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# Guiding the Process of Construct Building: An Exploration Based on Heidegger's Ontological Difference

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## ABSTRACT

Numerous academic disciplines are dedicated to the study of human behavior. Within these disciplines, a well-established standard governs the conduct of research, encompassing construct building, theory formulation, measurement development, and statistical analysis. While literature provides extensive criteria to ensure the quality of theory formulation, measurement construction, and the use of statistical procedures, comparatively little attention has been paid to ensuring the quality of construct building. This work begins by seeking to clarify different conceptions of the nature of constructs. We posit that they are assumed to be invented, developed, or disclosed. Our first aim is to discuss the option that constructs are equal to disclosed reality. Drawing on Heidegger's ontological difference, we propose that this philosophical framework offers a lens through which this option can be understood. Our second aim is to explore how researchers can provide evidence for the existence of a particular construct depending on the construct's nature. Our third objective is to examine whether Heidegger's philosophy can inform the derivation of criteria for the quality of construct conceptualization. From this analysis, we propose a separation between the definitional and clarificatory parts of disclosed constructs. Their definitional component should be articulated independently of temporal and spatial contingencies. The disclosure of the clarificatory component should emerge through an iterative ontic-ontological process and allow for such contingencies. Furthermore, we advocate for the reporting of the stage of

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disclosure reached within the hermeneutic process. To illustrate the practical applicability of these proposed criteria, we examine the marketing construct of brand age.

***Keywords:*** Constructs; Disclosure Process; Heidegger's Epistemology; Ontological Difference; Hermeneutic Process; Philosophy and Consumer Research; Brand Age

# 1. Introduction

## 1.1. The Problem

Researchers in human behavior investigate phenomena by using constructs and linking them with data. While terminology may vary, a broadly accepted research process typically unfolds in four steps: (1) building constructs (defining and clarifying constructs), (2) theorizing (formulating theoretical assumptions about relationships between constructs, resulting in hypotheses), (3) operationalization (developing instruments for assessing empirical variables as representations of constructs, e.g., through items and scales), and (4) statistical procedures (choosing samples, collecting data, and assessing the relationships between the empirical variables). Of course, (2) and (3) can be carried out in parallel, and apart from constructs, theories can also contain observable variables. **Figure 1**, which is a slightly modified version of the model suggested by DeVellis and Thorpe [1], illustrates these steps.

The literature offers extensive guidance on the procedures and quality criteria relevant to theory formulation, operationalization, and statistical procedures. In the domain of theory formulation, quality is frequently evaluated using criteria such as coherence, scope, and empirical testability (e.g., a good theory is one that has repeatedly withstood attempts at falsification, resulting in gradually increasing confirmation) [2,3]. In the domain of measurement development, reliability and validity constitute central criteria [4]. In the domain of statistical procedures designed to examine relationships between empirical variables, commonly accepted evaluation criteria include significance levels, effect size, model fit, and predictive accuracy. Constructs are also ubiquitous and often the starting point in research on human behavior, which probably leads to many researchers having an implicit understanding of the nature of constructs in general, of the existence of specific constructs, and of appropriate quality criteria for conceptualization. However, we see the problem that these issues belonging to the domain of construct building are under-theorized.

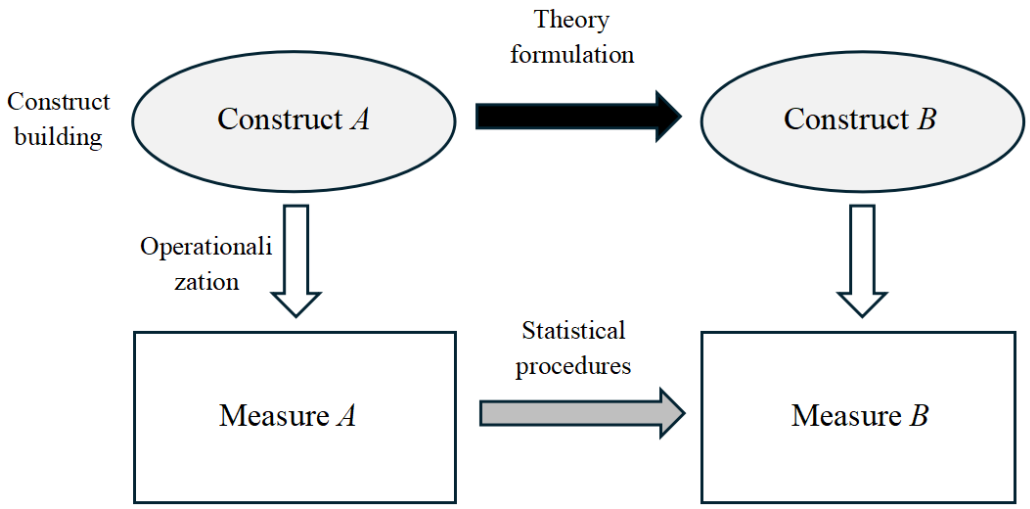


**Figure 1.** Steps within the Process of Research concerning Human Behavior.

## 1.2. Our Contribution to a Solution

We posit that human behavior research should allow room for competing proposals regarding the nature of constructs, procedures for analyzing the existence of a particular construct, and construct conceptualization, without de-

claring one to be true or correct and all others to be false. Based on knowledge of different proposals, researchers can justify the adoption of a certain proposal in their work.

We assume that the scientific gap lies in the availability of such proposals. We aim to fill this gap by proposing a possible conception of the term "construct": constructs as disclosed reality.

### 1.2.1. Questions about the Nature of Constructs

Why do we discuss the nature of constructs? Our point of departure is the observation that researchers often define constructs as mental inventions or even explicitly as fictions that diverge from objective reality, merely residing in the researchers' minds for the sake of their scientific purposes; we will cite such definitions in Section 2.1. We assume that the qualifier "for scientific purposes" adds little substantial meaning to the nature of constructs. Moreover, characterizing the fundamental element upon which measurement, theory, and statistical procedures are based as merely invented and unrelated to objective reality risks creating significant misunderstandings about the overall trustworthiness of research within the field of human behavior. Furthermore, the statement that constructs are assumed to differ from "objective reality" does not answer the question of what constructs are instead. Do constructs exist in a sphere of reality other than the objective one? Are there actually different realities? And do or must constructs really exist in non-reality, such as fiction?

What insights do we want to contribute? Given the limited discourse surrounding the nature of constructs, we turn to the philosophy of science for insight. In his seminal work *Being and Time* (*Sein und Zeit*), first published in 1927 and described as "one of the most important philosophical texts of the twentieth century" [5], Heidegger offers extensive general epistemological reflections that are applicable to this context [6]. In short, we contend that Heidegger's philosophy of the ontological difference offers a framework that distinguishes between (1) the mere observation and sensual experience of entities (ontic access to reality) and (2) modes and processes existing within the individuals' minds that enable them to engage with reality (ontological access to reality). Crucially, these modes and processes *exist* in individuals' minds independently of psychological analysis and philosophical reflection, and their existence *per se* necessarily precedes psychological and philosophical thought [6]. If researchers reveal such modes and processes in the minds (brains) of individuals, the result could be called "disclosed constructs" or "disclosed reality."

### 1.2.2. Questions about the Existence of Constructs

Why do we discuss ways of providing evidence for the existence of constructs? There are neither logical rules nor statistical-empirical tools that can prove the existence of a particular construct. Thus, there must be different ways to achieve that purpose.

What insights do we want to contribute? We want to show that the procedures used or usable for inferring the existence of constructs are contingent on the nature of constructs. We aim to show, in line with Heidegger's hermeneutic ontic-ontological iteration process, that disclosed constructs approximate reality.

### 1.2.3. Questions about the Conceptualization of Constructs

Why do we provide guidelines for the conceptualization of constructs? Few sources provide explicit guidance on how conceptualization (i.e., the definition and clarification of constructs) should be carried out, despite the foundational role constructs play in all subsequent stages of research. Given the critical importance of constructs, the concern expressed by Gilliam and Voss is understandable [7]. Regarding the definitional part of constructs, they complain that "the literature on construct definition is fragmentary, scattered across disciplines, and occasionally even arcane. It is further often descriptive of what a good definition looks like rather than prescriptive of how a good definition can be developed." Many scholars only refer to aspects that are insufficient for formulating sound definitions. For instance, Summers and MacKenzie caution that the definitional part of a construct must not rely solely on references to the construct's antecedents and/or consequences, nor should it consist merely of an enumeration of examples [8,9]. For specific constructs, poor construct definition and lack of construct clarity are widely

regarded as primary reasons for the rejection of academic manuscripts during the peer-review process [8–10]. But what are good definitions and clarifications? We aim to formulate guidelines for the case of disclosed constructs because inadequate conceptualization can compromise the coherence of theoretical models, distort the operationalization of constructs, and impair the interpretability of empirical findings.

What insights do we want to contribute? We want to offer reflections on how to distinguish between the definitional and clarificatory parts of disclosed constructs, especially regarding the time- and space-contingencies of these parts and the use of ontic-ontological iterations, as suggested by Heidegger. In addition, as the clarification of disclosed constructs is a hermeneutic process, we recommend applying maturity models.

