Brief Report

Local Storytelling for a Climate-Friendly Future: An Evidence-Based Approach and First Prototyping Results from the Region of Lake Constance, Germany

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Abstract: For achieving climate targets, public engagement is key. Climate communication can play an important role here. Telling regional stories of successful climate action seems a promising form of climate communication: It may convey a feeling of 'So this is what climate action looks like – and it is people like you and me who are starting to take action.' This transformative research project (1) formulates hypotheses on what could make such local climate stories effective, (2) then identifies, produces and disseminates stories in the region of Konstanz, Germany, following a rapid prototyping approach, and (3) analyzes the effect of the stories by using focus groups. So far, two prototyping series of filmic story production have been completed in 2022/2023 and some initial insights were derived: Potential protagonists seem willing to tell their stories, and the stories have a potential to inspire people. Technical film quality is relevant. The stories must be selected and told carefully (who is portrayed, which actions are interpreted as success, through which channels are the stories shared), in order to create resonance with different target groups. Next steps are continuation of film production prototyping, a broader sharing of stories, and thorough impact research by focus groups.

Keywords: climate communication; storytelling; public engagement; climate action; sustainability

1. Introduction

Climate science is clear on the need for ambitious climate protection: The 2020s are considered a crucial and "rapidly closing window to secure a livable future" [1]. With the Paris Agreement, ambitious political targets have been agreed upon internationally [2]. However, and like in many countries, the implementation of the climate and energy transition falls short of what is required in Germany [3–5]. People in Germany do care about climate [6–8], and a majority of the German population is already experiencing severe or very severe effects of the climate crisis [7]. However, many are not yet taking climate-friendly decisions in their sphere of decision-making, whether in private (= footprint) or as part of companies and organizations, or as citizens who develop an acceptance for new climate regulations or even actively participate in the political processes to promote such regulations (= handprint, for a holistic study of the handprint concept see [9]). A recent study highlighted an increasing risk of climate issues polarizing the German society [10]. Climate communication may support public engagement – especially so, if it creates identity and appreciates different values and worldviews so that people outside the climate movement start to feel climate protection is also THEIR issue [10].

Research on climate communication has clearly shown that the "information deficit model" does not work: A greater amount of better understandable information made more widely available does not lead to a significant change in the beliefs and actions of the recipients of this information (e.g. [11], [12]). Instead, aspects such as proximity in space and time (e.g. [13], [14]), connecting to people`s identities and values (e.g. [15]), trust in communicators (e.g. [16]) and demonstrating that social norms are changing towards more climate-friendly (e.g. [17], [18]), can play an important role. A promising approach seems to be storytelling [19,20], as stories appeal to the more emotional part of our perception. This emotional part is difficult to reach via graphics and facts alone, but central to our perception of risk and our motivation to take action [21]. Stories may play a role when scientist

communicate climate science (e.g. [22], [23]). And, tapping into social psychology, stories could also support public engagement by shifting social norms. This seems promising, because social norms have a major influence on our behaviour (e.g. [24]), both for personal climate action and for the support and acceptance of climate policies [25,26]. Therefore, showing a variety of stories of people taking climate action may well build engagement ([27], for a pointed argumentation see [28]). Some ideas have been developed on such climate storytelling in a university context [29].

In practice, the German foundation FuturZwei follows such an approach by publishing socalled "stories of success" ("Geschichten des Gelingens"), i.a. via an online magazine and book publications (https://futurzwei.org/zukunftsarchiv). In an effort to adapt this approach to a local context, in 2020/2021 a time-limited student project at the University of Applied Sciences Konstanz and the University of Konstanz, Germany, identified corresponding local stories and prepared them in text form (https://www.konstanzer-geschichten-des-gelingens.de/). A related project, with a focus on climate and environmental protection, started in Great Britain in 2022: The "Local Storytelling Exchange" wants to inspire people by creating a sense of 'This is what the green transition looks like' (https://localstoryexchange.org/).

Inspired by these projects and earlier work, the project "Klimaköpfe" (imperfectly translated as "Climate Minds") was developed in the region of Konstanz, Germany. Project targets are (1) to tell regional stories of successful climate action by 'people like you and me', (2) to analyze this type of climate communication in terms of its effectiveness to enhance public engagement, and in case effectiveness can be proved, (3) to identify potentials for up-scaling and multiplication. The project started in 2022. Based on hypotheses (what could make this kind of stories effective for different audiences), first prototypes of stories were produced in two subsequent university courses at the University of Applied Science Konstanz (Oct 22 – Jan 23, Mar – Jun 23). Films were shown in an informal context (participating students, protagonists, selected guests) and feedback collected. This paper reports on the basic hypotheses and early results from experiences during the two prototyping rounds.

