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Influence of Narratives of Vision and Identity on Collective Behavior Change

Ilan Chabay ^{1,*}, Larissa Koch ², Grit Martinez ³ and Geeske Scholz ²

¹ Institute for Advanced Sustainability Studies, 14467 Potsdam, Germany

² Institute for Environmental Systems Research, University of Osnabrück, 49076 Osnabrück, Germany; larissa.koch@uni-osnabrueck.de (L.K.); geeske.scholz@uni-osnabrueck.de (G.S.)

³ Ecologic Institute, 10717 Berlin, Germany; grit.martinez@ecologic.eu

* Correspondence: ilan.chabay@iass-potsdam.de; Tel.: +49-171-653-8381

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Abstract: Profound societal transformations are needed to move society from unsustainability to greater sustainability under continually changing social and environmental conditions. A key challenge is to understand the influences on and the dynamics of collective behavior change toward sustainability. In this paper we describe our approach to (1) understanding how affective narrative expressions influence transitions to more sustainable collective behaviors and (2) how that understanding, as well as the potential for using narrative expressions in modeling of social movements, can become a basis for improving community responses to change in a rapidly changing world. Our focus is on narratives that express visions of desirable futures and narratives that reflect individual and social identities, on the cultures and contexts in which they are embedded, exchanged, and modified, and through which they influence the dynamics of social movements toward sustainability. Using an analytical categorization of narrative expressions of case studies in the Caribbean, Micronesia, and Africa, we describe insights derived from the narratives of vision and social identities in diverse communities. Finally, we suggest that narrative expressions may provide a basis for agent-based modeling to expand thinking about potential development pathways of social movements for sustainable futures.

Keywords: affective narrative expressions; narratives of vision and identity; dynamics of social movements; agent-based models; sustainable development goals (UN SDGs); knowledge; learning; and societal change alliance (KLASICA)

1. Introduction

Ensuring the well-being of societies from the present into the future over many generations requires that humanity finds, chooses, and moves on pathways toward sustainable futures in ways that are both globally coherent and locally appropriate to culture and context. The biological, ecological, geological, and physical resource limitations of Earth have been articulated in the planetary boundaries argument [1,2], while a complex set of global aspirations and targets for policies and actions that would allow for just, equitable, and sustainable futures for all within the planetary boundaries were framed in the UN “2030 agenda for sustainable development” (the sustainable development goals or SDGs) [3]. The rapid and accelerating rate of change of socioeconomic and Earth system trends [4] points to the urgency with which society must respond if the patterns of change are to be altered and moderated to move to more sustainable pathways.

These calls, along with the accumulated evidence supporting them, highlight the critical and urgent need for profound societal transformations to move society from its current patterns of unsustainability to emerging patterns of greater sustainability in the midst of continually changing

social and environmental conditions. Thus, a key challenge is understanding the influences on and the dynamics of collective behavior change, whether as accumulated incremental shifts or radical societal transformations, to sustainable practices as they have occurred and anticipating how they might occur in different contexts and cultures of the world. The aim of this paper is to present an approach for developing a greater understanding of societal dynamics in diverse communities in regard to sustainability through narrative expressions of vision and identity. The approach described here is intended to (1) better understand how characteristics of affective narrative expressions influence transitions to more sustainable collective behaviors and (2) consider how that understanding, as well as the potential for using affective narrative expressions in modeling of social movements, can become a basis for improving community responses to rapid and profound change at multiple spatial scales.

In this paper, our focus is on how narratives expressed in various forms that resonate strongly in the culture and context where change is desired (and often contested) can be used as a window into the dynamics of societal movements seeking sustainable futures. We begin with the reasons for and significance of our attention to narratives and, particularly, their affective expressions. The narratives of particular interest are those expressing visions of desirable futures in terms relevant for the community and those which reflect individual and social identities [5–7]. Narratives do not exist in a social vacuum, but are embedded, exchanged, and modified by the contexts and communities in which they exist and through which they may influence the dynamics of social movements toward sustainability.

To exemplify these ideas, we draw upon three case studies using a basic analytical categorization of narrative expressions that was developed by the Knowledge, Learning, and Societal Change Alliance (KLASICA (<https://www.iass-potsdam.de/en/research/knowledge-learning-and-societal-change-alliance-klasica>)). The subsequent section describes how insights can be derived from qualitative analysis of narratives of vision and of social identities in communities seeking more sustainable outcomes. In the conclusion, we suggest how the narratives may provide a basis for modeling of social dynamics that can be used to enhance creative thinking about the potential development pathways and pitfalls for nascent or established social movements toward sustainable futures.