### 1.3. Structure of this Paper

We structure this paper in accordance with these three questions. In Section 2, we present three different perspectives on the nature of constructs (i.e., inventing, developing, and disclosing constructs). Then, we introduce Heidegger's concept of ontological access to reality and highlight points of intersection between the idea of disclosed constructs and Heidegger's concept. In doing so, we provide a theoretical foundation for disclosed constructs. In Section 3, we provide preliminary answers to the question of how evidence for the existence of a particular construct can be provided depending on the assumed nature of this construct. In Section 4, we discuss the process of construct conceptualization, drawing on insights from both practice-oriented literature and Heidegger's philosophy. The derived ideas address the temporal and spatial dimensions of disclosed constructs and the stage of clarification of constructs reached within a hermeneutic process. Across these discussions, we derive three criteria that may help guide the construct disclosure process if researchers accept the basic position that constructs can be disclosed from reality. In addition, we illustrate the application of these steps by further developing a marketing research construct already known as perceived brand age (Section 5). Finally, we outline the implications of our findings for research disciplines that may draw on the use of disclosed constructs (Section 6).

## 2. Nature of Constructs

Regarding some characteristics of constructs, there is agreement to a certain extent. Edwards and Bagozzi state: "A construct is a conceptual term used to describe a phenomenon of theoretical interest. (...) Constructs refer to phenomena that are real and exist apart from the awareness and interpretation of the researcher and the persons under study (…). Constructs themselves are not real in an objective sense (…). Constructs describe (the) unobservable (e.g., attitudes) or observable (e.g., task performance)" [11]. A broad consensus exists about the idea that constructs should be distinguished from latent variables. The term latent variable is frequently used to denote a variable that results from data aggregation. When factor analyses or similar statistical tools calculate common factors (representing latent variables), they contain data. In contrast, constructs do not contain data, facts, observable things, etc [12]. Authors also distinguish between concepts and constructs. Bhattacherjee notes that both observable phenomena (e.g., a person's weight) and non-observable instances (e.g., a person's personality) are concepts, but only the latter are considered constructs [13].

However, there is disagreement regarding the nature of constructs. This disagreement is grounded in the vague statement that constructs are not real in the objective sense. Researchers offer different proposals about the nature of constructs. One position holds that constructs are inventions of individual researchers. Other authors emphasize the dynamic nature of constructs; constructs are invented and then developed by researchers until a consensus among scholars is reached. A counter-position argues that constructs correspond to the reality in people's minds (this idea conforms to Heidegger's ontological access to reality), which can be uncovered by researchers. If researchers are unsure whether a construct was invented or disclosed, they often label it a hypothetical construct; it is hypothetical whether it exists or is pure fiction. **Figure 2** illustrates the course of thought presented in this section. Regardless of a construct's nature, the name given to it is often created by researchers.

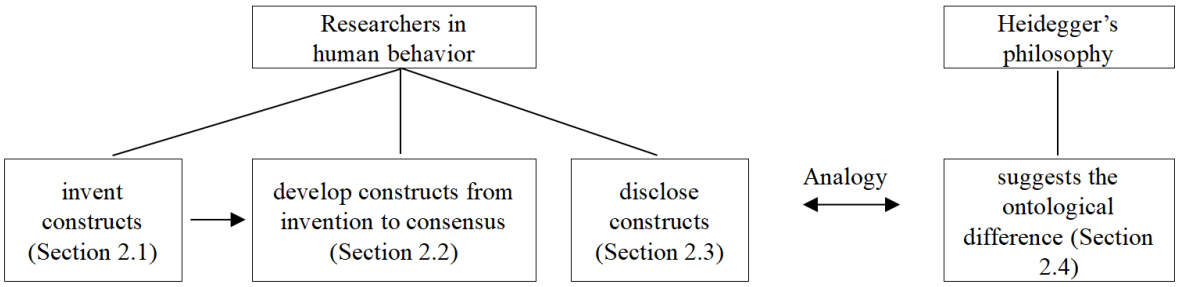


**Figure 2.** Proposals about the Nature of Constructs.

## 2.1. Constructs as Ideas Invented by Researchers

Gilliam and Voss state that "constructs have no direct physical manifestation, being nothing more than an idea residing in the mind of the theorist (…) that allows researchers to analyze and discuss unobservable phenomena in an organized manner" [7]. Suddaby adopts the position of Kerlinger, who posits that a construct is a "concept that has been deliberately and consciously invented (…) for a special scientific purpose" [10,14]. Constructs are considered to be useful fiction. Loevinger states that "literally a construct (…) is something that the scientist puts together from his own imagination" [15]. Similar thoughts are expressed by Michell [16]. The assumption about this nature of constructs goes back to Cronbach and Meehl, who assert that "a construct is some postulated attribute of people," thereby aligning constructs with personality traits that are assumed (postulated) to exist from the researchers' viewpoint [17].

However, the proponents of this position do not explain what can limit the creativity of researchers, namely their tendency to invent something, resulting in fiction. Furthermore, when constructs are tailored by the individual theorist, this complicates the accumulation of knowledge. The notions that constructs are inventions "for a particular scientific purpose" and "useful" fiction, i.e., the requirement to specify a particular field (theory or practical application), ignore the fact that constructs are often used in theories or in the context of practical applications for which they were not originally designed. Conceptualization and theory building thus merge.

## 2.2. Constructs as Abstractions Developed by Researchers

Similarly, Bergkvist and Eisend define: "constructs are abstractions created by researchers; they do not have an objective existence outside researchers' minds and cannot be observed directly" [18]. These authors then postulate an ideal life cycle as a kind of hermeneutic process of scientific construct development. In the initial step of its life cycle (invention), the construct emerges in academic literature without definitions and operationalizations, e.g., as a semantic term. Subsequently, academic literature proposes various definitions and operationalizations. These varying definitions/operationalizations are then subjected to a kind of competition, in which only a limited number persist. Eventually, one conceptualization (including definition, measure, and nomological network) emerges as the winner and comes to dominate future empirical studies, although further refinements may occur over time.

The authors provide a clear criterion for determining whether a construct is fully developed: when most researchers agree with an idea that was originally invented by a single researcher in the past.

## 2.3. Constructs as Disclosed Modes and Processes Existing in People's Minds

We would like to describe an alternative: the idea of a hermeneutic process in the minds of individuals (laypeople). Imagine a person like Kaspar Hauser, who grew up in isolation, without language, social concepts, or experiences with other people. Modes such as responsibility and processes such as empathy are entirely foreign to Kaspar. We assume that Kaspar acquires such modes and processes as he becomes part of a social community.

- Step 1 (Opening horizon): Although Kaspar does not know socially shaped concepts, he brings with him a basic relation to the world (pre-understanding), i.e., a bodily-sensory openness toward other people.

He observes, for example, facial expressions, voice tone, and body language, even though he has not yet assigned them systematic meaning.

- Step 2 (Refinement): Through many contacts with others, Kaspar begins to establish connections between their behavior and his own experiences. When someone cries, he feels restless or concerned without knowing why. Through repeated experiences of this kind, a superficial understanding emerges. It seems to him that there is a connection between the other person's state and his own reaction. Kaspar asks himself: "Why do I feel different when someone is sad? Why do I have the urge to comfort someone?" At this moment, interpretation begins, that is, an attempt to make sense of what he has experienced. Gradually, a new mode or process takes shape for Kaspar: his resonance with the feelings of others.
- Step 3 (Stabilization): Kaspar recognizes that this mode or process differs from friendship or mere affection. It describes something unique: the ability to recognize and share others' emotional states. Even though Kaspar does not yet have a word for it, something emerges in his thinking and feelings that he could later call empathy; Kaspar has acquired something like a mode or process that embeds (links, connects, integrates, etc.) his existence in the surrounding world.

Researchers could have monitored Kaspar's development of thoughts and feelings by asking him to participate in thought-list tasks and interviews, thus uncovering modes and processes in Kaspar. Of course, this is merely an example, and Kaspar Hauser has an extraordinary history. Nevertheless, it illustrates the idea that modes and processes emerge in the minds of individuals, and not solely in the minds of researchers. We can distinguish between two perspectives on modes and processes.

An individual's perspective: Human existence is embedded in the world through numerous modes and processes that reside within the individual's mind (brain) and constitute a form of reality. These modes and processes simply *exist*.

Researchers' perspective: Researchers may be interested in disclosing or uncovering these modes and processes in the human mind. Once revealed, these modes and processes are assigned names, such as aesthetic appraisal, ecological concern, education, evaluations of good/evil, fear of missing out, feeling right, flow, fluency, free will, judgments of intelligence, feeling justice, friendliness, mindfulness, peacefulness, perceived risk, perspective taking, reactance, resilience, satisfaction, tolerance, and truth judgments, to name just a few. Taken together, these revealed modes and processes can be referred to as constructs. Constructs, then, are the representations of these modes and processes as they exist in the minds of individuals, as understood, interpreted, and denominated—after disclosure—by researchers.

This difference in perspective is consistent with Kelly's view of constructs, according to which "each individual man formulates in his own way constructs [we say: modes and processes] through which he views the world of events" [19]. These constructs "enable us to cope with events" [20]. In line with this position, Arvey suggests that constructs [in our terminology: modes and processes] are "the way we, as human beings, form abstractions and categorizations" [21].

## 2.4. Heidegger's Ontological Difference

We have pointed to the finding that the idea of defining constructs as inventions residing only in researchers' minds beyond objective reality dates back to the 1950s [15,17] and that this idea subsequently has been adopted as the mainstream position regarding the nature of constructs [7,10,11,14,16,18]. However, before the 1950s, researchers were also engaged with concepts that could be called constructs. Heidegger's philosophy of science, which was published in 1927 in the monograph *Sein und Zeit* (*Being and time*), assumed—translated into contemporary language—that *modes and processes* residing in individuals' minds and enabling individuals to engage with the world are *reality*, and as such, they enable access to the reality of things outside the individuals' minds. This means, the suggestion to consider constructs as disclosed modes and processes is not new; it reflects the ontological access to reality as described by Heidegger one hundred years ago. Therefore, we recall these thoughts as they provide a fundamental approach that explains why the mentioned modes and processes constitute reality.