2. Materials and Methods

The project "Klimaköpfe" is designed as a living lab (for an overview on this research approach, see e.g. [30]). Following a transformative research approach, the project links scientific and real world expertise. It aims to both generate transition knowledge and contribute to the sustainability transition itself. It follows an agile approach and includes rapid prototyping – concepts that foster user-centred innovation, and originate from software development [31] and design thinking [32]. Table 1 gives an overview of the planned research design.

Table 1. Project "Klimaköpfe" – research design.

Research design
1. Formulation of hypotheses: - How should stories of climate action be told to effectively reach different segments of society?   - Based on research results and field experience.
2. Production of stories: *   - Identify and recruit protagonists of possible stories.   - Produce short films in several rapid-prototyping series.   - Base subsequent film production on evaluation of prototypes.
3. Test effectiveness of films in focus groups: - Develop script for focus group test.   - Represent different segments/target groups in one focus group each (e.g. 1 "progressive", 1 "low-income", 1 "conservative")   - Recruitment of focus group participants from the Konstanz region & implementation.
4. Analysis of focus group data: - How did the focus groups react to the films? What was perceived as inspiring and convincing, what was perhaps more off-putting?

- If necessary, supplementary quantitative analysis (survey).
- Compilation of results as a handout.
5.   Webinar to present and discuss the results:
- Transferability of results to the German context.
- Potential for multiplication and scale-up.

* The project is currently in early phase 2.

In a first step, hypotheses were developed, on how and by whom stories have to be told in order to be effective to a diverse range of audiences. The development of these hypotheses was based on a review of relevant research, and was supplemented by informal conversations with selected experts in the field (practitioners of communication, climate communication and climate storytelling).

In a second step, and informed by the hypotheses formulated in step one, film production started. Film production follows a rapid-prototyping approach. That means, first prototypes of the planned storytelling films were produced early on. In this way, practical experience could be gathered and first evaluations be done in an early stage of the overall project. Insights emerged from the numerous discussions and conversations along the project process so far. In addition, informal discussion after screening of the films in front of small audiences provided important feedback from participating students, protagonists, faculty members and selected guests. Some of these insights could already be incorporated into the second prototyping series. The selection of protagonists was informed by the hypotheses of phase 1. Hitherto, personal networks of the author were used to identify and approach most of the specific protagonists. Several rounds of prototyping are planned, until film quality is considered as "good" by project participants and target audiences. At the moment of writing, two rounds have been accomplished.

This paper summarizes the hypotheses underlying film production, a first evaluation of film effectiveness, and an outlook on the project future. As shown in Table 1, the future project includes further prototyping rounds of film production in ongoing phase 2, followed by phase 3 and 4, where the effectiveness of films with different audiences will be analyzed by focus groups, and phase 5, dissemination of results to climate communication practitioners in the form of a handout and webinar.

3. Results

This section presents (1) the hypotheses formulated on effectiveness of regional stories on climate action, and (2) first results from two prototyping rounds of film production.

3.1. What might make regional storytelling on climate action effective?

Some hypotheses were drawn on how and by whom stories need to be told in order to be effective. Table 2 at the end of this section summarizes the hypotheses.

- Communicating hope seems to motivate action (e.g. [33–35]). Hope can be nurtured by showing good examples of climate action [36,37]. In doing so, it seems to be relevant to tell authentic stories and not fall into bright-siding (e.g. [38]). Since climate action at large is about many people beginning to engage with climate by changing lifestyles and other decision-making, stories that show how someone has started to act and what made them start could be helpful [18].
- Greenhouse gases are invisible and thus not tangible. Climate and climate action are often perceived as global issues, distant to people's realities. This leads many people to not act on the issue (e.g. [13]). Therefore, an important task of any climate communication is to "bring climate home". To achieve this, presenting local / regional stories seems particularly promising (e.g. [39]).
- Effective climate communication should connect to people's different values and worldviews (e.g. [15,26,40,41]). We trust people that speak to our own worldview or even belong to our community [42]. In order to reach different audiences with the stories in this project, it seems

important that stories portray people with different worldviews and backgrounds, so that different audiences are able to recognize someone to identify with.

