J-READING
JOURNAL OF RESEARCH AND DIDACTICS IN GEOGRAPHY
2, 8, December, 2019, pp. 63-70 DOI: 10.4458/2801-04

Just like a movie: teaching visual storytelling on water

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Received: November 2019 – Accepted: November 2019

Abstract

The article reflects on three years of experience in teaching visual methods for water communication in a multi-disciplinary and multicultural context at IHE Delft Institute for Water Education (The Netherlands). After introducing the course objectives and structure, and the students' experiences and evaluations, the article addresses three main challenges – finding a suitable case study and location to shoot; dilemmas in script writing; software and equipment for editing – and concludes by highlighting how video-making can foster skills for collaboration and interdisciplinarity.

Keywords: Education, Storytelling, Video, Visual Methods, Water

1. Trailer

Every year almost two hundred students from all around the world – most of them are mid-career water professionals from Latin America, Sub-Saharan Africa and South East Asia – enroll in one of the 18 months MSc programs at IHE Delft Institute for Water Education (The Netherlands): Water Management and Governance, Urban Water and Sanitation, Environmental Science, and Water Science and Engineering. After foundation courses specific to each program, students are encouraged to choose optional courses addressing water related topics from an interdisciplinary perspective and teaching some skills to work with and across different disciplines. Among these courses there is the one-week summer course "Visual methods for water communication". The course builds on the growing interest in the visual in studying and communicating water issues (Rusca, 2018; Fantini, 2017); it approaches storytelling not only as a technique to make science communication engaging and relevant (Joubert, Davis and Metcalfe, 2019), but also as a research tool complementing more conventional and quantitative methods, for instance model simulations in climate change science (Sheperd et al., 2018).

Making a parallel between the summer course and a movie, this article presents three years of experience in designing and teaching a course on visual methods for water communication in a

multi-disciplinary and multicultural context, reflecting on what the staff (course coordinator and lecturers) and the students learnt. The article firstly introduces the summer course structure (the plot), and the students as protagonists (the cast), and then focuses on three main challenges (set, script and equipment) encountered by the protagonists, to conclude with a happy-ending reflection on video-making as a collective, collaborative and inter- or trans-disciplinary effort.

2. Plot: lectures, workshop and public events

"Visual methods for water communication" has been offered by IHE Delft as a one-week summer course (1 ECTS) for the past three years (2017-19, at end of July/beginning of August).

The learning objective is that by the end of the course students should be able to combine different visual methods to create their own video to communicate scientific data and stories about water. Learning objectives, teaching activities and assessment are aligned (Biggs and Tang, 2007) with the making of a video, which is the objective, the main activity, and the output that gets assessed at the end of the course.

The course consists of lectures, a workshop on video storytelling, and two special events. In the lectures, students have the opportunity to acquire theoretical and practical knowledge on visual methods and communication from a multi-disciplinary perspective, as well as to reflect on the work they are doing in the workshop. Lecturers are researchers with backgrounds in political science, geography, data analysis, geology and civil engineering, as well as media and communication experts. Topics covered in the three editions of the course were: "Participatory visual research/Photovoice" (Emanuele Fantini, IHE Delft), "Visualising gender in water governance" (Tatiana Acevedo Guerrero, IHE Delft), "Practices and ethics of video for research in water governance" (Maria Rusca, Uppsala University), "Data visualization: Making data tell stories" (Joanne Craven, independent consultant), "Waters from above: aerial images with drones" (Paolo Paron, IHE Delft), "How to create effective storylines" (Juliette Cortes Arevalo, University of Twente), and "Once your video is ready: how to design a communication strategy" (Abraham Abhishek, Meta Meta-The Water Channel). On the basis of student feedback and staff assessment, the time allocated to lectures has been steadily reduced throughout the three editions of the course, from four half-days to two half-days, to allow more time for the video storytelling workshop (particularly for the video editing process). The schedule of the last edition of the course is presented in Table 1.

