus, to confirm that residuals are normally distributed, kurtosis and skewness values closed to zero need to be achieved (Hair et al., 2014). Moreover, it is common to utilize the normal quantile-quantile plot (Q-Q plot) (Razali & Wah, 2011). A Q-Q plot can be described as "a scatterplot of two sets of quantiles plotted against one another" (Kozak & Piepho, 2018, p. 87). The first set of quantiles (e.g. on the y-axis) represents the quantiles of a theoretical normal distribution while the second set of quantiles (e.g. on the x-axis) originates from the observed data. To confirm normal distribution of the residuals, the points in the Q-Q plot are required to follow straight diagonal line (Kozak & Piepho, 2018). Finally, it should be mentioned that, generally, small deviations from normality will not cause devastating effects on the linear regression model (Aljandali, 2016).

Assumption 4: Absence of heteroscedasticity

Confirmation of the fourth assumption requires that heteroscedasticity is absent. Heteroscedasticity exists if the variances of the dependent and independent variables are unequal (M. Saunders et al., 2009). In other words, it is assumed that "the error term […] in the regression model has homoscedasticity (equal variances) across observations" (Gujarati, 2015, p. 96). To test heteroscedasticity graphically, it is recommended to look at the scatterplots of the model's residuals. It is important that the plotted residuals do not show any kind of pattern or are systematically connected. It is likely that a problem of heteroscedasticity exists if the residual plot shows a curvature or a fan shaped order (Olive, 2017). Apart from the residual plot, the White test can be used for testing heteroscedasticity analytically. The White test is considered to be more flexible in use compared to alternative tests. The null hypothesis under the White tests suggests homoscedasticity and is therefore accepted if the test's resulting p-value is >0.05 (Gujarati, 2015).

Appendix C: SPSS output - Assumption tests

Appendix C1: Pearson correlation matrixes

Pearson correlation matrix – simple and multiple CA-BA model

Correlations

		xA_Exp	xA_Attr	xA_Trust	xA_Cong	xA_Total	yA
xA_Exp	Pearson Correlation	1	-.041	.115	.194*	.259**	.085
	Sig. (2-tailed)		.616	.157	.016	.001	.298
	N	153	153	153	153	153	153
xA_Attr	Pearson Correlation	-.041	1	.139	.183*	.736**	.131
	Sig. (2-tailed)	.616		.087	.024	.000	.106
	N	153	153	153	153	153	153
xA_Trust	Pearson Correlation	.115	.139	1	.351**	.627**	.418**
	Sig. (2-tailed)	.157	.087		.000	.000	.000
	N	153	153	153	153	153	153
xA_Cong	Pearson Correlation	.194*	.183*	.351**	1	.669**	.272**
	Sig. (2-tailed)	.016	.024	.000		.000	.001
	N	153	153	153	153	153	153
xA_Total	Pearson Correlation	.259**	.736**	.627**	.669**	1	.362**
	Sig. (2-tailed)	.001	.000	.000	.000		.000
	N	153	153	153	153	153	153
yA	Pearson Correlation	.085	.131	.418**	.272**	.362**	1
	Sig. (2-tailed)	.298	.106	.000	.001	.000	
	N	153	153	153	153	153	153

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Pearson correlation matrix – simple and multiple SMI-BA model

Correlations

		xl_Exp	xl_Attr	xl_Trust	xl_Cong	xl_Total	yl
xl_Exp	Pearson Correlation	1	.411**	.549**	.652**	.833**	.400**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	153	153	153	153	153	153
xl_Attr	Pearson Correlation	.411**	1	.579**	.454**	.749**	.344**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	153	153	153	153	153	153
xl_Trust	Pearson Correlation	.549**	.579**	1	.426**	.797**	.405**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	153	153	153	153	153	153
xl_Cong	Pearson Correlation	.652**	.454**	.426**	1	.804**	.332**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	153	153	153	153	153	153
xl_Total	Pearson Correlation	.833**	.749**	.797**	.804**	1	.465**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	153	153	153	153	153	153
yl	Pearson Correlation	.400**	.344**	.405**	.332**	.465**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	153	153	153	153	153	153

**. Correlation is significant at the 0.01 level (2-tailed).

Pearson correlation matrix – moderated SportInv➔CA-BA model

Correlations

		xA_Total_mc	mSportInv_mc	m_xATotal_mSportInv	yA
xA_Total_mc	Pearson Correlation	1	.269**	.132	.362**
	Sig. (2-tailed)		.001	.104	.000
	N	153	153	153	153
mSportInv_mc	Pearson Correlation	.269**	1	-.227**	-.018
	Sig. (2-tailed)	.001		.005	.821
	N	153	153	153	153
m_xATotal_mSportInv	Pearson Correlation	.132	-.227**	1	.147
	Sig. (2-tailed)	.104	.005		.070
	N	153	153	153	153
yA	Pearson Correlation	.362**	-.018	.147	1
	Sig. (2-tailed)	.000	.821	.070	
	N	153	153	153	153

**. Correlation is significant at the 0.01 level (2-tailed).

Pearson correlation matrix – moderated SoMeAdScept➔CA-BA model

Correlations

		xA_Total_mc	m_SoMeAdScept_mc	m_xATotal_mSoMeAdScept	yA
xA_Total_mc	Pearson Correlation	1	.007	.005	.362**
	Sig. (2-tailed)		.931	.949	.000
	N	153	153	153	153
m_SoMeAdScept_mc	Pearson Correlation	.007	1	-.201*	-.128
	Sig. (2-tailed)	.931		.013	.113
	N	153	153	153	153
m_xATotal_mSoMeAdScept	Pearson Correlation	.005	-.201*	1	-.023
	Sig. (2-tailed)	.949	.013		.776
	N	153	153	153	153
yA	Pearson Correlation	.362**	-.128	-.023	1
	Sig. (2-tailed)	.000	.113	.776	
	N	153	153	153	153

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation matrix – moderated SportInv→SMI-BA model

Correlations

		xl_Total_mc	mSportInv_mc	m_xlTotal_mSportInv	yl
xl_Total_mc	Pearson Correlation	1	-.046	.376**	.465**
	Sig. (2-tailed)		.572	.000	.000
	N	153	153	153	153
mSportInv_mc	Pearson Correlation	-.046	1	-.006	-.064
	Sig. (2-tailed)	.572		.944	.434
	N	153	153	153	153
m_xlTotal_mSportInv	Pearson Correlation	.376**	-.006	1	.274**
	Sig. (2-tailed)	.000	.944		.001
	N	153	153	153	153
yl	Pearson Correlation	.465**	-.064	.274**	1
	Sig. (2-tailed)	.000	.434	.001	
	N	153	153	153	153

**. Correlation is significant at the 0.01 level (2-tailed).

<<<

Pearson correlation matrix – moderated SoMeAdScept→SMI-BA model

Correlations

		xl_Total_mc	m_SoMeAdScept_mc	m_xlTotal_mSoMeAdScept	yl
xl_Total_mc	Pearson Correlation	1	-.134	-.004	.465**
	Sig. (2-tailed)		.099	.957	.000
	N	153	153	153	153
m_SoMeAdScept_mc	Pearson Correlation	-.134	1	-.105	-.123
	Sig. (2-tailed)	.099		.198	.130
	N	153	153	153	153
m_xlTotal_mSoMeAdScept	Pearson Correlation	-.004	-.105	1	.130
	Sig. (2-tailed)	.957	.198		.109
	N	153	153	153	153
yl	Pearson Correlation	.465**	-.123	.130	1
	Sig. (2-tailed)	.000	.130	.109	
	N	153	153	153	153