2. Concepts and Approach

2.1. Narrative Expressions of Vision and Identity

Narratives have been described in a variety of ways, for example, as a story structured according to different sequential happenings, combined as a plot that portrays and connects certain climax and turning points with symbolic expressions and archetypal characters [8,9]. Narratives circulate in societies and portray a sequence of events and characters that act in and on a scene or environment, which might include other characters, groups, and animate or inanimate objects. Ever since people have lived together, interacting with their environment, they have constructed stories and with them, purposeful narratives in verbal, musical, and figural forms. As *homo narrans* [10,11], humans assign and reproduce meaning and significance from the constant flow of perceptions and experiences to which they are exposed. Through storytelling, humans make sense of their surrounding world and reinforce their own culture and coherence as a community [12]. Humans also use their past and present experiences to shape an imagined future.

In expressing imagined futures, narratives of vision are calls to action to achieve the aspirations for the future of the community, thereby providing a direction, goal, and incentive for joining in the community response to the vision. The narrative, in general, is not a plan or roadmap to be executed to reach the imagined future, but rather a rationale and call for change. We, therefore, more specifically conceptualize narrative content as being embedded within a recognizable culture and context and containing either fictional or non-fictional accounts, which often serve to communicate visions looking toward the future or to reflect on individual or community experiences and identity. Through this, they help to establish and maintain culture, as is evident in the wide range of sources and histories of myths and epic tales.

People use narratives not only to reflect society or to imagine a future, but also to intervene in the world and try to actively shape reality as they know it. The visions and reflections may, thus, also act to catalyze change [13,14] in regard to sustainability through narratives for actions and narratives that relate stories of actions [15]. People sometimes tell particular stories to create a discursive fundament and often an emotional connection on which their reasoning, action, and arguments for or against something can be built. In policy and decision-making contexts for example, policymakers may intentionally design stories [16–19] to justify and support their policy choices. In this way, narratives can be instrumental mechanisms with performative elements to persuade or mobilize other actors to become active. In addition to narratives of vision as an emergent phenomenon that developed through collective interactions of co-creation and learning, individuals or communities can also purposefully design specific narratives as a means to achieve their ends.

Whether emergent or purposefully designed, eventually, it comes down to how actors, actions, and events are emplotted in the narratives—in other words how they are logically connected—and what moral is expressed or implied. The process of emplotment refers to the understanding and uptake of narrative structures into one's own communicative practices or, in other words, how the narrative expression is scaffolded on the receiver's cognitive and affective structure and makes it possible to shift or transform prior ideas of knowledge and norms, as well as practices [9]. Emplotment is comparable to what Pahl-Wostl [20,21] describes as double-loop learning or reframing the existing frame of reference, that is, a reflection on goals, problem framings, and assumptions of how goals can be achieved. Situational events and constellations are incorporated into an existing narrative pattern, thus opening up opportunities for reinterpretations (i.e., allowing for collective learning processes) [22]. Emplotment is thereby completely open to which narrative pattern is used and how complex the narrative is, as long as it makes sense to the audience. Sommer [23] for instance states that narratives, which constitute social identities, follow rather antagonistic plot structures separating the own from the foreign and revalue or devalue it. On the other hand, polarization into "us versus them" does not necessarily have to be the case in every narrative. There are examples of narratives that do not function through the separation from the other, but through the creation of an inclusive sense of togetherness [23].

However, it is not always a narrative as an extended discourse that circulates and has influence in a community. It often takes the form of an abbreviated, but strongly affective narrative expression, such as slogan, song, dance, or image, which is memorable and readily communicable across the community and beyond. Whereas narratives comprise an extended and more complete sequence of events with all the important elements thereof, a concise affective narrative expression (CANE) consists of a characteristic piece extracted from the complete narrative as a memorable, easily communicable, and affective verbal or visual representation of the core message. For example, the repeated phrase in Martin Luther King's speech "I have a dream", delivered in 1963 to civil rights marchers in Washington D.C. [24], became a rallying cry for the civil rights movement, even when the entire powerful speech was not heard or remembered. Visual art, sculpture, dance, and music also may evoke the central message of extended narratives or they may be an affective narrative expression in their own right. A nonverbal example from the arts is Picasso's 1937 mural "Guernica" that had a significant widespread impact on people who saw in it a powerful, disturbing representation of a new and terrible form of war [25,26] or the intense lobbying effort to pass laws, successfully in the two US states, Kansas and Alabama [27], declaring that Agenda 21 (the voluntary sustainability guidelines passed in the Rio +20 conference in 2012) [28] was illegal in those states. The campaign against Agenda 21 evoked American exceptionalism, rather than a response to sustainability per se. Another quite striking comparison can be made between two CANEs used by two US presidents. The phrase "Yes we can" has become a courageous slogan around the world for Barack Obama's commitment to strengthen democratic values when he held his inaugural presidential speech "Hope of a better day", in 2008. Obama used the sense-making and emotional power of narration to exemplify abstract democratic values and, at the same time, the unity of American society across ethnic borders. He succeeded in

