

Categorizing behavioral and formed concepts in sports marketing research

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Abstract

Purpose – Sports marketing and sponsorship research is located at the intersection of behavioral and design research, which means that it analyzes the current world and shapes a future world. This dual focus poses challenges for formulating and testing theories of sports marketing.

Design/methodology/approach – This article develops criteria for categorizing theoretical concepts as either behavioral or formed as different ways of expressing ideas of sports marketing research. It emphasizes the need for clear concept categorization for proper operationalization and applies these criteria to selected theoretical concepts of sports marketing and sponsorship research.

Findings – The study defines three criteria to categorize theoretical concepts, namely (1) the guiding idea of research, (2) the role of observed variables, and (3) the relationship among observed variables. Applying these criteria to concepts of sports marketing research manifests the relevance of categorizing theoretical concepts as either behavioral or formed to operationalize concepts correctly.

Originality/value – This study is the first in sports marketing to clearly categorize theoretical concepts as either behavioral or formed, and to formulate guidelines on how to differentiate behavioral concepts from formed concepts.

Keywords Formed concept, Behavioral concept, Emergent variable, Composite model, Measurement, Latent variable

Paper type Research paper

1. Introduction

Research in sports marketing and sponsorship is predominantly regarded as a kind of applied behavioral research and thus studies behavioral concepts. Following a scientific realist paradigm, behavioral concepts are regarded as ontological entities, i.e. they are assumed to exist in nature independent of the scientific endeavor (Borsboom, 2008; Borsboom et al., 2003). Behavioral concepts enter the discipline's knowledge base through discovery. A look at recent issues of the *International Journal of Sports Marketing and Sponsorship* (IJSM) reveals that the published research “provides information on consumer behavior that may aid



sports managers' decision-making" (Marquez *et al.*, 2020, p. 527). For that purpose, it "calls for ... behavioral approaches" (Park *et al.*, 2021, p. 262), "explores ... perceptions" (Rogers *et al.*, 2020, p. 561), and "analyzes the behavioral influence" (von Felbert and Breuer, 2021, p. 588). Research in this discipline "aims at understanding" (Pianese, 2021, p. 240), "expands existing knowledge" (Paek *et al.*, 2021, p. 721), or in general "extends the knowledge" (Happ *et al.*, 2021, p. 312), "aims to analyze the interdependence of [concepts]" (Hallmann *et al.*, 2021, p. 764), and "investigates ... direct and indirect ... effects" (Silva and Veríssimo, 2020, p. 449). Empirical studies "investigate the link between [phenomena]" (Demirel, 2020, p. 371), "explore ... impacts ... and ... examine ... changes" (Zhang *et al.*, 2020, p. 487), or "identify ... motivations" (Machado *et al.*, 2020, p. 326). An example of a behavioral concept in sports marketing and sponsorship is team identification (e.g. Kim and Manoli, 2023). In statistical models, behavioral concepts can be represented by latent variables (Bollen, 1989).

At the same time, but to a lesser extent, research in sports marketing and sponsorship manifests itself as a form of design research. Studies of that kind make an "effort to produce" something (Do Kim *et al.*, 2020, p. 247), and "develop and validate" something (Köse *et al.*, 2021, p. 699) "in order to maximize ... outcomes" (Kim *et al.*, 2017, p. 314). Such studies suggest concepts that "can be utilized" (Lu and Lin, 2021, p. 87), or that "generate a [tool] for [a particular] use ... [that] can function" (Do Kim *et al.*, 2020, p. 247). It occurs that something "was developed" that creates "a synergistic outcome" (Memari *et al.*, 2021, p. 737). Whenever studies propose "feasible directions" (Lu and Lin, 2021, p. 87), look for "the most pragmatic result" (Kim *et al.*, 2017, p. 314), or provide "information about the usefulness" of something (Kim *et al.*, 2020, p. 651). In contrast to behavioral concepts theoretical concepts of design research are "attributes that emerge from human-made constructions shaped in a certain way for a certain purpose, i.e. [formed concepts] emerge within a construction's environment and are thus context-specific" (Schuberth *et al.*, 2023b, p. 719). Since theoretical concepts of this type are formed, they are not assumed to exist in nature *per se* and referred to as *formed concepts*. An example of a formed concept in sports marketing and sponsorship is context awareness (Oc and Toker, 2022), which is formed of tracking, sharing, coaching, and gamification. In statistical models, formed concepts can be represented as emergent variables (Henseler and Schuberth, 2020).

To properly study theoretical concepts of sports marketing research, it is important to clearly distinguish between behavioral and formed concepts. If not defined correctly, there is the risk that behavioral concepts are mistaken for formed concepts; hence, latent variables would be modeled as emergent variables, and vice versa, which can result in severely biased model parameter estimates (e.g. Sarstedt *et al.*, 2016; Schuberth *et al.*, 2023a). Although various guidelines have been proposed that help researchers to distinguish reflective and formative measurement of behavioral concepts (e.g. Jarvis *et al.*, 2003; Petter *et al.*, 2007; Bollen and Diamantopoulos, 2017; Diamantopoulos and Winklhofer, 2001), most of the guidelines are limited and neglect formed concepts.