- Another important aspect is how the stories frame climate action. We know that different framings trigger different associations with people – depending on whether these framings resonate with their values or not (e.g. [15,43]). Climate is often framed and understood as an environmental issue – and as such resonates well with environmentalist segments of a society. However, climate is likewise a most important issue for energy systems, the economy, human health, food security, agriculture, forests, landscapes, or building construction. It is important to build bridges to people for whom environmental framings do not work so well (e.g. [44]), and by selecting stories accordingly, new framings could emerge from the project.
- While moralization can provide people with a powerful motivation to act, it often also lets people react in a defensive way. A solution here seems to be non-moral framing of climate action [45]. Telling a personal story may be a good way to do so [46].
- People know that their personal action (such as lifestyle changes) must be complemented by action from others, such as other citizens, politics and the economy [47]. Therefore, it seems promising to tell stories that link individual action with collective action, or to include stories of different kinds of climate action into the overall portfolio of stories (see also: [28]).
- Successful relationships and belonging are of great importance to us, and there could be an added value when well-working relationships become visible in the stories [48].

Table 2 presents an overview of the aspects mentioned, and complements them with concrete ideas for implementation in the project.

Table 2. Hypotheses on the effectiveness of climate stories – and ideas for implementation.

Important aspects	Ideas for implementation
Inspire hope	- Show climate action - Show how others have started to act
Spatial closeness	- Local / regional stories - Make story show the local context
Link to different values of diverse audiences	- Protagonists with different world views
New framings	- Show climate as a health, building, energy, forest, agriculture (etc.) issue - Select stories/protagonists accordingly
Beware from proselytising	- Tell authentic stories, including ups and downs - Show that protagonists are normal human beings like you and me
Collective action	- Show examples of individual action that is part of, aiming at, or linked to different forms of collective action
Attractiveness of belonging	- Show how climate action links to protagonists' social relationships (if appropriate)

3.2. Results from two prototyping series

First of all, all protagonists who were asked to tell their story agreed to get involved and also to the publication of the produced short films via youtube. This indicates there is probably a willingness among people who take climate action to share their stories – an important prerequisite for the success of a storytelling project. It turned out that technical film quality matters a lot (e.g. audio quality, editing technique, uniform appearance). This was described as requiring major improvement in series one. In consequence, the production and post-production process could be substantially improved with the second prototyping series by starting a cooperation with students and a lecturer trained in the field of film production. The development of a uniform design (incl. opening credits, closing credits, lower third of the films, and a communication infrastructure such as website, YouTube channel) also advanced the project substantially in round 2. Table 3 gives an overview of the two prototyping series and some essential aspects.

Table 3. Overview of the two prototyping series.

	1st prototyping series	2nd prototyping series
Time frame	Winter semester 2022/2023 (10/2022-01/2023)	Summer semester 2023 (03-07/2023)
Protagonists	Renewable energy entrepreneur, forester, architect, founder of an e-car sharing service, timber engineer, doctor, cafeteria manager, project engineer of an energy agency	Gardener of a solidarity farm, owner of a kebab shop, managing director of a housing cooperative, doctor, T-shirt producer, mayor
Film team	Students of the Bachelor program Environmental Engineering and Resource Management (+ 1 lecturer)	Students of the Bachelor programs Environmental Engineering and Resource Management, and Communication Design (+ 2 lecturers)
Technical equipment	Camcorder and other, privately organized cameras, camera built-in microphone and/or mobile phone microphone, various editing programs	Professional high-resolution film cameras, extra equipment set for sound recording, standardized editing program
Core lessons learnt	- Protagonists want to tell their stories - Stories have the potential to inspire - Technical film quality must be improved (e.g. sound, cutting, overall appearance)	- Film quality & appearance have reached an appropriate level - Selection of protagonists and stories needs to be well considered - Wider sharing of stories combined with effectiveness research is an important next step

Regarding the hypotheses formulated earlier, some preliminary conclusions can be drawn.

- *Inspire hope:* The films resonated well with the audiences. Participants expressed how the stories of both prototyping series were inspiring, despite the partly poor technical film quality in series 1. The films obviously stimulated engaged conversations.
- *Spatial closeness*: The stories told so far are all from the region of Konstanz – the majority within a circle of 10 km around Konstanz, and the most distant about 100km away from Konstanz. The regional context was perceivable in all films, e.g. because typical regional locations were chosen for filming (e.g. the Lake of Constance in the background or the main pedestrian area in the city center of Konstanz), or when protagonists included place while telling their story. It seems this happened rather intuitively. Instructions for future film production could include a hint on the importance of showing the local context of a story.
- *Link to different values of diverse audiences*: The attempt to show a demographically diverse field of protagonists was partly successful, for example protagonists included young professionals and people with a migration background. However, it can still be improved, e.g. by showing more female protagonists and low income protagonists, and also students and elderly.
- *New framings*: The project was able to tell "new stories". Participants explicitly emphasized the broad range of topics covered, e.g. connecting "forest" and "health" to climate. This was described as surprising and enriching. The stories thus seem to contribute to a broader framing of climate.
- *Beware from proselytizing*: The people portrayed were perceived as approachable. One participant said how important it was for him that such heroes would not come across as "saints", and that this was well achieved. Another participant emphasized, that for him, the weakest story was the one in which he immediately perceived the protagonist as a typical "leftist-green do-gooder". This is a first confirmation of the chosen approach to try to not place the "usual suspects" at the center of most of the stories.

