

Article

# Community as a Key Word: A Heuristic for Action-Oriented Sustainability Research

Chad Stephen Boda <sup>1,2</sup>

<sup>1</sup> Lund University Center for Sustainability Studies (LUCSUS), Biskopsgatan 5, 223 62 Lund, Sweden; chad.boda@lucsus.lu.se

<sup>2</sup> Lund University Center of Excellence for Integration of Social and Natural Dimensions of Sustainability (LUCID), Biskopsgatan 5, 223 62 Lund, Sweden

Received: 26 June 2018; Accepted: 2 August 2018; Published: 6 August 2018



**Abstract:** In this article, I outline the foundations of a consistent and systematic approach to conceptualizing communities in action-oriented sustainability research. More specifically, I develop a conceptual heuristic based on key questions related to ontology, epistemology, methodology and motivation that should be useful for researchers regarding the process of initiating, clarifying and reporting on research with communities. While the use of the community concept in sustainability research is particularly prominent, variability in the possible types of social groupings combined with the concept's long and complicated etymology in the English language means the community concept lends itself easily to ambiguous and unspecified use. This can lead to problems of both conceptual vagueness and concept-object mismatch in scientific research, which in turn can influence the applicability and efficacy of research outcomes. While problems with community conceptualization are generally recognized, the heuristic developed here contributes by providing researchers with a framework and procedure for addressing these persistent challenges. The heuristic supports the rational and systematic development of a community concept that is sensitive to concrete contextual characteristics, while maintaining roots in a consistent philosophy of scientific knowledge production.

**Keywords:** theory-practice; concept-object; critical realism; immanent critique; philosophy of science

## 1. Introduction

In this article, I propose a conceptual heuristic for initiating, clarifying and reporting on community-based sustainability research. The issues addressed by this heuristic have been recognized across a wide variety of academic fields engaged in “community” research. However, the novelty of my contribution lies less in pointing to the significance of community for sustainability in general, or an enumeration of examples of challenges in conceptualizing community experienced by researchers. Instead, while I touch on these issues, the significance of this article lies in its grounding of the scientific conceptualization of community in a consistent philosophy of science and methodology capable of handling the dialectical relationship between concept and object, which makes community conceptualization challenging.

Anecdotally, the need for a heuristic to support community conceptualization became apparent after reflections on a variety of theoretical and practical challenges I experienced while conducting my own reflexive and abductive (see [1]) doctoral research. During the research process, I worked closely with a small coastal town in the U.S. state of Florida, the City of Flagler Beach, which has been struggling to address coastal erosion threatening important local environmental and economic assets (see [2]). Because my research was conducted under the action-oriented research field of sustainability science (see [3,4], more on this below), I always had the ambition to “make my research matter” by connecting my research outcomes to the solving of practical problems in the city. In order to do

so, I was initially tasked with figuring out whom specifically I should try to work with in order to ensure that my research outcomes were reflective of the actual needs and wishes of the Flagler Beach community. While in hindsight I could have started in many places, I in fact began my investigation under the assumption that the formal boundaries of the municipality itself were sufficient to demarcate the “community” I intended to work with. This led me, at least initially, to enter into dialogue with what I saw as the most immediately obvious “community representatives”, namely elected officials such as the city mayor and city commissioners.

Flagler Beach is a small town (around 4500 permanent residents), and local elected officials proved to be highly accessible and open to collaboration. (It is perhaps telling that the city mayor is also a bar tender at a popular local pub). However, in my discussions with these elected officials that do in fact “represent” the residents of Flagler Beach in the formal political sense, they often referred to ongoing conflicts *within* what I had originally conceptualized as the aggregate municipal “community”. These conflicts included, for example, citizens who supported or resisted paid beach-side parking; those who fought over beach access rights (for example, the surfers and fishing enthusiasts); and those who support beach-use restrictions in the name of sea turtle conservation (many residents volunteer to monitor nests as part of the local “Turtle Patrol”) and those who consider these restrictions as excessive and their supporters as “fanatics” or “turtle Nazis”. In time, I came to the realization that what I originally conceptualized as a homogenous community defined by municipal boundaries, while remaining a community in this sense, now seemed to be made up of several other “communities within the community”, some of which were in conflict with each other. Suddenly, the idea of “community-based” research became significantly more complicated.

The point I want to emphasize with this anecdote is, while I started with an initial idea of what community meant, reflexive interplay in the research process between my conceptualization of the context and the empirical reality of the context itself allowed me to fill what I now realize was initially a quite empty conceptualization of community with difference and nuanced meaning. This developed concept of community better reflected the complex, concrete realities of social interactions, relationships and conflicts which characterize the City of Flagler Beach, and allowed me to more clearly understand the potential implications of my own research outcomes.

### *1.1. Towards a Conceptual Heuristic for Community Research*

In this paper, I discuss the significance of the relationship between scientific concepts and the reality being studied, and how they might diverge, by critiquing the concept of community, an almost ubiquitously employed concept within sustainability studies, broadly defined. I begin by setting forth the suggested heuristic, including a set of guiding questions clarifying initial assumptions regarding the researcher’s initial conceptualization of community. I then briefly introduce the action-oriented ambition of sustainability science before outlining the philosophy of science and methodology that underpin my approach to understanding and engaging with the concept-object and theory-practice relationship in general. Then, I briefly discussing some of the ways the concept of community in particular has been suggested as salient for issues of sustainability. I then move on to point out some ambiguities in the use of the community concept, both those stemming from the word’s etymology and from accidental inconsistent use in some action-oriented sustainability research, sourcing examples of this conceptual ambiguity from a prominent review of transdisciplinary work in sustainability science.

Underpinned by my adopted philosophy of science, I then move to elaborate the components of the proposed heuristic, this article’s main contribution. I begin by clarifying an important ontological distinction in the way we can conceptualize community, and then elaborate on the epistemological, methodological and motivational implications of this distinction for research practice. These implications collectively lay the groundwork for a reflexive heuristic for conceptualizing community in sustainability research. The methodological procedure imbedded in the heuristic is based in the dialectical logic of immanent critique, which provides a rational procedure for the systematic development of progressively more adequate conceptualizations of community in

concrete research processes. The heuristic I produce involves the following components, complete with exemplary questions:

1. Ontology and Epistemology: What is the ontological status of the community of interest, and how can one go about identifying its members?
  - a. Is the community existing, and thus defined by its impersonal, objective characteristics?
  - b. Is the community subsisting, and thus defined by its shared personal, subjective ideas, beliefs or commitments?
2. Methodology: Community conceptualized *by* whom?
  - a. Is community being conceptualized by non-members?
  - b. Is community being conceptualized by self-identified members?
  - c. Is there congruence in community conceptualization between members and non-members, including researchers?
3. Motivation: Community conceptualized for whom?
  - a. Is community conceptualized to emphasize potentially conflicting/synergistic interests between subsisting communities?
  - b. Is community conceptualized to facilitate/impede collective decision-making among members of an existing community?

Each of these components will be elaborated in Section 5 below. While I argue specifically for the relevance of this heuristic to sustainability science, the heuristic is not specific to sustainability research. Rather, the heuristic can be helpful in promoting consistency (in practice and reporting) within and across other research fields when it comes to selecting participant communities for research projects, helping avoid mismatches between the way researchers conceptualize community and the way community members do themselves.

## 2. Theory, Practice and Sustainability Science

Sustainability science, launched as a specific intellectual endeavor in Kates et al.'s [4] seminal article, has been around for barely two decades. However, the emerging research field which led Clark and Dickson ([5], p. 8060) to enthusiastically claim that "something different is surely 'in the air,' something that is intellectually exciting, practically compelling, and might as well be called 'sustainability science' has by now somewhat coalesced by comparison and its defining features are becoming more clearly identifiable. A decade in, when reflecting on the question "what kind of a science is sustainability science?", Kates ([3], p. 19450) summed up the defining characteristics of the burgeoning field this way: "Sustainability science is a different kind of science that is primarily use-inspired . . . with significant fundamental and applied knowledge components, and commitment to moving such knowledge into societal action". "However", Kates continues, "its real test of success will be in implementing its knowledge to meet the great environment and development challenges of this century".