In short, the purpose of this section is to show that

the concept of disclosed constructs can already be found in Heidegger's *Being and Time* (*Sein und Zeit*) and that this philosopher provided an explanation for why modes and processes can be assumed to *exist*.

Heidegger does not speak primarily of reality (*Wirklichkeit*) but rather distinguishes between two ways in which individuals gain access to reality.

### 2.4.1. Ontic Access to Reality

The ontic access to reality encompasses what is immediately observable: things and their properties. Heidegger refers to these things, which are given in the world and exist in relation to the individuals and their environments, as *Seiendes* (e.g., entities, beings, stuff (*Zeug*), facts, events, including oneself) [6]. He defines *Seiendes* as "everything we talk about, everything we have in view, everything toward which we comport ourselves in one way or another; beings are also what and how we ourselves are" (translated). *Seiendes* manifests itself through its properties, i.e., the presence (*Vorhandensein*) of attributes which can be recognized through human senses (e.g., seen, touched, heard) or encountered in practical experience (e.g., the functionality of an object as a chair). For example, a stone becomes reality in the perspective of the individual through its color, weight, and texture; a painting through its canvas, brushstrokes, and format; and a hammer through its material and shape. Heidegger further asserts that the domain of *Seiendes* encompasses spheres such as history, nature, space, life, and language. This access to reality is relatively intuitive.

### 2.4.2. Ontological Access to Reality

Human existence is embedded in the world (i.e., the reality which contains things and their properties that individuals cannot simply wish away) through numerous modes and processes. These modes and processes reside within the human mind (brain) and constitute a form of reality that does not directly correspond to observable or measurable entities from the viewpoint of the individual. Rather, they enable the individual to recognize, categorize, evaluate, and abstract observable phenomena (*Seiendes*), to structure them, create meanings, and respond to them. They function as interpretive frameworks through which the individual can make sense of her or his observations and experiences.

### 2.4.3. Illustration of the Ontological Difference

To illustrate the ontological difference, we pose a simple question: What makes a thing a chair? This example is inspired by Heidegger's analogy about what makes an object a hammer.

In Heidegger's framework, a chair is a being (a thing, *Zeug*) that simply exists. It appears as such because individuals observe the presence (*Vorhandensein*) of features (e.g., it has four legs), experience its hardness and stability, and relate to it within a network of social contexts (e.g., trusting in the seller's claim that it is made of exotic wood). This corresponds to ontic access to reality. Similarly, a cat recognizes an entity as a mouse through the presence of analogous features.

For individuals to comprehend a thing as a chair according to the second access to reality, they must first possess (a) an understanding of what chairs generally are (i.e., knowledge of how a typical chair looks), (b) an embodied familiarity with the activity of sitting, and/or (c) expectations about the benefits of chairs such as comfort (*Zuhandenheit*). The outcome of these processes is what Heidegger calls disclosedness (*Erschlossenheit*) of a category (here: chairs). Second, individuals must be able to recognize a particular object as belonging to this category through processes of (d) understanding (*Verstehen*), (e) interpretation (*Auslegung*), and/or (f) sudden insight (*Begreifen*). Through these modes and processes residing in the individuals' minds, individuals associate a thing with manifold meanings such as "I can sit on it," "I can place it next to my table," "My friends own similar things," or "I appreciate its aesthetic qualities." Ultimately, the sum of such meanings makes a thing a chair in the sense of second access to reality. A cat is unlikely to be able to infer a mouse through the sum of analogous thoughts.

This example illustrates that modes and processes in the human mind exist and, through their existence, enable the inference of the reality of things. The modes and processes illustrated in this example include the categorization of things, perceptions of typicality, embodied familiarity with activities, expectations of benefits, and the

recognition of a thing as an element of an existing mental category. Contemporary researchers would use the term "constructs" to characterize these modes and processes. In summary, the ontological difference is the distinction between (a) the observation and sensual experience of the presence of things and their properties, which enable ontic access to reality, and (b) the modes and processes existing in individuals' minds (apart from mere visual observation and other sensual experience), which enable ontological access to reality.

### 2.4.4. Theoretical Foundation of the Ontological Access to Reality

Crucially, Heidegger assumes that modes and processes exist; they need not be invented by researchers beyond reality. Why does he assume they *exist*? What is the "theory" underlying the idea of disclosed constructs?

Heidegger argues that individuals have access to reality through modes and processes in their minds because humans fulfill certain prerequisites and engage in specific cognitive processes.

Ontological access to reality requires individuals who are not merely bodies but embodied *Dasein* (literally translated: being-there). Such individuals possess awareness of their existence (*Bewusstsein*) and an inherent capacity and willingness to engage continuously and meaningfully with themselves and their world (sense-making) [6]. Building on these prerequisites, two cognitive processes must be carried out in order to enable individuals to make sense of their observations of things and their properties. First, there must be processes that allow them to identify and interpret things as part of the world. Heidegger terms the outcome of these processes disclosedness (*Erschlossenheit*). Second, individuals must recognize and interpret what particular things are. Heidegger refers to this as understanding (*Verstehen*) and interpreting (*Auslegung*). Understanding extends beyond mere pattern recognition, also encompassing moments of sudden insight ("Oh, I got it"; *Begreifen*). These modes and processes shape how individuals observe and experience the world, i.e., the entities within it.

Heidegger posits that individuals fulfill these requirements and carry out the mentioned cognitive processes. In conclusion—and translated into contemporary language—these thoughts are Heidegger's argument for why constructs represent disclosed reality.

### 2.4.5. Heidegger's Examples for Modes and Processes

What *are* these modes and processes? They cannot be arbitrary. It should be noted that Heidegger himself does not explicitly use the terms "modes and processes." Instead, he employs the expression *Sein des Seienden* (Being of beings) to denote the ways in which human existence is embedded in the world. To identify such instances, we examined the monograph *Sein und Zeit* (*Being and Time*) for all passages containing the term *Beispiel* (example) in connection with *Sein* (Being) or semantically related terms such as *Seinsfrage* (question of Being), in order to uncover cases that illustrate Heidegger's distinction between ontic and ontological access to reality. **Table 1** presents these examples.

The examples suggest that Heidegger expanded the category of modes and processes that enable ontological access to reality (beyond the examples of the hammer and chair). This category includes the recognition of commonalities, abstraction, beliefs about the intentionality of human behavior, the development of reference points for making judgments, mental supplements, symbolic meanings, and basic mutual understanding without words. We conclude that Heidegger's concept of *Sein des Seienden* (what we refer to as modes and processes) is quite general and likely intended to encompass all modes and processes that contemporary researchers would describe as constructs.

### 2.4.6. Analogy Between Modes/Processes and Ontological Access to Reality

Modes and processes that are revealed by researchers and semantically referred to as constructs, as well as *Sein des Seienden,* exist in and of themselves and should not be conflated with theory or measurement. Modes and processes function as interpretive tools that serve to "illuminate" facts. Similarly, Heidegger metaphorically describes *Sein des Seienden* (Being of beings) as the light in which *Seiendes* (beings) appears [6]. Both concepts can be applied to existential matters as well as to everyday

phenomena (e.g., the typicality of a craftsman's tool that renders it suitable to function as a hammer). The modes and processes described above exist in the human mind independently of researchers' inquiry; the same proposition is made by Heidegger concerning factors in which he was interested [6].

We add the notion that Heidegger does not recommend considering modes and processes (e.g., perceptions of typicality, expectations of benefits, building reference standards) that are specific to categories ("regions") of beings (e.g., history, nature, space, life, language, one's own existence). He argues that any such attempt to develop "regional ontologies" would fail because of the vastness of the subject matter [6].

**Table 1.** Heidegger's Examples Used to Illustrate the Ontological Difference.

| Ontic Access to Reality | Modes and Processes | Ontological Access to Reality | Why Do the Modes and Processes Enable Ontological Access to Reality? |
|---|---|---|---|
| Observation of symptoms such as fever and flushed cheeks in a person | Recognizing commonalities, abstracting | Suspicion of illness. Characteristics of a disease are transferred to that person | Recognized commonalities create additional meanings of symptoms |
| Observation of the blinking of a turn signal, sent by the preceding driver | Beliefs about the intentionality of human behavior in general | Intention of the preceding car driver to turn | People draw inferences from observations |
| Observation that things growing on a tree exhibit a process of maturation | Perceiving typicality | Knowledge: "It is fruit" | The self-movement of things on trees toward maturation is typical for fruit |
| Observation that several things share certain features | Grouping, categorizing | Category of things | Example: If different objects share features (e.g., material, shape), a category is formed (e.g., the group of hammers) |
| Observation that a thing has typical features of a category | Perceiving typicality | Belongingness of a thing to a certain category | Example: The characteristics of the category are transferred, e.g., the usability of an object for hammering |
| Observation that a thing allows a certain usage | Applying practical knowledge (know-how) | Usability of a thing | Example: Know-how about hammering supports the interpretation of a thing as a hammer |
| Observations of certain features of a thing (*Vorhandensein*) | Expecting benefits (*Zuhandenheit*) | Additional meanings of the things | Examples: A stone can be expected to serve as a seat for people or as camouflage for bird eggs; a painting to serve as an aesthetic object, a prestige symbol, or an investment, and a hammer to serve as a tool for driving nails |
| Observation of the spatial position of a thing | Building a reference standard to make a relative judgment | Relative judgments, e.g., concerning the spatial position of a thing | Example: Recognizing that "a blackboard is badly positioned" is not an attribute of the blackboard itself but the result of one's perspective |
| Experience with distances (e.g., estimating in meters) | Establishing a reference point to enable the judgment of distance | Judgment of distance | Recognizing that one is walking along a street: If the self serves as the reference point, the street appears to move beneath one's soles. If a fixed point on the street is taken as the reference point, one's soles appear to move away from that point |
| Observation of a part of a thing (e.g., the crescent moon) | Imagining the whole thing, as it is recalled from memory | Mental supplement of the missing part | Knowing what an object (e.g., the full moon) looks like allows one to mentally construct the part that cannot be observed |
| Observation of the place (e.g., of a ring) | Using the thing due to its meanings | Symbolic meaning (e.g., ring = loyalty) | Example: If A wears a ring given by B, she or he thereby communicates the intended purpose |
| Listening to the words of another person (speech) | Beliefs in the presence of other people's wishes, opinions, etc. | Basic mutual understanding without words (*verstehendes Miteinander*) | Not only words (speech, *Rede*) but also basic mutual understanding without words enables communication (message, *Mitteilung*) |

Note: All examples are from Heidegger [6] except for the example about the spatial position of a thing which is ascribed to Heidegger's lectures [22].

