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New stories for a more conscious, sustainable society: claiming authorship of the climate story

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Abstract

Sustainability philosophers claim that we are at an impasse of stories, finding ourselves in a blank chapter between the old and the new. The old story, characterized by separation, technological dominance and human superiority over nature, is unfolding in an ecological crisis giving space for a new narrative defined by inter-being, cooperation and balance. It has been put forward that this crisis is climate change, a phenomenon that epitomizes the old, while holding the potential to act as a bridge to the new. Our study shows the benefits of framing climate change as a problem of story and how the dominant story we have told about climate change can be changed. Based on an approach called "Rising strong", we address the question of how sustainability students relate to the story on climate change, how they conceptualize and situate it within a bigger narrative, and identify barriers and catalysts for authorship. The results show a clear lack of personal authorship, a feeling of disconnection to the climate story and a disbelief in any revolutionary endings, yet still a slight belief in co-authorship. Catalysts that can help to claim back authorship were identified to be positive emotions (e.g., empathy and hope), integral thinking, creation of space for creativity and co-creation. Barriers were scientific rationality and complexity alongside perceived negative emotions, such as shame and self-doubt. One of the most crucial findings was the re-occurring theme of joint engagement for story-transitioning. This point to the urgent need for both increased co-creation as well as the creation of conditions needed to enable people to engage in such processes.

Keywords Stories · Narratives · Climate change · Authorship · Co-authorship · Storytelling · Revolution · Sustainability · Compassion · Empathy · Personal development · Environmental humanities

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1 Introduction

> *It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. (Berry 1988, p. 123)*

Our global story is reaching a devastating climax. This narrative is deemed unsustainable and has unfolded in an ecological crisis (Sahinidou 2016) with planetary boundaries being breached (Steffen et al. 2015) and the concentrations of carbon dioxide in the atmosphere increasingly accelerating, leading us to an ever warming and unstable existence (IPCC 2018). In order to change this deteriorating state of the global ecological development, it is vital to look at pathways towards a more sustainable future (Swart, Raskin, & Robinson, 2004), which involves the exploration of alternative ways of obtaining and creating knowledge about both ourselves and the world (Lang et al. 2012; Björkman 2018).

One way to look forward is through the lens of stories. In fact, there is a growing realization within the sustainability debate that it is increasingly less important to claim and portray data and facts. It should be more about owning and conveying "stories and languages of value, culture and ideology" (Leinaweaver 2015, p. 66) (Emerge 2019; Perspectiva 2019, Morris et al. 2019) as well as (re-)framing these through new discourses and paradigms (Dryzek 2013; Björkman 2018). Climate change presents a profound global challenge in which we realize that our story has become "inadequate for meeting the survival demands of a present situation" (Berry, p. xi). There is increasing recognition that climate change is no longer so much a scientific issue or a knowledge-deficit problem as it is a social, cultural and ideological dilemma (Grundmann 2016; Hoffman 2012; Björkman 2018).

Climate change is thus essentially a problem of story. Seeing that science and scientific reasoning are only "a part of the story" (Frank 2017, p. 310) – with some even vilifying it as the cause of our environmental crisis (Herman 2015; Plumwood 2002; Sahinidou 2016) – there has been a surging interest to find new lenses and modes of inquiry for sustainability, especially through integration of inner or subjective dimensions and associated spheres of transformation (Frank 2017; O'Brien 2018; Parodi and Tamm 2018; O'Brien and Hochachka 2011; Wamsler 2018). In this context the notion of stories and narratives, being the foundation of meaning- and sense making, have been re-discovered (van der Leeuw 2019; Eisenstein 2013; Emerge 2019) as creative tools to both understand environmental issues better and to promote individual pro-environmental behavior (Morris et al. 2019). This can be exemplified in the surge of climate fiction that in recent years has become both a creative outlet in dealing with the climate crisis as well as a means for engaging with climate politics (Nikoleris et al. 2017; Milkoreit 2016). Creative storytelling can thus be a means to counteract today's dominant information-driven approach to address climate change (O'Brien et al. 2019).

Against this background, this paper addresses the question of how sustainability students relate to the story on climate change, how they conceptualize and situate it within bigger narratives, and identify barriers and catalysts for taking authorship of this story. We are targeting sustainability students as our focus group as they are assumed to form part of the main storytellers of the climate change, and associated sustainability, story. By applying the so-called *Rising Strong* framework (see section 3), we explore our research questions and identify ways to claim ownership of the story and re-write its ending, acknowledging that a perceived sense of agency is key to sustainable transformation (Veland et al. 2018). To situate our research, we first introduce its conceptual and epistemological framework (Section 2) and methodology (Section 3) before we present our results (Section 4) and conclusions (Section 5).

2 Framework

We are soaked to the bones in story - Jonathan Gottschall

The word *story* and narrative are here used interchangeably. They are linguistically related and their joint etymological origin means "knowing, knowledge and wisdom" (Ferneley and Sobreperez 2009, p. 123). Emmett and Nye (2017), who have traced stories back to aboriginal roots, describe them as something that draws on events and relationships in the exterior landscape and projects them onto the interior landscape (Emmett and Nye 2017). Stories are thus a powerful representation of the world and a way for transmitting personal and collective experiences (O'Brien et al. 2019).

Humans are storytellers. We are "wired for story" (Brown 2015 p. 12) and have a need and thirst for stories (Rooney et al. 2016). It is how we make the abstract concrete, organize our thoughts, position ourselves in the world, relate to each other and express ourselves (Fraser 2004; Polkinghorne 1988; Rooney et al. 2016). Stories have an evolutionary purpose, through its meaning and sense-making mechanisms (Bruner 1990; Polkinghorne 1988; Rooney et al. 2016) and are therefore a vehicle for development as well as a driver for human behavior (Bruner 1990, p. 52).