producing a new narrative from the story of a 106 year old black woman that equally appealed to and motivated all sections of the American population without even differentiating from the “other”, but stressing inclusiveness so as other nations across the globe understood the message as an offer for cross-border cooperation [23]. In contrast, President Donald Trump’s “America First” strategy (for example, President Donald Trump’s speech on the National Security Strategy on 18 December 2017) and presidential campaign slogan “Make America Great Again”, which also traveled around the world as a condensed expression for what he preaches causing astounding sensation, plays with narratives of high antagonistic structures that completely shut down transcultural and cross-border cooperation and concentrates on national egocentricity instead.

We have introduced the term “CANEs” because of two advantages of recognizing these distillations or shorthand for more detailed and extended narrative discourses. First, the CANE represents the narrative pared down to make transmission easy and reinforce existing perceptions, rather than being a form of argumentation. Hence, CANEs are evidence of ideas being promoted by individuals or groups to enlist and retain people to the intent or vision of the group. These CANEs are received or rejected by individuals in a community depending on whether the CANE has certain characteristics (see Section 2.4 for the analytical categories that we used in this paper) and to what degree those characteristics match the receptivity of the individual. Second, it often proves to be difficult, if not impossible, to reconstruct the complete narrative in some case studies in which there exist different versions of it in circulation in the community. It is, therefore, often easier to describe the case by condensed versions of the narrative and then to exemplify its salience in specific instances.

We are particularly interested in the following two broad types of narratives: one that is anchored in “visions of a more desirable and more sustainable imaginary future state” of some or all of the society [29]. The second type consists of narratives that reflect “individual and social identities”, which influence motivation of individuals to act with the intention of realizing the imagined future (or to oppose it) if it does not interfere with or violate the social identities of the individual [30].

Before we describe our perspective on the relationship between narratives and identities, we would like to briefly address the role of context and culture.

2.2. Context and Culture

We regard context and culture as especially important in the localized development and reinforcement of both extended narratives and CANEs in communities. The social environment is the context in which people form and reform malleable narratives of their personal and social identities. Their social identities are derived from and are deeply embedded in social relationships. With these identities and the recounting of them to themselves and others, they demarcate themselves from or relate to others [31], including people, other species, and the environment. In terms of social identity, the capability of a narrative to elicit empathy, by fostering identification with the characters and learning from them to make sense of complex signals, is crucial. According to the Merriam Webster dictionary, context is “the part of a discourse that surrounds a word or a passage and can throw light on its meaning” as well as the “interrelated conditions in which something exists or occurs”. Related to narratives and meaning making, we use context in the sense of “lifeworld”, as Jürgen Habermas called the shared understandings and values that are established in a societal group that allows interaction and communication [32]. Culture is paramount for the development of the “lifeworld” of a given society, group or an individual. Culture, in the form of patterns (e.g., beliefs and values, behaviors, materials, and social organization), as well as ideational systems [33–35] provide an important basis for the enunciation, type of message, and values expressed amongst members of a group and through the narratives they share. Enriched with knowledge drawn from education, language, literature, customs, politics, law, and others, and through shared interests, meaning making of a narrative amongst a social group occurs. Biases and constraints, such as gender issues, type of resources and degree of resource access, and political conditions can affect the acceptance of a narrative. Hence, understanding the

context in which a given narrative has been evoked and spread is necessary for understanding the narrative, as well as its potential for transferability and impact.

2.3. Narrative and Identity

From the above and the three case studies described in this paper, we suggest that narratives fulfill three crucial functions. We illustrate these in the following section on case studies:

1. They structure, prioritize, and ascribe meaning to experiences and beliefs. Narratives are effective and efficient in communicating core norms and values, thereby tending to reinforce or question the structure and coherence of the society.
2. They provide orientation for facing uncertain and unfamiliar contexts through their general structure and, by example, from the actions of characters. The normatively right or safe course of action cannot always be anticipated in new or unfamiliar circumstances, yet making critical decisions very quickly may be essential. Narratives can provide orientation in situations where people need guidance, because often norms and expectations in specific contexts and cultures can be inferred from the narrative. This function is particularly significant in regard to the current trajectories of societies moving into unprecedented conditions and continual change.
3. They facilitate sense making and decision making in highly complex social–ecological systems by representing core values and ideas with a reduced set of dimensions (degrees of freedom) of complexity in comparison to the vastly more comprehensive actual context [36]. By telling a tale in which only a few specific properties of characters and their environment are emphasized, thus becoming more memorable or iconic, the narrative focuses on a limited set of dimensions of the complex entirety. This allows processing of ideas and information within the stringent limitations of humans' short-term memory and better enables dealing with ambiguity and uncertainty. However, decision making is not only a cognitive process of weighing epistemological content. Social and political allegiances and affective elements enter strongly, sometimes completely overwhelming cognitive content processing. Therefore, the affective value and impact of narratives and context must also be considered to understand the decision-making processes.