Roland Postma (Moviorola), a Dutch filmmaker specialized in science and water communication, runs the video storytelling workshop, with the technical support of Wim Glas (IHE Delft IT Department). Working in small groups of three or four, the students learn the basic dos and don'ts of video-making: the importance of audio, light, how to set up an interview (to practice interviewing students record each other's expectations at the beginning of the course), how to write a script (telling a story in five shots), focusing in particular on moving from science to video, from knowledge to feelings, from information-line to storyline. By the end of the second day, the students have developed a script for their own video and on the entire third day they go filming outside – including with a drone – in a specific location/case study near Delft. The fourth and fifth days of the workshop are mostly dedicated to editing the footage and finalizing the videos.

Two public events complete the summer course. At the beginning we organize a "Show and tell" evening during which students can present a short water related video, image or object that they like, to practice storytelling and to inspire the rest of the group. During this event we also screen videos or documentaries on water by other researchers, with the authors present. The second event, at the end of the course, is a public screening of the videos made by the students, to celebrate and reward their efforts!

Day	Topics
1	*Morning (lectures)* Introduction: why water scientists should tell stories? Storylines and case study
	Afternoon (workshop) Video storytelling: how to film people. Students record interview about their expectations on the course.
2	*Morning (lectures)* Water from above: aerial images with drones Data visualisation: making data tell stories
	Afternoon (workshop) Video storytelling: preparing scripts/storylines
3	Workshop video storytelling: field trip for filming *(all day)*
4	*All day (Workshop)* Video storytelling: editing
	Evening (Public event): Tell and show event
5	*Morning (Workshop)* Video storytelling: Final editing
	Afternoon Recording of students' evaluation of the course *Public event:* Final presentation of the videos and feedback to students.

Table 1. Schedule of "Visual methods for water communication" 2019 edition.

At the end of the public screening, back in the classroom, the staff give feedback to the students on their videos by assessing: quality of the storyline, relevance for the target audience, quality of images and sound, editing, and special effects (data visualization, aerial images… if applicable). Using video as a group assignment allows staff to both assess the collective work and its individual components (storyline, audio, images, editing…). Every student has a specific task within the group, so they can also easily get specific feedback on their individual work.

3. Cast: students' experiences

In "The science of storytelling" Will Storr argues that stories are firstly and foremost about people and characters, and the way they change and evolve throughout their journey (Storr, 2019). In this section we present our cast – the students – and how they were transformed by the course.

The course is open to IHE Delft MSc and PhD students, as well as to external participants[1]. An average of 15 participants registered for each edition. Most of the IHE Delft MSc students are mid-career water professionals from countries in the Global South. Usually they do not have previous experience in video-making, visual communication or storytelling. As a result of the plurality of their disciplinary (social, natural or engineering sciences), national and professional backgrounds, course participants have very diverse approaches and ideas about what science is and how water can be known and represented, as well as very different media aesthetics and communication styles. In 2019 we had 18 students from 18 different countries! However, even within such a multicultural group, it is interesting to remark how global media outlets and platforms, such as Netflix or the Ted Talks, facilitate the circulation and adoption of "global" communication styles or editing choices. For instance some students commented on their choice of inserting the title of the video after an initial scene, as something inspired by Netflix series.

Students' expectations about the course are collected during the first day, when they are asked

[1] In 2019 we could accommodate five external participants from institutions in the Global South working with IHE Delft thanks to the support of the Global Partnership for Water and Development funded by the Dutch Ministry of Foreign Affairs.

to practice video interviewing by recording each other. Expectations usually are formulated in the general in terms of "learning some skills to make a video and to improve my communication skills". More interesting is to assess these expectations against the final evaluation of the course, recorded in the last day, when students are video-interviewed to answer the following questions: *i)* what did I learn? *ii)* what did I like? *iii)* what can be improved?

Five main comments recur in students' evaluation. First, they are positively surprised by the amount of things they could learn in only five days and by what they were able to deliver as output of the course. Often the students link this to the hands-on and practical approach of the course, which seems highly appreciated. Students enjoy being challenged since the very first day of the course to apply the knowledge and skills that are taught, for instance by practicing video interviewing. They also appreciate the opportunity of engaging with all the different tasks required for making a video: writing the script, handling camera and microphones, interviewing or being interviewed, vlogging, or flying a drone. Finally, among the unexpected things learned during the course, students also list the skills to collaborate with other people.