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix C2: Scatter plots with loess smoother

Scatter plots with loess smoother – simple CA-BA model

Simple Scatter of yA by xA_Total
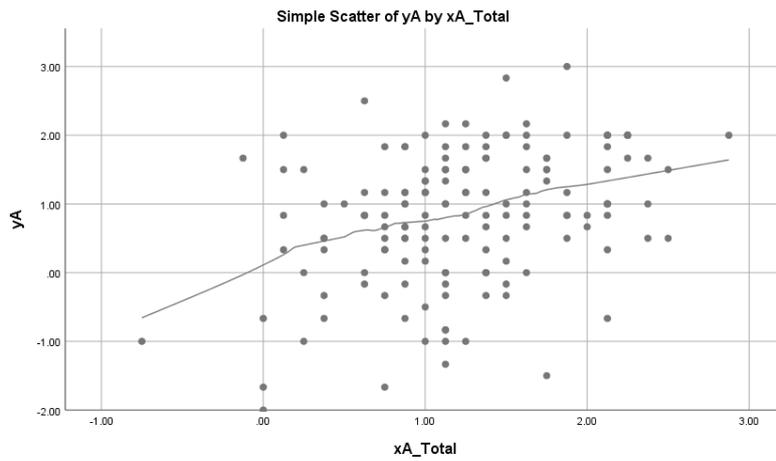
Scatter plots with loess smoother – simple SMI-BA model

Simple Scatter of yI by xI_Total
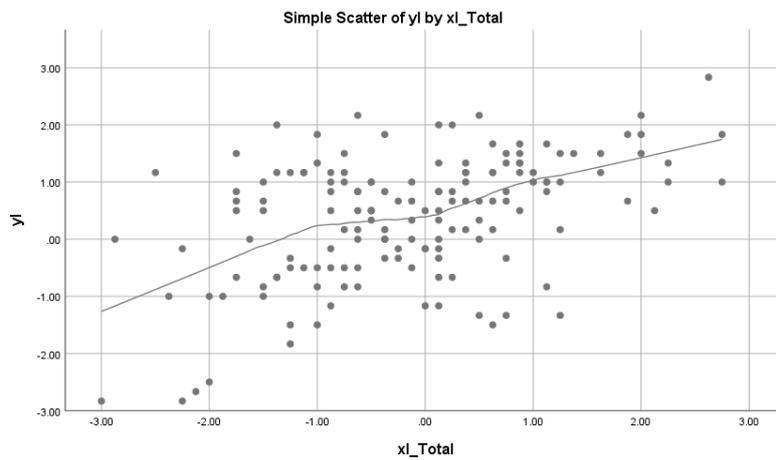
Scatter plots with loess smoother – multiple CA-BA model (expertise)

Simple Scatter of yA by xA_Exp
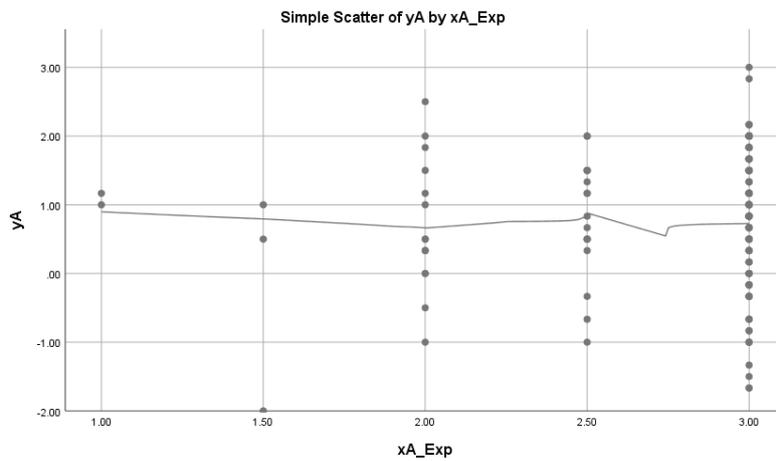
Scatter plots with loess smoother – multiple CA-BA model (attractiveness)

Simple Scatter of yA by xA_Attr
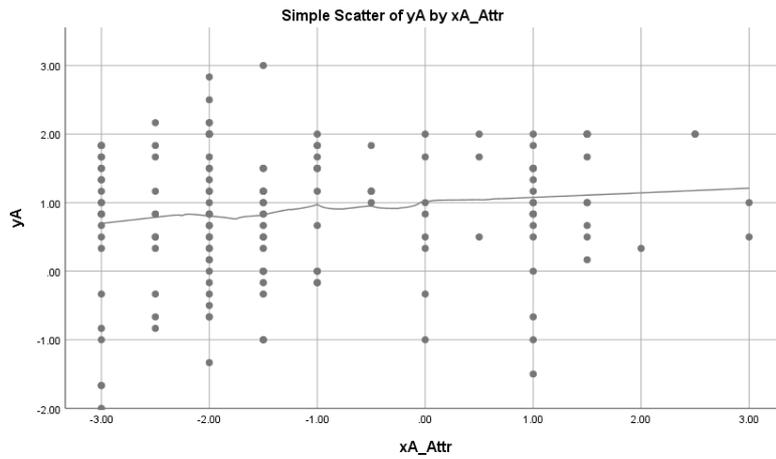
Scatter plots with loess smoother – multiple CA-BA model (trustworthiness)

Simple Scatter of yA by xA_Trust
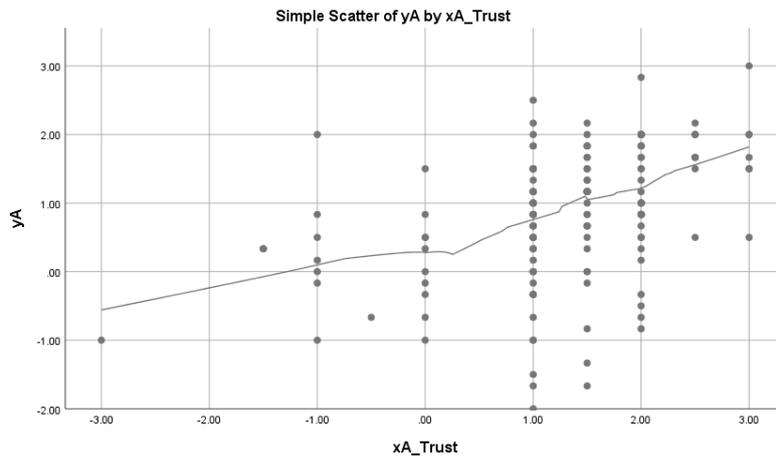
Scatter plots with loess smoother – multiple CA-BA model (congruence)