In our study, we propose three criteria to categorize concepts of sports marketing and sponsorship as either formed or behavioral. In doing so, this study encourages researchers to apply the three criteria of concept categorization to not only reduce the risk of unclear results, i.e. by categorizing formed concepts as behavioral concepts and vice versa, but also to provide the chance for new research avenues, i.e. when theoretical concepts are seen from a new perspective as formed concepts, built to solve a specific problem. Furthermore, the study presents theoretical concepts that apply to the field of sports marketing and that can have an impact on organizational performance. Managers may take these theoretical concepts as practical examples into account and use the insights of this study for their current business issues, e.g. brand building, service quality improvement, and sponsorship activities. Moreover, the study at hand applies these criteria to concepts of sports marketing research to demonstrate how they can help researchers in differentiating between behavioral and formed concepts and thus choosing the appropriate way of modeling their concepts.

The remainder of this article is structured as follows: [Section 2](#) explains the central differences between behavioral concepts and formed concepts. [Section 3](#) introduces three criteria that assist researchers in categorizing theoretical concepts of sports marketing as behavioral or formed. In [Section 4](#) the criteria are applied to concepts studied in *IJSMS*. Finally, [Section 5](#) concludes with a discussion and reflects implications for researchers and practitioners.

2. Categorizing and operationalizing theoretical concepts

Like all scientific disciplines of applied behavioral research and design research, also research in sports marketing relies on theoretical concepts as the brick stones of its theories. Theoretical concepts are formalized ideas proposed by researchers. Scholars have recognized that there is not only one type of theoretical concept (e.g. [Bagozzi and Phillips, 1982](#); [Bollen, 1984](#); [Bollen and Lennox, 1991](#); [Henseler, 2017](#); [Henseler and Schuberth, 2021](#); [Yu et al., 2021](#)). At least two types of theoretical concepts can be distinguished, namely, behavioral concepts and formed concepts ([Hubona et al., 2021](#)) [1]. To properly study theoretical concepts of sports marketing and sponsorship, it is important to clearly *categorize* theoretical concepts as either behavioral or formed to *operationalize* them appropriately.

2.1 Categorization

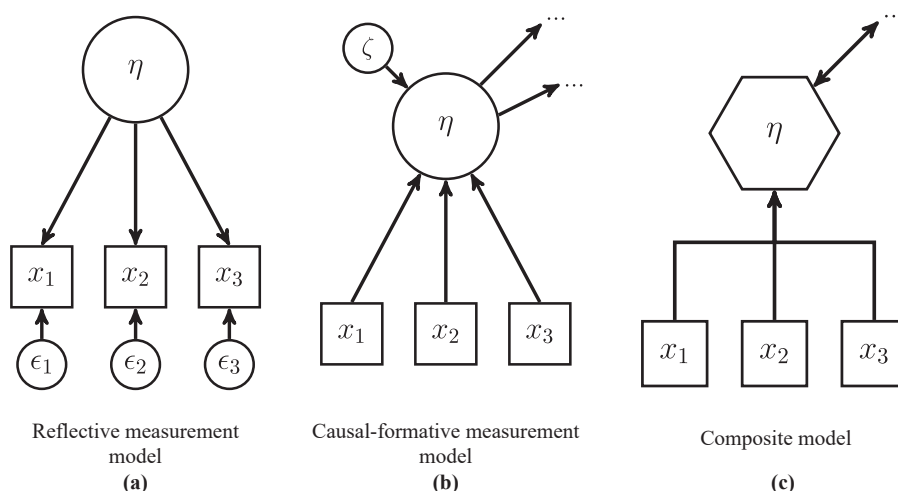
Behavioral science follows to a large extent scientific realism, and thus, theoretical concepts are regarded as ontological entities that are assumed to exist in nature ([Borsboom, 2008](#)). Behavioral research focuses on the nature and structure of things *per se*, independent of any further considerations ([Guarino et al., 2009](#)), and independent of scientific inquiry. It can be seen as a quest for truth, aiming to understand causal patterns to demonstrate that a theoretical concept exists ([Henseler and Schuberth, 2021](#); [van Aken, 2005](#)). Moreover, behavioral science focuses on the current world and typically relies on Humean causality and the principle of common cause ([Reichenbach, 1956](#)), which means that a theoretical concept causes a number of observed variables and their relationships. Accordingly, behavioral concepts are given, manifested by attributes that belong to a concept because of their very nature ([Guarino et al., 2009](#)). Since behavioral concepts are typically not directly observable, researchers collect observed variables as measures of these concepts to study their relationships.