## 3. Evidence for the Existence of Particular Constructs

We have stated that constructs can be invented, developed, or disclosed. These alternatives correspond to different procedures that have been or can be used to address the question of whether constructs reflect reality. **Figure 3** illustrates these procedures.

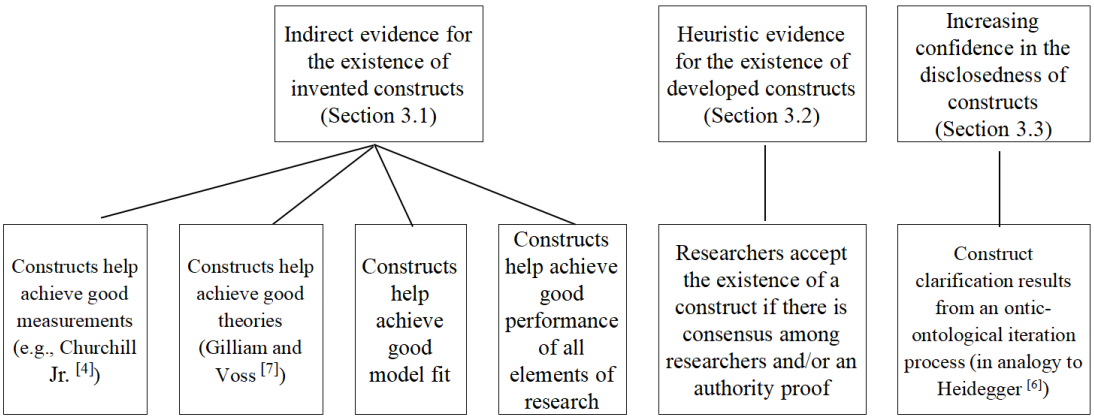


**Figure 3.** Ways to Analyze the Existence of Particular Constructs.

## 3.1. Indirect Evidence for the Existence of Invented Constructs

The approach of invented constructs involves procedures that can only provide indirect support for their existence.

### 3.1.1. Constructs Help Achieve Good Measurements

This approach assumes that constructs exist if their operationalization is accompanied by high values of statistical reliability and validity. Churchill Jr. presents a flowchart that begins with the directive to "specify the domain of construct" (initial step), immediately followed by instructions for an extensive measurement phase, which includes item generation, data collection, measure purification, and measurement validity checks [4]. Only if measurement validity is found to be low should the process loop back to the initial step and commence anew. Regarding this initial step, Churchill Jr. advises researchers to "consult the literature when conceptualizing constructs," a procedure commonly referred to as content analysis. Lewis suggests an extension to the initial step: specifically, that the dimensions of the construct of interest should be identified [23].

Although there is the term construct validity, this term just summarizes procedures (mostly convergent and discriminant validity) that can only approximate the idea that a certain construct exists, because they primarily provide criteria of measurement quality. The classical procedure to assess convergent and discriminant validity is to analyze a multimethod-multitrait matrix [24]. Convergent validity is established if the measures resulting from different procedures (e.g., answers in questionnaires, assessing bodily reactions) correlate; from this correlation, we do not know what construct (if any) has been measured and whether it equals the construct of interest. Discriminant validity is supposed to exist if the measurement of two "theoretically unrelated" constructs using the same procedure (e.g., answers in questionnaires) results in low or zero correlations; however, research does not provide theories about what constructs are unrelated. This approach conflates the process of construct conceptualization with that of operationalization. For example, the definitional parts of constructs may be treated as stable concepts, whereas measurements may be subject to continuous adjustment across time and cultural contexts. Therefore, we consider the idea behind this approach that constructs are good when they facilitate the development of measures meeting excellent statistical validity criteria to be problematic.

### 3.1.2. Constructs Help Achieve Good Theories

This approach suggests that constructs exist if they enable the development of high-quality theories. Gilliam and Voss present a flowchart that likewise begins with the recommendation to consider the construct of interest [7]. They suggest consulting both personal experience (introspection) and existing knowledge from prior research (content analysis), which should lead to a preliminary formulation of the definition of a construct (initial step). Immediately following this, researchers are advised to develop a nomological network, i.e., to identify antecedents and/or consequences related to the focal construct based on its

preliminary definition. This step constitutes a form of theory development, which the authors describe as the "quite detailed" step within the suggested procedure. Subsequent stages involve assessing whether the construct, in comparison to similar constructs, reduces ambiguity and vagueness and whether its definition includes all necessary components (e.g., information about the object, its attribute, and the rater), potentially prompting refinement of the initial wording of the preliminary definition. Expert evaluation of the construct is then recommended. Finally, researchers are to decide whether the nomological network requires further revision.

Middendorp illustrates how the conceptualization of a construct based on its theoretical antecedents can be carried out [25]. He uses the continuum ranging from progressive to conservative ideology as the focal construct. He considers two antecedents that he assumes influence the focal construct: (1) attitude toward human nature, divided into several dimensions, and (2) attitude toward the nature of society, also divided into numerous dimensions. From these antecedents, he theoretically derives many (sub-)dimensions (33 in total) of the focal construct. Here, the term construct is defined by the "hypotheses of which the theory in which it is embedded is comprised" [12]. If the embedding theory sounds plausible, the construct is assumed to exist.

The key point is this: only if theory development proves to be inadequate does the process revert to the initial stage of the conceptualization of the construct. The idea behind this approach is problematic, because it conflates construct building with theorizing. Since the purposes for which constructs will be used, i.e., the theories in which they will figure, are often unknown in advance, the quality of conceptualization is inherently constrained when tied to any specific theory.

### 3.1.3. Constructs Help Achieve Good Statistical Model Fit

Furthermore, researchers use a third approach to investigate the existence of a particular construct. In this procedure, after initial conceptualization, based on preliminary theory building (i.e., the creation of a nomological network), and grounded on initial measurements, statistical analyses of the relationships are performed. This approach suggests that constructs exist if these analyses result in low significance levels, large effect sizes, high predictive accuracy, and so on. Only if these statistical criteria are insufficient is the process reset to the conceptualization phase. This procedure is called nomological validation of a construct [17]. There is nomological validity of a construct when this construct, based on preliminary theoretical considerations, is embedded in antecedents and/or consequences, and testing these relationships yields the theoretically predicted results.

This approach conflates the process of construct conceptualization with the statistical analysis of relationships: the definition and clarification of a construct would be determined by whichever statistical model performs best.

### 3.1.4. Constructs Help Achieve Good Performance of all Elements of Research

Bartunek and Spreitzer posit that the conceptualization of a construct consists of three steps: "specifying (…) the definition, developing reliable and valid measures, and then linking them into (…) a nomological network" [26]. In this approach, all elements of research (conceptualization, theorizing, operationalizing, and statistical analysis of relationships) are merged and subsumed under the term conceptualization.

The problem of conflating different processes persists if one semantically broadens the term conceptualization to include additional processes (operationalization, theorizing, and testing relationships).

To summarize, researchers such as Churchill Jr. as well as Gilliam and Voss provide structured (step-by-step), viable, and established procedures for how to conduct research [4,7]. However, they seem to optimize more than one element of the research process, thereby conflating conceptualization with other stages. In contrast, we argue that these processes should be kept as separate as possible, for example, to support the division of labor in the sciences. Moreover, these procedures suggest that only in cases where measurement validity, theorizing, and/or statistical model fit prove inadequate, further effort in introspection and content analysis is necessary.

## 3.2. Heuristic Evidence for the Existence of Developed Constructs

The approach of developing constructs through a

kind of life cycle, starting with the invention of a construct (as a vague idea) and terminating when consensus among researchers is reached, constitutes a heuristic answer to the question of the existence of constructs: if the majority of researchers adopt an idea, this idea must be correct. Practically speaking, researchers are expected to accept the existence of a given construct and adopt its underlying definition/clarification if it has been featured in a publication within high-reputation journals. Successful peer review in such outlets, followed by a resulting scholarly consensus, likely determined by disciplinary norms, is then considered as *de facto* proof for a particular construct's existence, and its conceptualization must be adopted in subsequent research to avoid rejection of manuscripts by reviewers and editors.

### 3.3. Increasing Confidence in the Disclosedness of Constructs

Heidegger posits from the perspective of individuals: Being of beings (we say: modes and processes in the individuals' minds) precedes the understanding of beings (we say: enable the understanding of observations of things) [6]. Individuals use modes and processes to interpret things—therefore, individuals' modes and processes have temporal priority over observations.