With stories creating, reflecting and also challenging our development, it is essential to look at the stories that have led us here today and find ways to write better ones for tomorrow. Accordingly, in this paper we focus on the idea of stories and their capacity to hold realities and act as a vehicle for change. As events, phenomena and situations can be interpreted from different standpoints, it is important to look at how and why we develop the stories the way we do, stories that then drive our behaviour (Fischer 2019). Here we mainly look at how stories serve as a link between old and new paradigms, and see how working through the lens of stories can be transformative and empowering for the individual by claiming authorship.

2.1 The story of humanity

Without stories we would go mad. Even in silence we are living our stories – Ben Okri

We base the understanding of the transition from the old to the new story, which underlies the aim of this paper, on three conceptual frameworks by Edwards (2015), Eisenstein (2013) and Kingsnorth and Hne (2009). All three frameworks address the problem of sustainability through the concept of story and argue that we find ourselves right now in the transition phase. By cross-examining these frameworks, we have identified a "framework-specific philosophy" (Yosef 2009, p. 51) or initial codes (Strauss and Corbin 1998a, b; Glaser and Strauss 1980) for our qualitative data analysis (Table 1; cf. Section 3).

2.2 The story of climate change

Some say that science is a grand story – Jonathan Gottschall

Climate change is the eclipse of the grand story, and functions as a carrier of ideology and meaning (Hulme 2009, p. 18). It is the "meeting of nature and culture" (Hulme 2009, p. xxviii) and the origin of this story is linked to the old narrative of the world (Table 1) in the sense that it is a product of the mindset and ideology that caused climate change, a devastating reflection of human superiority over nature (Hulme 2009, p. 21). Hence, climate change is also referred

Table 1 Patterns of stories

Patterns of the old story	Transition	Patterns of the new story
• Separation • Mastery over nature • Individual consumerism • Scarcity • Ecological destruction • Growth • Struggle	Requires a deep questioning of the old story along with developing new perspectives and creative visions.	• Inter-being • Harmony with nature • Collective co-creation • Abundance • Ecological balance • Post-growth • Ease of being

to as the "biggest story in the world" (Howard 2015), the roaring symbol of global chaos and depicted as the transition stage of stories (Edwards 2015, Eisenstein 2013, Kingsnorth and Hine, 2009).

Kingsnorth and Hine (2009) argue that we disregarded the power of stories once we started to modernize our society. We have simply forgotten that climate change is both part of a bigger story and a story in itself. And stories can be changed. But how that can be done, that is what this paper will attempt to make clear.

2.3 Authorship

Since the focus of this paper is on identifying catalysts and barriers for authorship of the climate story (cf. Section 1), it is necessary to outline the meaning of this concept. The ontological bedrock upon which our view of authorship rests is inspired by personal construct psychology which sees that we have the capabilities to "change our own constructions of the world and thereby to create new possibilities for our own action" (Burr 2015, p.22). This research is an attempt to tackle this process through working on a story level. The concept of authorship used here is closely linked with the more commonly used term "agency", but includes a more tangible dimension through the creative act of writing. In this context, it has been noted that narrative creativity is of great importance in both exploring and developing agency (Brockmeier 2009; Chen 2012). We view strengthened authorship as a sign of evolving agency and consciousness, as we cease to be passively influenced by our surroundings, and the narrative at hand, and instead take an active role in shaping the story, thus developing more reflective awareness and also pro-environmental behavior (Brown 2015; Emerge 2019).

3 Methodology

> *In the end all we have…are stories and methods of finding and using those stories.—Roger C. Shank*

Since the aim of our research is to explore ways of storytelling that illuminate the current stories and enable a shift to a more sustainable one that emphasizes authorship, we selected narrative inquiry as being the most appropriate methodological approach. Narrative inquiry is considered to be both a phenomenon and a method (Clandinin 2013) aiming at understanding people's lives and worldviews through the framework of stories (Rooney et al. 2016).

When looking specifically at the topic of climate change, a narrative approach is particularly valuable due to its nature of being able to address ambiguity, uncertainty, and complexity (Mitchell and Egudo 2003). It can help uncover underlying causes and drivers and is therefore good for understanding complex and wicked problems such as climate change (Jiazhe and Kaizhong 2016).

Data collection was conducted through five workshops consisting of 2 h each. The method of the workshops was based on narrative inquiry through the Rising strong framework, an emotional storytelling process developed by Brown (2015), which has been adjusted to fit our research aim and purpose (cf. Suppl. Material 1). The Rising strong framework was used because it integrates emotions into the storytelling process, an aspect which has been increasingly identified to be key in the climate change story (Doherty and Clayton 2011) and sustainability in general (Brown et al. 2019; Wamsler 2018). The framework was created as a psychological development tool for taking authorship (enhancing agency) of your own life (Brown 2015), and therefore suits the aim of our research well.

The Rising Strong framework was applied to the workshop in three methodological steps: First, during creatively writing the story on climate change as a form of *reckoning*. Second, during focus group discussion, listing the emotions linked to the story and discussing (*rumbling*) with them.[1] Third, when letting the participants write a revolutionary, ideal ending to the story (cf. Suppl. Material 1).

The creative writing part was the biggest segment of the workshops (approximately 30–40 min) and was introduced after a short interview-section focusing on the concept of story. Creative writing is a profound tool for self-development, which helps to make sense of difficult emotions and thoughts (Brown 2015; Pennebaker 1997, p. vii) and functioned here as a way of making the internal processes visible on paper. The participants were asked to introduce the climate story with "once upon" because it "opens the mind and the imagination to infinite possibilities" (Rooney et al. 2016, p. 147). We gave the participants time and space to engage in the story without many guidelines, seeing that "our imagination may be the greatest X-factor for change and our ability to flip the script on the story of an unsustainable world" (Leinaweaver 2015, p. 14).