In design science, concepts are the outcome of human development; they come into being through invention ([Henseler and Schuberth, 2021](#)). As an outcome of design efforts, a formed concept is context-specific and inextricably linked to purposefulness, i.e. teleology ([Baskerville and Pries-Heje, 2010](#); [Horvath, 2004](#); [Møller et al., 2009](#)). Design science focuses on a future world and can be seen as a quest for understanding and improving human performance ([van Aken, 2005](#)), “emerg[ing] from ongoing social and economic practices” ([Orlikowski and Iacono, 2001](#), p. 131). Against this background, a formed concept must describe something of value to the organization, needs to represent something that can be changed or implemented by a designer, and must be testable in the intended context of application ([van Aken, 2004](#)). Whereas artifacts are generally regarded as “things that have been, or can be transformed into a material existence as artificially made objects (e.g. a model) or processes (e.g. method, software)” ([Henseler, 2021](#), p. 31), formed concepts conceptualize attributes instead of objects ([Yu et al., 2021](#)). For example, a suitable marketing campaign is an object and thus can be regarded as an artifact, while the suitability of a marketing campaign is an attribute that can be thought of as a formed concept. The scientific inquiry of formed concepts should mainly engage in synthesis rather than analysis, since a formed concept must be complete, total, whole, as it bases on its ingredients, its variables.

2.2 Operationalization

To study theoretical concepts and their relationships by means of statistical approaches such as structural equation modeling (SEM) including confirmatory factor analysis

(CFA, Jöreskog, 1969) and confirmatory composite analysis (CCA, Schuberth *et al.*, 2018), the concepts need to be operationalized and, therefore, transferred into a statistical model. According to Yu *et al.* (2021), the ways of operationalizing theoretical concepts in SEM underwent three evolutionary waves. In the first evolutionary wave, it was proposed to operationalize theoretical concepts as latent variables in a reflective measurement model (Bagozzi and Phillips, 1982) as illustrated in Figure 1a, assuming that the observed variables are measurement error-prone manifestations of the theoretical concept, i.e. the observed variables are *effect* indicators (Bollen and Bauldry, 2011). In the reflective measurement model, a latent variable representing the theoretical concept underlies a set of observed variables and explains their covariance structure (Jöreskog and Sörbom, 1982). In the second evolutionary wave, the causal-formative measurement model was proposed to operationalize theoretical concepts (Bollen, 1984; Bollen and Lennox, 1991). Similar to the reflective measurement model and as shown in Figure 1b, in the causal-formative measurement model the theoretical concept is modeled as a latent variable (Bollen and Diamantopoulos, 2017), which is also known as formative construct in the literature (see Petter *et al.*, 2007). The causal-formative measurement model assumes that the observed variables cause the theoretical concept, i.e. observed variables are *causal* indicators affecting the latent variable; hence, the relationships between the observed variables and the latent variable are reversed compared to the reflective measurement model (Diamantopoulos, 2008). In contrast to the widespread belief (e.g. Jarvis *et al.*, 2003; Petter *et al.*, 2007), an omission of a relevant causal indicator does not alter the meaning of the latent variable. As explained by Aguirre-Urreta *et al.* (2016, Abstract) “its meaning is derived from its position as a common factor of other downstream variables—latent or observed—to which it is related”. Therefore, the causal-formative measurement model is less suitable for operationalizing a formed concept as it does not capture its characteristics. Yet, omitting a relevant causal indicator can bias the effects of the remaining causal indicators. This is due to the fact that the disturbance term of the latent variables captures the omitted causal indicator. As a consequence, the disturbance term is likely correlated with at least one of the remaining causal indicators, which causes this bias. In the third evolutionary wave, it was proposed to represent theoretical concepts as emergent variables, i.e. linear combinations of observed variables, incorporated in the composite model



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Figure 1.
The three dominant
ways to operationalize
theoretical concepts
in SEM

(Henseler, 2015, 2017; Schuberth *et al.*, 2018). As illustrated in Figure 1c, in the composite model, it is assumed that the theoretical concept is fully composed of the observed variables. While latent variables were introduced to model the unobserved properties of social units or entities (Bagozzi and Phillips, 1982), emergent variables were introduced to model attributes that emerge from human constructions (Henseler, 2017; Henseler and Schuberth, 2021). As a consequence, researchers can face structural models containing latent variables, emergent variables, or a mixture of both types of variables.

From a statistical point, the composite model appears to be very similar to the causal-formative measurement model. However, in the composite model, it is clearly distinguished between the variables making up an emergent variable and the antecedents/consequences of the emergent variable, while in the causal-formative measurement model no distinction is made between potential other antecedents of the latent and the causal indicators.

Several studies have emphasized that applying the wrong operationalization to a theoretical concept can lead to biased parameter estimates and thus to questionable conclusions. For instance, it is well known that applying composites to approximate latent variables leads to inconsistent estimates due to attenuation bias (e.g. Cohen *et al.*, 1990; Schuberth *et al.*, 2023; Schuberth, 2021). Moreover, it was shown that fitting wrongly the reflective measurement model to a population that functions differently can lead to severely biased parameter estimates (Sarstedt *et al.*, 2016; Rhemtulla *et al.*, 2020). Similarly, the literature discussed the negative consequences of specifying reflective measurement models when causal-formative measurement models are conceptually appropriate (e.g. Diamantopoulos *et al.*, 2008; Jarvis *et al.*, 2003). Against this background, and in line with Gilliam and Voss (2013), sports marketing researchers are advised to categorize their concepts clearly. Otherwise, it is impossible to develop a coherent theory (Summers, 2001).