The second recurrent comment is that the course it is actually a lot of fun! Students enjoy filming, acting, creating stories and especially spending one day filming on the field (contrary to stereotypes, in the Netherlands there are sunny days too!).

Third, students describe the course as very intense. Sometimes too intense: several comments point at the need for a longer course to achieve its objective. Developing stories and video editing are usually mentioned among the most demanding activities. The course is considered intense also in terms of eliciting strong feelings or emotions, particularly when students step out of their comfort zone to act or speak in front of the camera.

Finally, the course inspired students' creativity, making them look at science and data from a different perspective. This applies in particular to students with backgrounds in engineering or hydrology, discovering that "telling a story is as important as data and statistics" (as mentioned by one student in the 2017 evaluation), or that emotions can also be an effective entry point to convey scientific knowledge and messages. After taking the course, students are eager to apply the techniques learned in their future work, like for instance to pitch their MSc research thesis or to communicate its findings. Indeed, a student who joined as external participant took advantage of the course to improve and finalize her own documentary on flood prevention in the Netherlands[2].

4. Highlights

Storytelling manuals teach that the protagonist has to go through challenges, difficulties and unexpected turns that build tension and keep the audience's attention before the plot is resolved with a positive change and the happy ending (Storr, 2019). The main challenges that we experienced in our summer course were related to *i)* finding the most suitable case study and location to film, *ii)* developing captivating stories, and *iii)* editing good videos in a limited time with the available equipment.

4.1 Searching for the perfect set

Spending one day outside for shooting is one of the activities most appreciated by students, and during the day they learn a lot. We therefore take particular care in choosing the location and the case study to film, every year trying to improve and add new elements.

The challenge consists in finding the right balance between logistics and content. From the logistical point of view, the location should allow different students' crews to work at a reasonable distance for the staff to follow and advise them, and for the students to share equipment or props. In terms of content and topics, the case study should inspire meaningful stories and videos, allowing to film people in action. The case should

[2] Cristina Pinto Mosquera, "Once in a lifetime. A story on living with water from the Dutch perspective" available here https://flows.hypotheses.org/858.

not be too complicated, in order to avoid students spending too much time in understanding it before being able to dive into storyline development and video-making.

The first year we filmed a water pumping station in a polder near Delft. Students were given information about the location and they could meet and interview the station manager. They were left completely free to invent their own story. This freedom elicited students' creativity, resulting in very different styles and stories: a tourist vlog, a fiction story, a video with animation, and a reflection on what foreign visitors can learn from the Dutch flood management system. The latter is a recurrent topic in our students' stories and videos, as it clearly resonates with their personal experience and motivation to join IHE Delft. The logistics in this case was relatively easy: all crews were working in the same location and the staff could easily reach them and teach while they were shooting.

The second year we choose to film in Dordrecht, a historical town in South Holland with more than 100.000 inhabitants. We gave a more precise assignment to students: they had to make a video (maximum 5 minutes) to promote the historical walk about flooding in the city center of Dordrecht, targeting a specific audience from one of their countries of origin (tourists, water professionals, researchers…). This resulted in more homogeneous videos that could be more easily assessed against the initial assignment and with the targeted audience in mind. In this case the logistics was more complicated, as the different crews were scattered in the city center. Communicating with the staff and receiving guidance or feedback was more difficult, as well as learning from the experience of other students' crews. Being in an urban setting, drones shots were also limited as we were close to a no fly zone.

The third year we found a good compromise between a manageable logistic and the variety of stories and settings. We selected a project along a Dutch river, within the RiverCare research program[3]: a longitudinal dam in the Waal River built within the framework of the "Room for the river" program. Every student crew had the task of telling the story of the project from the perspective of a specific character: the project coordinator, the fisherman, the scientist, and the tourist guide. We were lucky to find inspiring characters, and a location wide enough to allow multiple stories and sets, but at the same time with all crews easily reachable by the staff. Working with a project also made the students' video more relevant, since they might be used by the project itself for communication purposes. At the end of the course the staff had the feeling of having finally found a good formula to balance meaningful stories, interesting characters and a manageable logistics.