In the second step, the participants were asked to list their feelings connected to climate change and discuss them. These group discussions were both a means of diving deeper, to discover underlying patterns, but also to see what the participants thought about the workshops' approach in helping them making sense of the climate story. After discussion (*rumbling with the feelings linked to the story*), the whole session was wrapped up with another short creative writing exercise where they were asked to write their ideal ending to the climate change story.

The workshops were carried out with students from different sustainability-oriented Master's Programs. We reached out to the relevant faculties and selected a total of 14 students based on their background in sustainability studies and interest in participating in the study. The participants were then split up into smaller groups of 2–3 students. Doherty and Clayton (2011) suggest that small group interventions are appropriate to facilitate emotional expression and dialog as a way to deal with the threat of climate change. The group setting proved conducive to the process by i) providing a safe space for the participants to share and reflect and ii) acknowledging the social function of storytelling and allowing people to build a

[1] The wording included in brackets and italics, here and in the following text, indicates related wording used in the context of the the "Rising Strong" framework (see Section2).

"communicative relationship" with each other and by iii) establishing a sense of comradery, realizing that there are other people with similar thoughts and ideas with whom we can "rope ourselves together for safety" (Davis 2002; Kingsnorth and Hine, 2009, p. 29).

The data was then analyzed in an iterative[2] way, guided by grounded theory[3](Charmaz 2014; Strauss and Corbin 1998a, b) and our theoretical framework (cf. Section 2). We also drew upon portraiture (Lawrence-Lightfoot 2005) as a way of summarizing our results. During the workshop we took notes as the first step of data-processing, sketching a rough picture of the answers, noting down keywords and quotes in order to unveil the meaning of the interviews (Kvale 1996). In grounded theory this would be considered 'the bones' of our material, which we then analyzed with the help of our framework and the emergent themes that arouse from the data and the analysis (Charmaz 2014). In the summary of the research we applied the concept of portraiture to paint a picture of the results. Portraiture is "probing, layered and interpretive" (Lawrence-Lightfoot 2005, p. 5) and offers the possibility to draw a portrait of rich data, often the case with qualitative studies, in an attempt to paint a picture that encapsulates all the findings. Lawrence-Lightfoot (2005) stresses the importance of listening *for* the story, not only *to* the story, which was something that guided us through the analysis.

4 Results

4.1 Wider narratives: Stories of sustainability

The patterns identified regarding narratives related to stories of sustainability, was that they are used for communicating and creating purpose, explaining and legitimizing practices.

While stories are essential for conveying information and creating compelling narratives about sustainability issues such as climate change, they can also explain why we have these problems to begin with. Our results showed that these wider narratives related to the "*story of nature being under our control", as* one participant stated with several others following suit talking about ideologies, the story of growth and our detachment from nature. "*The story of [apparent] progress is so closely linked to today's sustainability challenges*", another said. Multiple references aligned with what Eisenstein (2013), Edwards (2015) and Kingsnorth & Hine (2009) describe as the old, alienated story, with the notion of progress and growth serving as the narrative foundation. Our results also showed that acknowledging that sustainability issues are a part of a bigger story can lead to seeing how stories legitimize behavior, as shown by several statements: "*We internalize the logics of these stories*"; and "*Our society is based on a particular story and it legitimizes practices*". Another participant reflected that "*there are other stories we can learn from*" and pointed towards for example indigenous ways of being. Someone else concluded "*it's not just a matter of story, but which story*?" opening up the possibility for re-narrating the story.

[2] Described as an "interplay between interpretation and theorizing, on the one hand, and data collection, on the other" (Bryman 2016, p. 372).

[3] A "method of discovery" (Charmaz 2014, p. 8) which aims to "generate theory out of (qualitative) research data" (Bryman 2016, p. 694) building upon emergent categories.

4.2 The story on climate change

Regarding the story of climate change, the identified patterns were i) technological domination and alienation from nature as root causes, ii) the need and want for a new story, and iii) a lack of faith in addressing the root causes and one's own agency.

The sustainability students´ stories on climate change were ones where technological arrogance and alienation from nature has established a sense of superiority which has, through the tools of capitalism and endless material acquisition, led to ecological destruction. This aligns within our framework specific philosophy (Table 1), and shows that the sustainability students' view of climate change fits into the narrative of what is to be considered 'the old story'. The stories all conveyed a sense of looming collapse, an inevitable turn in the story, which in many cases ended with questions or cliffhanger statements like: *"It is up to us", "is it too late?"* "*but resistance will ultimately, maybe, hopefully, save our existence", "she decided she needed to change"* and *"climate change was upon us and the world needs to wake up to the reality … otherwise climate change will destroy us all"*. As put in another participant's words: *"everyone could feel a change was coming"*, pointing towards that the students see us being in the transition phase of stories, where the bubble has burst and we find ourselves faced with an unsustainable narrative, looking for ways out. And just as the transition phase denotes, there seems to be a longing and desire for a new story.

This first writing task *(the reckoning step)* clearly showed that there is a need for a new story and the stories indicated that the students perceived themselves living in the transition phase. Their stories all reflected an unwanted, crisis state of being, serving up big questions to be answered and giving way for the notion of a new story to take place. This is important, since the perceived need for a new story and the identification of the old story's shortcomings precedes any new narrative and indicates a strong predicament for a new story to be born.