Simple Scatter of yA by xA_Cong
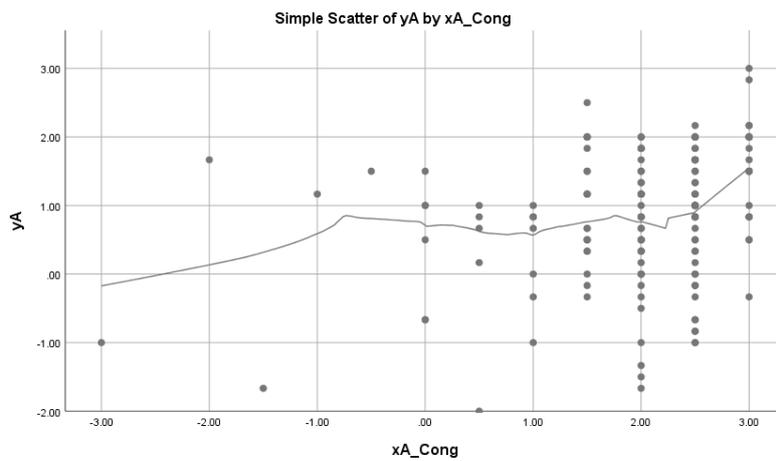
Scatter plots with loess smoother – multiple SMI-BA model (expertise)

Simple Scatter of yl by xl_Exp
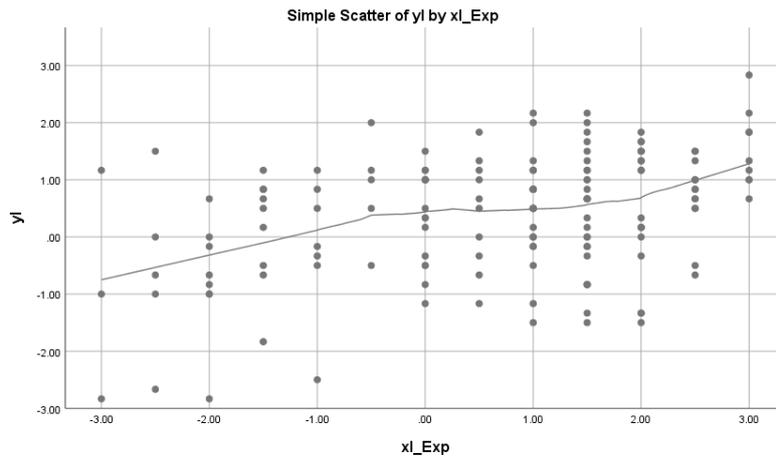
Scatter plots with loess smoother – multiple SMI-BA model (attractiveness)

Simple Scatter of yl by xl_Attr
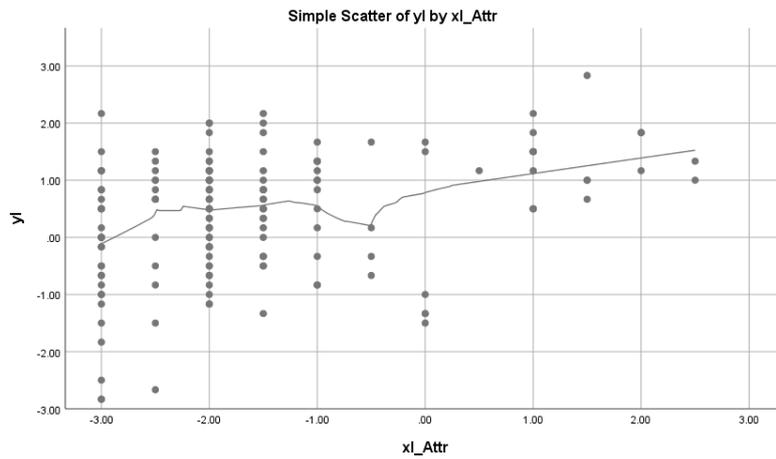
Scatter plots with loess smoother – multiple SMI-BA model (trustworthiness)

Simple Scatter of yl by xl_Trust
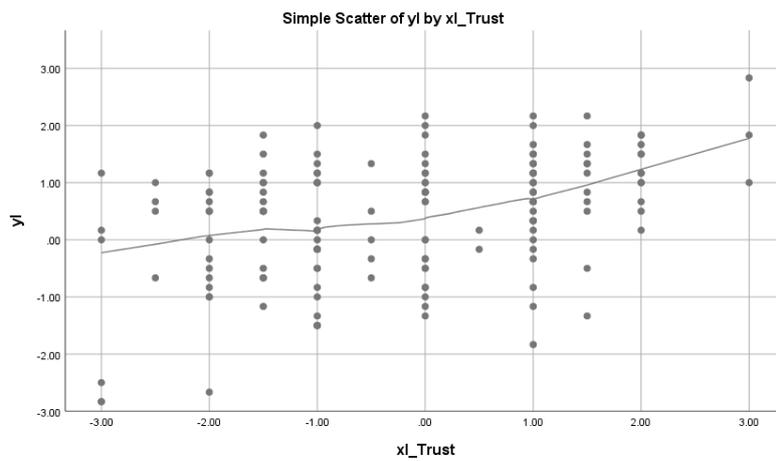
Scatter plots with loess smoother – multiple SMI-BA model (congruence)
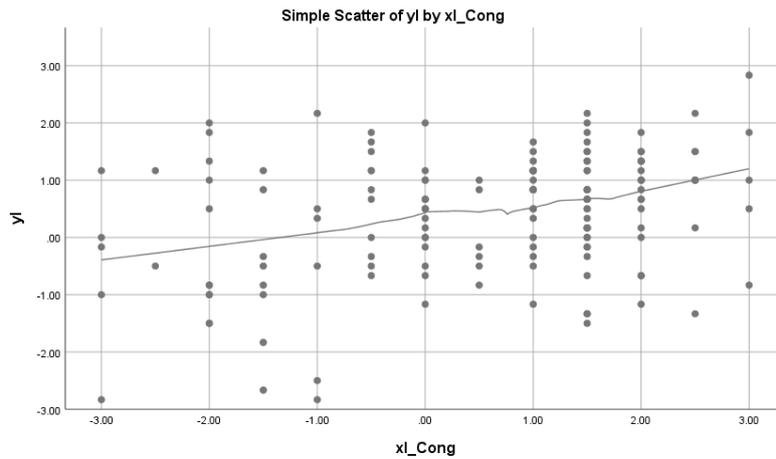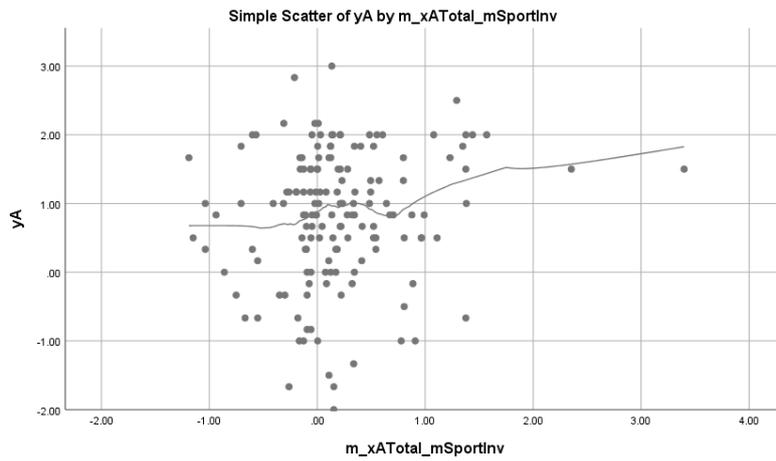
Simple Scatter of yl by xl_Cong