In recent years, some influential sustainability scientists, for example Wiek et al. [6], have brought to our attention the imbalance between knowledge and action in sustainability science research, or what they term the field's "analytical-descriptive" and "transformational" modes. Wiek et al. ([6], p. 7) suggest that "sustainability science seems to be still largely 'trapped' in the safe space of descriptive-analytical knowledge production", and, as a result, more emphasis needs to be placed on "transformational" research. Bridging this gap, of course, involves an understanding of the reasons behind the gap. Further along, Wiek et al. (ibid) tell us that the reasons for this disconnect are "obvious", including (1) the dominance of the descriptive-analytical paradigm in the evolution of scientific inquiry and institutionalization; (2) the lack of familiarity, training, and educational

opportunities in transformational sustainability science, including issues of uncertainty, acknowledging the unknown, pluralism, dissent, conflict, and asymmetrical power relations in decision-making processes; and (3) academic reward systems and career trajectories do not incentivize involvement in transformational research.

I don't disagree. These are important challenges for connecting scientific knowledge production with societal action. I do, however, want to suggest that in addition to these challenges, the "test of success" identified by Kates is also a test of the *compatibility* between theory and practice, or between the scientific knowledge we produce and the kinds of action strategies which logically flow from our scientific understanding. This includes the individuals or social groups (i.e., communities) we have reason to expect will undertake those actions.

In this way, the descriptive-analytical and the transformational modes of sustainability science are intertwined, as the theories and concepts we employ to understand problems scientifically provide the frame within which solutions, including the associated agents of change, are identified [7]. It is important to emphasize that, as scientists, we are not passive elements in the research we conduct; rather, we play an active role in constructing the problems we study, i.e., through conceptualization (see Section 4 below). Put bluntly, what we think guides what we do. Marx ([8], p. 284) pointed to this relationship when he famously remarked:

A spider conducts operation which resemble those of the weaver, and a bee would put many a human architect to shame by the construction of his honeycomb cells. But what distinguishes the worst architect from the best of bees is that the architect builds the cell in his mind before he constructs it in wax.

While their ability to conceptualize may set our architect apart from even the most talented of bees, if they are a bad architect, they are still likely to produce a faulty structure. The same applies to science. If our active participation in the conceptualization of a particular problem goes aloof or diverges from reality, the quality and effectiveness of the solutions we develop will suffer, which in turn will maintain the divide between scientific best practice and actual practice in society. We want to avoid being bad architects.

Of course, a concept or theoretical framework is not permanent or unalterable, but is subject to continuous development, revision or rejection, as the history of science attests [9]. We not only can change our conceptualizations to better fit reality and to produce more adequate understandings and thus solutions (see Section 3 below), it is *incumbent upon us* as scientists to do so. Thus, a research process conducive to bridging the gap between analysis and transformation should consciously engage in continuous assessment of the "fit" between a certain conceptualization and reality. This way of thinking is in line with the idea of "reflexivity" in research, or the recognition that "there is no one-way street between the researcher and the object of study; rather, the two affect each other mutually and continually" ([10], p. 79). Reflexivity has, moreover, been suggested as a key competence to obtain as a sustainability scientist [11], and reflexivity is aided by heuristics (see [12]).

While "bridging the gap" between sustainability science's two modes might make for a misleading metaphor, the heuristic introduced in Section 1.1. and elaborated in Section 5 is meant to facilitate a process of ever closer convergence between a conceptualization and the reality being conceptualized, with the full realization that they can never fully merge. Perhaps Engel's (cited in [13], p. 26) put it best:

The two of them, the concept of a thing and its reality, run side by side like two asymptotes, always approaching each other yet never meeting. This difference between the two is the very difference which prevents the concept from being directly and immediately reality and reality from being immediately its own concept.

My understanding of the relationship between concept and object, with its roots in Hegelian philosophy, has been further elaborated and substantiated in the realm of modern philosophy of science. A consistent philosophical system articulating the relationships between ontology, epistemology

and methodology has been developed in particular within critical realism. My deployment of this philosophy of science for purposes of structuring community conceptualization is perhaps this article's most novel contribution. This is the topic of the next section.

### 3. Ontology, Epistemology and Methodology

To restate, the way one conceptualizes a problem scientifically has important bearing on what actions one sees as necessary to alleviate it. Partial or inaccurate conceptualizations, which do not adequately reflect the object or context under consideration, can lead to faulty interventions that are not conducive to sustainability. The question is one about the relationship between concept and object, and thus knowledge and action. Furthermore, it is my contention that the concrete nature of sustainability problems requires that our scientific conceptualizations amount to more than empty abstractions; that is, to more than thinking in terms of "community" as such. As we will see, the concept of "community" in general tells us little about any *particular* community. The goal of action-oriented scientific investigation should be, instead, to produce concrete-abstractions that combine more general characteristics of the idea of community with the contingencies of time and place. As previously mentioned, the foundations which underpin my approach to the relationship between ontology, epistemology and methodological practice are perhaps most accurately situated within the philosophy of science known as critical realism, developed most prominently by Roy Bhaskar (see in particular [14]).

The first major pillar in critical realism is the necessary disambiguation of ontology and epistemology and the rejection of what Bhaskar ([15], p. 1) calls the "epistemic fallacy", or the reduction of being to the knowledge of being. The "re-vindication" of ontology as distinct from epistemology invokes the distinction between (1) the "intransitive" dimension of knowledge, or the being of objects of scientific investigation; and (2) the "transitive" dimension of knowledge, or the socially constructed knowledge of those objects ([16], pp. 10–11). This distinction between the transitive and intransitive dimensions of knowledge underpins the aforementioned, dialectically intertwined relationship between concepts and objects that is central to the functioning of the heuristic presented in Section 1.1.

One implication of the distinction between transitive and intransitive dimensions of knowledge is that, while multiple theories or conceptualizations of a phenomenon or object (the transitive objects of knowledge) may exist simultaneously, the construction or altering of these theories does not mean that what they are about (the intransitive dimension of knowledge) necessarily changes as well. As Sayer ([16], p. 2) has put it, "It is the evident fallibility of our knowledge—the experience of getting things wrong, of having our expectations confounded, and of crashing into things—that justifies us in believing that the world exists regardless of what we happen to think about it." The reverse is likewise true, as changes in objective reality are not immediately or perfectly reflected in our theories or conceptualizations. Thus, our understandings can diverge from reality, and can be proven wrong by reality. This argument, of course, rests on a realist conception of ontology, though it by no means implies naïve empirical realism or actualism.

Epistemic relativity in critical realism provides for the possibility of simultaneously existing yet incommensurable explanations of a given phenomenon, which in turn presupposes some "referential overlap" ([17], p. 6), meaning that the differing transitive objects, if they indeed clash, must share some common references regarding the features of the intransitive object of explanation or study. This referential overlap, in turn, leads to a further implication of the transitive/intransitive distinction, the possibility for judgmental rationality in objectively selecting between competing conceptualizations/theories/explanations. Judgmental rationality in critical realism rests on the criteria of greater explanatory power, which Bhaskar adapted from Imre Lakatos' work on the methodology of scientific research programmes: "an explanation is a step forward (that is, 'scientific'), if it explains at least some previous anomalies which were not explained 'scientifically' by its predecessor" ([9], p. 94). The criteria of greater explanatory power provide the possibility for rational judgment of

competing theories or conceptualizations as comparatively “better” or “worse” on a continuum, rather than in absolute terms ([17], pp. 6–7). Taken together, this compatibility between ontological realism, epistemic relativism, and judgmental rationality is what Bhaskar ([15], p. 1) has called the “holy trinity” of critical realism.

A particular methodological procedure, which consistently flows from these philosophical positions regarding the nature of knowledge and reality, underpins the heuristic I introduced above and develop below, and can be usefully thought of as a form of *immanent critique*. Immanent critique involves a process of dialectical reasoning by which one “discover[s] the limitations of various [conceptualizations], in part through the recognition of their contradictions—both internal and external— and thereby coming to see more adequate forms of [conceptualization] that resolve these tensions” ([18], p. 23). Contradictions can be logical or linguistic, but they can also be empirical, as in the case of unexplained observational anomalies. Once contradictions are identified, an improved conceptualization can be rationally produced which addresses these contradictions. A new conceptualization is considered an improvement if it contains the useful components of the first conceptualization, does not suffer from all the same limitations as the first conceptualization, and furthermore incorporates at least some novel facts (or observational anomalies) which the previous conceptualization was unable to account for. This criteria for improvement of concepts is reflective of Lakatos’ ([9], p. 94) previously mentioned principles of “greater explanatory power”, which have been adopted and elaborated by Bhaskar as criteria for rational theory choice in critical realism [17].

