Narratives for engagement, learning and action-taking in support of environmental management

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Background and focus

The necessary social distancing of these corona times made us realize the power of collective action-taking to deal with the various hazards that trigger our society and environment. The government and scientific messages per se are often not enough to promote behavioral change, especially under the need to maintain the economy and a desired life style. The communication about corona measures is not entirely different from the communication about sustainability science where, for example, integrated environmental management approaches are promoted to adapt to floods or other changes in the environmental system.

Aiming at more effective environmental communication, many researchers have experienced themselves the need to explore and adapt their efforts towards more narrative approaches (Cortes Arevalo et al., 2020). This is also the case of our Integrated Assessment Society (www.tias-web.info), whose members try to understand and influence policy and decision-making processes for a better application of integrated environmental knowledge. In light of current research on learning (Suškevičs et al., 2019), we are curious on how narratives can stimulate engagement, learning and action-taking not only at individual but also at collective level (Chabay et al., 2019).

Narratives structured as written, oral, visual stories or a combination thereof seem to stimulate engagement and learning (Shanahan et al., 2019), which serve as an impetus for pro-environmental action-taking (Morris et al., 2019). A key challenge is therefore to explore ways for integrating narrative and learning theories and approaches in environmental management. We take this challenge as a point of departure to present and discuss **three questions** in this webinar:

1. **How do stories influence climate change communication and how do we measure that influence?**
2. **Under which conditions narratives influence human behavior (pro-environmental, pro-social, etc.)?**
3. **How can narrative research contribute to theories on learning and which challenges are ahead?**

Synthesis of presentations and discussions

1. How do stories influence climate change communication and how do we measure that influence?

Dr Brandi Morris is a postdoctoral researcher in the **Department of Management at Aarhus University in Denmark.** She studies how we might improve science communication through the use of stories. Her experimental research focuses on understanding the neurological and psychological mechanisms of influence, decision-making and risk perception in the context of climate change. Prior to embarking upon her PhD, Brandi worked in private sector agencies as a marketing communication strategist. Her integrated campaign work included print, digital and short-film campaigns to raise awareness and funds for well-known charitable brands.

Brandi started her presentation by reflecting on the intended audience of climate change communication. Despite the availability of data and actual occurrence of extreme events, there are generally speaking two audience groups. There are people who are convinced but not taking action even though there are people like us who are very worried. There are also people who are skeptical and don't accept the data. Then, she follows by answering the main question backwards, how do we measure the influence of narratives. Brandi looks at a) risk perception (if you don't perceive it, you can react to a threat), b) outcome efficacy (sense that your action matters), c) emotional engagement or affect (core mechanisms of how stories influence), and d) individual action-taking (actual behavior).

Thereafter, she looks at the mechanisms of influence base on three points: 1) emotion is data, 2) Identity-protective cognition and 3) story as structure.

1) Emotion is data: Emotion is critical for rational decision-making. Behavioural models often distinguish between the slow and analytical processing system (also called system 2) and the more rapid and feelings-motivated system (also called system 1). From the neurological perspective, by addressing emotions, stories strengthen the connection between the rational thinking and the part of the brain were we actually make decisions. From the learning perspective, Brandi says: I feel therefore I learn.

2) The identity-protective cognition broadly relates with the human tendency to process information in a way that affirms their identity and protects their social relationships: "A person's stance on climate change doesn't tell you what they believe, it tells you who they are" – Dan Kahan. By drawing on the cultural cognition theory, there are typically four worldviews (Hierarchy, Individualism, Communitarianism and Egalitarianism). Brandi suggests that values and worldviews help in predicting whether individuals believe in climate change. Using cultural worldviews isn't just about predicting belief – as a communication strategist, it is an extremely solid foundation for crafting stories with characters which resonate with the target audience.

3) Stories as structure refers to the framework in which the story is hang (identifiable character, plot or temporal dimension goal and setting). Story is a detailed, character-based narration if a character's struggles to overcome obstacles and reach an important goal (Haven, 2007). All narratives are stories but not all narratives are stories. One of the ways in which stories influence (narrative transportation) is through identification with the main character. People connect with people and stories are a way of embedding data in a way that the brain can more easily deploy it.