Scatter plots with loess smoother – moderated SportInv➔CA-BA model

Simple Scatter of yA by m_xATotal_mSportInv

Scatter plots with loess smoother – moderated SoMeAdScept➔CA-BA model

Simple Scatter of yl by m_xlTotal_mSoMeAdScept

Scatter plots with loess smoother – moderated SportInv→SMI-BA model

Simple Scatter of yI by m_xITotal_mSportInv

Scatter plots with loess smoother – moderated SoMeAdScept→SMI-BA model

Simple Scatter of yA by m_xATotal_mSoMeAdScept
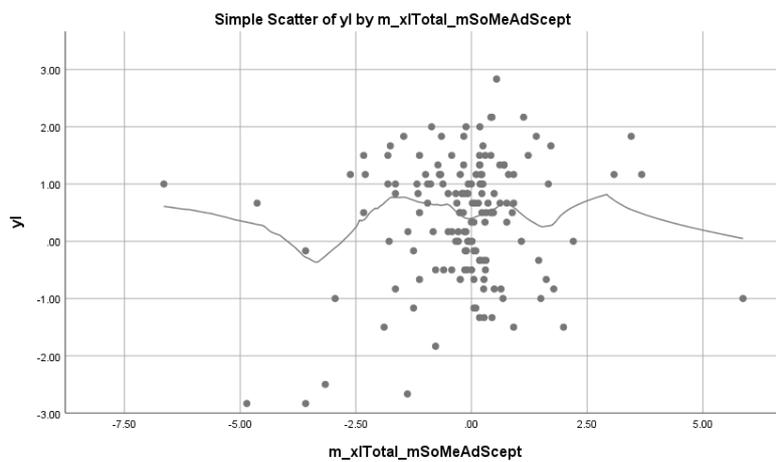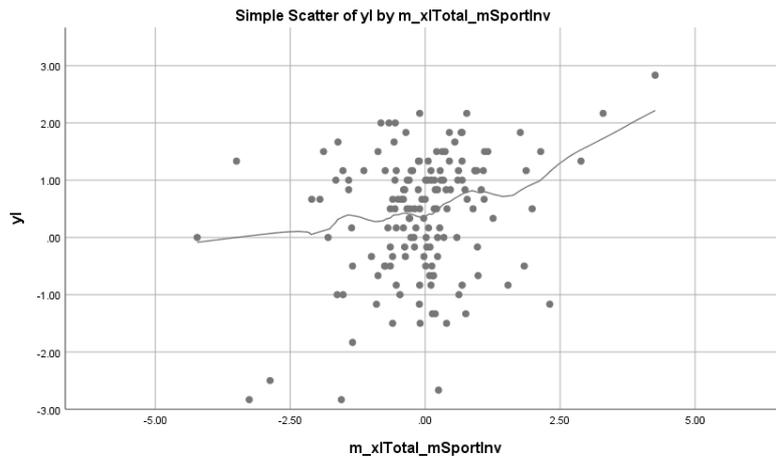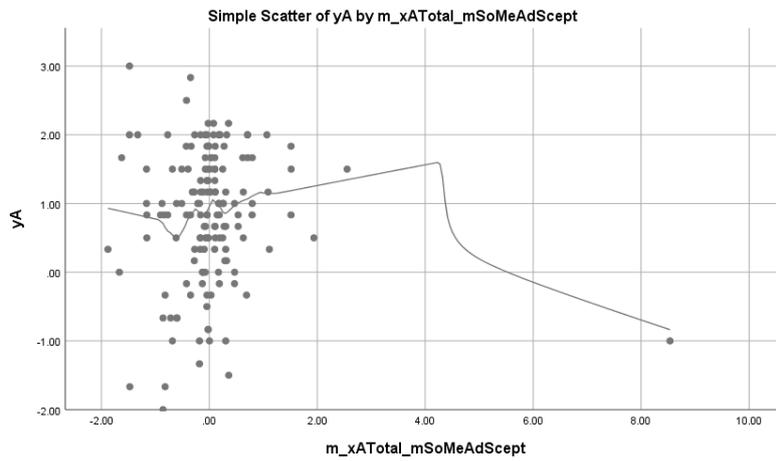
Appendix C3: Tolerance and VIF values

Tolerance and VIF values – multiple CA-BA model

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	xA_Trust	.877	1.140
	xA_Cong	.877	1.140

a. Dependent Variable: yA

Tolerance and VIF values – multiple SMI-BA model

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	xI_Exp	.485	2.062
	xI_Attr	.611	1.636
	xI_Trust	.548	1.826
	xI_Cong	.533	1.876

a. Dependent Variable: yI

Tolerance and VIF values – moderated SportInv→CA-BA model

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	xA_Total_mc	.888	1.126
	mSportInv_mc	.857	1.166
	mod_xATotal_mSportInv	.909	1.101

a. Dependent Variable: yA

Tolerance and VIF values – moderated SportInv➔SMI-BA model

Coefficientsᵃ

Model		Collinearity Statistics	
		Tolerance	VIF
1	xl_Total_mc	.857	1.167
	mSportInv_mc	.998	1.002
	mod_xlTotal_mSportInv	.859	1.165

a. Dependent Variable: yl

Appendix C4: Residual histograms and skewness and kurtosis values

Residual histogram and skewness and kurtosis values - simple CA-BA model

Histogram
Dependent Variable: yA

Mean = 5.04E-16
Std. Dev. = 0.997
N = 153
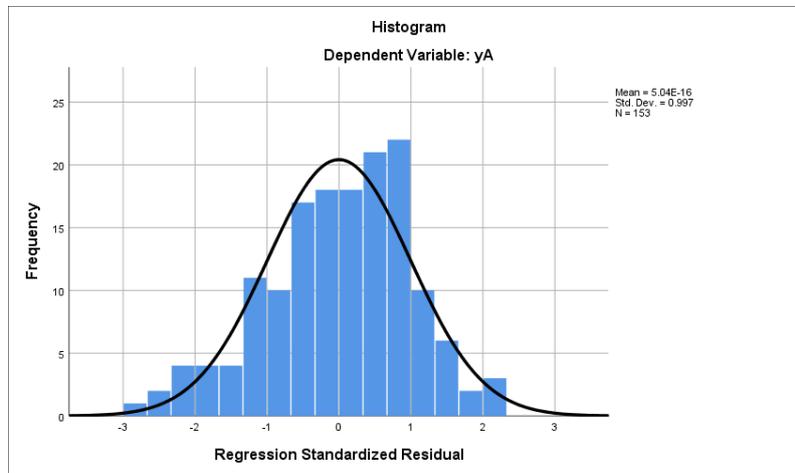
Descriptives

		Statistic	Std. Error
Standardized Residual	Skewness	-.438	.196
	Kurtosis	.041	.390

Residual histogram and skewness and kurtosis values - simple SMI-BA model

Histogram
Dependent Variable: yI

Mean = 1.59E-16
Std. Dev. = 0.997
N = 153
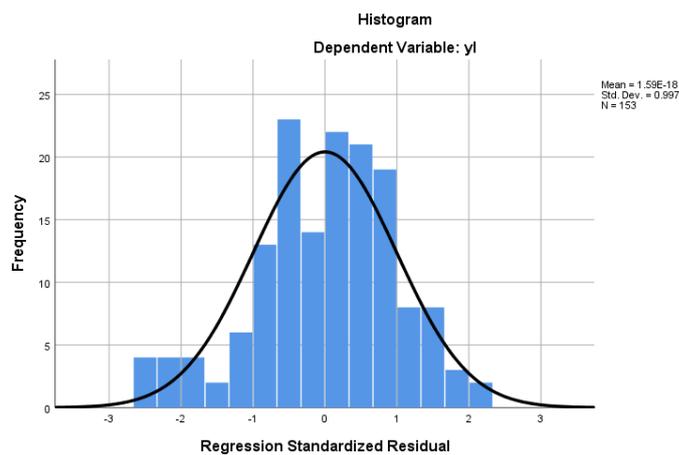
Descriptives