By undertaking a reflexive critique of a scientific conceptualization in this way, it becomes easier to understand how every iterative, progressive adjustment to the concept represents an *improvement* on the previous understanding; however, it also forces us to recognize the important contribution of previous, less adequate conceptualizations as part of the conceptual developmental process over-all. This evolutionary perspective on the development of ideas applies as much to individual concepts as to whole philosophical systems. Hegel ([19], p. 2) expresses the point I am getting at this way:

conventional opinion . . . does not comprehend the diversity of philosophical systems as the progressive unfolding of truth, but rather sees in it simple disagreements. The bud disappears in the bursting-forth of the blossom; and one might say that the former is refuted by the latter; similarly, when the fruit appears, the blossom is shown up in its turn as a false manifestation of the plant, and the fruit now emerges as the truth of it instead. These forms are not just distinguished from one another, they also supplant one another as mutually incompatible. Yet at the same time their fluid nature makes them moments of an organic unity in which they not only do not conflict, but in which each is as necessary as the other; and this mutual necessity alone constitutes the life of the whole.

This progressive conceptual development has further important implications for reporting on research practice. That is, rather than simply a series of refutations, when taken together, the process over-all produces a rational and systematic expansion of an ever “truer” conceptualization of the object, problem or issue at hand, in the context of this article the “community”. The systematic nature of this form of conceptual development allows for more transparent reporting by researchers regarding *how* they came to understand community the way they did, and *why* the resulting conceptualization was necessary to capture the concrete context of study.

#### 4. The Importance of Concepts in Sustainability Science

I previously noted that conceptualization is not of purely intellectual concern, but of fundamentally practical concern as well. This is because when we employ one (or a set of) concept(s) to understand a problem, our conceptual choices can preclude the possibility of viewing the problem from other conceptual positions at the same time (see Section 3 above). This conceptual tension is captured by Niels Bohr’s notion of complementarity that “denotes a relation between mutually exclusive descriptions predicated upon theoretically incommensurable abstractions” ([20], p. 1036). This exclusionary relation

is rooted in the idea that “the observer [of a phenomenon] has no choice but to be actor and spectator at the same time” ([21], p. 179b). As scientific actors, we do not necessarily interfere physically with the objects of study (though this is often also the case), but intervene *conceptually*. After all, as Richards ([22], p. 112; cited in [20], p. 1035) reminds us, among the “most important of our instruments...are our concepts”.

When we employ concepts in our research, clashes with other possible conceptualizations is unavoidable, as the clash arises from the very nature of the relationship between ontology and epistemology. The un-reflexive use of partial conceptual perspectives can perpetuate “blindness” [23] which can impede mutual understanding and reduce the efficacy of implemented solutions. This applies to not only scientific theories, but also those explicit or implicit theories and problem conceptualizations held by the people involved with the problems scientists are interested in understanding and solving [24]. However, just because conceptual barriers are unavoidable does not mean we cannot advance our knowledge. Instead, as we have seen, the trick to addressing this epistemological challenge is methodological, involving heuristics to offer structure to research practice, instigate reflexivity in thought and promote transparency in reporting.

### *Sustainability and the Community Concept*

To hone in on the implications of my arguments thus far, I now move from thinking in terms of the importance of concepts in general to the specific concept of community in sustainability research. My brief review here is in no way intended to be comprehensive; rather, it is *indicative* of the kinds of arguments made by researchers regarding the importance of the community concept to sustainability studies. While a more comprehensive review of the ways in which the community concept has been recognized as significant in sustainability studies literature may be useful for some purposes, it is my position that for the problem at hand it is sufficient to establish the plausible relevance of the concept in sustainability research. By establishing the relevance of community for sustainability, I mean to underpin the salience of this article’s main contribution, namely the conceptual heuristic presented in Section 1.1 above. In this regard, I follow Galileo’s strategy of economy of argument and the prioritization of quality, imaginative examples over the quantity of sources cited: “If discoursing about a difficult problem were like carrying weights, where many horses can carry more sacks of grain than a single horse, I would agree that many discourses could do more than just one. But discoursing is like coursing, not like carrying, and one Barbary courser can outrun a hundred Friesians” (quoted in [25], p. 51).

In a general sense, the idea of community has been connected to various sustainability-related processes and outcomes. Some very influential scholars, for example, have insisted that community participation in research and development projects is an essential component of practicing sustainable development (see e.g., [26]). More specific to sustainability science as a particular research endeavor, the community concept has figured prominently in action-oriented research projects aimed at facilitating social change for sustainability through collaborative science (see, for example, the selection compiled by Brandt et al. [27], to which I return below). The crosscutting logic, generally speaking, is that communities have the “right stuff” needed to realize sustainability. This includes the social relationships and resources required to mobilize and empower social groups to undertake the necessary steps to alleviate context specific sustainability challenges [28].

Beyond a generic relationship between community and sustainability, some have argued that community plays an important role in quite specific social change processes. Seyfang and Haxeltine ([29]; see also [30]), for example, suggest that “community-based” approaches are central to the facilitation of a variety of sustainability transitions, such as transitions in energy production. Additionally, Agyeman [31] has related a focus on community to the promotion and obtainment of environmental justice. As these examples suggest, the community concept seems to almost always be invoked in a positive light, with community being viewed as an important node of social interactions and relationships that are conducive (or at least can be made to be conducive) to positive social change.

Take for example this statement by Oetlé et al. ([32], p. 119): “‘Community’ implies sharing: sharing of culture, identity, interests and characteristics. Without a uniting vision, community based initiatives frequently founder upon the rocks of misunderstanding.” As Williams ([33], p. 76) has noted:

Community can be the warmly persuasive word to describe an existing set of relationships, or the warmly persuasive word to describe an alternative set of relationships. What is most important, perhaps, is that unlike all other terms of social organization (state, nation, society, etc.) it seems never to be used unfavorably, and never to be given any positive opposing or distinguishing term.

However, despite its rosy connotations, common experience reminds us that assuming a consistent relationship between the concept of community and progressive or emancipatory politics should be avoided. The “dark side” of community, the us/them mentality of racism, nationalism, and other oppressive social categorizations, is an undeniably real and persistent social problem that works to exacerbate hierarchies, social injustices and inequalities rather than alleviate them ([34], p. 318).

Finally, it should be noted that communities, both as objects and as concepts, are liable to change and transform overtime in terms of their membership, purpose, etc. The implications of genealogy and possible future transformations of various communities provides further justification for a reflexive and evolutionary approach to community conceptualization in scientific research. As critical realism would support, the open-systemic nature of reality implies that rigid definitions and conceptualizations will always diverge from reality, as the context itself is liable to develop in response to synchronic and diachronic processes of change. Similarly, rigid definition may exclude important historical transformations that may be significant for understanding community content and meaning in the here-and-now.

## 5. Community as a Key Word: Conceptual Confusion and an Ontological Distinction

While the concept of community has been connected to sustainability in various ways, the precise meaning of the term often remains elusive in everyday usage in absence of further clarification. This conceptual confusion is partly rooted in the etymology of the word itself. It is also a factor of the presumably unintentional but none-the-less unspecified and variable use by researchers reporting on their research processes.

If we look into the history of the word “community”, it is much easier to see how conceptual confusion might arise. The accomplished cultural scholar Raymond Williams ([33], p. 75), in his celebrated book *Key Words*, points out that the word community was established in the English language in at least five different senses:

- (i) the commons or common people, as distinguished from those of rank
- (ii) a state or organized society, in its later uses relatively small
- (iii) the people of a district
- (iv) the quality of holding something in common, as in community of interests, community of goods
- (v) sense of common identity and characteristics.