During the discussions almost all of the participants expressed that climate change has had a big influence in shaping their lives, both in terms of career and education choices as well as behavior. It is "*something I think about everyday*", one of the participants stated. Two reflected back to formative moments in school or at a younger age when it became clear that this was their calling or their task, with "*It's the job of your generation*", being portrayed in schools. At the same time, participant shared a sense of disconnect with climate change in a more tangible way, saying for instance that "*Climate change still seems like a story to me, not in real life*".

The imaginative, desired endings to the climate change story, or the *'revolution'* that Brown (2015) refers to, were also thematized according to our framework. In the revolution stories, cooperation/co-creation was the biggest theme, followed by harmony and new ways of thinking. However, the imagined endings were portrayed as utopias and the students did not have a clear description or vision of what their role in the unfolding of the story of climate change could be.

4.3 Emotions

The patterns that were identified were i) a dominance of negative emotions (self-doubt) that hamper authorship, ii) a looming sense of guilt or shame connected to the topic iii) the insight that emotions need to be addressed in the climate story, and iv) the recognition that this has so far been vastly neglected.

The second stage of the Rising Strong process (*the rumble*) helped to identify the feelings that are connected to the climate story (Brown 2015), acknowledging that emotions are deeply

connected to how we think and act (Jasper 2014). The recognition of emotions is therefore also an integral part of the authorship-process, seeing that it "is where wholeheartedness is cultivated and change begins" (Brown 2015, p.41).

The most frequently stated emotions were anger, fear, feelings of being frustrated and overwhelmed, and hope. Anger and hope are often seen as potential catalysts for change, while fear and self-doubt (here expressed through feelings of being frustrated and overwhelmed) are generally denoted as barriers for change (Ganz 2008). Self-doubt re-occurred as a theme throughout the conversations, especially when talking about roles and explicit authorship.

While not stated explicitly by the participants in their climate stories, almost all participants expressed feelings of guilt and shame during the discussions on climate change. They were often linked to a general sense of guilt and shame of belonging to a privileged group of people and growing up in a western society. *"I accepted 'happily' all the privileges*", one of the participants stated. Apart from "*inherent historical guilt*" also flying (and other unsustainable behaviors) were brought up as drivers of guilt and shame. This has negative impacts on authorship. Guilt is an identity-related emotion considered to be difficult to address openly due to restricting cultural norms (Norgaard 2011a, b), and shame robs you of your entitlement to the story (Brown, 2015). Shame has also been found to undermine vulnerability, and therefore makes it harder for us to engage emotionally with difficult subjects, such as climate change (Orange 2017).

Recognizing that emotions can both hamper and drive change, most participants saw it as important to consider emotions to address the climate story. On the one hand, emotions were seen as motivators, since they can make people feel connected to the cause and drive our thinking and actions. On the other hand, they were also identified to reveal underlying values, beliefs and worldviews, "*facing your demons head on*".

Finally, there were also discussions on whether or not the current debate on climate change actually holds room for emotions, as "*the debate right now is a very rational one*" and there is a general belief that emotion equals weakness. The students' statements echo concerns about the dichotomy of emotions and reason, seeing that the "the particular, the emotional (…) are seen as capricious and corrupting of rationality" and renders us "divorced from our actual living in the world (Herman, p. 165). As feelings are connected to how we think and act (Brown, 2015), vilifying emotions as "un-rational" may cloud agency and make it more difficult to change the current, unsustainable narrative.

4.4 Authorship

The identified patterns regarding authorship were i) a clear sense of powerlessness and, thus, reluctance to actively influence the climate story, and ii) the importance given to collective efforts in terms of action and entitlement.

There was a clear rift between the sustainability students' climate story and their perceived role in it, a link which is crucial for authorship. Even though many of the participants saw their life paths paved by the looming threat of climate change, deciding not just their behavior and consumption but also their career and education choices, they tended to be reluctant to acknowledge their active part in the story. Some of the participants even stated that they saw themselves more as passive storytellers than actors, and one said that if she were to play a role in the story she wrote, she would be cast as one of the "*bad guys*" due to her privileged status as a Westerner (which relates to the negative emotions described in section 4.3). Some of the participants also explicitly stated that the story they wrote was actually *not* "*their story*".

In fact, none of the sustainability students wanted to claim authorship of the story and did not see how they would be able to re-write the ending in real life. If they acknowledged any authorship, it was in a sense of co-authorship. This correlates with what most of them recognized as the main theme of the new story; i.e., cooperation between men, but also cooperation between man and nature. This indicates that it was less perceived as an individual task, but rather a collective effort, to re-write the end to climate change, both in terms of action and entitlement.

The identified main catalysts for authorship were: creativity, integral thinking, and co-creation; the identified hindrances were: scientific rationality, self-doubt, complexity and shame. These are discussed in the following subsections (except self-doubt and shame, which were already presented in section 4.3).

4.4.1 Creativity

Creativity was identified as one of the key catalysts for authorship. Creativity, defined as "the ability to create" (Merriam Webster, 2019), is closely linked to imagination and can help spur a new vision of ourselves and the world (Edwards 2015), as well as allow us to look at things from new perspectives. In our study it allowed the participants to step out of the objective scientist's role, the one who "*knows too much*", as one of the participants stated, and take a more creative and subjective stance.

The introductory phrase "once upon" seemed to both confuse and inspire the participants. One of them explicitly said that it helped releasing the imagination, "*I ended up framing it differently than I thought*", while another one was more critical of the approach in the sense that "*you can't boil it down to a fairytale*". Nevertheless, the process of writing a story on climate change was not familiar for the participants and provided for them a new way of approaching the issue. One participant called it "*illuminating*". In line with Kingsnorth and Hine (2009), the creative process was said to be the most useful one for building new narratives. Accordingly, the free-writing task evolved past being a tool in the process of *reckoning*, to being a finding in itself, simply a new way for us to engage with climate change.