Heidegger, however, notes that the researchers' ontic and ontological access to the reality of modes and processes in individuals are interdependent [6]. Researchers initially use ontic reality (i.e., data) to infer modes and processes in individuals—therefore, researchers' observations have temporal priority over modes and processes. This is followed by an ongoing, iterative interplay in which concrete observations (ontic) and conceptual reflections (ontological) continually inform and refine one another. This progression may continue until the effort required for further clarification no longer yields significant improvements in understanding. In summation, Heidegger describes the procedural nature of disclosing Being of beings (we say: modes and processes in the individuals' minds) as a hermeneutic process:

- Step 1 (Opening horizon): The disclosure of an ontological concept (mode or process in individuals' minds) may begin with a vague impression in researchers—an intuitive sense that something exists that cannot be adequately articulated using existing terminology. Crucially, this pre-understanding does not determine what will be discovered, but it makes something appear worthy of inquiry. Subsequently, multiple research traditions and methods may deepen this step (methodological pluralism). Heidegger himself apparently relies on introspection and insights from literature. This process results in a detailed conception of the ontological concept.
- Step 2 (Refinement): This step attempts to make better sense of the ontological concept. Empirical clues, anomalies, or recurring patterns are consulted. This stage aligns with an iterative ontic-ontological process, involving repeated empirical and conceptual engagement.
- Step 3 (Stabilization): When further refinement of the ontological concept no longer justifies additional ontic effort, a stable construct has been disclosed.

While academic literature provides numerous examples of assessing convergent and discriminant validity, e.g., based on multitrait-multimethod matrices, and examining nomological validity, we were unable to identify an example reported in academic discourse that illustrates the procedure of increasing confidence in the existence of a construct within the process of its disclosure. By way of analogy, though such an approach is uncommon, we refer to a fictional example described in the 1968 novel *His Master's Voice* by Stanisław Lem. It illustrates the following scenario: An interdisciplinary team of researchers receives a recurring neutrino signal from outer space. It is possibly sent by an intelligent being. The scientists hypothesize that the signal constitutes a deliberate message.

- Step 1 (Opening horizon): The scientists come from various disciplines (mathematics, biology, linguistics, theology, physics), each contributing their own pre-understanding to the project. As a result, they infer different meanings from the signal. Although the signal itself remains unintelligible, it appears potentially meaningful to them, as each discipline-specific horizon leads them to assume the existence of an intelligible structure.
- Step 2 (Refinement): They analyze the signal, dis-

cover a cyclical process, and subsequently synthesize a gelatinous substance. Through an iterative ontic-ontological process, they explore possible functions, ranging from bio-signals to military applications.

- Step 3 (Approaching stabilization): A novel construct begins to take shape, the idea that the signal represents a certain interstellar message, although most researchers regard this interpretation as implausible.

This fictitious example shows how researchers may proceed in gaining confidence in the existence of a construct, here: the meaningfulness of a signal from outer space.

Heidegger's position resembles the position proposed by Churchill Jr. as well as Gilliam and Voss, as all involve iterative processes [4,6,7]. However, there is a distinction. Heidegger's concepts are open to refinement, but only to a limited extent, because a substantial amount of effort is invested in the initial step of conceptualization. In contrast, Churchill's and Gilliam and Voss's concepts are also open to refinement, but to a very large degree, because only minimal effort is recommended for conceptualization in the initial step (e.g., merely "writing a preliminary definition" [7]). **Figure 4** illustrates this difference.

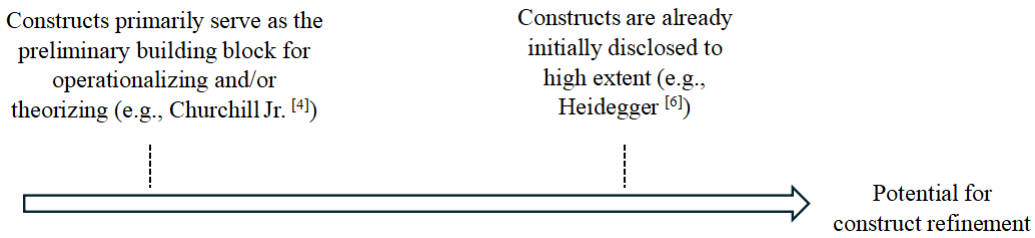


**Figure 4.** Openness of Constructs for Refinement.

## 4. Conceptualization of Constructs

Lewis proposes that constructs should include "(1) the premise, which specifies the purpose and/or importance of the construct, (2) the conceptual definition, which describes the construct in general or theoretical terms, and (3) a list of dimensions, which represents the elements of the construct" [23]. Lambert and Newman demand that the conceptualization should additionally (4) contain a nomological network, in which the construct is embedded [27].

We are not sure whether the first aspect is essential. The term purpose refers to the intended applications ("conditions under which a construct is applicable or not" [10]); however, constructs are often used in theoretical contexts or areas of application that extend beyond their original use. The latter aspect, the nomological network, connects the construct with theory; in contrast, we consider conceptualizing and theorizing as separate domains of research. The remaining tasks correspond to what we call the definitional and clarificatory parts of construct conceptualization. We suppose that special requirements must be fulfilled if researchers use disclosed constructs. **Figure 5** illustrates our thoughts.

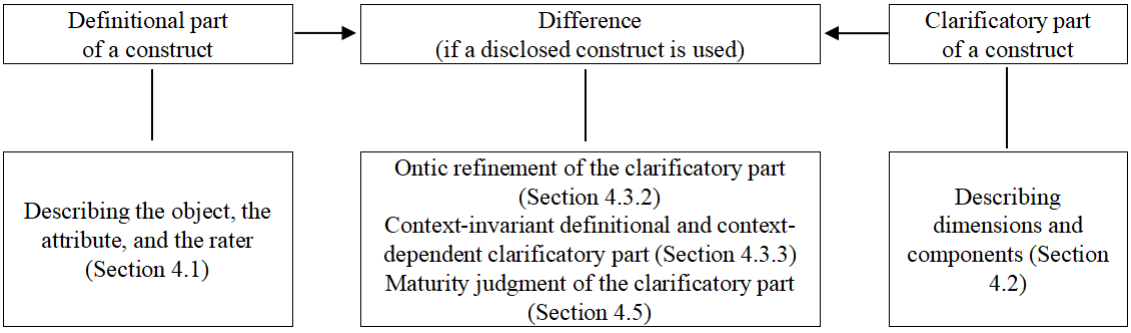


**Figure 5.** Distinguishing Between the Definitional and Clarificatory Part of a Construct.

### 4.1. Definitional Part of Construct Conceptualization

We do not posit that a particular construct exists if there is a complete definition. However, each construct requires a definitional part.

Focusing on the definitional part, Rossiter argues that "constructs must be conceptually defined (described) in terms of (1) the object, including its constituents or components, (2) the attribute, including its components, and (3) the rater entity" [28]. As an example, consistent with his position, he cites Zaichkowsky's definition of advertising involvement as "a person's perceived relevance of the advertisement" (advertisement = object, personal relevance = attribute, person = rater) [29]. We do not see any difficulties in adopting the object-attribute-rater trichotomy. However, we think that the attribute component needs more attention compared to the object and the rater. In Rossiter's example, perceived relevance arguably functions merely as a synonym for involvement and does not meaningfully advance the definition of a construct.

Teas and Palan recommend translating natural language into formal language [30]. For example, they discuss definitions such as: "Expectations are consumer-defined probabilities of the occurrence of positive and negative events if the consumer engages in some behavior." This sentence contains the *definiendum* (expectations) expressed in natural language and the *definiens* (probabilities) articulated in formal-mathematical language. However, such an approach—defining through semantical reframing—may be applicable only in a limited number of specific cases.

Researchers seek to initiate or contribute to established research traditions. This goal implies that constructs, especially at the definitional level, must remain stable across time and contexts [25]. Otherwise, researcher A cannot build upon the theoretical frameworks and empirical findings of researcher B.

### 4.2. Clarificatory Part of Construct Conceptualization

Clarification means describing a construct through components and/or dimensions. Observation of facts and theory formulation could help to refine the formulations of dimensions and components. Regarding this part, researchers should be "freer to elaborate and refine the (…) constructs" [25].

We do not intend to conflate the clarificatory part of a construct with debates regarding the appropriate breadth of a construct. For example, it is beyond the scope of our discussion to analyze whether emotional and social intelligence should expand the concept of intelligence or whether cognitive, emotional, and social intelligence represent three distinct constructs. This debate exemplifies what may be termed the Vasa effect in construct disclosure. The Vasa was a Swedish ship that sank in 1628 during its maiden voyage because its hull was overloaded with excessive structures above deck. The basic concept corresponds to the hull, while the structures above deck represent its sub-concepts.

### 4.3. An Example Adopted from Heidegger to Debate the Clarificatory Part of Construct Conceptualization

As Heidegger's philosophy of science is a foundation for construct building, we use a concrete example from *Sein und Zeit* to illustrate construct conceptualization and the challenges that go along with that process.

Heidegger addresses existential factors (*Existenzialien*), which can be understood as modes through which *Dasein* (self-awareness and openness of individuals to their surroundings) relates to itself and its world. From this list, we selected one factor, thrownness (*Geworfenheit*), to illustrate how Heidegger carries out the process of conceptualization.

#### 4.3.1. Distinguishing between Definition and Clarification

We used a PDF version of *Sein und Zeit* containing the text on 437 pages (https://taradajko.org/get/books/sein_und_zeit.pdf). We identified all sentences containing the target word *Geworfenheit* and its semantic variants from this file (a total of 157 instances) using a search tool. For each match, we copied the text above and below (approximately seven lines per match) and pasted each sequence into a common Word document. Then, we used a basic version of the "Grounded Theory" technique, which was structured as follows [31]:

- Open coding: Each text sequence containing the target word was divided into units (examples of units: deals with a cognition, is about the future, is about life). The units emerged during the coding process. If further contextually meaningful aspects arose, the list of units was expanded.
- Assessing relationships: We examined whether units appear in combination (example of a combination: addresses an anxiety & certainty about death).
- Identifying core categories: Appearing combinations were used to create a classification scheme (example of a core category: anxiety about being exposed to reality).
- Verifying: We made sure that each text sequence could be assigned to a core category to avoid overlooking any meaningful aspect.