Because of this plurality of senses of the same word in English, the invocation of the community concept can leave the more precise meaning intended by its user somewhat ambiguous, unless the precise sense is clarified or stated beforehand (and even in such cases, ambiguity can persist). The focus on English in this paper might be questioned; however, the current situation is such that English is the language of communication for the vast majority of the published peer-reviewed contributions in the field of sustainability science [35]. I do, however, understand that the confusion surrounding the community concept in English is to some degree a language issue that is not necessarily shared in other languages. Take, for example, the well-known German language distinction between *gemeinschaft* (i.e., a group with social relations based on subjective ties) and *gesellschaft* (i.e., a group with social relations based on objective ties), both which in English could be reasonably translated as “community”.



Different words for different meanings seem like a good way to go, but the historical development of the word community in English has not provided us with such useful linguistic differentiation.

Such linguistic ambiguity might be behind the findings of the early sociological work of Hillery ([36], cited in [37], p. 557) who identified 94 separate definitions of “community”, the only factor they held in common being that they dealt with people. However, the kind of concrete-abstract conceptualization of community I am advocating for in this article is not purely a linguistic issue, but also a question of scientific knowledge production and concept-object fit, as previously argued in Sections 2 and 3 above. While perhaps the problem of conceptual confusion in sustainability research is not as dramatic as Hillery’s findings might suggest, such conceptual confusion in the use of the word community is apparent in English language sustainability research.

To give a more concrete indication of the problem, I analyzed a set of peer-reviewed articles sourced from a list compiled by a team of researchers undertaking a widely cited and comprehensive review of transdisciplinary sustainability science research (see [27]). In order to obtain an exemplary set of articles from which to further analyze, I searched through the list of articles compiled by Brandt et al. ([27], appendix 5) for papers with the word “community” in the title, which I took to be an indication of the *intentional* use of the concept in transdisciplinary research. This gave me a sample of 16 papers total. While this is not an exhaustive review, I want to avoid being too pedantic on the point, and thus I hope, in line with my Galilean appeal to economy of argument above, this sample is sufficient to demonstrate the tendency for conceptual confusion in actual action-oriented sustainability science research.

To analyze the articles, I searched through each paper for uses of “*communit*”(y/ies) using the word search function. At each “hit”, I interpreted the use of the word in each sentence in comparison to the five senses of the community concept offered by Williams, which I cited above. From this, I compiled an exemplary set of quotations showing the use of the word in a given sense in each article. I avoid repetition of the same sense, except in instances where two different senses of the word were used in a single sentence. It should be noted that the first sense of community given by Williams, “the commons or common people, as distinguished from those of rank”, while common between the 14th and 17th century, is rarely used in English today. This is because the idea of “commoners” mostly went away in the language as feudalism was supplanted by capitalism and democratic rule became more strongly established in English speaking countries. The latter four senses are still commonly used, and I have done my best to interpret the usages in each article in a way that seemed the most reasonable. I do however acknowledge that there could be other interpretations of individual usages, as it is in some cases not at all obvious. I also recorded the total number of uses, or “hits”, of “*communit*”(y/ies) which I take to be a rough indicator of the prevalence of use of the concept in each individual article.

Table 1 offers an overview of the results, including the number of hits; whether a particular definition of community was offered; exemplary quotes of uses of the concept; and the various senses of community invoked in the article. The reader will notice that every single article uses the community concept in *at least* two different senses, with the majority involving a wider variety than that.

**Table 1.** Senses of “community” in 16 English language peer-reviewed transdisciplinary sustainability science articles.

Article	Hits	Definition of Community	Exemplary Quotes	Senses
Ahamed et al. (2009) [37]	64	None	“Community-based resource management”, P. 934 (ii); “local community participation”, p. 935 (iii); “learning and understanding community opinions, behaviours and attitudes”, p. 938 (iv);	ii, iii, iv
Armitage (2005) [38]	142	None	“community-based narwhal management”, p. 715 (ii); “competing groups in the community”, p. 724 (iii); “the degree of community cohesion maintained amid economic, sociocultural, and political change”, p. 724 (iv); “Inuit communities”, p. 724 (v)	ii, iii, iv, v
Barnaud et al. (2008) [39]	10	None	“analyze the effects at the catchment and community levels”, p. 617 (ii); “socially heterogeneous community of small farmers in mountainous Northern Thailand”, p. 616 (iii, iv); “sent to the government authorities by many rural communities across the country”, p. 624 (v)	ii, iii, iv, v
Bethune and Schachtschneider (2004) [40]	50	None	“the community-run committee”, p. 164 (ii); “it becomes apparent that community common sense dictated more appropriate and practical solutions.”, p. 165 (iv); “Spitzkoppe Community (currently 500 people) has lived in the area, eking out an existence...”, p. 162 (v)	ii, iv, v
Edwards and Heinrich (2006) [41]	10	None	“The township of Aturukun ... is the largest Aboriginal community on Cape York”, p. 572 (iii, v);	iii, v
Holden (2009) [42]	171	“For our purposes, the most useful definition of community is a group of people with a recognizable common interest”, p. 432	“the local geographically-based community”, p. 433 (iii); “commonly-held beliefs of the community”, p. 432 (iv); “successful in creating a sense of community over the six month process amongst the participants”, p. 443 (v);	iii, iv, v
Johnson and Wilson (2000) [43]	38	“... the concept of community was being used to include everyone in Bindura—all residents, environmental health professionals and the business community—[though] there were various forms of differentiation”, p. 312	“community involvement in waste management in the town”, p. 304 (ii); “the concept of community was being used to include everyone in Bindura... [within each] there were various forms of differentiation”, p. 312 (iii, v); “the professionals are seeking to alter certain values and practices of community behaviour”, p. 307 (v)	ii, iii, v
Ling et al. (2009) [28]	160	“It is perhaps most useful to define community as being the people living within a municipal boundary, though community can be certainly defined a variety of ways.”, p. 233	“Communities, regardless of scale, are amalgams of interest, values and sectors.”, p. 234 (ii); “It is perhaps most useful to define community as being the people living within a municipal boundary...”, p. 233 (iii); “Participation reinforces community commitment to change”, p. 231 (iv); “challenges faced in Canadian communities”, 229 (v);	ii, iii, iv, v
Macharia (2004) [44]	26	None	“Local communities are more likely to conserve if they know they will benefit from it”, p. 144 (ii); “The community living in Kajiado District, Kenya”, p. 142 (iii); “Communities living in the ASAL areas are pastoralists, even though semipastoralists and farming communities exist as well”, p. 141 (iv); “The Maasai community”, p. 141 (v)	ii, iii, iv, v
Meppem (2000) [45]	77	None	“The strength of the discursive community is in establishing relational connections” (iv, v), p. 54; “When this ‘truth’ is questioned, the sense of certainty that this shared understanding imparts within a ‘community’ is undermined”, p. 50 (iv); “Community has traditionally been seen as a group with strong commonality, or an essential essence ... ” p. 52 (v);	iv, v

Table 1. Cont.

Article	Hits	Definition of Community	Exemplary Quotes	Senses
Oettle et al. (2004) [32]	74	“‘Community’ implies sharing: sharing of culture, identity, interests and characteristics.”, p. 119	“community-based knowledge exchanges have supported the efforts of members of the Suid Bokkeveld community of the Hantam District in western South Africa”, p. 115 (ii, iii, v); “brings together local communities, governments, donors and NGOs”, p. 117 (iii); “‘Community’ implies sharing: sharing of culture, identity, interests and characteristics”, p. 119 (iv); “care givers from both the traditional and scientific communities of healers”, p. 124 (v);	ii, iii, iv, v
Seely and Moser (2004) [46]	258	None	“the UNCCD focused on mobilising the involvement of affected communities to address their own challenges at their own local level”, p. 33–34 (ii); “the international community was informed about the Desertification 2000–2002 conference process”, p. 39 (iv); “The communities themselves have very different characteristics, although all have some livestock and live in rural areas. Their major differences encompass development strategies and approaches as well as primary sources of income”, p. 40 (iv, v)	ii, iv, v
Thering (2009) [47]	64	None	“to include multiple agencies and a diversity of community members”, p. 1 (iii); “underserved communities”, p. 2 (iii, iv); “First Nations community”, p. 5 (v)	iii, iv, v
van Assche et al. (2010) [48]	17	None	“the steering of local communities on the basis of theories”, p. 343 (iii); “they become internalized in the shared understanding of a community, which is engaged in democratic debate”, p. 343 (iv); “Flemish urban communities”, p. 351 (v)	iii, iv, v
VanWynsberghe et al. (2003) [49]	17	None	“at the individual household scale and at a community-wide scale”, p. 208 (ii); “Encourage diverse mixed-use communities—complete communities”, p. 208 (iii); “Car-free communities”, p. 209 (iv);	ii, iii, iv
Williams et al. (2008) [50]	109	None	“in the case of community-based organizations”, p. 114 (ii); “issues of relevance to the local community”, p. 113 (iii); “Bringing the community into the research process and dissemination strategies builds accountability of the university as part of the community, solidifying the link between university and community”, p. 117 (iv, v)	ii, iii, iv, v