We regard these three functions as important when we want to bring narratives and identities together. Identity can be viewed from various angles, including: personal identity, situated identity, and collective identity [37]. In this paper, we assume that individuals have identities as an individual with a particular history of experiences and potentially several social identities that are based on the individual's relationship to one or more social, political, religious, professional, or recreational communities. The identity or identities are embedded in the individual's perceptions of his or her actual membership in or imagined relationship to a group. "A collective identity may have been first constructed by outsiders, (. . .) who may still enforce it, but it depends on some acceptance by those to whom it is applied. Collective identities are expressed in cultural materials—names, narratives, symbols, verbal styles, rituals, clothing, and so on—but not all cultural materials express collective identities. Collective identity does not imply the rational calculus for evaluating choices that 'interest' does. And unlike ideology, collective identity carries with it positive feelings for other members of the group" [38]. Each individual and each group, and community, is embedded in one (or across several) cultural environment(s) and operates in a physical, biological, political, and historical context. Collective identity pertains to making sense of one's relationship to others in the community and also potentially some elements of the environment, thus, building a feeling of belonging in the network and environment.

Communities and individuals refer to and express their narrative(s) of social identity sometimes explicitly and at other times or contexts, in implicit forms. As mentioned earlier, inclusion or "othering" as affirmation and acceptance as one of "our own" or denigration and rejection of individuals or groups as "others" may be evident directly in public statements or may be implicit from context (e.g., Trump's

“massive invasion of migrants” coming from central America to the US-Mexican border) or inferred from “coded” phrases or images, which are indeed CANEs.

Margaret Somers [30] articulated ideas about narratives that offer insight into the significance of identity in social contexts, specifically in her assertion that “Whereas an interest approach assumes people act on the basis of rational means-ends preferences or by internalizing a set of values, a narrative identity approach assumes people act in particular ways because not to do so would fundamentally violate their sense of being at that particular time and place.” ([30], p. 624).

In this regard, it is helpful to bring in Wenger’s community of practice (CoP) approach [39]. In CoPs, as a special kind of group of people, individuals share practices and concerns to establish meaningful social bonds to learn from and with each other. This enables actors to create, maintain, or change their self-identity. In general, the CoP would define its social identity via the practice, for example, pupils regularly meet after school to collect garbage as a contribution to sustainability. Through frequent interactions, the community exhibits a particular influence on its individual members’ identities. On the one hand, the collective wants to give as much freedom, autonomy, and agency to the individual member as possible in order for members to develop their own potential and to fulfil certain roles. On the other hand, the collective wants to treat members equally and decrease social complexity by minimizing their distinctiveness [31]. Hence, the other community members encourage the individual to contribute to the development of a shared repertoire of resources consisting of experiences, stories, tools, etc. This leads to increased levels of diversity and helps in times when another member seeks experience or knowledge on an issue and makes them less dependent on externals. At the same time, too much diversity in narratives and identities decreases the opportunity for coordination and combined collective action. Therefore, this search for identity induces tension or ambivalence between the individual and collective identity creating a dynamic source of energy that influences the various stages of narrative reproduction.

Through creating and expressing narratives about themselves in relation to their experiences and social environment, individuals create and recreate their own social identities. An examination through writings and interviews of individual community members can provide evidence of social identities in play and improve our understanding of the processes at work in forging a collective identity and how that plays a role in initiating or sustaining collective action. Narratives may help individuals in a network find balance between their own idiosyncratic vision and identity and the social identity of the network. This may happen when a narrative character is seen as a role model capable of successfully negotiating the balance between individual and community.

2.4. Approach

The purpose of the second biannual KLASICA symposium in Taipei in September 2018, was to collect and characterize narrative expressions of vision and identity from communities seeking ways to become more sustainable with regard to the challenges pertinent to that community. Thirty-five participants from twelve countries were engaged throughout the intense three day workshop (not the traditional symposium of sequential or parallel presentations) held at the Risk Society and Policy Research Centre (RSPRC) at National Taiwan University. The participants contributed more than twenty case studies from communities in Asia, Micronesia, India, West Indies, Africa, the US, and Europe.