		Statistic	Std. Error
Standardized Residual	Skewness	-.369	.196
	Kurtosis	.014	.390

Residual histogram and skewness and kurtosis values - multiple CA-BA model

Histogram
Dependent Variable: yA

Mean = 5.72E-16
Std. Dev. = 0.993
N = 153
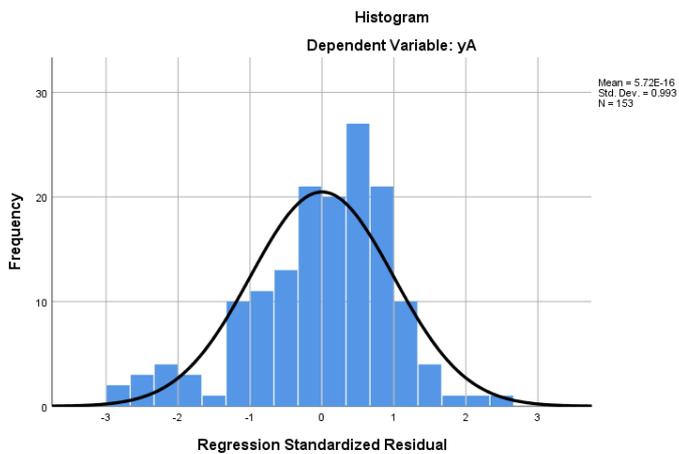
Descriptives

		Statistic	Std. Error
Standardized Residual	Skewness	-.682	.196
	Kurtosis	.488	.390

Residual histogram and skewness and kurtosis values - multiple SMI-BA model

Histogram
Dependent Variable: yI

Mean = 6.07E-18
Std. Dev. = 0.987
N = 153
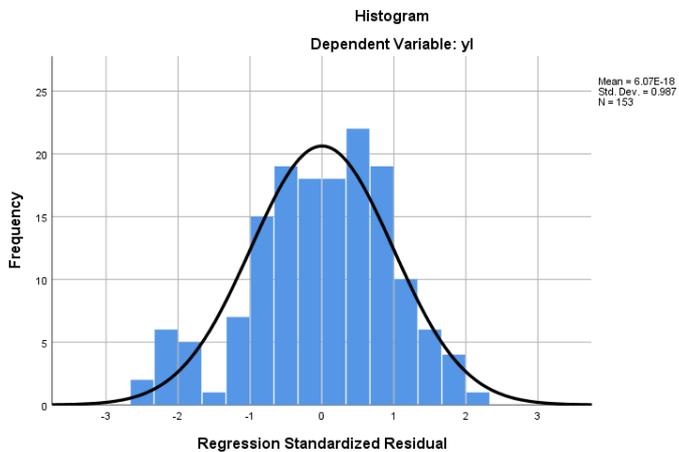
Descriptives

		Statistic	Std. Error
Standardized Residual	Skewness	-.389	.196
	Kurtosis	-.095	.390

Residual histogram and skewness and kurtosis values - moderated SportInv→CA-BA model

Histogram
Dependent Variable: yA

Mean = 4.12E-16
Std. Dev. = 0.990
N = 153
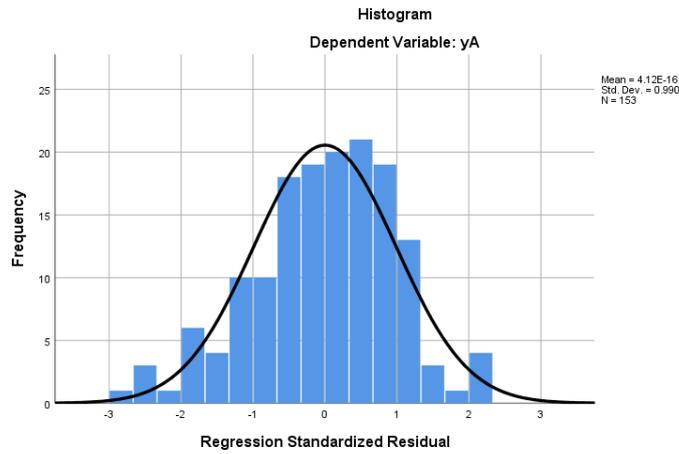
Descriptives

		Statistic	Std. Error
Standardized Residual	Skewness	-.465	.196
	Kurtosis	.166	.390

Residual histogram and skewness and kurtosis values - moderated SportInv→SMI-BA model

Histogram
Dependent Variable: yl

Mean = 2.89E-17
Std. Dev. = 0.990
N = 153
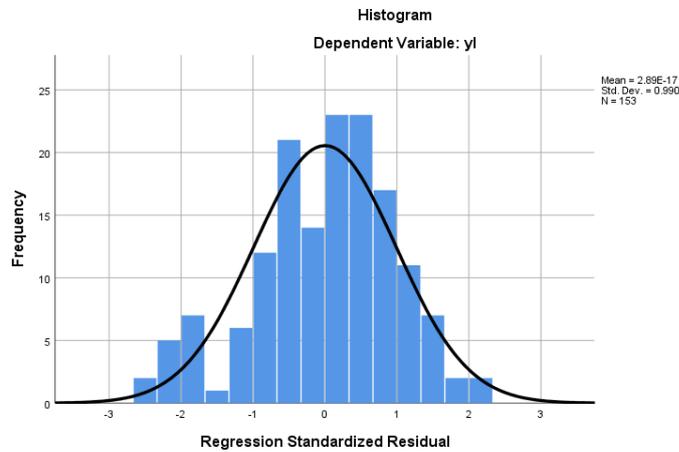
Descriptives

		Statistic	Std. Error
Standardized Residual	Skewness	-.379	.196
	Kurtosis	-.098	.390

Appendix C5: Residual Q-Q plots

Residual Q-Q plot - simple CA-BA model
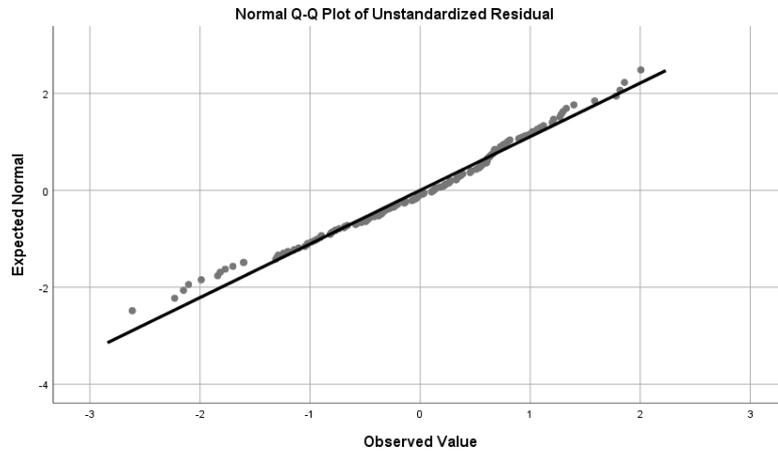
Normal Q-Q Plot of Unstandardized Residual