Of course, more examples could be given, or different interpretations of these uses could be suggested, the latter being a caveat which somewhat proves the point. However, hopefully even this brief review of sustainability science research demonstrates the potential for unreflective variability in the use of the community concept. Luckily for us, Raymond Williams is nice enough not to leave us wallowing in a sea of conceptual confusion, but instead points towards an important distinction in the various senses of community, which can help clarify what we intend to mean when we invoke the concept in practice: “It will be seen that senses (i) to (iii) indicate actual social groups; senses (iv) and (v) a particular quality of relationship” ([33], p. 75, emphasis added). This simple distinction is helpful, and I want to develop it further to make it of more immediate use to sustainability researchers.

Similar distinctions to those made by Williams have been identified by others who have criticized the use of the community concept in research. For example, in her well-known and oft-cited work on the use of the community concept in applied health research, Rachel Jewkes and colleagues remark that: “The manner in which boundaries are marked varies depending on the community in question. They may be tangible, for example national, administrative, racial or linguistic, or they might be mental constructs, “thought of, rather, as existing in the minds of their beholders”” ([51], following [52], p. 12). Goodson and Phillimore ([53], p. 4) also allude to this differentiation when they recognize that “communities are not necessarily bound by spatial proximities or localized interpersonal relationships, but can also exist beyond geographical locations as communities of shared interest or common experience”. This differentiation in meaning of the community concept is reminiscent of the important ontological distinction emphasized by Olsson ([21], p. 43b) between real objects, or “physical phenomena or objects in the strict sense”, and ideal objects, or “not physical objects but relations.” While both have objective being, the former exist, that is, can be touched, counted, etc., while the latter subsist, that is, are maintained in the realm of ideas. To be clear, the implication is not that one type of community is “more real” than the other, but simply to establish that the different community conceptualizations are grounded in varying ontological states. “Social facts”, while immaterial, have objective consequences just as material “empirical facts” do (see [54]). To clarify, Olsson ([21], p. 44b) offers this equestrian example:

The distinction between subsistence and existence [is] that I can groom and ride on the Brunte who exists in my uncle’s barn, but I cannot groom or ride on the Pegasus that subsists in my own mind. And yet it is true to say that both are horses; the main difference is that Brunte exists and Pegasus subsists, just as the gray reindeer I saw last year in Lapland existed and the red-nosed creature that leads Santa Claus subsists.

Replace horses with communities, and we are narrowing in on the point I want to make. These fundamentally distinct conceptualizations rest on mutually exclusive ontological assumptions about the nature of reality in regards to the community in question. This distinction is what underpins questions 1.a and 1.b in the heuristic presented in Section 1.1. This distinction, furthermore, has epistemological and methodological implications in that, if a community is assumed to exist (heuristic question 1.a), then its physical characteristics (e.g., geographical boundedness, demographics, occupation, etc.) could be used as a basis for inclusion or exclusion of community members (by members themselves or non-members, for example, researchers). The focus is thus on knowledge available through sensory experiences in the objective, physical world. However, if the community is assumed to subsist (heuristic question 1.b), then physical characteristics would not be sufficient for identifying community members; rather, inclusion or exclusion should be based on social relations of shared ideas, beliefs, or commitments.

The ontological difference between existing and subsisting communities has further epistemological consequences, as it suggests that a certain conceptualization of an existing community is more easily shared between researchers and community “members”, while subsisting communities are more prone to mismatch between two subjects, for example between the researcher’s conceptualization and that of the community “members” themselves. The epistemological implications amount, in essence, to a challenge of interpersonal communication:

when I talk about a physical object both you and I can point to it and thereby agree that we are talking about the same thing. But when I refer to my intentions, hopes, fears, and other beliefs, then this type of sensual sharing is more difficult. Thus I cannot be certain that my belief statements are identical to yours. ([55], p. 32)

The possibility of mismatch between a physically existing community and the possible subsisting communities within or beyond the boundaries of that physically existing community is, as Walker et al. ([56], p. 2658) point out, well-acknowledged in the academic literature on the problem of community. Critical perspectives have emphasized, for example, that while some subsisting communities may “appear inclusive”, they can in fact also be “deeply exclusionary, marginalizing those who are seen as not fitting”. Walker et al. also remind us that location and community are “not synonymous”, and there may instead be “multiple overlapping communities in a place . . . and extended and constructed communities of interest that transcend physical delineations” (ibid).

It perhaps goes without saying that divergence in perspective and interests between the existing and subsisting communities within a given space can have significant implications for the salience, credibility and legitimacy of the research outcomes in the eyes of different community members. Emphasis given to one conceptualization at any particular time may potentially come at the expense of other ways of conceiving (see Section 4 above). Prioritizing subsisting communities may, for example, amount to promotion of special interest groups at the expense of broader democratic inclusion of legitimate but divergent interests, while prioritizing existing communities could conceal and thus perpetuate inequalities within and between social groups that underlie social injustice and unsustainability. On the other hand, the prioritization of existing communities can provide the foundation for more inclusive, democratic politics by establishing that e.g., anyone within a particular municipality has equal claim to legitimate interests, and equal right to participate, in community decision making, while prioritization of subsisting communities can help legitimize marginalized groups that must struggle for social recognition and equity (see Section 5.1 below for further examples). These are, of course, only examples, and the possibility for any particular existing or subsisting community to promote or hinder sustainability is to be determined in relation to the concrete factors constitutive of the context of study.

At this point, the significance of my suggested heuristic can be restated. While there is a fundamental ontological difference between existing and subsisting communities, researchers do not have to choose between one or the other in terms of conceptualization. On the contrary, the heuristic and its underlying philosophy of science provide a consistent framework and systematic procedure that facilitates the development of *concrete-abstractions* in community conceptualization; that is, an idea of community that combines both existing and subsisting communities into a complex concept that is reflective of a particular context while avoiding the pitfalls of rigid definition. The reflexive process of conceptual development imbedded in the heuristic, furthermore, can support researchers in avoiding problems of mismatch between the concept of a particular community and the community being conceptualized.

### 5.1. Problems with Mismatch between Community as Concept and Community as Object

When reflecting on a research process aimed at addressing desertification in southern Africa, Seely and Moser ([57], p. 45) note that the process of identifying communities “proved to be more complex than originally envisaged.” Difficulties in identifying communities in scientific research can arise for a variety of reasons, such as lack of available resources or adequate prior knowledge, but in general difficulties can arise due to a lack of clarity regarding what a community is and, following this, how to go about identifying an appropriate community in the “real-world”. Furthermore, there should be as little divergence as possible between the researcher’s conceptualization of community and that of community members themselves. This is the primary concern of questions 2.a–c in the above presented heuristic. In this section, I briefly review some examples of why mismatch between community as concept and community as object may be problematic for action-oriented research.

When attempting to identify a relevant community, problems may arise when the conceptualization of fundamental community characteristics (i.e., existence or subsistence) are mismatched with the conceptualizations of purported “community members” (heuristic question 2.c). Take for example the work of Cutts ([58], cited in [51], p. 556). In her work with Afghan refugees, she juxtaposes the existence-oriented definition of community offered by the Oxford Dictionary, “a body of people living in the same locality”, with Suliman’s ([59], p. 407) subsistence-oriented definition, “a group of people with a sense of belonging, with a common perception of collective needs and priorities”. If trying to identify a “community” within a spatially bounded, select cohort of people, in Cutts’ case a particular group of Afghan refugees located in Pakistan, and the first existing conceptualization is adopted, then such a geographically situated group of individuals could be considered as “one community” based on their proximity to each other. However, if the other subsisting conceptualization is adopted, networks of individuals with shared ideas, beliefs, or commitments should be identified within or between such geographically situated groups, which may contradict the spatially bounded nature of the first definition. Another good example might be the diversity of subsisting religious “communities” within the singular existing national “community” of India. These different community conceptualizations can, of course, but by no means always, correspond.