Juliette Cortes: What is the difference between narratives and stories?	Brandi: Stories are a subset of narratives with a character-based account. Therefore, the more than elements such as plot, setting, goal and character are present, you could categorise the narrative level of a story as high or low condition. A low condition is typically a list of facts or information.
Liz Shanahan : How do you measure affect? Is affect different than emotion?	Brandi has compared on her research and information vs story condition (Morris et al. 2019) For a story condition, participants were more likely to have a pro-environmental behaviour for themselves, for others, or to join related initiatives. Such effect (interest to keep involved) lasted for 6 weeks post-study. All of this happened through emotional arousal or affect, which Brandi studied by measuring people heart rate, sweat based on electrodes placed on the hands. Another interesting finding (Morris et al 2020) is that the negative end valence can also lead behavior. For a positive end, the feeling that all is well in our surrounding does not necessarily triggers the need for action. Open questions are under which other considerations this negative end valence has an effect for action-taking. Also Brandi did research using the story of John, the former climate change skeptic, by changing the core-values of the character: Religious vs. Non-religious, Individualist vs. Communitarian, and Hierarchical vs. Egalitarian. Such study (Morris et al, in preparation) looked at the connection or value congruence between the story sender and the story receiver. Participants counterargued less and identified more with their ingroup. Messages for climate change action coming from a disengaged and skeptical person was more effective in terms of heightening risk perception. Such finding might be because participants did not expect such message coming from a person who was skeptic.
Von Hadi Veisi : can you explain more about the story as structure?	Juliette and Larissa: This question is addressed in more detail by Liz in the following presentation.
Von Ã…se Johannessen : really interesting presentation - perhaps a request could be to provide a longer lecture on this forum by Brandi?	Juliette and Larissa: This may be possible in a future TIAS activity upon interest of other participants.

Further reading:

- **Morris, B.S.,** Chrysochou, P., Christensen, J.D., Orquin, J.L., Barraza, J., Zak, P.J., Mitkidis, P., 2019. Stories vs. facts: triggering emotion and action-taking on climate change. Climatic Change 154, 19–36. https://doi.org/10.1007/s10584-019-02425-6.
- **Morris, B.S.,** Chrysochou, P., Karg, S.T., Mitkidis, P., 2020. Optimistic vs. pessimistic endings in climate change appeals. Humanities and Social Sciences Communications 7, 1–8. https://doi.org/10.1057/s41599-020-00574-z
- **Morris, B.S., 2018.** Can stories make climate change communication more effective? Empirical evidence (PhD Thesis). Aarhus University. School of Business and Social Sciences. Department of Management, Aarhus, Denmark.

2. Under which conditions narratives influence human behavior (pro-environmental, pro-social, etc.)?

Prof. Dr. Elizabeth Shanahan is professor for public policy at Montana State University. The overarching research question that guides her work is: What is the power of policy narratives in shaping governmental and individual decisions? in the context of flood hazard preparation, risk communication about pathogen spillover, and human-wildlife conflict. She uses the Narrative Policy Framework to investigate the power of specific mechanisms of narratives in communications about and in perceptions of risk. Most of her work is interdisciplinary, with a focus on the dynamics within the human system as well as the effects of feedbacks from and to the ecological system.

Liz started back from the human interest to know, to tell and to listen to stories. Then, she mentioned that narratives occur and influence at three different levels. There is an individual level (introduced by Brandi) but we also have collective and larger or macro narratives. At the individual and collective level, the audience has priors believes that usually align with their identify and cultural cognition. These priors are filters that the audience apply when they tell or hear stories. And the way that the audience react to these stories includes some affective response. By focusing on the relationship between stories and affect, Liz elaborates into the narrative transportation or feeling of the story experience. The narrative mechanisms to persuade or influence include: 1) characters as part of the narrative structure (victim, villain or hero), 2) the power of images, and 3) the frame or narrative strategy.