3. Three criteria to categorize behavioral and formed concepts

To assist researchers in categorizing their theoretical concepts as behavioral or formed, and in guiding them to choose the correct statistical model, we present guidelines in the form of three criteria (see Table 1). The first criterion focuses on the guiding idea of research. It assists researchers in manifesting their research framework with the help of adherent theoretical concepts, which are either behavioral or formed. The second criterion considers the role of the observed variables, i.e. are they measures or ingredients of the theoretical concept. The third criterion evaluates the relationship among the observed variables, i.e. are they (highly) correlated because they are assumed to share a common cause, or do the observed variables not show a clear pattern in empirical correlations.

3.1 Criterion 1: Guiding idea of research

To understand and explain relationships among theoretical concepts, it is *a priori* relevant to categorize the type of theoretical concept correctly. To distinguish between behavioral and formed concepts, the first criterion focuses on the central idea of research and its adherent theoretical concepts, raising the question: Does a concept describe a natural phenomenon, i.e. a behavioral concept, or a human-made phenomenon, i.e. a formed concept? In doing so, the first criterion is considered as a *metaphysical* criterion, since it helps researchers to inquire the ultimate nature of mind-independent reality, i.e. to offer an account of what there is and how things are (Lowe, 2011).

The combination of research questions asked helps to characterize the guiding idea of research and its adherent theoretical concepts as either behavioral or formed: When researchers ask questions of the form “What is ... ?” and “How does ... ?” the focus is on behavioral concepts; whereas questions such as “How can ... ?” and “How should ... ?” are

Criterion	Probing question	Behavioral concept	Formed concept
1. Guiding idea of research	Is the theoretical concept a natural phenomenon or human-made?	As part of the science of the existing, a behavioral concept is a natural phenomenon that is assumed to exist independently of scientific inquiry. It comes into being through discovery. It can be the cause of a set of (effect) indicators or can be caused by a set of (cause) indicators	As part of the science of the artificial, a formed concept captures the attributes that emerge from human constructions. A formed concept is designed for a certain purpose and thus follows pragmatist world view. It should describe something of value, that can be changed by an individual, and that must have been tested in the intended context of application. Consequently, it cannot be studied in isolation
2. Role of the observed variables	What is the assumed relationship between the theoretical concept and the observed variables? Are the observed variables measures or ingredients?	Behavioral concepts are measured by observed variables. Since the behavioral concept comes first, the measures can be interchanged or dropped without altering the meaning of the concept. Regardless of whether the concept is measured reflectively or formatively, there is a hypothesized causal relationship between the concept and its indicators. In the case of reflective measurement, the indicators are assumed to be caused by the concept, while in a formative measurement model, the indicators are assumed to cause the concept	Formed concepts are constructed. They come into being through design. Observed variables come first. They emerge to the concept and thus determine its meaning. The formed concept is the outcome of its ingredients. Consequently, the formed concept's ingredients define the concept, and therefore, there is a definitorial relationship between the concept and its ingredients. Hence, observed variables cannot be dropped or changed without risking to alter the meaning of the formed concept
3. Relationship among the observed variables	Is there a pattern in empirical correlations of the observed variables?	In the case of a reflective measurement of the concept, it is assumed that the concept causes the observed variables. Consequently, (high) correlations among observed variables are expected. In contrast, for a formative measurement of the behavioral concept, the causal indicators are not expected to show a specific correlational pattern	Ingredients of a formed concept do not share a common cause. Therefore, similar to causal indicators, observed variables forming a concept are not expected to show a specific correlational pattern

Table 1.
Three criteria to
categorize concepts as
behavioral or formed

Source(s): Created by authors

often answered when shaping solutions or proposing theoretical concepts that are formed (Henseler and Guerreiro, 2020; Henseler and Schubert, 2021).

Behavioral concepts are regarded as ontological entities that are unobservable, but assumed to exist independent of a researcher's inquiry (Borsboom, 2008). They are considered as natural phenomena that come into being through discovery. Accordingly, researchers develop theories of wider or narrower scope to describe the existence of behavioral concepts and to test their theories by means of measuring (Smith, 2003).

In contrast, a formed concept does not exist *per se*, as it is the outcome of other variables, the formed concept's ingredients. As a design proposition, (1) a formed concept should describe something of value, e.g. financial or operational performance, (2) its observed variables describe something that can be changed or implemented by an individual, and (3) it must have been tested in the intended context of application (van Aken, 2005). A formed concept fulfills its purpose, and thus has a certain value "if the inner environment is appropriate to the outer environment, or vice versa" (Simon, 1969, p. 6). While the inner environment contains the relationships between the formed concept and its ingredients, the outer environment comprises the surroundings in which the concept emerges and has an impact. Against this background, formed concepts are context-specific and cannot be studied in isolation, as this would mean to ignore their outer environment.

The individual interpretation of a theoretical concept as behavioral or formed depends essentially on the guiding idea of research and on the underlying theory. For instance, if a researcher interprets "service quality" as a theoretical concept that is perceived, then he is likely dealing with a behavioral concept. On the other hand, if a researcher aims at building "service quality" by defining ingredients that form the concept, he is likely studying a formed concept.

Concluding, the first criterion suggests that if a theoretical concept is conceptualized as phenomenon that is assumed to exist in nature, it is likely a behavioral concept and should be modeled as a latent variable. If the concept is built or constructed to serve a certain purpose, it is likely a formed concept and should be modeled as an emergent variable.