A set of five categories was proposed [40] as a starting point for qualitative analysis of the narrative expressions identified in a subset of twelve of the contributed case studies. The participants met repeatedly in six groups of about six people each to examine the fit between the categories and the narrative expressions. Each group considered at least two cases and each case was discussed independently by at least two groups. The reports from each group were presented and discussed in plenary. Through this process, participants reached agreement on the usefulness of the five categories listed below. It is important to note that this is only an initial application of these categories, which should remain open to further testing and change or refinement.

In Section 3 the authors chose three case studies that serve to illustrate the applicability of the five analytical categories, which are:

1. Associative plausibility: Do the recipients of narrative have information or experiences that are sufficiently related to the argument of the narrative to lend plausibility to the narrative in their eyes?
2. Framing: Does the narrative reflect significant aspect(s) of the context and connections to group or network identity that give it relevance for the recipients?
3. Normative affirmation: Is the narrative consistent with existing norms of the target group?
4. Emotional identification: Does the narrative resonate with or stimulate emotional associations that lead to positive emotional responses to the group's intentions?
5. Motivational incentives: Does the narrative relate to individual or group identities in a way that provides a rationale and motivation for the recipients to subscribe to the message of the narrative?

3. Results

3.1. Case Study 1: Creole Garden, French West Indies

Focus: SDG 13 (food security)

Context of case study in which the narrative is embedded: The French West Indies are considered the fifth worldwide hot spot of biodiversity. The islands are very vulnerable to climatic changes. Similar to other Caribbean islands, agriculture is an important sector, which needs to contribute to mitigating the effects of climate change by adapting ways of production and crops being produced. Today, agriculture production is dominated by sugar cane and bananas, which are mainly exported to France. The prominence of these crops is a legacy of the colonial era.

The population of Guadeloupe and Martinique is mostly composed of people of African descent with a smaller part composed of European and Asian (Indian and Chinese). During 300 years of colonization, approximately 80% of the population were slaves. In comparison to the Spanish colonialization, the French colonialism was very inclusive. Caribbean intellectuals and cultural elites centred on ideas from Paris and the motherland with the effect that socio-culturally speaking the French West Indies mimicked French conventions. After World War II, in 1946, Guadeloupe and Martinique received the status of French overseas departments, which meant that they became an integral part of France. Nevertheless, the agro-export status quo is based on the concentration of production in the hands of land oligarchies. These benefit from agreements that protect their interests through quotas or rights of access to the French market. This economic model also results in a low diversification of production and a high degree of extroversion. Food staples produced in the French West Indies only contribute to 25% of what is needed for local consumption. Accordingly, most of the groceries consumed at the islands are imported from France. This includes products like milk, potatoes, onions, tomatoes, beetroots, etc. Due to the higher costs of importing products into the island, the prices of basic commodities and food staples in Guadeloupe are much higher than in metropolitan France, while the average salary in Guadeloupe is lower than in mainland France, except for officials working for the French government who receive significantly higher salaries to offset the higher costs of living on the island. Unemployment and poverty rates are double those found in France. From 2006 to 2007, several riots protesting against high food prices have shaken the island. In 2009, the tensions cumulated in a social crisis addressing the unequal social and economic treatment of the mostly creole population compared to the citizens in mainland France. During this time an NGO with the Creole name "lyannai kont pwofisayn" (LKP) was founded to protest against this unequal condition of the residents of Guadeloupe. The word "lyannai", used in the name of the NGO, means "conviviality". Martinique writer Édouard Glissant (1928–2011), an important author of the French-speaking Caribbean and intellectual mentor to questions of post-colonial identity and cultural theory, had used the term "conviviality" as a synonym for creating joint forms of knowledge to overcome distance and separation from one's own culture [41]. The NGO used the codeword

“conviviality” to mobilize feelings of social and cultural identity coupled with the narrative of the “creole garden” (Figure 1) for a movement to fight post-colonial structures expressed amongst others through food dependencies from mainland France and social injustice. “Lyannai” became the CANE that circulated in Martinique as a shorthand that combined the social identity of local people with their familiarity with the value of a Creole garden.



Figure 1. Example of a creole garden. Source: Joachim/Chambre d’agriculture de la Martinique.

Coincidentally, in 2009, the pollution of the eco-systems of the islands by the highly toxic organo-chlorate molecule chlordecone became public. Chlordecone had been used as a pesticide in the banana plantations of the islands from 1972 to 1993, which has led to long-lasting contamination of soils and bodies of water. Its deleterious impact on public health has been documented through manifold diseases on the islands. For this reason, chlordecone was banned from use in mainland France since the 1980s, but its use was continued in Guadeloupe and Martinique under the influence of the colonial power structures.