1) Besides the characters, the beginning, middle and end also plays a role. Yet, characters are the vehicle for transportation or affect. We measure such affect using a dial technology. Liz shared some results from a narrative study that included a definition, a problem framing, science information and characters in action. There was no much preference for the science information whereas the role of the characters influenced different responses, the more affective particularly from the hero or victim to hero action role. Engaging the audience or putting the audience in a hero role has a better affective response, as compared to other action roles such as victim or the conventional role.

2) The power of images. When priors or previous beliefs are neutral, narratives paired with images increase the affect. There is a less perceptible effect on risk perceptions (impact and likelihood). When priors are strong, images dampen affect when receiving incongruent narratives and increases the affect when receiving congruent narratives. Narratives paired with images increased the likelihood of engaging in action (mediated through risk perception). The difference between neutral and strong is on the effect in risk perception. Risk perception is often used as a dependent variable but there is more to explore there.

3) Last is point is about the frames. Frames are a way to define the problem to the audience. Along with the above narrative mechanisms, narratives have an influence both at the individual and collective level. There is a ton of work to do in venues, plots and causal mechanisms.

Questions & Answers

Von GLOCULL Rao-Williams : Can you repeat what this method is called please?	We use the dial technology in our research group focus groups to understand what works or not.
Brandi Morris: When there is time, I have something to add to what Liz said. (The perceived discrepancy)	Liz mentions that science communicators should not scare people to take them into action but that communicators can actually motivate the audience through positive encouragement. Brandi mentions that making the audience the hero is also an aspect that she found on her research. In addition, a negative end valence encourage the audience to turn the situation around. The fatalistic end valence may also work but it is yet to know under which limiting conditions to avoid scaring the audience. Liz adds that moving from a victim to hero position has also a great effect because it is more about empathy, which may have a great influence for behavior. Ilan adds that there are two aspects to take care when working with narratives, one is about trust and the other is agency.
Liz Shanahan : I wonder if we should discuss the role of misinformation and narratives?	Ilan briefly touched upon this aspect on one of his reflection points.

Further reading:

- **Shanahan, Elizabeth A.**, Ann Marie Reinhold, Eric D. Raile, Geoffery C. Poole, Richard Ready, Jamie McEvoy, Clemente Izurieta, Nicholas Bergmann*, and Henry King*. 2019. "Characters Matter: How Narratives Shape Affective Responses to Risk Communication." PLoS ONE 14(12): e0225968. https://doi.org/10.1371/journal.pone.0225968
- **Shanahan, Elizabeth A.**, Eric D. Raile, Kate A. French*, and Jamie McEvoy. 2018. "Bounded Stories: How Issue Frames and Narrative Settings Help to Construct Policy Realities." Policy Studies Journal46(4): 922-948. DOI: 10.1111/psj.12269
- **Shanahan, Elizabeth A.**, Michael D. Jones, Mark K. McBeth, and Ross Lane*. 2013. "An Angel on the Wind: How Heroic Policy Narrative Shape Policy Realities." Policy Studies Journal41(3): 453-483. DOI: 10.1111/psj.12025
- **Shanahan, Elizabeth A.**, Michael D. Jones, Mark K. McBeth, and Claudio M. Radaelli. 2018. "The Narrative Policy Framework." Christopher M. Weible and Paul A. Sabatier, eds. The Theories of the Policy Process, 4thEdition, (pp.173-213). Boulder, CO: Westview Press.
- Guenther, Sara K. and **Elizabeth A. Shanahan**. "Communicating Risk in Human-Wildlife Interactions: How Stories and Images Move Minds." Under review at PlosOne.
- Raile, Eric D., **Elizabeth A. Shanahan**, Richard C. Ready, Jamie McEvoy, Clemente Izurieta, Ann Marie Reinhold, Geoffrey C. Poole, Nicolas T. Bergmann*, and Henry W. King*. "Narrative Risk Communication as a Lingua Francafor Environmental Hazard Preparation." Under review at Environmental Communication

3. Reflections: How can narrative research contribute to theories on learning and which challenges are ahead?

Prof. Dr. Ilan Chabay is Head of Strategic Science Initiatives and Programs and the knowledge, learning, and societal change research alliance at the Institute for Advanced Sustainability Studies. Over the past decade, his focus has been on understanding and facilitating processes of societal change toward just and equitable sustainable futures, including understanding scientific, local, and cultural knowledge systems for decision-making on common resources; characterizing the role in different cultural and socio-economic contexts of affective narratives of vision and identity in guiding and motivating collective behavior change; and the potential utility of narratives in modeling social dynamics.