3.2 Criterion 2: Role of the observed variables

A further distinguishing characteristic between behavioral and formed concepts is the role of the observed variables and their assumed relationships with the theoretical concept. The second criterion is considered as a *theoretical* criterion. A theory is an ordered set of assertions about a generic behavior or structure assumed to hold throughout a broad range of specific instances (Sutherland, 1975). It is a statement of relationships between units observed or approximated in the empirical world (Wacker, 1998).

Considering behavioral concepts, each associated observed variable is assumed to be a measure of the concept, i.e. there is a supposed causal relationship between the concept and its measures. It is assumed that a concept comes first, i.e. it always precedes its measures (Bollen and Diamantopoulos, 2017). In the case of reflective measurement, the observed variables are expected to be error-prone consequences of the concept, the underlying common cause, i.e. they are effect indicators. Hence, variation in a concept causes variation in all its measures (Sobel, 1997). Therefore, the observed variables can be in principle interchanged without altering the meaning of a concept. For example, the behavioral concept *stickiness* precedes measures such as "I plan to keep using . . . in the future" and "I intend to continue using . . . than use any alternative means" (Teng and Bao, 2022, Appendix), not vice versa. In contrast to the reflective measurement, in the case of a causal-formative measurement, the observed variables are assumed to be causes of the concept, i.e. they are causal indicators. In this case, variation in a causal indicator causes variation in the concept (Jarvis *et al.*, 2003). For example, winning a football game might lead to fan's satisfaction, not vice versa.

Considering formed concepts, the observed variables are assumed to be elements (Henseler, 2017). Formed concepts emerge from their constituting elements, which means that the observed variables are regarded as ingredients that form a concept. In contrast to behavioral concepts, for formed concepts it is assumed that the observed variables come first, and the unity of a formed concept arises out of the plurality of its ingredients (Henseler and Schubert, 2021). Accordingly, the observed variables of a formed concept can be rather considered as Aristotle's material causes that indicate from which something was made (Henseler, 2015; Poole *et al.*, 2000, Chapter 2). Theoretically, the observed variables forming a formed concept could be incoherent. Consequently, a formed concept is given meaning by its ingredients, whereas behavioral concepts create meaning on their own, since they are assumed to exist. Therefore, ingredients of formed concepts cannot be interchanged or dropped without risking altering the meaning of the concept.

Against this background, the second criterion suggests that if observed variables are measures of a theoretical concept, i.e. they are effect or causal indicators, and thus can be interchanged without altering the meaning of the concept, the concept is likely behavioral. Moreover, this criterion suggests that if there is a hypothesized causal relationship between a concept and its observed variables, a researcher likely examines a behavioral concept. If the observed variables are ingredients of the concept, and consequently the meaning of the concept is altered if the observed variables are interchanged or dropped, the concept is likely a formed concept. Moreover, if there is an assumed definitorial relationship between the observed variables and their concept, a researcher likely studies a formed concept.

3.3 Criterion 3: Relationships among the observed variables

Next to the difference in role of the observed variables, correlations of a concept's observed variables can help to categorize a theoretical concept as either behavioral or formed. The third criterion is an *empirical* criterion, since it derives from the implications of the second criterion and transfers the theoretical implications from the second criterion to investigate the empirical correlations.

Considering behavioral concepts that are reflectively measured, their effect indicators are assumed to share an underlying common cause, namely the theoretical concept (Sobel, 1997). Consequently, the manifestations of a behavioral concept, i.e. the effect indicators, are expected to be (highly) correlated (Jarvis *et al.*, 2003). In contrast, causal indicators in the formative measurement do not share such a common cause and therefore are not expected to show a specific pattern in empirical correlations (Jarvis *et al.*, 2003).

Similarly, considering formed concepts, the observed variables that form a concept share no underlying common cause. In fact, observed variables as ingredients of formed concepts can be understood as single individual elements which make up the formed concept. Therefore, correlational pattern are not mandatory to categorize a concept as formed, but they are common.

In general, it is challenging to derive information about the concept's nature (solely) based on the relationships between the observed variable, which is why Criterion 3 is strongly motivated by Criterion 2. Only in some rare cases, it is possible to create experiments that help to test whether variables are causal or effect indicators (Bollen, 1989). One mental exercise that might help to find out if observed variables show pattern in empirical correlations is to imagine a change in the concept and then judge if a simultaneous shift in the observed variables is likely (Bollen and Ting, 2000). A way to test for pattern in the empirical correlations between observed variables is the vanishing tetrad test developed by Bollen and Ting (1993). While it helps to empirically test whether a causal or effect indicator specification is appropriate, it is not suitable to distinguish between causal indicators and ingredients.

Concluding, the third criterion suggests that if researchers study a behavioral concept that is reflectively measured by a set of observed variables, the observed variables are expected to

be (highly) correlated. In contrast, no pattern in empirical correlations are expected for causal indicators, i.e. formative measures of a behavioral concept, and ingredients of formed concepts.