The core categories concerning thrownness resulting from the application of "Grounded Theory" are presented in **Table 2**. This outcome separates aspects of the definitional part from those of the clarificatory part. We acknowledge that Heidegger's 1927 conceptualization of thrownness can serve as an exemplary case, as it enables him and other researchers to distinguish between the definitional and clarificatory parts of a personality trait (a term that describes the construct from the psychological perspective).

However, regarding the *details* of the clarificatory part, uncertainties remain. The debate regarding the clarificatory part is warranted for two reasons. First, it is unclear whether the clarificatory part merely describes an invented construct (residing only in Heidegger's mind) or attempts to reflect reality as it exists in individuals' minds. Heidegger's discussion of ontological differences aims at the latter; however, empirical evidence for this claim is lacking. Therefore, the question arises: are these thoughts and anxieties indeed present in the minds of individuals? We note the absence of the ontic part of clarification, as suggested in Section 3.3. Second, if the cognitions and affective states listed in the table are intended to reflect reality in individuals' minds, it is unclear whether this list is stable over time and context. We highlight the need to consider the openness of the clarificatory part for adjustment to temporal and contextual variations.

**Table 2.** Heidegger's Concept of Thrownness.

| Category | Description |
|---|---|
| **Domain** | *Sein des Seienden*: Thrownness is a mode of Being of beings ("*Geworfenheit ist eine Seinsart eines Seienden*"). |
| **Definitional part:** | |
| One short sentence | The tendency of *Dasein* to find itself already in a world it did not choose.<br>(Object = the world, attribute = thrownness, rater = *Dasein*). |
| Who or what is thrown? | *Dasein* which is always already situated in the world (its surroundings and its own self).<br>Comment: *Dasein* (being-there) itself refers to the human beings who are characterized by self-awareness and ongoing world-involvement. |
| Into what is *Dasein* thrown? | In the (relative) impossibility of choosing whether to enter and remain in its world. |
| **Clarificatory Part:** | |
| Examples of into what *Dasein* is thrown | • Nature: *Dasein* is subject to the rhythm of day and night.<br>• Others: *Dasein* exists in relation to other people.<br>• Life and death: *Dasein* is finite. |
| Cognitive states that describe thrownness | • Cognition that *Dasein* is one's own personal characteristic.<br>• Recognition of *Dasein* as a fact, not an illusion.<br>• Realization of *Dasein's* openness and unfinished nature.<br>• Awareness of *Dasein*'s future existential possibilities. |
| Affective states that describe thrownness | • Anxiety about being exposed to reality (*Ausgeliefert-Sein*).<br>• Anxiety over the uncanniness (*Unheimlichkeit*) of everyday life.<br>• Anxiety about not being able to live up to one's potential (*Angst vor Nicht-Sein-Können*).<br>• Anxiety due to the certainty of death. |

### 4.3.2. Ontic Part of Clarification

Admittedly, Heidegger did not aim to measure existential factors. He did not design a scale, i.e., an instrument that personality psychologists would develop, nor did he conduct interviews or other empirical procedures. We do not want to conflate construct building with measurement development; however, to consider thrownness as a disclosed construct, at least some preliminary empirical (ontic) evidence is required to support its nature. Otherwise, the concrete dimensions and components risk remaining purely speculative.

To make our thoughts more comprehensible, we provide a sketch of possible procedures for the ontic part of clarification. The development of a *preliminary* scale sufficient to assess whether individuals indeed experience anxieties related to thrownness could be accomplished relatively straightforwardly. In interpreting thrownness as a personality trait, we examined statements in versions of Existential Anxiety Questionnaires [32,33] that substantially overlapped with Heidegger's components and adjusted the wording to reflect these components, meaning the scale was only inspired by such inventories.

For example, imagine that we ask a sample of individuals to indicate their agreement or disagreement with statements in **Table 3** on a scale ranging from 1 = never experience such anxieties to 7 = often experience such anxieties.

In addition, imagine participants viewing a photo of their own face on a computer screen via a camera and being asked to position visual images below this portrait using a computer mouse, either in spatial proximity to or at a distance from themselves. These images should include pictures expressing anxieties of thrownness (e.g., depictions of a person showing bodily signs of helplessness within the context of her or his life), as well as other images such as abstract pictures, landscapes, animals, and furniture.

If researchers find that a considerable portion of individuals exposed to a scale similar to the one presented in **Table 3** agree that anxieties of thrownness exist and place anxiety-related images closer to themselves than other images, we could conclude that there is evidence supporting Heidegger's concept of thrownness as a disclosed construct in its clarificatory part.

These thoughts lead to the first criterion that might help ensure the quality of construct disclosure:

*Criterion 1: Construct disclosure should aim to distinguish between the definitional and clarificatory parts. This process should be supported by a comprehensive ontic phase that provides empirical evidence for the construct's existence, particularly regarding the dimensions and components articulated within the clarificatory part.*

**Table 3.** A List of Preliminary Statements Usable to Provide Evidence for the Existence of Anxieties Related with Thrownness.

| Anxiety | # Item | Statement |
|---|---|---|
| Anxiety about being exposed to reality | 1. | • I feel helpless in the face of life's circumstances. |
| | 2. | • I find it difficult to cope with life's unpredictability. |
| | 3. | • I feel like a pawn of external forces. |
| | 4. | • I feel overwhelmed by the reality of my existence. |
| Anxiety over the uncanniness of everyday life | 5. | • Familiar situations seem strange or meaningless to me. |
| | 6. | • I experience a sense of alienation even in my own home environment. |
| | 7. | • I struggle with the feeling that I do not know what I am truly doing here. |
| | 8. | • Everyday life feels unnatural or artificial to me. |
| Anxiety about not being able to live up to one's potential | 9. | • I am afraid of missing out on my authentic life. |
| | 10. | • I sense a gap between who I am and who I could be. |
| | 11. | • I feel paralyzed by the responsibility of shaping my own life. |
| | 12. | • I feel uncertain because I do not know what my "true path" is. |
| Anxiety due to the certainty of death | 13. | • When I think about death, it fills me with deep unease. |
| | 14. | • I am afraid that everything will one day come to an end. |
| | 15. | • I wonder whether my life has any meaning in the face of death. |
| | 16. | • I do not experience death as a distant concept, but as an ever-present source of fear. |

### 4.3.3. Openness of the Clarificatory Part to Adjustments in Time and Space

Heidegger refers to two dimensions through which individuals perceive and experience reality: time and space. Everything observed or experienced as existing (*Seiendes*, ontic access to reality) is situated within temporal sequences and spatial relations. In contrast, modes and processes residing in individuals' minds themselves (*Sein des Seienden*, ontological access to reality) are not constrained by any specific time or place.

Heidegger's existential factors, such as thrownness, could exemplify a mode of Being (i.e., specific cognitions and affective states) in individuals' minds. It is not constrained by time and space, as it could be assumed that individuals contend with thrownness across all historical periods and cultures. This implies that the definitional part of the concept, as presented in **Table 2**, is assumed to be invariant with respect to time and space. In contrast, the clarificatory part of this construct must be adapted to what individuals can know and feel about thrownness. Additional cognitions and anxieties regarding thrownness could be incorporated as a component, e.g., the notion that people's thrownness reflects their inability to recognize their freedom of choice, as conveyed in Jean-Paul Sartre's 1943 play *Les jeux sont faits.* The nature-versus-nurture debate in personality research might inspire the inclusion of cognitions regarding the extent to which genes and social environment influence or constrain *Dasein*, thereby adding a justification dimension [34]. We do not intend to engage in these debates, as they fall outside our research objectives. We merely wish to emphasize that authors should state in the clarificatory parts of construct conceptualizations that this part may be unstable across different times and contexts.

From these assumptions, we propose:

*Criterion 2: The definitional part of the conceptualization of a construct should describe the existence of modes and processes independently of time (historical period) and space (cultural context). The clarificatory part of the conceptualization should be flexible to adaptation over time and across contexts.*

## 4.4. The Example of Social Constructs

Distinguishing between the context-invariant definitional part and the context-dependent clarificatory part of a construct's conceptualization could also contribute to situating the category of social constructs within the broader category of constructs. Social constructs are intersubjectively shared conceptualizations whose reality status is maintained by communal agreement to assign specific meaning to them; in this sense, their reality is socially constructed. Berger and Luckmann cite, among other concepts, social roles and language as examples [35].

To provide additional illustrations, we refer to the social construction of concepts such as beauty and social recognition. We posit that the construct of personal beauty has a definitional part that is independent of time and culture: beauty is the hedonic response experienced by an observer in reaction to the bodily characteristics of another person. Specifically, a person is deemed beautiful if the observer experiences pleasure from sustained visual attention or contemplation. Stable outcomes of this construct include the satisfaction of the human need for aesthetic experience, the facilitation of social comparison, the desire for relationship maintenance, and the tendency to physically approach the other person. Only with regard to the clarificatory part are the specific physical characteristics that indicate what is considered beautiful inherently dependent on time and culture, i.e., socially constructed.

Similarly, social recognition is a construct that can be defined as the degree to which an individual meets core social needs: gaining belonging and popularity, securing respect and admiration, avoiding criticism, and achieving leadership status. Only the means used to satisfy these needs are variable across time and space, exemplified by the shift in valued indicators from the possession of material "goods" (wealth) to immaterial "goods" (e.g., career achievements, unique skills). We therefore posit that these unstable aspects constitute the context-dependent clarificatory parts.