4.4.2 Integral thinking

Allowing emotions to become part of the climate story catalyzed the identification of own values and beliefs, which in turn disclosed possibilities of authorship. Such an integral frame connects process and people - it values people and their beliefs as relevant and valid data to use to inform thinking about the future. The emotions identified in the process provided both negative and positive pre-requisites to the ownership of the story, but the portrayal of emotions in the stories were not very explicit and in some of the more 'objective' renderings of the phenomenon, the emotions were lost completely. For several participants however, rumbling with the emotions made it easier to realize what their story was and what it wasn't. This is in line with literature that points to the crucial nature of emotions as functioning as either catalysts or barriers for change and action, by enabling or disabling a sense of authorship. They are a way of connecting to our" actual living in the world" (Herman 2015, p. 165) and serve as a translator and interpreter of events and situations and functions as drivers for action (Norgaard 2011a, b). As Hoffman states: "to confront the emotionality of the issues and then address the deeper ideological values" is "key to engaging people in a consensus-driven debate about climate change" (2012, p. 35) and, consequently, crucial for imagining a new narrative for a new world.

4.4.3 Co-creation

Another aspect that helped the participants to recognize authorship in their climate stories was co-authorship. Co-creation and cooperation emerged as both the key themes for the new story as well as for the perceived sense of authorship.

In the creative revolution stories, cooperation/co-creation were the most frequent pattern identified, followed by harmony and new ways of (integral) thinking. All the participants´ stories ended on a positive note, with humanity still intact, more or less, but usually existing in a simpler and happier form. The common thread was that people come together, either with each other or with nature and other animals and think of new ways of living and ultimately joining back into alignment with each other.

When confronted with the explicit question of authorship of the climate story, it became clear that none of the participants felt a concrete sense of ownership. Instead, it was said that "*everyone has bits and pieces of it*" and suggested: "*co-authorship, maybe*?" This goes to show the importance of joint engagement as both a way to envision and act out any revolutionary solutions to climate change. As one of the participants stated: "*we all hold one big pen*", underlying the importance of communitarian (versus individualistic, hierarchical and fatalist) patterns of social behavior (cf. Thompson 2011; Thompson et al. 1990). The focus on co-creation and cooperation were also identified to be linked to feelings of empathy and compassion (equivocal for community-building and maintaining relationships). There has been a surge in research showing that these kinds of emotions are related to sustainable awareness and action-taking (Brown et al. 2019; Wamsler et al. 2018; Wamsler 2018). Our results support such evidence by showing how important it is to recognize and foster relational emotions in order to make sustainable changes, both as an individual and a collective.

4.4.4 Scientific rationality

While integral thinking could be identified as a catalyst, scientific rationality (as responsiveness to apparent objective reasons) could be identified as restricting authorship in two ways: i) by obstructing the visioning process with facts and ii) by undermining the importance of emotional recognition. Our rational, scientific thinking and logical approaches have served us well in addressing problems and advancing society this far, but as Edwards (2015) points out, our facts-based reasoning does not always apply well to dealing with complex and overwhelming issues.

In the creative writing task many participants were struggling with making the story as representative, objective and neutral as they could instead of making it personal. One participant stressed that *"We know too much",* when trying to get creative with the story and write a possible utopian ending.

Most of the participants found their emotions reflected in the story, but not maybe as clearly as they had defined them for themselves. "*They are there, but not explicitly*" said one of the participants, while others identified some of the key personal emotions missing from their stories, "*Sadness is lacking, because I tried to make it objective*" said one. This points to an interesting finding; i.e., that objectivity in stories sometimes comes at the expense of your own truth and that we conform our stories in the belief that it would make it more approachable. One of the participants realized through the emotional reckoning, especially being surprised by the anger he felt, that the story he had written was not the story he wanted to portray, "*the story I see is very much the story on the fight and the struggle against the economic system that*

doesn't care". These findings are in line with recent studies in behavioral economics that identify behavioral 'irrationalities' or 'anomalies' in decision making processes in relation to climate change adaptation (Gowdy 2008). They challenge traditional economic models of behavior (Gowdy 2008) and call for further exploration of the role of individual motivations in action-taking.

4.4.5 Complexity

Another factor that hampered authorship was the complex nature of climate change, an aspect that came up in most group discussions. It hampered authorship in two ways: i) by overwhelming the participants and making it hard for them to find a story (as exemplified by the emotional rumble where 'overwhelmed' was a frequently experienced feeling), and ii) by being counter-intuitive to what was perceived as the definition of story (as a vehicle for simplified communication). This shows that our way of thinking of stories is often very linear and shies away from complexity, making it hard to render complex issues into a personal story.

Complexity is a characteristic that defines many sustainability problems, including climate change. Recognizing and attending to complexity is crucial for dealing with sustainability issues, but it can also paradoxically generate more complexity, as Tainter and Taylor (2014, p. 169) state: "All that is needed for the growth of complexity is a problem that requires it". They further argue that "increased complexity carries a metabolic cost" (ibid p. 169) and in terms of stories it seems to come at the expense of creativity, imagination and ultimately authorship. At the same time, storytelling has the potential to render complicated matters into graspable narrations (Baskin 2005) and used properly can therefore be a tool that actually unravels complexity. That is if the storytellers can tackle the overwhelming feeling connected to climate change and re-assessing their previously held assumptions of how a story ought to look like (cf. Sect. 4.3 and 4.2).

5 Discussion and conclusion

> *"The end of the world as we know it is not the end of the world full stop. Together we will find the hope, the paths which lead to the unknown world ahead of us" (Kingston and Hine, 2009, p. 35)*

Claiming authorship of a crisis like climate change entails acknowledging difficult emotions, such as shame, while also stepping up to the role one wishes to have in the utopian vision of a better world. Authorship could therefore be considered a way of actively living in the story as well as trying to narrate it towards brighter trajectories.