4. Concepts of sports marketing and sponsorship: Behavioral or formed?

Sports marketing and sponsorship research studies the science of the existing, which includes natural phenomena (e.g. consumer behavior), and the science of the artificial, i.e. design science (Simon, 1996), which includes human-made phenomena (e.g. various forms of communication). Accordingly, sports marketing research is located at the intersection of the science of the existing and the science of the artificial. Sports marketing and sponsorship research aims at improving the relationship between theory and practice. A theory is a statement of relationships between units observed or approximated in the empirical world (Wacker, 1998). Such a statement of relationships may be viewed as a system of theoretical concepts, which are among the cornerstones of theory building (Whetten, 1989). To assist researchers in appropriately categorizing and operationalizing theoretical concepts, in the following, the three categorization criteria are applied to four widely used theoretical concepts in sports marketing research.

4.1 Service quality

In the 1980s, the concept service quality was approached from an object-oriented and operational perspective (see Fitzimmons and Sullivan, 1982; Haywood-Farmer and Stuart, 1988; Lyth and Johnston, 1988; Wyckoff, 1984). Wyckoff (1984, p. 78), for example, discussed “new tools for achieving service quality”, following the assumption that service quality is produced in interaction mainly between a customer and elements of a service organization (Lehtinen, 1984), which rather describes service quality as a formed concept. In the last decades, however, especially since Parasuraman *et al.* (1985), research on service quality predominantly has been focusing on *perceived* service quality (Lehtinen and Lehtinen, 1991), defined as the overall subjective impression after consumption (Bitner and Hubbert, 1994), solely based on perceptions (Cronin and Taylor, 1992, 1994). Sports scholars observed that “it has not been well documented whether service quality (sub) dimensions are components of the service quality construct or whether they are antecedents of a separate distinct Overall Service Quality evaluation” (Theodorakis *et al.*, 2011, p. 58). In the following, (sub) dimensions of service quality are used as examples to show the categorization of behavioral and formed concepts.

4.1.1 Service quality as a formed concept. Consumers have not (only) been regarded as recipients of service quality measures, but also as influencers to build service quality, since customers who simultaneously are consuming the same or similar service may influence the way in which a given customer will perceive a service (Grönroos, 1984). Consequently, Lehtinen and Lehtinen (1991, p. 288) “define[d] service quality as formed by the qualitative levels of a service on different dimensions of the service production process”: physical quality (products and support), interactive quality (persons and equipment), and corporate quality (quality developing over time). Physical quality is related to technical quality, as well as a part of functional quality (Grönroos, 1983). The technical and functional quality of services are main builders of the corporate image, influencing the expectations of customers by their view of the company (Grönroos, 1984). The unit of analysis depicts rather objects than an individual organism, since a corporate image is built by the corporations’ management but (continuously) improved by considering the perceived level of quality by consumers, so that the latter almost indirectly affect the corporate image. If scholars follow these definitions, consequently, observed variables must be ingredients to a formed concept, since it is human-made, created to

serve a specific goal, e.g. to build/improve a corporate image. In such cases, the observed variables are not necessarily correlated, since they create meaning individually and do not have to share a common cause.

4.1.2 Service quality as a behavioral concept. Perceived service quality has often been measured with scales such as the SERVQUAL including observed variables to represent five factors: tangibles, reliability, responsiveness, customer assurance and empathy (Parasuraman *et al.*, 1988). Howat *et al.* (1999) used the SERVQUAL dimension to classify the concept perceived service quality into three dimensions: personnel, core, and peripheral, whereas Theodorakis *et al.* (2015) applied the dimensions physical environmental quality, interaction quality, and outcome quality. Also in sports marketing research scholars “accumulated . . . items that measured . . . key service aspects” of service quality (Kim *et al.*, 2016, p. 160). Against this background, typically, “in order to measure service quality attributes” (Kim *et al.*, 2016, p. 154) the concept is composed by, e.g. knowledge from, about, and for customers (Behnam *et al.*, 2021), physical environmental quality, interaction quality, and outcome quality (Xiao *et al.*, 2019), staff, installation, and programs (Yildiz and Kara, 2012), or ticket services, visuals, venue accessibility, staff, and event amenities (Kim *et al.*, 2016). Therefore, when following the definition by, e.g. Parasuraman *et al.* (1985), the guiding idea of research on service quality is perception-driven, asking questions of the form “How does the individual perceive a company’s service quality?”. Observed variables to the concept “Knowledge about customer” are, e.g. “My club demonstrates an understanding of its customer’s background”, “My club demonstrates an understanding of the number of customer’s referrals”, and “My club demonstrates an understanding of customer’s problems” (Behnam *et al.*, 2021, p. 414). Since the observed variables carry similar meaning, they are presumably interchangeable without risking to alter the concept’s meaning. Further examples are: “personnel was responsive”, “personnel was courteous”, and “personnel was knowledgeable” (Xiao *et al.*, 2019, p. 97). Accordingly, the indicators are assumed to be highly correlated. A change in the concept itself would automatically cause a change in the observed variables, which makes service quality in this sense a behavioral concept.