Vision and social identity: The vision expressed in the narrative of the “creole garden” (Figure 1) relates to a future of sovereign agricultural production coupled with a strong cultural identity of the creole community. Before colonization, the population of the French West Indies mainly grew agricultural products for self-sufficiency. Because of the movement, in 2009, for three months no food imports from France could enter the islands.

Against this background, government support for an agro-ecological transition of productions on the islands of Guadeloupe and Martinique has emerged in the last decade. For example, a new legislative framework (Economic Development Scheme of the Regional Communities) underlines the ambitions for a green economy by proposing the vision expressed in the narrative of the “creole garden” for a shift away from the current monoculture (i.e., sugarcane (for rum production) and banana, mainly exported to the French market) to the production of crops and vegetables for local consumption and food sovereignty. In addition, grassroots initiatives promoting small scale farming and urban gardening are currently spreading over the islands. In 2017, one of the authors (G.M.) spoke with an expert working for the National Institute of Agronomical Research (INRA), who shared the narrative with her. Born in Martinique, he is responsible for agricultural research and implementation of innovations in the French West Indies.

The narrative in this case relates to the collective memory of a so-called “creole garden” where community members produce crops for their own consumption and soils are used in a sustainable manner. Meanwhile, the vision of the narrative has been depicted in an official report [42] focusing on small-scale family farming as a possible vector for agricultural development in the light of the challenges of the 21st century, such as adaptation to climate change, food sovereignty, agro-ecological and bio-economic transitions. This vision is now mainly shared with the Caribbean neighbors, especially the Small Island Developing States (SIDS) of the Organization of Eastern Caribbean States and forms the basis of the research project “Cambio-Net”. It is hoped that through committing to the

agro-ecological transition from mainly large commercial-scale monoculture to a better balance with more diverse and sustainable farming for local use.

Five analytical categories for case study 1:

1. Associative plausibility: Common experiences of suppression of the creole community in the French West Indies;
2. Framing: Acting to change food dependency and toward empowerment of creole community;
3. Normative affirmation: Protest of unequal treatment/norms for creole community;
4. Emotional identification: Shared experiences of “Lyannai” and cultural identity, e.g., undertaken through joined/small-scale farming;
5. Motivational incentives: Better future for creole community, i.e., by achieving environmental and social justice, end of post-colonial structures in general (e.g., food dependencies, unequal wages, and social standards).

3.2. Case Study 2: Tamil Resources Conservation Trust (TRCT), Yap, Micronesia

Focus: SDG 14 (life below water), SDG 15 (life on land), SDG 3 (good health and well-being), SDG 6 (clean water and sanitation), SDG 11 (sustainable communities), SDG 12 (responsible consumption and production), and SDG 2 (zero hunger).

The narrative is intentionally constructed as a collective activity of the community and expresses both a vision toward the future and an identity. That identity is emphasized in reference to traditional stewardship.

Context in which the narrative is embedded: In Tamil, a municipality of Yap State in Micronesia, community members traditionally managed their fish and other livestock in areas designated for each family. Over time, people found that their resources diminished, and thus it became harder to secure livelihoods. Elders of the community tried to understand the cause of their shrinking resources. First, they spoke to the community members collecting their impressions while trying to find answers from the community on how to adapt to the new circumstances. Secondly, the two elders attended a seminar outside the community where knowledge was shared from other regions and amongst different stakeholders. After their return, the elders decided, in collaboration with the community members, to form a conservation group called Tamil Resources Conservation Trust (TRCT). In 2011, they decided to seek a way to sustain their marine resources by paying better attention to their traditional stewardship. After two years, in 2013, TRCT was chartered as an NGO by the Yap State Government and wrote and adopted its first management plan.

Vision and social identity: At the beginning of the process of forming the TRCT, a “shared vision” was developed and written down. “We, the people of Tamil, mindful that our present practices are contributing to the depletion of our natural resources, both in the waters and on the land, have now decided to use the wisdom of our custom and tradition to conserve and manage the natural resources in our municipality in order to be able to provide for ourselves and our families in a sustainable manner and leave behind a healthy natural heritage for our children and future generations.” (<https://trct.fm/category/about/>). The vision was included in the Tamil Municipality Marine Management Plan and repeatedly orally expressed when the people in charge of the NGO went around to village gatherings to explain what the TRCT aims to do.

The TRCT set up various proposals and projects, which involved all residents in one way or another, to conserve the marine resources in various ways, and also to nurture the land environment. They also conducted joint efforts with Ecoplus, an NGO, to filter waste water and to reduce garbage produced from households. Setting up a “no-take zone”, which bans fishing in a designated area, contributed to improving the number of marine creatures in the area. The residents in Tamil learned and became more aware of conservation practices and, consequently, now use less chemical detergent and produce less non-biodegradable waste. The TRCT is an example of collective behavior change.