## 4.5. Reporting the Depth of Disclosure

The concept of maturity models is well-established in various fields such as manufacturing and software development. These models describe distinct stages or lev-

els that indicate the maturity of a process. While there are several proposals for maturity models [36], all versions are structured analogously to the hermeneutic process. For example, in software development, the use of the Capability Maturity Model Integration (CMMI) is recommended. In the initial development step, the processes are ad hoc and unpredictable. Then, based on the requirements formulation, a phase then follows in which the software is refined. Finally, a stable and functioning software solution is created, with the possibility of implementing continuous improvements.

We propose that reporting the stages of construct disclosure can also help guide the process of clarification (note that definitions should remain constant). Clear criteria for these stages can be derived from the extent of ontological and ontic engagement involved in construct conceptualization. For example, initial but thorough ontological reflections, such as Heidegger's concept of thrownness, without any empirical or ontic examination or integration into explicit theories of antecedents and consequences, represent the conclusion of Step 1. Constructs that have undergone some ontic refinement correspond to Step 2. More intensive refinement may represent Step 3. In a similar vein, Bergkvist and Eisend state that researchers should be aware of "the current evolutionary stage of constructs" (although we emphasize that these authors interpret construct evolution differently) [18].

We argue that researchers may be reluctant to report lower stages; acknowledging such conditions may foster greater engagement to achieve higher levels. When researchers report lower stages, subsequent scholars may infer that they should not simply claim reliance on an established construct but should strive for further refinement themselves. From these considerations, we propose the following:

*Criterion 3: Researchers should indicate the level of disclosure of a construct according to the stage of the hermeneutic process.*

# 5. An Illustrative Example from Consumer Behavior Research: The Construct of Brand Age

At the outset, we would like to emphasize that we do not intend to conduct or present any own empirical studies on the selected topic of brand age. We do not aim to develop a measurement framework, formulate theories, or conduct analyses regarding which brands appear young or old, or under which conditions various rejuvenation strategies are effective. This example serves solely to illustrate considerations related to the first building block in **Figure 1**: construct formation.

We start with an introductory analysis of the application of research on brand age (Section 5.1) and summarize prior research on this topic (Section 5.2). Then, we adopt the structure from the preceding section and discuss the nature of the construct (Section 5.3), ways to provide evidence for its existence (Section 5.4), the construct's definition (Section 5.5), and the construct's clarification (Section 5.6).

## 5.1. Application Area of Brand Age

In accordance with our position, the existence of constructs is not dependent on specific areas of application or on the specific theories in which they are embedded. Nevertheless, references to practical problems can illustrate potential contexts in which specific constructs may manifest.

A typical research project in marketing might begin with the observation that certain companies or brands are losing market share in relation to competitors, which is interpreted as a decline in their competitiveness. The term "brand" is initially left deliberately vague. For example, the worldwide revenue ratio of the fashion manufacturers Adidas to Nike changed significantly between 2006 and 2024: from about 0.75 to below 0.5 (2006: Adidas €10.08 billion vs. Nike €13.5 billion; 2024: Adidas €23.68 billion vs. Nike €49.3 billion). Similar declines can be observed for car companies such as Opel, whose European sales dropped from 1.34 million vehicles (2006) to 414,000 (2024). In contrast, the global revenue of Kia increased from €32.8 billion (2013) to €69.6 billion (2024) (source: Statista). In debates concerning such developments, the assumption may arise that brand age, broadly described as the extent to which a brand is perceived as innovative versus outdated, could be an influencing factor for these developments, implying that measures of brand rejuvenation might be necessary for brands perceived as old-fashioned.

This assumption raises the question of how researchers should address the concept of brand age. Assessing brand age can help determine a brand's current status quo; assessing brand age before and after measures of rejuvenation and revitalization provides insight into the effectiveness of such efforts. The strategies may include, but are not limited to, the introduction of sub-brands targeting younger audiences; the adoption of youthful product designs (e.g., colors, shapes); the incorporation of young celebrities and contemporary music in promotional videos; and the juxtaposition of a youthful personification of one's own brand against an older personification of the main competitor's brand (as exemplified by Apple's "I'm a Mac, I'm a PC" campaign, which aimed to devalue the Microsoft brand in the 2000s). It is important to note that we do not want to confuse brand age with the technological age of the product; emerging innovative technologies can also render existing products obsolete through creative destruction [37]. We focus on the brand as an intermediary between product and consumer.

## 5.2. Content Analysis Concerning Brand Age

Researchers cannot disregard prior publications addressing a construct that are available in academic literature. We acknowledge that brand age has already been examined in consumer behavior research.

Some researchers define brand age (1) simply as the chronological age of a brand, i.e, the number of years since the trademark's inception [38]. If suppliers inform consumers about this age and consumers take note of that information, they have ontic access to the reality of brand age.

Other authors state that, in its definitional part, brand age reflects (2) consumers' perception of the duration of a brand's existence [39]. In addition, they generally distinguish between (2a) perceived chronological age and (2b) subjective impressions of age. Repace and Gertner state that "a brand can be very aged but still young in the minds of consumers" [40]. These aspects represent the ontological access to brand age (if perceptions of brand age exist as a category/mental mode in the minds of consumers). From examining the measurement sections of publications, we infer that Guillory implicitly adopted this two-component approach to perceived brand age: perceptions of elapsed time (= 2a) and symbolic meanings (= 2b) [41]. He asked consumers to indicate their agreement with the statements "Brand X is a new brand," "Brand X is a younger brand," and "Brand X advertisements target young people," using a Likert-type scale ranging from "totally disagree" to "totally agree." The verbal qualifier "new" corresponds more closely to chronological perceptions of time (= 2a), while "young" reflects a symbolic meaning (= 2b), as the term is transferred from the human domain to the brand domain by analogy. Huber et al. and Zhang et al. also used the term "young" to characterize a certain level of brand age [42,43]. Darpy and Levesque (cf. Repace and Gertner) employed a bipolar scale assessing brand age from "traditional" to "innovative," indicating an additional symbolic age-related meaning (= 2b) [40]. Aaker sought to identify adjectives applicable to both human and product brand characteristics (personality traits) [44]. In her extensive inventory, the adjective "young" appears, representing a symbolic meaning of age that applies both to humans and product brands (= 2b). We conclude that researchers use perceived chronological aspects of brand age (e.g., verbal qualifiers such as "new") and transfer symbolic human age characteristics to brand age (e.g., verbal qualifiers with—probably—positive connotations such as "young"). By analogy, it is also conceivable to formulate symbolic qualifiers with negative connotations, such as "old-fashioned" and "at the end of its life."

In this content analysis, we have summarized conceptual ideas from other researchers. Typically, the construct-building step ends here, and the development of advanced scales (formulating statements describing aspects of age and factor analysis) and theory building represent the immediate follow-up steps in such a research process; this approach is consistent with the recommendations of Churchill Jr. and Lewis [4,23]. In contrast, we adopt a different approach: discussing the nature of the construct of brand age, developing measures to establish the construct's existence, and delving deeper into defining and clarifying the construct.

## 5.3. Nature of Brand Age

Our position is that the content analysis employed in the preceding section does not inform us about the presumed nature of brand age. However, relying exclusively on content analysis and the researchers' self-reflection carries the risk of simply inventing the construct, that is, it

exists solely in the minds of researchers as a useful fiction, without demonstrable correspondence to reality. When authors candidly acknowledge that their work rests on such a researcher-generated construct, the credibility of their findings is likely to be undermined. Accordingly, we propose to treat brand age as a disclosable construct.

## 5.4. Existence of Brand Age

To this end, we must first provide evidence for its existence prior to any measurement development or theoretical elaboration. In the context of building brand age as a construct, the metaphor elicitation technique proposed by Zaltman (ZMET) may prove useful [45]. Consider the following procedure based on a short version of ZMET: a sample of participants is shown the name or logo of a particular brand on a computer screen. Below this display, they are presented with a large set of images, such as landscapes, representations of the four seasons, people of different ages, and abstract visuals that they can move around the target word using a computer mouse. Participants are instructed to select images that express the thoughts and feelings they associate with the brand name or logo displayed. Subsequently, they are asked to explain the reasons for their selections in a kind of thought list. The advantage of this technique lies in allowing individuals to use images to articulate their impressions of a brand and to express the additional associations it evokes (e.g., fantasies or autobiographical memories). This seems particularly appropriate, as impressions and connotations connected with age may be nonverbal in nature and may therefore be more readily conveyed through visual representations than through words. If different brand names are used in such a procedure and participants consistently select images that convey associations with age-related attributes (e.g., springtime, a newborn baby), this would suggest that brand age exists in consumers' minds as a cognitive mode. Of course, this procedure represents only one possible approach to addressing the question of whether brand age truly "exists." For the following, we assume that such analyses successfully demonstrate the existence of brand age.

## 5.5. Definitional Part of Brand Age Conceptualization

The notion that constructs should foster research traditions centered around them underpins the idea that the definitional part ought to remain highly invariant across time and context (e.g., culture). The term "brand age" is composed of two words; therefore, we examine each separately.