4.2 Sponsorship

“Sponsorship may be defined as investments in causes or events to support overall corporate objectives . . . or marketing objectives” (Gardner and Shuman, 1988, p. 44). Sponsorship-linked marketing is described as “the orchestration and implementation of marketing activities for the purpose of building and communicating an association to a sponsorship” (Cornwell, 1995, p. 15). Corporations view sponsorship as an integral component of their comprehensive marketing and communication strategy (Cornwell, 2014; O’Reilly and Horning, 2013). Keywords such as *orchestration*, *implementation*, *building*, and *strategy* describe the concept sponsorship as rather design-oriented (Henseler, 2021). On the one hand, sponsorship research investigates the world of sponsors and their activities, which are built, created, formed by individuals to achieve a certain goal, i.e., to increase the purchase intention of (potential) customers. On the other hand, sponsorship research explores the influence of sponsorship activities on individuals. Against this background, the match between a sponsored activity and a sponsor relies not only on a (human-made) link between, e.g., an event and its sponsors, but also on consumer perceptions of this link, which is a typical natural phenomenon.

4.2.1 Sport sponsorship index. Companies use sponsorship as a “powerful device for communication with spectators . . . and . . . for enhancing brand awareness and recall” (Bennett, 1999, p. 309), suggesting that managers can influence sponsorship as a concept designed for a certain purpose. The study by Henseler *et al.* (2007) outlines how managers involved in sponsorship decisions view the impacts of different levels of sponsorship on

brand equity. The authors followed the definition by [Cornwell \(1995\)](#) and, accordingly, decided for a pragmatist approach. Sports sponsorship was operationalized as a second-order composite, the sport sponsorship index (SSI), which was composed by a set of activities: exposure, coverage, competitions, and advantages ([Henseler et al., 2007](#)). Against this background, the guiding idea of this study was to evaluate the composition of sport sponsorship, since questions such as “How should communication measures be designed to enhance brand awareness?” could be asked to characterize the concept. To this end, the concept was composed by a set of activities that cannot be interchanged or dropped without risking altering the concept’s meaning, making it a formed concept. Correlations between these activities are not expected, since they function as ingredients of the formed concept.

4.2.2 Perceptions of sponsorship. Aiming to assess the impact of fans’ perceptions of teams’ jersey sponsorship in the National Basketball Association (NBA), [Shoffner et al. \(2020\)](#) followed the definition by [Meenaghan \(1991, p. 36\)](#), who denominated sponsorship as “an investment in cash or in kind, in an activity, in return for access to the exploitable commercial potential associated with that activity”. The survey comprised four sets of items measuring participants’ perception of the sponsorship: authenticity, familiarity, identification and fit ([Shoffner et al., 2020](#)). Accordingly, the scholars also operationalized a second-order construct, but asked questions such as “How do sponsorship measures influence individuals’ perception?”, and “[W]hat is an appropriately fitting sponsoring brand for their favorite team?” ([Shoffner et al., 2020, p. 645](#)), relating to a behavioral concept. The observed variables of the concept “fit” facilitate this behavioral approach: “There is a logical connection between the team and sponsor”, “The image of the team and the image of sponsor are similar”, “The team and sponsor fit well together”, “The team and sponsor stand for similar things”, “It makes sense to me that . . . sponsors the team” ([Shoffner et al., 2020, p. 642](#)). The observed variables can be easily interchanged, since they carry similar meaning, speaking for a behavioral concept.

4.3 Brand equity

[Aaker \(1991\)](#) defined brand equity as a set of assets and liabilities linked to a brand’s name and symbols that add to or subtract from the value provided by a product or service to a firm and/or that firm’s customers, comprising four asset categories: brand name awareness, brand loyalty, perceived quality, and brand associations. [Keller \(1993\)](#), however, presented a conceptual model of brand equity from the perspective of the individual customer, the customer-based brand equity, which is defined as the differential effect of brand knowledge on consumer response to the marketing of a brand. This definition comprises the consumer’s individual reaction to a brand or a brand’s marketing element, and therefore rather describes a behavioral concept, asking questions such as “How does a customer react to brand advertisement?”. [Farquhar \(1989, p. 27\)](#) investigated “brand equity from an individual consumer’s perspective”, but also stated that “[t]hree elements are essential in building a strong brand with the consumer”. Accordingly, the guiding idea of research on brand equity can depict design science or behavioral science.

4.3.1 Brand equity as a formed concept. Following the definition by [Aaker \(1991\)](#), brand equity can be considered as a composition of a set of variables, which is in line with the following statements from research published in *IJSMS*: “Sports sponsorship contributes significantly to the formation of brand equity” ([Henseler et al., 2007, p. 36](#)), “[f]irms not only strengthen their competitive advantage but also benefit from building their brand equity” ([Wang, 2017, p. 196](#)), “[b]rand managers should consider . . . when creating their different promotional activities to manage and enhance their brand equity” ([Giroux et al., 2017, p. 181](#)), as “strong brands help create high brand equity” ([Henseler et al., 2007, p. 40](#)). “Building . . .

brand equity is one plausible justification” (Bozman *et al.*, 2015, p. 24). Brand equity can be “disaggregat[ed] . . . into its tangible and intangible components” (Bozman *et al.*, 2015, p. 25). Moreover, marketing tools are strategic elements that contribute to the development of brand equity (Giroux *et al.*, 2017), and there has been a lack of studies to shed light on “how sponsor brand equity is formed” (Wang, 2017, p. 197). In this sense, “brand equity is formed” by its “components” (Wang, 2017, p. 197). Keywords such as *formation*, *build*, and *create* are typical to characterize the guiding idea of research on brand equity as design-oriented, since it is built to create value, and since it can be changed or implemented by individuals, suggesting a formed concept.