Ilan makes the link with learning as a process of making meaning from the data or information that we receive. Such data or information trigger slow or fast responses with the system 1 or 2. However, this information comes from the complex or multi-dimensional world that we live in. Social identities, culture and norms (what is acceptable) influence our choices of what we make meaning of and how do we put that meaning into our framework.

In doing that, stories, frames, metaphors, and narratives are forms that give voice to our visions and social identities. However, we do not have just one identity, but many identities associated with our social environment (e.g., family, academic or work group). These social identities work independently and simultaneously. Narratives in general and concise affective narrative expressions (CANEs) in particular help us to decide what to pay attention to, what to filter out, and how to structure the information from the different information systems that are sources of information (economical, environmental, bio-physical, etc.). Narratives reduce the high dimensional complexity of real world, so that we can remember and take decisions. Narratives help to establish, reinforce and maintain culture and group identities to provide a platform for decision making on group issues that are important to the receivers of the narratives.

Narratives may be expressed in various formats to enhance their resonance in different contexts and cultures through dance, music, theater, sculpture and images. Different communities and individuals may give different meanings to the same narrative which often leads to conflict. Stories and tales that are characteristic of a particular culture are mechanisms to learn within the culture and may also carry the ideas from one group to another.

Ilan finalizes his talk with some reflection questions:

1. On this talk, we have looked at specific narrative elements such as the character, and the framing, and the images. Do the combined elements of narratives enhance their impact on cognition and emotion?
2. How can we learn more about implied and implicit narratives, which often are based in tacit biases, beliefs and values?
3. Will greater insights into underlying motivation and backstories for narratives help us get beyond the technological "arms race" of misinformation and conspiracy theories. Can we thereby better address the needs of communities in moving toward sustainable futures.

Lorenzo Benini (EEA) : Is there a risk of fostering an ongoing dangerous polarization of environmental/sustainability debate if communication relies too much on system 1 in pushing for the 'right narrative'? Should not be sustainability communication about stimulating the ability of appreciating multiple perspectives and values at the core of sustainability?	Liz and Brandi reject the thought of a right narrative because of a plurality of values and ways of thinking. We need to have a plurality of narratives and different options that respond to their different priors. Multiple narratives from multiple perspectives are needed.
Jennifer Rao-Williams : just to share some work relevant to experience of lived experience raised by Paquita (maybe this is already a known source but if not....(see further references)	
Paquita Perez - OU : Liz and Ilan, good that you bring in the award system within the academy, and its (loss) of engagement- this is very important to address !	

Discussion

Ilan starts the discussion by asking Brandi about "the emotional being essential for rational decision making" and questions the subjective assessment what is considered rational and what irrational that can be linked to individual meaning making or learning. Brandi agrees and further explains that she looks at rationality from a neuro science perspective where cognition and affect go hand in hand and therefore emotion is data. What appears to be rational is quite adaptive in the sense that humans are social beings and belong to social groups and therefore updating beliefs is depending on the social context in which a human is embedded. Ilan quotes Margaret Somers' "narrative identity approach" and Brandi totally agrees that this especially as it speaks to the risk as feelings hypothesis, as emotions play a major part in how humans subconsciously make and anticipate decisions. Ilan further challenges the classical economics approach of 'bounded rationality' and we keep on bumping into that.