Jewkes and Murcott [51] identify the roots of such potential mismatch in questions of who is conceptualizing the community and for what purpose; in other words, community conceptualized by whom and for whom? A similar distinction has also been emphasized by Walker and Devine-Wright [60] in their review of use of the community concept in renewable energy projects. These concerns underpin questions 2 and 3 in the above presented heuristic; let us consider these questions individually.

#### 5.1.1. Community Conceptualized by Whom?

When considering the implications of a community conceptualized by whom (heuristic questions 2.a and 2.b), Jewkes and Murcott [51] point to the important difference between the meanings of community for “members” and “non-members”. Non-member-based perceptions of community membership may be severely misaligned with member-based perceptions of community membership (heuristic question 2.a). The implications of this mismatch for research are highlighted in an example discussed by Jewkes and Murcott ([51], p. 561) regarding a Health Promotion Officer whose work with refugees was based on an attempt to break down “the black and minority ethnic community” into “communities” based on her perception of similarities. Her attempt to work with a group of refugees under one “Ethiopian community” was met with resistance by the supposed members of this “community”. While, from a non-member perspective, her assumptions about community membership were based on tangible characteristics like race and diet, these did not reflect the “members’” own sense of similarities and differences, which were based more on non-tangible characteristics and shared ideas, such as political orientation, rather than physical appearance or food preferences. Here, the non-member-based construction of an existing community was mismatched with the member-based construction of their own subsisting communities, leading to difficulties in the implementation of the health program.

Evans and Karvonen [61], in their work with urban laboratories, have experienced similar problems with mismatch between “member” and “non-member” understandings of community when their non-member-based, spatially defined criterion conceptualizes existing communities as the potential stakeholders in their urban laboratory experiments. However, the supposed “members” of these existing communities have complained that the collective interests of their respective subsisting communities were not being adequately addressed through these experiments. Evans and Karvonen ([61], pp. 415–416) note that such “projects are simply ‘dropped into’ urban areas rather than integrated with their local contexts” leading to situations where projects focus disproportionately on “the ecological, technical and economic aspects of pilot projects, with little regard for social issues” which in some cases have led to resistance to the urban laboratory projects by affected residents. Rather than adequately

addressing the problems relevant to affected subsisting communities within the geographic space of interest, that is, communities bounded by common ideas, beliefs or commitments, the conceptualization of and engagement with only the existing community may even work, as they themselves note, to 'reinforce the dominance of those in power and to further solidify their agenda' (p. 426).

Such "communities within the community" may even be in tension with each other, so relying on their mutual collaboration or addressing of shared interests as a single existing community may be seriously misconceived and obstruct project success, or even have negative impacts for people and the environment. Such misplaced assumptions about community have been suggested as one of the underlying reasons for the "failure" of many community participation projects for various action-oriented research foci. This includes, for example, inter-group conflicts arising in community-based health interventions ([51], p. 562); barriers to consensus on anticipatory community-based climate change adaptation arising from the incompatibility of group interests [62]; and unequal distribution of costs and benefits between conflicting social groups in community-based renewable energy initiatives [60].

Furthermore, researchers may mistakenly assume a particular community of interest is subsisting through shared ideas, beliefs or commitments, when in reality those social bonds do not exist or are weak, and thus the community of interest may more appropriately be conceptualized as existing (heuristic question 2.c). This could easily be the case in, for example, modern gated housing developments where citizens live in close proximity, and abide by the same rules and regulations regarding aesthetics and property maintenance, but often lack deep social ties between neighbors [63]. In fact, evidence suggests that the presence of what Putnam [64,65] calls "social capital" (e.g., trust, sharing, etc.) is severely uneven in society. The construction of a subsisting community by a non-member often means that "the notion of sharing is assumed rather than being an integral and determining part of the initial construction" ([51], p. 562). Thus, when sustainability researchers mistakenly assume a level of trust, reciprocity or sharing, then the research outcomes which may rely on these mechanisms for successful dissemination and operationalization may never come to fruition, or may be thwarted by the lack of developed social bonds between supposed "community members".

From the other direction, while the problems associated with the construction of community boundaries by non-members are apparent, the construction of community boundaries by self-identified "members" may also be problematic (heuristic question 2.c). One hypothetical situation would be that certain members of an existing community may strategically exclude other members of that community by constructing community boundaries around a privileged subsisting community, which is then presented as "the community" itself (heuristic question 2.b). This could be the case, for example, when a problem has import for an entire neighborhood, but certain residents suggest the problem is more or only relevant for a group of particularly concerned citizens rather than all affected residents, or that their interest group represent "the community" as a whole, thus potentially excluding other residents from participating as members of the existing community. The focus on so-called "frontrunners" as means to identify community members may be particularly conducive to this problem. Wittmayer and Schöpke [66], for example, when setting out to work with the existing community of a pre-negotiated neighborhood, initially employed the "frontrunners" concept as criteria for project participant selection. After attempts to operationalize this approach, they reported that "the 'frontrunner' concept turned out to be rather problematic to operationalize on a community level" because of unaccounted for "intimate relations" and "power structures" that complicated community representation in the group of research participants. As a result, "the research team used a set of general criteria for group composition (e.g., diversity in gender, age, occupation)", which was more conducive to working with the existing community.

The possibility of non-member or member-based community boundaries being either accidentally misaligned or strategically manipulated highlights the need to strive for continuity between concept and object, or the assumptions about how the community is understood, and how the community is actually understood by its members (heuristic question 2.c). When researchers and community

“members” invoke the community idea, are they conceptualizing the same thing, and if so, on what grounds can they share their understanding of what constitutes the community object? Existence relies on physical, and thus objective characteristics, while subsistence relies on relational, and thus (inter-) subjective characteristics. The former is more easily shared, and thus more easily agreed upon than the latter, though the latter is no less significant for understanding and thus changing society (see Section 5 above). This sharing of knowledge and understanding is, of course, not always straightforward, and sometimes tradeoffs will have to be made between working with the relatively increased clarity of an existing community and the ambiguity inherent in the many possible subsisting “communities within the community”. This raises an important question: for whom are community boundaries being conceptualized?

### 5.1.2. Communities Conceptualized for Whom?

When considering the conceptualization of community for whom, Jewkes and Murcott ([51], p. 561) point out the possibility that community boundaries “can be negotiated and moved by agents working with them”, such as researchers, or by the members themselves based on their “perception of the [researcher], what she has to offer and how they might benefit from her intervention.” In this way, the construction of the community by members or non-members is intertwined with the proposed or perceived purpose and benefits of the research collaboration itself. This concern underpins questions 3.a and 3.b in the above-presented heuristic, and I briefly elaborate on some implications of these motivational questions below.

Some action-oriented researchers are explicit about whom the collaborative research process is meant to serve and, in this way, whom the community concept is constructed for. Rosendahl et al. [67], for example, argue that “taking sides” in action-oriented research is essential for maintaining what she calls “strong objectivity” in research processes and outcomes; that is, maintaining objectivity through acknowledgement of the importance of context and the explication of situational biases. In their case of what they term “pro-poor governance”, or the use of science, policy and practice to improve the life-conditions of socially underprivileged and economically poor, this required that subsisting communities, which may be in tension, be identified through their shared ideas, beliefs or commitments. This approach to community construction is meant to expose conflicting interests between subsisting communities (heuristic question 3.a), which then allows the researcher to side with certain communities that advance the pro-poor agenda against those that are counter to it. The subsisting community concept here is essential for remaining explicit about normative positioning of the researcher when conflicting interests and severely uneven power relations are involved.