In this research we positioned sustainability students as our envisioned storytellers for a new sustainable world because they are in the starting point of careers focused on addressing these issues and presumably are interested in the prospect of living an environmentally-aware life. They can be seen as the epitome of who should be called upon to be an author, being both professionally and personally meshed into the story of climate change. At the same time, we acknowledge the limitations of this approach. Whilst the participants represented a mix of nationalities and genders, they shared similarly privileged and academic backgrounds, all being enrolled in a higher university program. This is important to keep in mind when applying the results to other contexts and groups, such as those who have been disadvantaged in current

power structures. People with an indigenous standpoint who were forced to endure massive transformation due to colonialism and oppression might for instance not share the same narrative or even perceive looming climate change as the epitome of environmental change (Whyte K 2018). Sustainability students were chosen as the focus of this study because of their presumed role as future sustainability leaders in their own sub-group of society. Being enrolled in an institution that historically has relied much on rational science to address complex problems, this research not only probes the narrative conceptualization of climate change and identifies obstacles and opportunities for building agency. It also supports the emerging recognition for the need for more holistic teaching approaches, which retain both subjective and objective insights and methods, and which is spurred by today's context of complex global issues (Wamsler 2019). Importantly, the results of this study showed a clear lack of authorship portrayed by the sustainability students who devote so much time, energy and passion to the field of climate change. While we recognize the limitations of our study not just in homogeneity but also in terms of sample size, a recent large-scale survey ($n = 97$) of sustainability students and scholars at Lund University reveals that our results might be indicative for a general phenomenon (Hertog et al. 2019; Wamsler 2019). The survey results showed a value-action gap across the target group. At the same time, positive correlations were found between pro-environmental behaviors, subjective wellbeing, and self-authoring mindsets (i.e. people being able to critically evaluate and choose their own values and determine their own path [Kegan and Lahey 2009]). In addition, both the survey and our study sparked a lot of interest and emotions amongst sustainability students at the university. "Why don't we talk more about this?", was a question that was commonly asked (Hertog et al. 2019).

Apart from the identified lack of authorship and associated cognitive/emotional barriers, also something more positive emerged from our results. Something that was a bit counterintuitive to our initial research aim, which had a very individual focus. In fact, one of the most crucial findings was the re-occurring theme of co-creation and cooperation. Both in the way the participants saw the happy endings play out as well as the theme being reflected in the discussions on authorship of the story. We set out to look into barriers and catalysts that can empower individuals to claim the right to the climate story, but there was a strong belief, want and need to pursue this in a group, together. This is in line with scholars, such as Herman (2015, p. 174) who state that "If the Anthropocene tells us anything, it is that the Age of the Individual is over". We view this finding to be the most relevant take away from this research alongside its intrinsic linkages to emotional awareness.

Using a narrative approach facilitated emotional and experiential processing (cf. Morris et al. 2019), something that we identified as crucial for strengthening authorship. This result supports increasing research that has shown the importance of addressing emotions and supporting inner capacities for sustainability (Brown et al. 2019; Wamsler et al. 2018; Wamsler 2018). This also links to the emerging field of inner-outer sustainability (Wamsler et al. 2018), a new area of exploration that is taking an increasingly relational approach to sustainability (Walsh et al. 2019), and which is starting to become a sort of nexus of social change through building a more conscious society, also called 'meta-modernism' (e.g., Björkman 2018) or the interplay been 'systems, soul and society' (Emerge 2019; cf. Perspectiva 2019). It counteracts one-sided sustainability scholarship, which has, so far, focused on the external world of ecosystems, wider socioeconomic structures, technology and governance dynamics, while a critical second dimension of reality has been neglected: the inner dimensions of individuals (O'Brien and Hochachka 2011; Parodi and Tamm 2018; Wamsler et al. 2018; Wamsler 2018). The emerging field of inner-outer sustainability responds

to "a call for research … to help shift the deeply imbedded reductionist, exploitive paradigm to an open acknowledgement of collective grief, inseparable interdependence, and open-mindedness toward change that aligns with sustainability" (Palamos 2016, p.91).

It is thus becoming increasingly clear that the transformation of society needs to take both the individual and the cultural/collective into account in an integral way that facilitates the need for inner processes. These findings align well with the themes of the new story as framed by the sustainability philosophers we took departure from. They claim that the transition is both an individual journey and a group effort. This effort involves work on our own awareness, creativity and emotional depth, but we need teammates to "hold each other in new beliefs" (Eisenstein 2013, p. 31) and "rope ourselves together for safety" (Kingsnorth and Hine, 2009, p. 29).

In order to empower people to claim authorship of the climate story, create their revolutionary endings and embark on the new chapters of a more sustainable story for the world, this study shows the importance of putting more emphasis on collective story-making and emotional awareness. By facilitating group discussions, framed by creativity, recognition and acceptance of emotion while putting an emphasis on the joint effort of writing this new story, we could see future climate storytellers emerge; confident, daring and hopeful.

At the same time, we need to create conditions for personal growth (or so-called adult development (Kegan 1995) and associated emotional/cognitive capacity development that can enable people to engage in such processes. The story of personal growth requires individuals to become more conscious, in which the scope for meaning and purpose in life is enriched and our capacity to effect change is enhanced. When a critical mass of people 'grow' in consciousness in this way we can speak of a collective story and a solution.