Brand: Historically, the word brand may have been primarily interpreted as the verbal name of a registered trademark, a legal term rather than a psychological one. In contemporary usage, however, entities are frequently designated as brands when they convey human-like meanings; that is, when they embody certain aspects drawn from a bundle of knowledge, impressions, and feelings typically associated with human beings [46]. This bundle includes feelings of belonging (brands can generate we-feelings), associations related to the region or country of brand origin, personality traits, cognitions about brand history and the future, visual anthropomorphized images (such as those featured in Ferrero's *Kinderriegel* advertising, where characters make the brand appear human-like), images of avatars, and even political stances. Analogously to people, product brands are born (introduced to the world or market) and can die (exit the world or market). Importantly, not only registered trademarks but also other classes of entities are linked to such aspects and are thereby considered brands. Examples of such entities include travel destinations (e.g., Côte d'Azur), churches (e.g., the Catholic Church of Christianity), political parties, cultural events (e.g., Carnival in Rio), television channels and magazines, celebrities (including politicians and pop artists), non-profit organizations (e.g., Greenpeace), regions (e.g., Silicon Valley), sports teams (e.g., Liverpool FC), and sports events (e.g., Olympic Games).

Age: As noted above, the age of brands encompasses chronological aspects, such as perceptions regarding how new a brand is. Furthermore, age is reflected in characteristics borrowed from other classes of entities (humans also vary in age; the seasons progress in time), which can carry positive or negative meanings.

From the combination of these two concepts, brand and age, we can construct the definitional component of brand age, which remains relatively independent of time and context. The extent to which brand age transcends merely describing a product trademark's chronological presence in the market corresponds to quality in the con-

ceptual elucidation of the construct. This notion is reflected in the entries in the upper half of **Table 4**. These aspects are relatively fixed (i.e., what is a brand, and what is age?).

## 5.6. Clarificatory Part of Brand Age Conceptualization

This section also relates to the conceptualization of the construct, as it delineates ideas for subsequent steps required to refine the clarificatory components. A preliminary description is provided in the lower half of **Table 4**. The following outlines offer an initial avenue for refining the clarificatory part of brand age. They do not aim to elaborate on theories concerning antecedents and consequences, nor do they propose specific approaches for measuring brand age, although they may contain preliminary considerations in this regard.

**Table 4.** The Construct Brand Age in a Preliminary Version.

| Category | Description |
|---|---|
| **Domain** | Entities that possess the meanings of brands. |
| **Definitional part:** | |
| One short sentence | Consumer's perception or estimate of a brand's age.<br>(Object = brand, attribute = perception of age, rater = consumer). |
| What is a brand? | Brands are entities that elicit human-like perceptions and emotions, including feelings of collective identity (we-feelings), associations with a country or region of origin, connections to personality traits, reflections on history and the future, as well as political orientations. |
| What is age? | Neutral chronological aspects.<br>Symbolic time-contingent meanings that differ in valence. |
| **Clarificatory part:** | |
| Chronological aspects | Impressions of different levels of age are expressed by neutrally evaluated meanings of time. |
| Time-contingent symbolic meanings (transferred from human age) | Impressions of varying levels of age that are represented in a two-dimensional map, derived by analogy to human age.<br>Dimension 1 (age) spans from young to old.<br>Dimension 2 (valence) extends from unfavorable to favorable. |

As a first ontic step, researchers could develop a continuum representing neutral chronological aspects (ranging from new to old) alongside a two-dimensional map capturing time-contingent human meanings (spanning from young to old and from negative to positive). Verbal qualifiers could then be tentatively assigned to the respective cells (**Table 5**). Such qualifiers could result from thought-list tasks, interviews, and the interpretation of images obtained from non-verbal instruments like Zaltman's Metaphor Elicitation Technique (ZMET) [47]. For example, test participants could have illustrated a certain brand through pictures of young adults.

A sample of consumers may be asked to evaluate the similarity of the verbal qualifiers, and researchers can employ multidimensional scaling (MDS) to assess whether these qualifiers indicate the adequacy of the assumed dimensionality of the construct. Furthermore, the applicability of these verbal qualifiers across different categories (e.g., product brands, pop artists, sports events), particularly those that can be described using anthropomorphic adjectives, could be examined. In the subsequent ontological phase, these empirical findings could inform interpretive judgments regarding the need to revise the construct's clarificatory section.

Adhering to the criterion that the level of construct disclosure should be reported appears straightforward in the context of brand age. Merely recommending the use of the entry in **Table 4** within the clarificatory section (opening the horizon), analogous to Heidegger's concept of thrownness, would not suffice to exceed Step 1. The statistical data analyses proposed above (e.g., MDS) would facilitate achieving more advanced levels of disclosure, which could then be indicated.

**Table 5.** A Sample of Verbal Qualifiers for Assessing Perceptions of Age.

| Valence | Chronological Aspects: | | |
|---|---|---|---|
| **Neutral** | Long-lasting history, Passed from generation to generation, Long-standing | Contemporary | Actual, Current, Novel, Short history, New, Recent |
| | **Old** | **Average** | **New** |
| | **Time-Contingent Symbolic Meanings:** | | |
| **Strongly Positive** | Iconic, Eternal, Immortal, Cult, With heritage, Dignified, Noble | | Hip, Hype, Sparkling, Cutting-edge, Pioneering, Groundbreaking |
| **Moderately Positive** | Established, Traditional, Keeps with tradition, Age-resistant, Timeless, Acknowledged | Symbolic, Dateless | Fashionable, Trendy, Up-to-date, Youthful, Young-minded, Modern, Fresh, In vogue, Stylish, Emergent, Forward-looking |
| **Neutral** | Classic, Associated with longevity, Aged | Accomplished, Experienced | Innovative, Young, Targets the young |
| **Moderately Negative** | Historical, Mature | Conservative, Uncertain of the future | Futuristic, Lives in the Here and Now, Radical, Rebellious, Naïve, Faddish |
| **Strongly Negative** | Timeworn, Outdated, Uptight, Old-fashioned, Exhausted, Obsolete, Passé | | Child-like, Immature |
| | **Old** | **Average** | **Young** |

# 6. Conclusions

When researchers use constructs, they can take measures to answer the following questions:

- What is the nature of the constructs of interest that we (i.e., the researchers) postulate: invented, developed, or disclosed?
- What can we do to provide support for the existence of these constructs?
- Did we pay attention to the fact that the definitional part of conceptualization is stable across time and space?
- What did we do to ensure the openness of the clarificatory part of conceptualization with respect to time and space?
- What level of maturity of the disclosure processes of the constructs did we achieve?

We tried to assist researchers in answering these questions. We argue that we did not invent this sequence. Rather, we employed an established epistemological framework, Heidegger's *Sein und Zeit*, to derive it. We assert that the process of construct disclosure should begin with a rigorous initial ontological step, which does not preclude the possibility that refinements to the clarificatory part of a construct may be achieved through subsequent iterative ontic-ontological cycles. However, contrary to the suggestions of Churchill Jr. as well as Gilliam and Voss, who emphasize the need to improve construct conceptualization only in cases of measurement and theory-building deficits [4,7], we advocate focusing on conceptualization without conflating it with these phases in order to benefit from the division of labor.

Realistically, we do not expect that our thoughts will be formally applied to the process of construct building in research that deals with human behavior. However, we anticipate that the awareness of such a sequence and its criteria can guide reflection within the construct-building phase, fostering deeper consideration of whether the modes and processes of interest are adequately disclosed.

When manuscript reviewers criticize poor definition and/or lack of clarity of constructs, we suggest that researchers engage with the line of thinking outlined in this paper and clearly state their position regarding the nature of constructs, ways of providing evidence for their existence, and conceptualization. If reviewers criticize the constructs used as non-established constructs (e.g., uncommon clarifications), researchers could emphasize that they had intensely applied instruments that enabled them to identify constructs reflecting ontological reality. Researchers intending to conduct meta-analyses may consider whether the existence of stable definitional parts of constructs is sufficient to enable such analyses.

The position that constructs are disclosed modes and processes existing in the human mind entails an epistemological challenge. The postulate that the definitional part of constructs should be conceived independently of time and space within the scope of human experience is demanding. Heidegger's considerations imply that only theories with the greatest possible scope should be formulated, i.e., those whose constructs remain intelligible beyond cultural and temporal contexts. This postulate thus implies a particular conception of science: if definitions of constructs ought to be formulated so generally that they remain valid across space and time, the theories connecting these constructs should correspondingly be context-independent. Underlying this is the idea of a general truth that exists but is only gradually recognized and articulated through research.

We suspect that many readers of academic papers tend to focus primarily on the measurement sections to form an impression of the constructs under consideration, as we did in the content analysis of publications on brand age, rather than engaging thoroughly with conceptualization sections. In this respect, the demand for substantial effort in conceptualization may be questioned. Nevertheless, an intensive discussion of the constructs at the outset of a paper may direct readers' attention to this step. Thus, authors face a delicate balancing act in deciding the appropriate extent to which construct disclosure should be reported in academic papers.

For future research, we recommend exploring additional sources in philosophy beyond Heidegger's twofold access to reality to identify further criteria that may guide construct disclosure. In addition, there is a need to structure techniques suitable for revealing modes and processes in the minds of individuals. We have just stated that interviews and ZMET might be applicable.

Our aim was not to postulate a uniform view on the true nature of constructs, nor to demonstrate how the existence of constructs can be substantiated in general. In no way did we intend to criticize proponents of invented and developed constructs. Rather, our intention was to provide an argument for why the disclosure approach may also be taken into consideration in the process of construct formation. The foundation of this argument lies in Heidegger's notion of the ontological difference, which further enabled us to formulate some guidelines for the process of construct disclosure. The ontological difference posits that both the ontic and the ontological approaches represent ways in which individuals relate to reality; the latter approach enables researchers to build constructs. As we have argued in this paper, the supposed nature of constructs has implications not only for the methods appropriate for addressing questions about the existence of constructs employed by researchers but also for measures that must be taken to ensure the credibility of research itself.

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