This is in contrast to more consensus-oriented approaches, which often assume that members of an existing community “can indeed effectively collaborate, at best on equal footing, although stakeholders may have different values, and, more importantly, may have different influences over how the [research] process is conducted” ([67], p. 7). In activist-oriented work such as that of Conde’s [68], what she calls “activism mobilizing science”, the process of local community activists building collaborative relationships with scientists and combining local and scientific knowledge to make political claims, it was strategic for local activists to conceptualize community as existing when dealing with the effects of local environmentally destructive activities, in this case mining contamination. This is because, rather than being a community that subsists on an idea, belief or commitment, which may lack legitimacy in the eyes of state bureaucrats, emphasis of the physical existence of the community would better support local residents’ claims to fairness and justice (heuristic question 3.b). That is, they can build their arguments based on the physical proximity and exposure to e.g., environmental toxins or other hazards, and thus appeal to the legal obligations of public authorities to remedy such conditions rather than acting as a subsisting special interest group.

While more examples could be given, the significance of questions like “community conceptualized for whom or by whom” is a contextual question, to be determined by the intentions of the researcher and contingencies of empirical context. The usefulness of the proposed heuristic is in helping



researchers be clear and rational about how methodology and motivation affects the way community is conceptualized in a given research context, and to support their reporting of the process of conceptual development as transparently as possible.

## 6. Conclusions

In this article, I have made the case for a systematic and philosophically grounded approach to community conceptualization in action-oriented sustainability research. My reasoning has been grounded in the critical realist perspective that scientific conceptualization has practical implications, and that reflexive and rational development of scientific concepts in dialogue with a concrete research context is more likely to support salient and effective research outcomes. I proposed and elaborated a conceptual heuristic which asks researchers to clarify and systematically develop their conceptualization of community in terms of basic ontological, epistemological, methodological and motivational distinctions that are then reflexively refined in dialogue with the research context. This heuristic helps in overcoming problems of conceptual ambiguity that have become well-known in many social science fields, and which have remained persistent in the relatively novel field of sustainability science.

Throughout the article, I have argued specifically for the relevance of the proposed heuristic to sustainability science. However, because the problem addressed by the heuristic is the quite general issue of concept-object correspondence, the heuristic can also be helpful in promoting consistency (in practice and reporting) within and across other research fields when it comes to the process of conceptualizing participant communities for research projects. It can help, furthermore, in avoiding mismatches between the way researchers conceptualize community and the way community members themselves do. The goal is not so much the perfect concept, but better or more adequate concepts in action-oriented research that are fit for context.

**Author Contributions:** C.S.B. conceived and wrote the paper.

**Funding:** This work was supported by Svenska Forskningsrådet Formas: [Grant Number 259-2008-1718].

**Acknowledgments:** This work was supported by Svenska Forskningsrådet Formas: [Grant Number 259-2008-1718]. Thank you to Barry Ness and Anne Jerneck for helpful comments on previous drafts of this paper. I also thank three anonymous reviewers for their helpful comments.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Brinkmann, S. Doing Without Data. *Qual. Inq.* **2014**, *20*, 1–6. [[CrossRef](#)]
2. Boda, C.S. The Beach Beneath the Road: Sustainable Coastal Development beyond Governance and Economics. Ph.D. Thesis, Lund University, Lund, Sweden, 2018.
3. Kates, R.W. What kind of a science is sustainability science? *Proc. Natl. Acad. Sci. USA* **2011**, *108*, 19449–19450. [[CrossRef](#)] [[PubMed](#)]
4. Kates, R.W.; Clark, W.C.; Corell, R.; Hall, J.M.; Jaeger, C.C.; Lowe, I.; Mccarthy, J.J.; Schellnhuber, H.J.; Bolin, B.; Dickson, N.M.; et al. Sustainability Science. *Science* **2001**, *292*, 641–642. [[CrossRef](#)] [[PubMed](#)]
5. Clark, W.C.; Dickson, N.M. Sustainability science: The emerging research program. *Proc. Natl. Acad. Sci. USA* **2003**, *100*, 8059–8061. [[CrossRef](#)] [[PubMed](#)]
6. Wiek, A.; Ness, B.; Schweizer-Ries, P.; Brand, F.S.; Farioli, F. From complex systems analysis to transformational change: A comparative appraisal of sustainability science projects. *Sustain. Sci.* **2012**, *7*, 5–24. [[CrossRef](#)]
7. Jerneck, A.; Olsson, L. Breaking out of Sustainability Impasses: How to Apply Frame Analysis, Reframing and Transition Theory to Global Health Challenges. *Environ. Innov. Soc. Transit.* **2011**, *1*, 255–271. [[CrossRef](#)]
8. Marx, K. *Capital: A Critique of Political Economy*; Penguin Classics: London, UK, 1990; Volume I.
9. Lakatos, I. *The Methodology of Scientific Research Programmes*; Cambridge University Press: Cambridge, UK, 1978; Volume 1.
10. Alvesson, M.; Sköldberg, K. *Reflexive Methodology: New Vistas for Qualitative Research*; Sage Publications: Thousand Oaks, CA, USA, 2009.

11. Wiek, A.; Withycombe, L.; Redman, C.L. Key competencies in sustainability: A reference framework for academic program development. *Sustain. Sci.* **2011**, *6*, 203–218. [[CrossRef](#)]
12. Abbott, A. *Methods of Discovery: Heuristics for the Social Sciences*; W.W. Norton and Company: New York, NY, USA, 2004.
13. Resnick, S.; Wolff, R. *New Departures in Marxian Theory*; Routledge: Abingdon, UK, 2006.
14. Bhaskar, R. *A Realist Theory of Science*; Routledge: Abingdon, UK, 2013.
15. Bhaskar, R. *Contexts of Interdisciplinarity: Interdisciplinarity and Climate Change*; Routledge: Abingdon, UK, 2010.
16. Sayer, A. *Realism and Social Science*; SAGE Publications Ltd.: London, UK, 2000.
17. Isaksen, K.R. Reclaiming Rational Theory Choice as Central: A Critique of Methodological Applications of Critical Realism. *J. Crit. Réalis.* **2016**, *1*, 1–18.
18. Solomon, R.C. *The Spirit of Hegel*; Oxford University Press: Oxford, UK, 1985.
19. Hegel, G.W.F. *Phenomenology of Spirit*; Oxford University Press: Oxford, UK, 1977.
20. Clark, E. Towards a Copenhagen interpretation of gentrification. *Urban Stud.* **1994**, *31*, 1033–1042. [[CrossRef](#)]
21. Olsson, G. *Birds in Egg/Eggs in Bird London*; Pion Ltd.: Thousand Oaks, CA, USA, 1980.
22. Richards, I.A. *Complementarities: Uncollected Essays*; Manchester Carcanet: Manchester, UK, 1976.
23. Clark, E. On blindness, centrepieces and complementarity in gentrification theory. *Trans. Inst. Br. Geogr.* **1992**, *17*, 358–362. [[CrossRef](#)]
24. Boda, C.S. Applying frame analysis and reframing for integrated conservation and development: Example from Mumbai. *Dev. Pract.* **2017**, *27*, 528–543. [[CrossRef](#)]
25. Calvino, I. *Six Memos for the Next Millenium, 1st ed*; Harvard University Press: Cambridge, MA, USA, 1988.
26. Cash, D.W.; Clark, W.C.; Alcock, F.; Dickson, N.M.; Eckley, N.; Guston, D.H.; Jäger, J.; Mitchell, R.B. Knowledge systems for sustainable development. *Proc. Natl. Acad. Sci. USA* **2003**, *100*, 8086–8091. [[CrossRef](#)] [[PubMed](#)]
27. Brandt, P.; Ernst, A.; Gralla, F.; Luederitz, C.; Lang, D.J.; Newig, J.; Reinert, F.; Abson, D.J.; Von Wehrden, H. A review of transdisciplinary research in sustainability science. *Ecol. Econ.* **2013**, *92*, 1–15. [[CrossRef](#)]
28. Ling, C.; Hanna, K.; Dale, A. A template for integrated community sustainability planning. *Environ. Manag.* **2009**, *44*, 228–242. [[CrossRef](#)] [[PubMed](#)]
29. Seyfang, G.; Haxeltine, A. Growing grassroots innovations: Exploring the role of community-based initiatives in governing sustainable energy transitions. *Environ. Plan. C Gov. Policy* **2012**, *30*, 381–400. [[CrossRef](#)]
30. Seyfang, G. Community action for sustainable housing: Building a low-carbon future. *Energy Policy* **2010**, *38*, 7624–7633. [[CrossRef](#)]
31. Agyeman, J. *Sustainable Communities and the Challenge of Environmental Justice*; New York University Press: New York, NY, USA, 2005.
32. Oettlé, N.; Arendse, A.; Koelle, B.; Van Der Poll, A. Community exchange and training in the Suid Bokkeveld: A UNCCD pilot project to enhance livelihoods and natural resource management. *Environ. Monit. Assess.* **2004**, *99*, 115–125. [[CrossRef](#)] [[PubMed](#)]
33. Williams, R. *Keywords: A Vocabulary of Culture and Society*; Oxford University Press: Oxford, UK, 1983.
34. Clark, E.; Clark, T.L. Isolating connections—connecting isolations. *Geogr. Ann. Ser. B-Hum. Geogr.* **2009**, *91*, 311–323. [[CrossRef](#)]
35. Bettencourt, L.M.; Kaur, J. Evolution and structure of sustainability science. *Proc. Natl. Acad. Sci. USA* **2011**, *108*, 19540–19545. [[CrossRef](#)] [[PubMed](#)]
36. Hillery, G.A. Definitions of community: Areas of agreement. *Rural Sociol.* **1955**, *20*, 111–123.
37. Ahamed, T.; Khan, M.; Takigawa, T.; Koike, M.; Tasnim, F.; Zaman, J. Resource Management for Sustainable Development: A Community-And Gis-Based Approach. *Environ. Dev. Sustain.* **2009**, *11*, 933–954. [[CrossRef](#)]
38. Armitage, D.R. Community-based narwhal management in Nunavut, Canada: Change, uncertainty, and adaptation. *Soc. Nat. Resour.* **2005**, *18*, 715–731. [[CrossRef](#)]
39. Barnaud, C.; Bousquet, F.; Trebuil, G. Multi-Agent Simulations to Explore Rules for Rural Credit in a Highland Farming Community of Northern Thailand. *Ecol. Econ.* **2008**, *66*, 615–627. [[CrossRef](#)]
40. Bethune, S.; Schachtschneider, K. How Community Action, Science and Common Sense Can Work Together to Develop an Alternative Way to Combat Desertification. *Environ. Monit. Assess.* **2004**, *99*, 161–168. [[CrossRef](#)] [[PubMed](#)]
41. Edwards, S.; Heinrich, M. Redressing Cultural Erosion and Ecological Decline in a Far North Queensland Aboriginal Community (Australia): The Aurukun Ethnobiology Database Project. *Environ. Dev. Sustain.* **2006**, *8*, 569–583. [[CrossRef](#)]