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References

Baskin K (2005) Complexity, stories and knowing. Emergence: Complexity & Organization 7(2):32–40
Berry, T. (1988) The dream of the earth: San Francisco: Sierra Club Books, cop 1988
Björkman T (2018) The world we create, Metamoderna
Brockmeier J (2009) Reaching for meaning: human agency and the narrative imagination. Theory Psychol 19(2): 213–233
Brown A (2015) Rising Strong. The Reckon. The Rumble. The Revolution. New York, Random house, New York
Brown K, Adger N, Devine-Wright P, Anderies J, Barr S, Bousquet F, Butler C, Evans L, Marshall N, Quinna T (2019) Empathy, place and identity interactions for sustainability. Glob Environ Chang 56:11–17
Bruner JS (1990) Acts of meaning. Harvard Univ Press, Cambridge
Bryman A (2016) Social research methods, Fifth edn. Oxford University press, Oxford
Burr V (2015) Social constructionism, 3rd edn. Routledge, London and New York
Charmaz K (2014) Constructing grounded theory, 2nd edn. Sage publications, Thousand Oaks
Chen KK (2012) Charismatizing the routine: storytelling for meaning and agency in the burning man organization. Qual Sociol 35(3):311–334
Clandinin DJ (2013) Engaging in narrative inquiry. Left Coast Press, Inc., Walnut Creek
Davis JE (2002) Stories of change: narrative and social movements. State University of New York press, Albany
Doherty TJ, Clayton S (2011) The psychological impacts of global climate change. Am Psychol 66(4):265–276
Dryzek JS (2013) The politics of the earth: environmental discourses, 3rd edn. Oxford University press, Oxford
Edwards AR (2015) The heart of sustainability. New Society Publishers, Gabriola Island

Eisenstein C (2013) The more beautiful world our hearts know is possible. North Atlantic Books, Berkeley, p 2013
Emerge is "an independent, non-profit media platform sowing the seeds of a new civilisation" (2019) Online: http://www.whatisemerging.com/. Accessed 30/03/2019
Emmett RS, Nye DE (2017) The environmental humanities: a critical introduction. MIT Press, Cambridge
Ferneley E, Sobreperez P (2009) An investigation into extracting and analysing stories. Int J Organ Anal 2:121. https://doi.org/10.1108/19348830910948968
Fischer F (2019) Knowledge politics and post-truth in climate denial: on the social construction of alternative facts. Critical Policy Stud:1–19. https://doi.org/10.1080/19460171.2019.1602067
Frank A (2017) What is the story with sustainability? A narrative analysis of diverse and contested understandings. J Environ Stud Sci 7(2):310
Fraser H (2004) Doing narrative research. Qual Soc Work 3(2):179–201. https://doi.org/10.1177/1473325004043383
Ganz M (2008) What is public narrative?. Accessed February 2, 2017 from http://chutzpahportfolio.yolasite.com/resources/WhatIsPublicNarrative08.pdf
Glaser BG, Strauss AL (1980) Time for dying (first published in 1968). Aldine de Gruyter, New York
Gowdy J (2008) Behavioral economics and climate change policy. J Econ Behav Organ 68(3):632–644
Grundmann R (2016) Climate change as a wicked social problem. Nat Geosci 9(8):562–563. https://doi.org/10.1038/ngeo2780
Herman RDK (2015) Traditional knowledge in a time of crisis: climate change, culture and communication. Sustain Sci:14. https://doi.org/10.1007/s11625-015-0305-9
Hertog I, Betzler L, Di Paola L (2019) An exploration of the role of inner dimensions in explaining the value-action gap amongst sustainability science students and researchers, Sustainability and Inner Transformation Course, Lund University
Hoffman AJ (2012) Climate science as culture war. Stanf Soc Innov Rev 10(4):30–37
Howard E (2015) The biggest story in the world: inside the Guardian's climate change campaign. The Guardian. Accessed March 20, 2017 from https://www.theguardian.com/environment/keep-it-in-the-ground-blog/2015/mar/20/the-biggest-story-in-the-world-inside-the-guardians-climate-change-campaign
Hulme M (2009) Why we disagree about climate change : understanding controversy, inaction and opportunity. Cambridge University Press, New York
IPCC (2018) Summary for policymakers of IPCC special report on global warming of 1.5°C approved by governments. Retrieved from https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-specialreport-on-global-warming-of-1-5c-approved-by-governments/. Accessed 1 april 2019
Jasper JM (2014) Feeling-thinking: emotions as central to culture. In: Baumgarten B, Daphi P, Ullrich P (eds) Conceptualizing culture in social movement research. Palgrave Studies in European Political Sociology. Palgrave Macmillan, London
Jiazhe S, Kaizhong Y (2016) The wicked problem of climate change: a new approach based on social mess and fragmentation0. Sustainability 8(12):1312. https://doi.org/10.3390/su8121312
Kegan R (1995) In over our heads: the mental demands of modern life. Harvard University Press, London
Kegan R, Lahey LL (2009) Immunity to change: how to overcome it and unlock potential in yourself and your organization. Harvard Business Press, Boston
Kingsnorth P, Hine D (2009) Uncivilisation, The Dark Mountain Manifesto: The Dark Mountain Project.
Kvale S (1996) Interviews : an introduction to qualitative research interviewing. SAGE, Thousand Oaks
Lang D, Wiek A, Bergmann M, Stauffacher M, Martens P, Moll P et al (2012) Transdisciplinary research in sustainability science: practice, principles, and challenges. Sustain Sci 7:25
Lawrence-Lightfoot S (2005) Reflections on portraiture: a dialogue between art and science. Qual Inq 11(1):3–15. https://doi.org/10.1177/1077800404270955
Leinaweaver J (2015) Storytelling for sustainability: deepening the case for change. Routledge
Merriam-Webster Online (n.d.). In Merriam-Webster. Retrieved April 10, 2019, from https://www.merriam-webster.com/dictionary/create
Milkoreit M (2016) The promise of climate fiction: imagination, storytelling, and the politics of the future. In: Reimagining climate change. Routledge, pp 171–191
Mitchell M, Egudo M (2003) A Review of Narrative Methodology. Australian Government, Department of Defense, DSTO Systems Sciences Laboratory, Edinburgh, pp 1–39
Morris BS, Chrysochou P, Christensen JD et al (2019) Stories vs. facts: triggering emotion and action-taking on climate change. Clim Chang. https://doi.org/10.1007/s10584-019-02425-6
Nikoleris A, Stripple J, Tenngart P (2017) Narrating climate futures: shared socioeconomic pathways and literary fiction. Clim Chang 143(3–4):307–319
Norgaard KM (2011a) Living in denial; climate change, emotions and everyday life. U.S. Toppan Best-set Premiedia Limited