Residual Q-Q plot - simple SMI-BA model
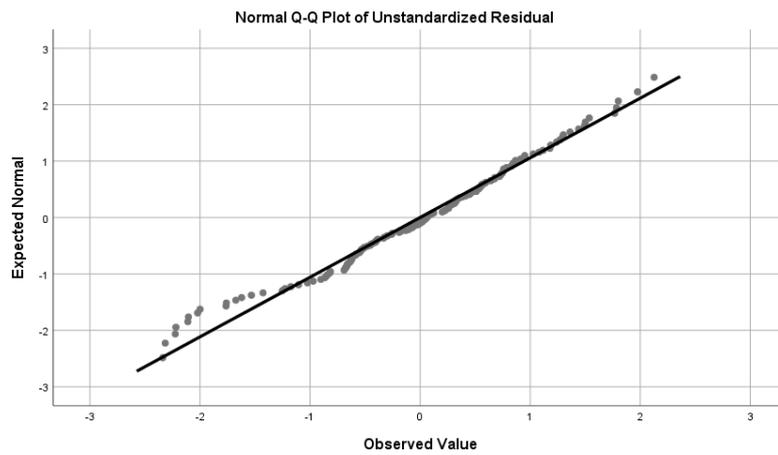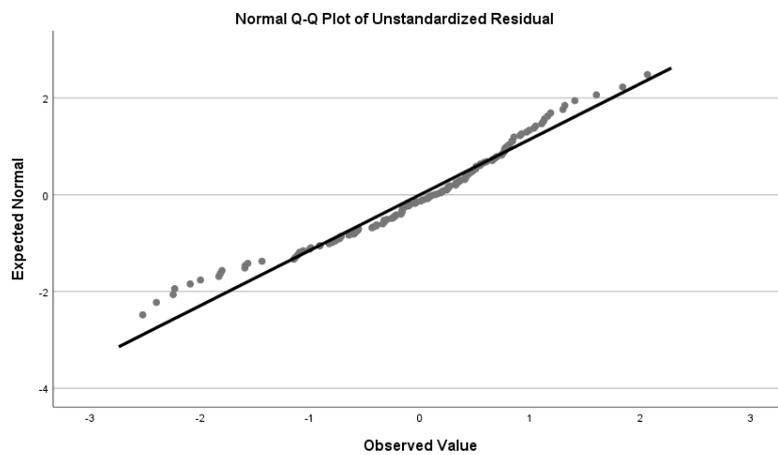
Normal Q-Q Plot of Unstandardized Residual

Residual Q-Q plot - multiple CA-BA model

Normal Q-Q Plot of Unstandardized Residual

Residual Q-Q plot - multiple SMI-BA model

Normal Q-Q Plot of Unstandardized Residual

Residual Q-Q plot - moderated SportInv→CA-BA model

Normal Q-Q Plot of Unstandardized Residual
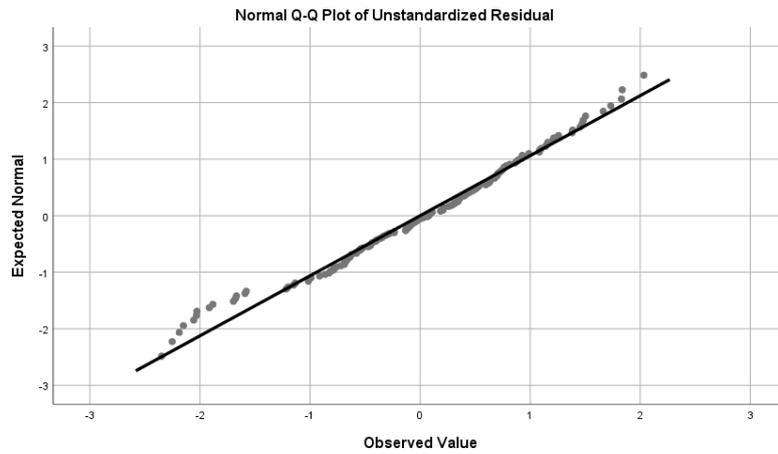
Residual Q-Q plot - moderated SportInv→SMI-BA model
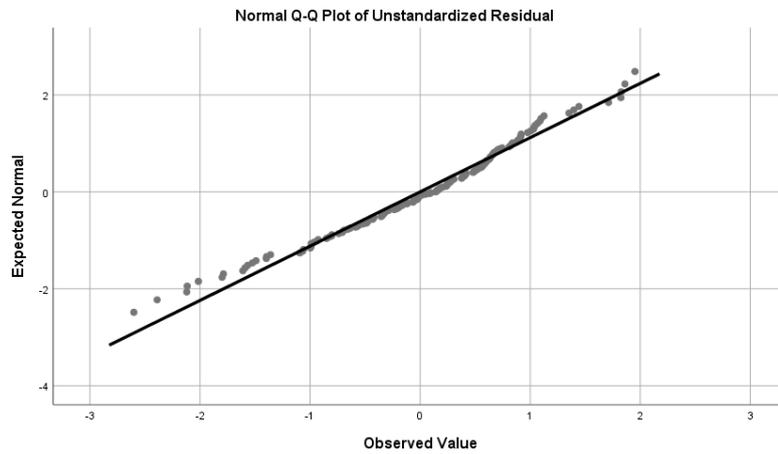
Normal Q-Q Plot of Unstandardized Residual
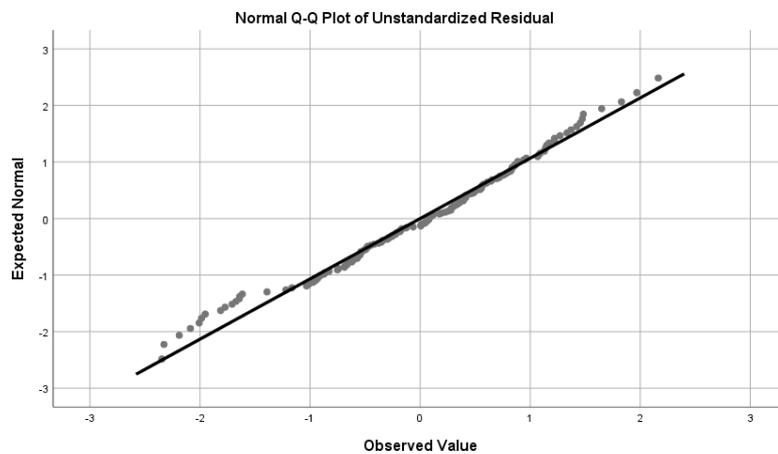
Appendix C6: Residual scatter plots

Residual scatter plot - Simple CA-BA model
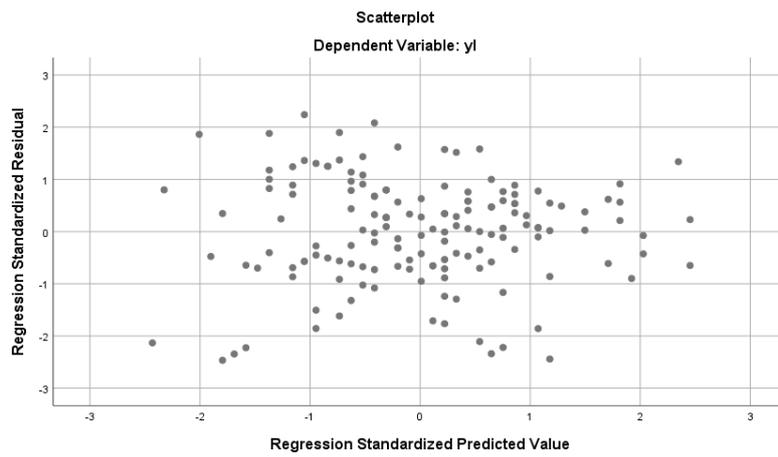
Scatterplot
Dependent Variable: yA