4.3.2 Brand equity as a behavioral concept. The guiding idea of research on brand equity can depict the science of the existing, e.g. if the focus is on customer-based brand equity, defined as the differential effect of brand knowledge on consumer response to the marketing of the brand (Keller, 1993). As Section 4.3.1 shows, Wang (2017) characterized the guiding idea of research on brand equity as rather design-oriented. However, by choosing observed variables such as “It makes sense to buy . . . instead of any other brand, even if they are the same”, “Even if another brand has the same features as . . . I would prefer to buy . . .” and “If there is another brand as good as . . . I still prefer to buy . . .” (Wang, 2017, p. 204), the author rather points to a behavioral concept, since the observed variables are manifestations of the concept and are interchangeable. The indicators are assumed to share a common cause, i.e. brand equity and are therefore expected to be correlated with each other.

5. Discussion and conclusion

International sports marketing studies both behavioral and formed concepts. Since these two types of theoretical concepts have different characteristics, these characteristics should be taken into account in the choice of a concept’s operationalization. Otherwise, researchers likely misoperationalize a theoretical concept, which can have negative side effects such as inconsistent estimates due to attenuation bias (e.g. Cohen *et al.*, 1990; Schuberth *et al.*, 2023; Schuberth, 2021) and severely biased parameter estimates (Sarstedt *et al.*, 2016; Rhemtulla *et al.*, 2020).

The study at hand addresses this problem and introduced guidelines in the form of three criteria that assist researchers in properly distinguishing between behavioral and formed concepts and guide their concept operationalization. Applying these criteria to theoretical concepts of sports marketing research demonstrated the relevance of categorizing concepts as either behavioral or formed to operationalize them correctly. As our findings revealed, there were certain theoretical concepts that could not be categorized uniquely, highlighting the complexity of categorizing theoretical concepts correctly. For instance, the concepts “service quality” and “brand equity” generally could be categorized as behavioral and formed concept. The interpretation of these concepts as either behavioral or formed depends essentially on the guiding idea of research and on the underlying theory. If a researcher tends to interpret “service quality” as a concept that is perceived, then they are arguably dealing with a behavioral concept. However, if they aim at building “service quality” by defining ingredients that form the concept, researchers are likely studying “service quality” as a formed concept. Similarly, “brand equity” can be perceived by a customer, speaking rather for a behavioral concept, but it can also be formed to attract potential customers, implying a formed concept. These concepts are generic, to be applied in different forms of marketing and sponsorship research, e.g. advertising (Walliser, 2003), brand (Papadimitriou *et al.*, 2008), communications (Dolphin, 2003), knowledge (Richards *et al.*, 1998), product (Papadimitriou *et al.*, 2008), promotion (Johnston and Spais, 2015), quality (Kersten and Koch, 2010), reliability (Kersten and Koch, 2010), service (Talib *et al.*, 2011), and tourism management research (Lee and Back, 2010).

This study invited scholars to conduct research beyond the dimension of understanding and explaining naturally occurring theoretical concepts toward designing human-made theoretical concepts (van Aken, 2004). Several studies have emphasized that applying the wrong operationalization mode to a concept can lead to biased estimates and thus to questionable conclusions. A variety of studies in sports marketing presumably included formed concepts that have been defined as behavioral concepts and were thus operationalized as latent variable. This can cause misleading outcomes, and therefore researchers should reconsider their concepts' characteristics and possibly apply the composite model instead of the reflective measurement model or the causal-formative measurement model. Specifically, researchers are encouraged to apply the three criteria of concepts' categorization to not only reduce the risk of unclear results, i.e. by categorizing formed concepts as behavioral concepts and vice versa, but also to provide the chance for new research avenues, i.e. when theoretical concepts are seen from a new perspective, as formed concepts, built to solve a specific management problem.

Rapidly changing business environments constantly confront managers with new problems that potentially impact organizational performance. Marketing research can address such issues through design science research as a methodology that aims at systematically generating knowledge for the design, synthesis, testing, and evaluation of human-made objects to solve practical problems of managers (Stange *et al.*, 2022). Most marketing research is explanatory, which is relevant for managers to understand a problem. This paper aimed at encouraging practitioners to test whether their desired formed concepts, hence, their designated problem solvers can help to solve a management problem in the intended business context. Scientifically-motivated solution-oriented testing is highly relevant for marketing practitioners since a theoretically well-founded problem solver can be more easily communicated to shareholders when aiming to be equipped with the needed (financial, personnel) resources. Ideally, there is scientifically approved evidence for a design concept as a designated problem solver before wasting resources for a potentially gratuitous solution without having tested the problem solver's validity.

Note

1. In the literature, this type of theoretical concept is also known as artifact (Benitez *et al.*, 2020; Henseler, 2017; Müller *et al.*, 2018; Schubert *et al.*, 2018) and forged concept (Henseler and Schubert, 2021; Yu *et al.*, 2021).

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