Norgaard KM (2011b) Living in denial; climate change, emotions and everyday life. U.S . Toppan Best-set Premiedia Limited
O'Brien K (2018) Is the 1.5 C target possible? Exploring the three spheres of transformation, current opinion in Env. Sust. 31:153–160
O'Brien K, Hochachka G (2011) Integral adaptation to climate change. J Integr Theory Pract 5:89–102 (13 pages)
O'Brien K, El Khoury A, Schafenacker N, Rosenfeld J (eds) (2019) Our entangled future: stories to empower quantum social change. AdaptationCONNECTS Research Project, University of Oslo, Oslo
Orange DM (2017) Climate crisis, psychoanalysis, and radical ethics. Routledge, New York
Palamos K (2016) Nature, human ecopsychological consciousness and the evolution of paradigm change in the face of current ecological crisis. Int J Transpers Stud 35(2). https://doi.org/10.24972/ijts.2016.35.2.88
Parodi O, Tamm K (2018) Personal sustainability: exploring the far side of sustainable development, Routledge
Pennebaker, J. W. (1997). Opening up : the healing power of expressing emotions: New York : Guildford press, 1997. Rev. ed.
Perspectiva 2019 Research platform that seeks to build the intellectual foundations for a more conscious society: https://www.systems-souls-society.com/. Accessed 30/03/2019
Plumwood V (2002) Environmental culture : the ecological crisis of reason. Routledge, London
Polkinghorne DE (1988) Narrative knowing and the human sciences. State University of New York press, Albany
Rooney T, Lawlor K, Rohan E (2016) Telling Tales: storytelling as a methodological approach in research. In ECRM2016-Proceedings of the 15th European Conference on Research Methodology for Business Management: ECRM2016 (p. 225). Academic Conferences and publishing limited
Sahinidou I (2016) The roots of the ecological crisis and the way out:1 creation out of 'no thing' god being 'no thing'. Feminist Theology: The Journal of the Britain & Ireland School of Feminist Theology 24(3):291–298. https://doi.org/10.1177/0966735015627971
Steffen W, Richardson K, Rockström J, Cornell SE, Fetzer I, Bennett EM, ... Folke C (2015) Planetary boundaries: Guiding human development on a changing planet. Science, 347(6223):1259855
Strauss AL, Corbin J (1998a) Basics of qualitative research. Techniques and procedures for developing grounded theory, 2nd edn. Sage, Thousand Oaks
Strauss AL, Corbin J (1998b) Basics of qualitative research. Techniques and procedures for developing grounded theory, 2nd edn. Sage, Thousand Oaks
Swart RJ, Raskin P, Robinson J (2004) The problem of the future: sustainability science and scenario analysis. Global environmental change, 14(2):137–146
Tainter JA, Taylor TG (2014) Complexity, problem-solving, sustainability and resilience. Build Res Inf 42(2): 168–181. https://doi.org/10.1080/09613218.2014.850599
Thompson M (2011) "The quest for 'clumsy solutions' in Nepal's mountains", Options, Winter 2011, Special Issue on "Human well-being and sustainable development", IIASA (n.p)
Thompson M, Ellis R, Wildavsky A (1990) Cultural theory. Westview Press, Boulder
van der Leeuw S (2019) The role of narratives in human-environmental relations: an essay on elaborating win-win solutions to climate change and sustainability. Climatic Chang:1–11
Veland S, Scoville-Simonds M, Gram-Hanssen I, Schorre AK, El Khoury A, Nordbø MJ et al (2018) Narrative matters for sustainability: the transformative role of storytelling in realizing 1.5 C futures. Curr Opin Environ Sustain 31:41–47
Walsh Z, Böhme J, Wamsler C (2019) Towards a new sustainability paradigm: relational approaches to being, knowing, and doing, submitted to sustainability science, Sustainability Science (forthcoming)
Wamsler C (2018) Contemplative sustainable futures: the role of individual inner dimensions and transformation in sustainability research and education, chapter in: handbook of sustainability and humanities, published as part of the world sustainability series of springer. http://www.springer.com/series/13384 Leal, W (ed)
Wamsler, C. (2019) Education for sustainability: fostering a more conscious society and transformation towards sustainability, international journal for sustainability in higher education (forthcoming)
Wamsler C, Brossmann J, Hendersson H, Kristjansdottir R, McDonald C, Scarampi P (2018) Mindfulness in sustainability science, practice, and teaching. Sustain Sci 13(1):143–162
Whyte KP (2018) Indigenous science (fiction) for the Anthropocene: ancestral dystopias and fantasies of climate change crises. Environ Plan E Nature Space 1(1–2):224–242
Yosef J (2009) Building a conceptual framework: philosophy, definitions, and procedure. Int J Qual Methods 8(4):49–62. https://doi.org/10.1177/160940690900800406