Residual scatter plot – simple SMI-BA model

Scatterplot
Dependent Variable: yI

Residual scatter plot – multiple CA-BA model

Scatterplot
Dependent Variable: yA

Residual scatter plot – multiple SMI-BA model

Scatterplot
Dependent Variable: yl

Residual scatter plot – moderated SportInv→CA-BA model
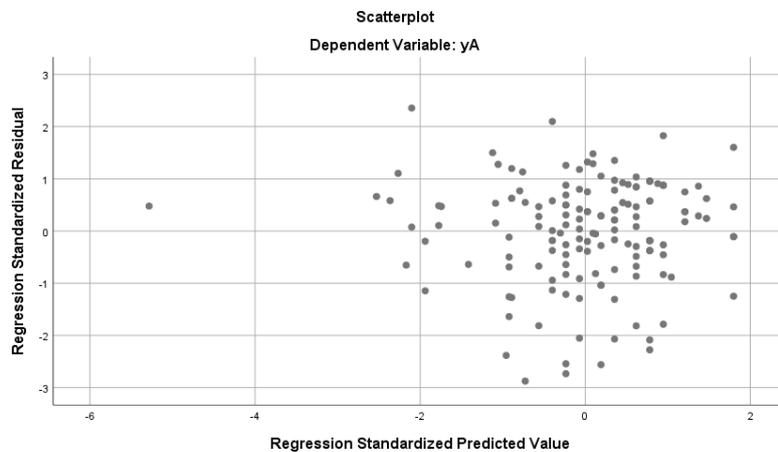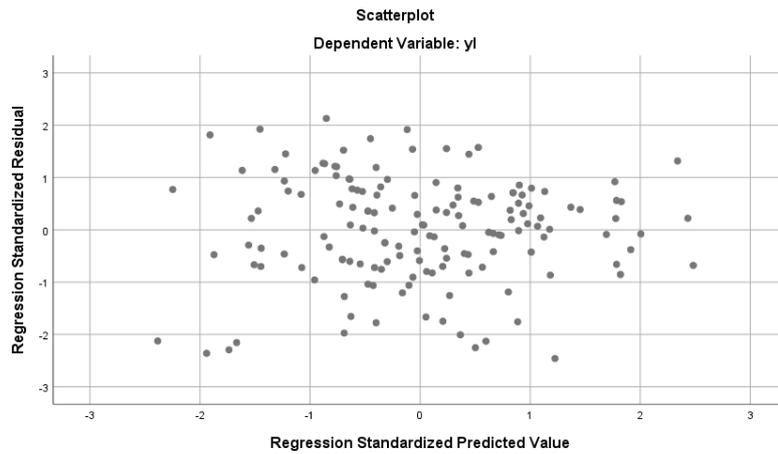
Scatterplot
Dependent Variable: yA

Residual scatter plot – moderated SportInv→SMI-BA model
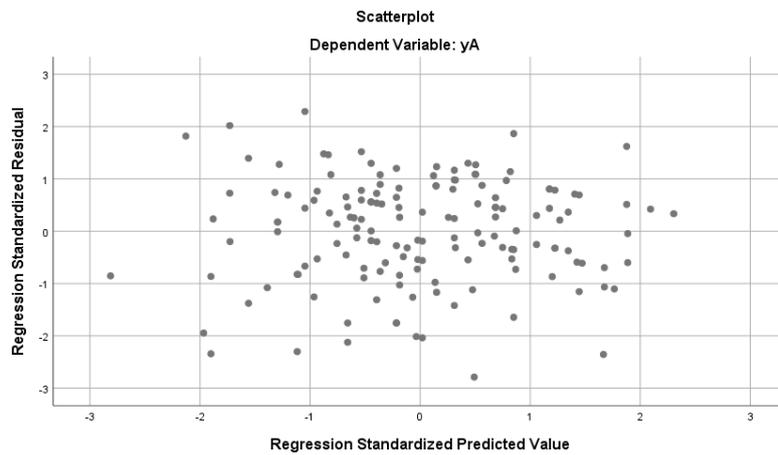
Scatterplot
Dependent Variable: yl
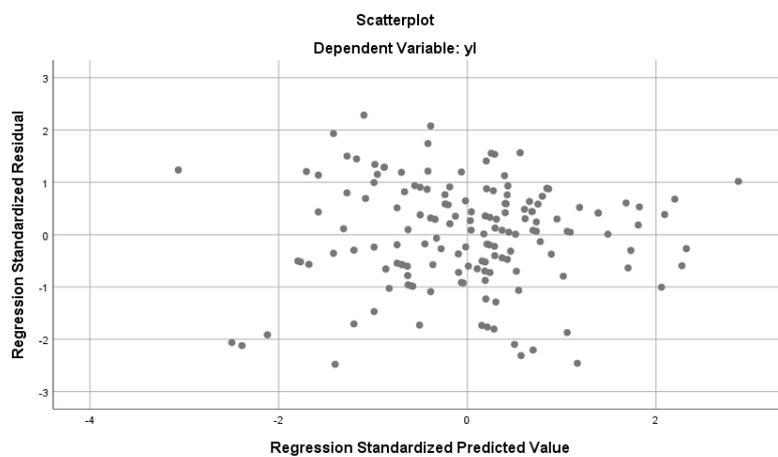
Appendix C7: White test

White test – simple CA-BA model

White Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
3.318	2	.190

a. Dependent variable: yA

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Design: Intercept + xA_Total + xA_Total * xA_Total

White test – simple SMI-BA model

White Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
14.524	2	.001

a. Dependent variable: yI

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Design: Intercept + xI_Total + xI_Total * xI_Total

White test – multiple CA-BA model

White Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
5.533	5	.354

a. Dependent variable: yA

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Design: Intercept + xA_Trust + xA_Cong + xA_Trust * xA_Trust + xA_Trust * xA_Cong + xA_Cong * xA_Cong

White test – multiple SMI-BA model

White Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
23.151	14	.058

a. Dependent variable: yI

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Design: Intercept + xI_Exp + xI_Attr + xI_Trust + xI_Cong + xI_Exp * xI_Exp + xI_Exp * xI_Attr + xI_Exp * xI_Trust + xI_Exp * xI_Cong + xI_Attr * xI_Attr + xI_Attr * xI_Trust + xI_Attr * xI_Cong + xI_Trust * xI_Trust + xI_Trust * xI_Cong + xI_Cong * xI_Cong

White test – moderated SportInv→CA-BA model

White Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
8.503	8	.386

a. Dependent variable: yA

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Design: Intercept + xA_Total_mc + mSportInv_mc + m_xATotal_mSportInv + xA_Total_mc * xA_Total_mc + xA_Total_mc * mSportInv_mc + xA_Total_mc * m_xATotal_mSportInv + mSportInv_mc * mSportInv_mc + mSportInv_mc * m_xATotal_mSportInv + m_xATotal_mSportInv * m_xATotal_mSportInv

White test – moderated SportInv→SMI-BA model

White Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
15.327	8	.053

a. Dependent variable: yI

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Design: Intercept + xI_Total_mc + mSportInv_mc + m_xITotal_mSportInv + xI_Total_mc * xI_Total_mc + xI_Total_mc * mSportInv_mc + xI_Total_mc * m_xITotal_mSportInv + mSportInv_mc * mSportInv_mc + mSportInv_mc * m_xITotal_mSportInv + m_xITotal_mSportInv * m_xITotal_mSportInv