The TRCT was founded because of the highly unsustainable situation caused by a number of unsustainable practices. The TRCT is also connected to the very local identity of fishermen and their families about traditional management practices and the traditional conservation ethic, a positive vision, and a desirable future condition, as clearly stated in their written statement.

In their document, TRCT claims that while Yap's traditional marine stewardship has supported resource management, "this respect for traditional stewardship and traditional culture is weakening as Yap progressively enters the cash economy". TRCT's long-term goal is to move towards a more integrated management approach that acknowledges the intimate connections between land and sea, which is consistent with Yapese traditional management principles. Their management approach encourages traditional stewardship within the community, and states "activities associated with this theme include strengthening traditional management practices and the traditional conservation ethic and actively exploring opportunities to incorporate these principles into modern management".

Their vision statement refers to "our children and future generations" in a way that they are ensured their necessities in a sustainable manner and have a healthy natural heritage.

The narrative is intended to raise everyone's awareness that the situation is critical, and to unite the whole area based on its inhabitants' equally critical culture and tradition. This statement has played a significant role in shaping the attitudes and actions of the community and its members. TRCT became the CANE that circulated in Tamil as a shorthand that combined the social identity of local people with their familiarity with the value of sustainable and shared resources.

Five analytical categories for case study 2:

1. Associative plausibility: Not explicit, but may be assumed from the awareness of people in Yap that the situation was not adequately addressed with regard to land and sea conditions;
2. Framing: Returning to traditional practices to ensure future well-being;
3. Normative affirmation: Traditional management practices and the traditional conservation ethic;
4. Emotional identification: A healthy natural heritage;
5. Motivational incentives: Supporting better conditions for the community.

3.3. Case Study 3: Malawi Community-Driven Fisheries Resource Management in the Salima Region

Focus: SDG 14 (life below water) and SDG 3 (good health and well-being).

Context in which the narrative is embedded: The original narrative stems from the 1950s, when Chief Makanjira of a village at Mbenji Island in Malawi banned fishing during thunderstorm seasons. He focused on the safety of fishermen from frequent thunderstorms during rainy season. Later, the narrative was transformed through interactions with government regulations in the 1990s, to emphasize fisheries resource management and an elaborate system of enforcement of local rules regarding fishing was added to the narrative.

Vision and identity: Narratives by community leaders to secure the safety of fishermen from frequent thunderstorms during the rainy season led to the establishment of a seasonal fishing ban system. This, in turn, contributed to a sustainable fisheries' resource management as a by-product of the measures to protect the lives of fishermen. The narratives of the traditional leaders of a local village on the coast of Lake Malawi regarding a seasonal ban of fishing around Mbenji Island have been supporting collective behavior change (CBC) since the 1950s across three generations of traditional authorities. The narrative contains the meaning and importance of the seasonal ban and detailed procedures of enforcement of local rules. The narrative was spoken by the traditional leader and his management team at the opening and closing ceremonies, as well as at various opportunities taken to introduce their practices to the people outside their villages, including government officials and researchers.

Initially, this narrative was specific to the village and Mbenji Island. The example became well-known in the country of Malawi through the words of Chief Makanjira, especially through the

radio program in which the Chief participated. Government officials and international aid agencies played the role of knowledge translator.

The most effective forms of diffusion of the message seems to be the traditional ceremonies of closure and opening of fishing around Mbenji Island (December and April, respectively) inviting a broad range of stakeholders including traditional chiefs from fishing villages with fishers operating around the island.

The actual CBC was connected to the safety of fishermen by avoiding fishing in the rainy season, and sustainability of fisheries resources by stopping fishing in the rainy season, which was the breeding season of the target fish group.

Five analytical categories for case study 3:

1. Associative plausibility: Based on experience with risk to lives of fishers and health of fish populations;
2. Framing: Risk avoidance with fisheries management as an accompanying benefit;
3. Normative affirmation: Pride in fish stocks and reinforcement by chiefs each season;
4. Emotional identification: Connection to traditional village hierarchy and safety of community members;
5. Motivational incentives: Better fishing conditions and preserving a way of life.

4. Discussion

The descriptions of the three cases provide an initial coarse characterization of the narratives that were in play in the contexts of these communities. The narratives of vision and identity in each case address issues relevant in the context of the community. In all these cases, the narratives served, in different degrees, to bring the issue into focus and to garner support for collective actions.

With these few case studies as a starting point, we can begin to explore how the characterization of narrative expressions, as well as information on the community and context of a larger set of case studies, can be used to understand more about social movements toward sustainability. In particular, we suggest that narrative expressions could be used to construct models of social dynamics related to sustainability concerns, especially agent-based models (ABMs), as well as system dynamics (SD) models, and how such models can help us to think about and better understand societal dynamics and their consequences.