Paquita is interested in connecting knowledge with lived experiences in the realm of climate change and raises the question to the presenters to evaluate how lived experiences could play a role in making narratives more explicit, so trying to make narratives from the lived experiences of people, and then further analyze specific narrative elements in the stories these people tell. Elizabeth tells from her own research that e.g. in the flood experiment they did many interviews before, coded them and then used natural language processing software to identity verbs and cultural references that would make sense to the audience. Otherwise, if scientists would invent these narratives, there would be many biases in it obviously. Deconstruct and reconstruct narratives is a quite difficult part and requires careful scientific approaches. Brandi adds that people, who have personal experiences with climate related events, and depending on their initial priors, narratives do not necessarily change their views on climate change. So, people, who are skeptical about climate change, and then have personal experiences with climate change, do not necessarily update their views to think that these events were caused by climate change. But there is room left for more research on how this information was structured, and who the messenger was, who the main character would be, and how this particular person would identify with this information. Elizabeth, however, stresses that from her point of view the lived experience and personal perspective is still quite important in terms of the influence of narrative. But in essence, Brandi and Elizabeth agree that findings from their research suggest that experience has rather low influence on personal choices or decisions. Ilan disagrees with that because lived experiences are not only on the individual but also group level, so not only the individual lived experience, but what a particular group

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has experienced. Paquita agrees with Ilan that broad contextual influences also effect these lived experiences.

Elaine who was also attending a KLASICA symposium on narratives organized by Ilan (see references), thanks the presenters and appreciates the interdisciplinary exchange here. From an educational perspective, she is interested in how narratives and storytelling facilitates learning in the classroom, and she thinks learning sometimes needs to go beyond the classroom. Elaine thinks that people start to construct different realities in a social group context. Therefore, what she is wondering how to use narratives for learning in these group settings. Ilan addresses these socially constructed realities and asks what the basis of this construction is on which they base their reality. Looking behind the narrative becomes important in order to think about what the source of their concern is and what this group represents. He discusses the example of gun rights in the US and explains that mostly it is about individual power and agency, as well as a libertarian perspective. Addressing this in a non-confrontational way is the only way to change these views, says Ilan. The crucial thing to identify is to find common grounds on which dialogues between disagreeing communities can be built.

Lastly, László Pintér wants to comment on the individual versus social learning and construction of narratives. When assuming that learning departs from a social setting, do we as researchers take this as a result or should we rather facilitate? He points out that the collective construction of narratives as a learning process, and new insights that emerge from that, can be facilitated. In the context of climate change, he remembers that research was dealing with First Nations experiences of climate change in the high arctic, but those individual experience did not cohere as collective knowledge and he thinks that research has helped to create that common community learning and narratives. So in that sense the forum that was provided by research was quite catalytic. But he is wondering how to facilitate this and whether this is also on the presenters' agenda. Brandi raises that she has difficulties with this as she is an empiricist and practical, and she would take a more practical approach by not assuming that there is one-size-fits-all story, but the messenger really needs to resonate with the audience. And when she was talking about values as a core communication strategy, it would be helpful to target messaging to the types of values and worldviews rather than to create one global message, which sounds very good on paper and sounds ideal, but is not necessarily the best predictor. Usefulness of a narrative is basically linked to core values, which are linked back to goals and motivation. Liz had a very different thought and points out a dangerous disconnect between empiricism and activism from her experiences in academics. And in the realm of climate change, we see increasingly the activism as what does a scientist says needs to happen as opposed to what science says. Therefore, she concludes that science communication has been afraid of stories, but that it is through stories that we can make a difference and bring about change as a researcher, which some researchers consider an obligation. Ilan points out that finding a common ground again is important, as well as how one engages with a diverse group. There are presumably power differences, hierarchies and entrenched views and needs that can vary enormously. And if a researcher is going to be successful on the one hand of understanding this process from the academic perspective, and on the other hand, from the advocacy perspective, to use this gained understanding to facilitate these processes, then we as researchers have to think really hard how we essentially engage in a dual role ethically.

Further reading and references
- Chabay, I., Koch, L., Martinez, G., Scholz, G., 2019. Influence of Narratives of Vision and Identity on Collective Behavior Change. Sustainability 11, 5680. https://doi.org/10.3390/su11205680

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- https://www1.uwe.ac.uk/et/research/cwcr/cfcr/researchprojects/triallingdigitalstorytelling.aspx (Link shared by Paquita Perez)
- https://rsprc.ntu.edu.tw/en/m06-2/upcoming-events/284-news-en/1499-klasica-2020.html (Link from the discussion to the KLASICA Taipei symposium, shared by Ilan Chabay).