Appendix D: SPSS output - Regression analysis

Regression analysis – simple CA-BA model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.362[a]	.131	.126	.90655

a. Predictors: (Constant), xA_Total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.762	1	18.762	22.829	.000[b]
	Residual	124.097	151	.822		
	Total	142.859	152			

a. Dependent Variable: yA

b. Predictors: (Constant), xA_Total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.150	.160		.937	.350
	xA_Total	.552	.115	.362	4.778	.000

a. Dependent Variable: yA

Regression analysis – simple SMI-BA model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.465[a]	.216	.211	.94872

a. Predictors: (Constant), xl_Total

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.542	1	37.542	41.710	.000[b]
	Residual	135.910	151	.900		
	Total	173.451	152			

a. Dependent Variable: yl

b. Predictors: (Constant), xl_Total

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.455	.077		5.895	.000
	xl_Total	.422	.065	.465	6.458	.000

a. Dependent Variable: yl

Regression analysis – multiple CA-BA model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.439[a]	.193	.182	.87681

a. Predictors: (Constant), xA_Cong, xA_Trust

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.540	2	13.770	17.911	.000[b]
	Residual	115.319	150	.769		
	Total	142.859	152			

a. Dependent Variable: yA

b. Predictors: (Constant), xA_Cong, xA_Trust

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.088	.164		.538	.592
	xA_Trust	.363	.077	.368	4.698	.000
	xA_Cong	.140	.077	.143	1.823	.070

a. Dependent Variable: yA

Regression analysis – multiple SMI-BA model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472[a]	.223	.202	.95443

a. Predictors: (Constant), xI_Cong, xI_Trust, xI_Attr, xI_Exp

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.634	4	9.658	10.603	.000[b]
	Residual	134.818	148	.911		
	Total	173.451	152			

a. Dependent Variable: yI

b. Predictors: (Constant), xI_Cong, xI_Trust, xI_Attr, xI_Exp

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.456	.149		3.058	.003
	xI_Exp	.137	.071	.202	1.940	.054
	xI_Attr	.094	.074	.118	1.271	.206
	xI_Trust	.146	.072	.199	2.037	.043
	xI_Cong	.043	.069	.062	.625	.533

a. Dependent Variable: yI

Regression analysis – moderated SportInv➔CA-BA model

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.388[a]	.151	.134	.90238

a. Predictors: (Constant), m_xATotal_mSportInv, xA_Total_mc, mSportInv_mc

b. Dependent Variable: yA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.530	3	7.177	8.813	.000[b]
	Residual	121.330	149	.814		
	Total	142.859	152			

a. Dependent Variable: yA

b. Predictors: (Constant), m_xATotal_mSportInv, xA_Total_mc, mSportInv_mc

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.807	.077		10.483	.000
	xA_Total_mc	.580	.122	.381	4.755	.000
	mSportInv_mc	-.087	.068	-.105	-1.283	.202
	m_xATotal_mSportInv	.115	.125	.073	.921	.359

a. Dependent Variable: yA

Regression analysis – moderated SportInv→SMI-BA model

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.479[a]	.230	.214	.94688

a. Predictors: (Constant), m_xlTotal_mSportInv, mSportInv_mc, xl_Total_mc

b. Dependent Variable: yl

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.860	3	13.287	14.819	.000[b]
	Residual	133.592	149	.897		
	Total	173.451	152			

a. Dependent Variable: yl

b. Predictors: (Constant), m_xlTotal_mSportInv, mSportInv_mc, xl_Total_mc

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.405	.077		5.275	.000		
	xl_Total_mc	.381	.070	.420	5.402	.000	.857	1.167
	mSportInv_mc	-.040	.066	-.044	-.606	.545	.998	1.002
	m_xlTotal_mSportInv	.112	.075	.116	1.497	.137	.859	1.165

a. Dependent Variable: yl

Multiple regression analysis CA-BA model with all variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.443[a]	.196	.174	.88084

a. Predictors: (Constant), xA_Cong, xA_Attr, xA_Exp, xA_Trust

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.031	4	7.008	9.032	.000[b]
	Residual	114.829	148	.776		
	Total	142.859	152			

a. Dependent Variable: yA

b. Predictors: (Constant), xA_Cong, xA_Attr, xA_Exp, xA_Trust

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.029	.487		.060	.952
	xA_Exp	.046	.175	.020	.265	.791
	xA_Attr	.036	.046	.058	.769	.443
	xA_Trust	.357	.078	.362	4.578	.000
	xA_Cong	.128	.079	.130	1.614	.109

a. Dependent Variable: yA

Appendix E: SPSS output - Mean values

Descriptives - Excel table based on SPSS output

	N		Mean	Median	Mode	Std. Deviation	Variance	Minimum	Maximum
	Valid	Missing							
xI_Exp	153	0	0.69	1.00	1.50	1.57	2.46	-3.00	3.00
xI_Attr	153	0	-1.57	-2.00	-2.00	1.34	1.80	-3.00	2.50
xI_Trust	153	0	-0.21	0.00	1.00	1.46	2.14	-3.00	3.00
xI_Cong	153	0	0.54	1.00	1.50	1.53	2.35	-3.00	3.00
xI_Total	153	0	-0.14	-0.13	0.13	1.18	1.39	-3.00	2.75
xA_Exp	153	0	2.80	3.00	3.00	0.42	0.18	1.00	3.00
xA_Attr	153	0	-1.11	-1.50	-2.00	1.57	2.48	-3.00	3.00
xA_Trust	153	0	1.30	1.50	1.00	0.98	0.97	-3.00	3.00
xA_Cong	153	0	1.94	2.00	2.50	0.99	0.98	-3.00	3.00
xA_Total	153	0	1.23	1.13	1.13	0.64	0.41	-0.75	2.88
yI_Transp	153	0	0.24	0.00	0.00	1.25	1.56	-3.00	3.00
yI_Prox	153	0	1.11	1.50	1.50	1.14	1.31	-3.00	3.00
yI_Virt	153	0	-0.16	0.00	1.00	1.33	1.76	-3.00	3.00
yI_Total	153	0	0.40	0.67	1.17	1.07	1.14	-2.83	2.83
yA_Transp	153	0	0.69	1.00	1.50	1.16	1.35	-3.00	3.00
yA_Prox	153	0	1.28	1.50	2.00	0.98	0.96	-2.00	3.00
yA_Virt	153	0	0.52	1.00	1.00	1.29	1.66	-3.00	3.00
yA_Total	153	0	0.83	1.00	2.00	0.97	0.94	-2.00	3.00
mSportInv	153	0	1.46	1.67	2.00	1.16	1.35	-2.00	3.00
mSoMeAdScept	153	0	1.30	1.50	2.00	1.17	1.37	-3.00	3.00
c1	153	0	1.16	1.00	1.00	1.11	1.24	-3.00	3.00
m1.1	153	0	1.92	2.00	3.00	1.24	1.55	-3.00	3.00
m1.2	153	0	1.07	2.00	2.00	1.65	2.71	-3.00	3.00
m1.3	153	0	1.39	2.00	1[a]	1.43	2.05	-3.00	3.00

a. Multiple modes exist. The smallest value is shown