42. Holden, M. Community Interests and Indicator System Success. *Soc. Indic. Res.* **2006**, *92*, 429–448. [[CrossRef](#)]
43. Johnson, H.; Wilson, G. Institutional Sustainability: ‘Community’ and Waste Management in Zimbabwe. *Futures* **2000**, *32*, 301–316. [[CrossRef](#)]
44. Macharia, P.N. Community Based Interventions as a Strategy to Combat Desertification in the Arid and Semi-Arid Rangelands of Kajiado District, Kenya. *Environ. Monit. Assess.* **2004**, *99*, 141–147. [[CrossRef](#)] [[PubMed](#)]
45. Meppem, T. The Discursive Community: Evolving Institutional Structures for Planning Sustainability. *Ecol. Econ.* **2000**, *34*, 47–61. [[CrossRef](#)]
46. Seely, M.; Moser, P. Connecting Community Action and Science to Combat Desertification: Evaluation of a Process. *Environ. Monit. Assess.* **2004**, *99*, 33–55. [[CrossRef](#)] [[PubMed](#)]
47. Thering, S. Methodology for Evaluating Transdisciplinary Collaborations with Diversity in Mind: An Example from the Green Community Development in Indian Country Initiative. *J. Ext.* **2009**, *47*, 1–10.
48. Van Assche, J.; Block, T.; Reynaert, H. Can Community Indicators Live Up to Their Expectations? The Case of the Flemish City Monitor for Livable and Sustainable Urban Development. *Appl. Res. Qual. Life* **2010**, *5*, 341–352. [[CrossRef](#)]
49. Vanwynsberghe, R.; Moore, J.; Tansey, J.; Carmichael, J. Towards Community Engagement: Six Steps to Expert Learning For Future Scenario Development. *Futures* **2003**, *35*, 203–219. [[CrossRef](#)]
50. Williams, A.; Holden, B.; Krebs, P.; Muhajarine, N.; Waygood, K.; Randall, J.; Spence, C. Knowledge Translation Strategies in a Community–University Partnership: Examining Local Quality of Life (QoL). *Soc. Indic. Res.* **2008**, *85*, 111–125. [[CrossRef](#)]
51. Jewkes, R.; Murcott, A. Meanings of community. *Soc. Sci. Med.* **1996**, *43*, 555–563. [[CrossRef](#)]
52. Cohen, A.P. *Symbolic Construction of Community*; Routledge: Abingdon, UK, 2013.
53. Goodson, L.; Phillimore, J. Community research: Opportunities and challenges. In *Community Research for Participation: From Theory to Method*; The Policy Press: Bristol, UK, 2012; pp. 3–20.
54. Searle, J.R. Social ontology: Some basic principles. *Anthropol. Theory* **2006**, *6*, 12–29. [[CrossRef](#)]
55. Olsson, G. *Lines of Power—Limits of Language*; University of Minnesota Press: Minneapolis, MN, USA, 1991.
56. Walker, G.; Devine-Wright, P.; Hunter, S.; High, H.; Evans, B. Trust and community: Exploring the meanings, contexts and dynamics of community renewable energy. *Energy Policy* **2010**, *38*, 2655–2663. [[CrossRef](#)]
57. Seely, M.; Moser, P. Connecting community action and science to combat desertification: Evaluation of a process. *Environ. Monit. Assess.* **2004**, *99*, 33–55. [[CrossRef](#)] [[PubMed](#)]
58. Cutts, F. Community participation in Afghan refugee camps in Pakistan. *J. Trop. Med. Hyg.* **1985**, *88*, 407–413. [[PubMed](#)]
59. Suliman, A. Effective refugee health depends on community participation. *Carnets de L'enfance* **1983**, *2*, 2.
60. Walker, G.; Devine-Wright, P. Community renewable energy: What should it mean? *Energy Policy* **2008**, *36*, 497–500. [[CrossRef](#)]
61. Evans, J.; Karvonen, A. ‘Give Me a Laboratory and I Will Lower Your Carbon Footprint!’—Urban Laboratories and the Governance of Low-Carbon Futures. *Int. J. Urban Reg. Res.* **2014**, *38*, 413–430. [[CrossRef](#)]
62. Few, R.; Brown, K.; Tompkins, E.L. Public participation and climate change adaptation: Avoiding the illusion of inclusion. *Clim. Policy* **2007**, *7*, 46–59. [[CrossRef](#)]
63. Cosgrove, D. Modernity, community and the landscape idea. *J. Mat. Cult.* **2006**, *11*, 49–66. [[CrossRef](#)]
64. Putnam, R.D. *Bowling Alone: The Collapse and Revival of American Community*; Simon and Schuster: New York, NY, USA, 2000.
65. Sander, T.H.; Putnam, R.D. Still bowling alone? The post-9/11 split. *J. Democr.* **2010**, *21*, 9–16. [[CrossRef](#)]
66. Wittmayer, J.M.; Schöpke, N. Action, research and participation: Roles of researchers in sustainability transitions. *Sustain. Sci.* **2014**, *9*, 483–496. [[CrossRef](#)]
67. Rosendahl, J.; Zanella, M.A.; Rist, S.; Weigelt, J. Scientists’ situated knowledge: Strong objectivity in transdisciplinarity. *Futures* **2015**, *65*, 17–27. [[CrossRef](#)]
68. Conde, M. Activism mobilising science. *Ecol. Econ.* **2014**, *105*, 67–77. [[CrossRef](#)]