An influential, although very simple agent-based model, that illustrates a type of social modeling is the early work of Thomas Schelling on tipping points in housing segregation [43,44]. The model is based on an individual's preference for number of nearest neighbors of the same color in a simple randomly occupied two-dimensional matrix. Note, that the individuals are not seeking segregation. If the number of nearest neighbors exceeds the maximum comfort level for that individual (agent), the individual moves to another location with more favorable neighbors. This is the rule that governs the behavior of each agent. What is particularly important about the model is that it shows that by changing from individuals wanting at least one third same color neighbors to all wanting 50% similar neighbors, the overall matrix shows the formation of dramatically segregated domains of one color, even though that was not the intent of the individuals. This is an example of a social tipping point and is what Schelling referred to as micro-motives and macro-behaviors [45]. It also illustrates that ABMs may bring out the potential for unexpected macro-behaviors emerging from micro-behaviors (rules for individual agents) that could not have been written a priori as mathematical descriptions of dynamics programmed into a model.

In more specific terms, agent-based modeling is a method in which (heterogeneous) elements (e.g., individuals) and their interactions can be simulated [46]. Following Woolridge, an agent is a "computer system that is situated in some environment, and that is capable of autonomous action in this environment in order to meet its design objectives." (Woolridge 1999, p. 29, adapted from [47]). Such agents can model abstract representations of human beings. Thus, ABMs allow for the formulation

of assumptions about human behavior(s) in a specific context (the agents' environment). During a simulation run, the consequences that these assumptions have for the specific situation modeled are displayed as a consequence of the agents' interactions with each other and their (virtual) environment. Consequences of agents' interactions can be observed on the individual, as well as on the collective level, and have an influence on subsequent interactions within one simulation run. By displaying the consequences of our conceptual choices, ABMs can help expand theoretical considerations with computer experiments, thereby dynamically producing and testing theoretical constructs. To explore an ABM, one can design experiments to test out different assumptions about parameters, rules, or structural aspects [48].

Narratives can inspire new approaches to modeling of societal dynamics by exploiting hitherto underutilized or unavailable knowledge to design and specify model assumptions [49,50]. Besides the use of narratives for providing a valuable source of qualitative data for model development, building and testing models can offer a way to talk about, specify, and experiment with theoretical considerations about narratives and their motivating and transformative power for sustainability movements. With agent-based modeling it is possible to simulate diverse elements (e.g., individuals with differing goals, motivations, and incentives) and their interactions. By displaying the consequences of our conceptual choices, models can help us to "think through" and explore theoretical considerations with computer experiments. The discussion of the role of narratives could gain from the variation of model assumptions and the observations of the effects of these variations in exploratory ABMs. Furthermore, the process of developing an ABM can help to make missing details more apparent, and thus point toward questions to address in empirical research or theoretical thinking. Hence, we will begin model development in parallel with a case study comparison using a larger set of relevant case studies.

5. Conclusions

Through the KLASICA research alliance, we are collecting, characterizing, and employing narrative expressions of vision and identity to understand influences on and hindrances to collective behavior change toward sustainable futures. On the one hand, narrative expressions of visions of sustainable futures provide insights into how a desirable future is envisioned and expressed by individuals and collectives as targets and incentives for reaching a more desirable future. On the other hand, the motivations of individuals and groups for acting in support of, or opposition to, the expressions of vision are strongly influenced and may be inferred from narrative expressions of identity, culture, and contexts. These insights from narrative expressions of vision and identity can provide a basis for building models of social dynamics in communities moving toward sustainability. The models are important as a way to (1) open up creative thinking about potential emergent pathways for change and conditions under which bifurcations might occur in societal patterns of behavior, (2) integrate a wider range of sources of knowledge about rationales for decision making by individuals and collectives, and (3) lead toward new frameworks in conceptualizing societal transformations.

As we have discussed in this paper, we sought and found evidence in case studies that narratives of vision and identities influence and reflect social dynamics of movements toward sustainable futures. The qualitative analytical categories applied to case studies described in this paper indicate the value of using the approach we describe in this paper. To better understand dynamics of social movements toward sustainable futures, we consider what would be needed to construct and test social dynamics models grounded in qualitative narrative expressions of vision and identity. With agent-based and other models, we intend to explore how narratives of vision (e.g., of better futures) and identity (motivation for support of the in-group) influence group dynamics toward social movements for sustainability, and to compare emergent patterns that can be observed in a model with those observed in diverse community case studies. Our next steps will be to collect and analyze further case studies and use the resulting data in constructing models in order to test their usefulness and validity for understanding dynamics of social movements toward sustainable futures.

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