- *Collective action*: While not on purpose, on a closer look all stories told so far show climate action as part of protagonists' professional life. This neglects decisions in people's private life (such as mobility or dietary choices, energy retrofit of family home), and also the political sphere. Several feedbacks criticized this. The selection of future stories should probably also include lifestyle changes and political action.
- *Attractiveness of belonging*: Some stories touch upon "successful relationships", but rather implicitly (e.g. a protagonist describes running his business together with his wife and daughter, or the Car-Sharing founder talks about the great community of Car-Sharing members that motivate her). It should be considered how a more systematic integration of this aspect could look like. One idea here is to include film sequences (B roll material) that include interaction of the protagonist with others during their climate action. Another idea is to portray not one person, but two people who together organize a climate initiative as part of a team.

Some new ideas and aspects emerged during the first two prototyping series, inspired by recent political developments and the media discourse in Germany. First, many people's realities are shifting in the current time of multiple crisis and rising prices, and it seems to become more important to link climate action to needs people are deeply concerned about, such as new collective infrastructures in transport and services of general interest (cf. [10]). While some stories touched upon these issues (car-sharing, energy services), the question arises, whether and how stories could present climate action that addresses these issues in more detail. Second, recent months saw a heated dispute around a new German heating law, regulating the phase-out of fossil fuel heating systems. This led to the question, whether regional stories could support acceptance for national climate policies by illustrating how successful implementation on the ground can look like, and how perfectly ordinary people are already contributing to this. The selection of topics for future stories could thus follow or anticipate the national policy discourse. Concrete ideas here are the portrayal of an entrepreneur who installs heat pumps, and an energy consultant who guides homeowners through the energy retrofit of their buildings.

4. Discussion and conclusion

The story-based climate communication project "Klimaköpfe" follows some scientifically derived hypotheses on effectiveness. First experiences and findings were gathered from two prototyping series of storytelling short film production. Although these findings have to be considered as preliminary due to the early project phase and the still outstanding systematic research, valuable insights emerged: To begin with, the agility of the research project approach has proven valuable in that it allowed to gather these insights. The hypotheses formulated in the beginning turned out to be valuable guidelines for both the practical act of storytelling, and a first evaluation of the resulting stories.

It turned out that the selection of stories and protagonists is of great importance. It could be done more integrative in the future project. A deeper reflection seems worthwhile on what "successful climate action" actually is. Probably, "success" is defined differently by different segments of the population. So it matters for whom exactly stories are told, and it would be worthwhile to analyze what "success" means for different kinds of people.

The integration of professional film expertise seems to be key when telling in a several minute short film format. It will be continued for the next prototyping series through a cooperation with lecturers and students of the Communication Design Department of the University. Furthermore, it was suggested to try out other film formats, e.g. so-called "vlogs", which follow a protagonist by film sequences covering a certain period of time in the style of blogs. Also, 5-minute films are certainly not the only possible way to tell stories, and it should be elaborated on which other and supplementary formats (e.g. "shorts", "reels" and short film sequences for other social media platforms, but also texts or real world storytelling events) would be suitable and how these could be produced and organized. With film quality reaching a sufficient level, it becomes increasingly important to figure out which channels can be used to share the stories. Channels under consideration may well differ, according to target groups. This should be a main focus of further practical work.

With regard to a methodologically sound effectiveness research, it is important to acquire funding or find other pragmatic ways for implementation. If analysis confirms the effectiveness of local storytelling for enhancing engagement of diverse audiences, and if the project succeeds in opening up channels for a wide distribution of stories in the region, it would then seem that this form of climate communication can indeed make a valuable contribution to building a public engagement infrastructure. A resulting core question would then be how to scale up the storytelling approach, i.e. how the stories happening in any given region could be made visible and effective. This would help to build momentum for climate action – which we so urgently need.

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