4.2 Two storytelling dilemmas

Developing a story and writing a storyline are in most cases new and therefore challenging activities for the students. They usually face two main dilemmas.

The first one – also a point for discussion within the staff – is the amount of information that students should get to prepare their stories. Here the course reproduces a typical friction in science communication, or when researchers meet communicators. On the one side, researchers tend to dig deep, to elaborate on the complexity of problems, to contextualize by providing a thorough and exhaustive description of the whole picture. On the other side, media people prefer not – or do not have time – to be overloaded with information, and they would like the researchers to focus on the main elements of their studies. In the summer course the students have the opportunity to dive into and navigate such dilemma: they have to develop a compelling story in a short time on a topic they do not fully understand and about which they have only limited information. We believe that we found a good compromise between the thoroughness of science and the lightness of communication in the third edition, with the help of Juliette Cortes and the storyline techniques that she developed for the RiverCare project (Cortes et al., 2018 and in press). Embodying both the researcher and the

[3] https://ncr-web.org/projects/rivercare/.

communication expert role, in the first day of the course Juliette could introduce the RiverCare case study while simultaneously guiding the students through the process of developing a story with a specific tool to organize the information into a captivating storyline. Compared to previous years, this helped the students to arrive in the field with stronger scripts and clearer ideas about what to film. In the shooting and editing processes the storylines were of course changed and revised. To further reduce these uncertainties, in evaluating the course, students indicated their preference for meeting and talking to the characters the day before going to the field.

The second dilemma emerges from the friction between, on the one side, the ethics and style of project or corporate communication, and, on the other side, storytelling strategies. In public communication we tend – or we are requested – to frame our projects, research, or institutions as "success stories". In doing this we often refrain from mentioning contentious issues, or disclosing the challenges and failures experienced. However, we forget that the latter are salient elements in contributing to the success of a story and to the effectiveness of its plot: before achieving positive change and reaching the happy end, the hero usually has to overcome several hurdles. It is exactly this struggle and the risk of failure that keeps the audience hooked to the story.

This dilemma is exemplified by one of the tropes in our students' videos: the water professional coming to the Netherlands from a country of the Global South to learn about Dutch water management knowledge and solutions. Such a storyline resonates or coincides with many of our students' biographies. Self-reflecting in an open and critical way in front of the camera about your own experience and its limits might be challenging indeed. Furthermore, the students might find it hard to criticize the expertise embodied by the lecturers they meet daily in their education, questioning if the Dutch have really found the solution to the main water challenges as the "Dutch brand" implies (Minkman and van Buuren, 2019). In their videos students tends to refrain from asking critical questions or pointing at contentious issues, preferring to present Dutch water knowledge as the herald of technical solutions that avoid or prevent social, political or environmental conflicts. Thus the contentious dimension disappears, but with it a key ingredient for captivating stories too.

The choices made to navigate this dilemma usually elicit interesting conversations about ethics in filmmaking and using video for research (Rusca, 2018). As we want to share the videos with the people and the projects that are filmed – hoping that they endorse and eventually use them – foregrounding controversial issues or emphasizing failures and shortcoming might be counterproductive and unpleasant. On the other side, the principles of storytelling encourage us to openly engage with water governance as a political and contentious issue (Zwarteveen et al., 2017), as well as to creatively and constructively embrace failure in the academic sphere and beyond (Clare, 2019).

4.3 Editing: communication vs. technology

After the fieldtrip excitement and the fun of being in front of or behind a camera, in the remaining two days of the course the students are confronted with the laborious task of editing. In this phase we have often experienced a tension between the technology at our disposal and the pressure of delivering high quality video in a short time.

For filming the students utilize easy-to-use camcorders (JVC HD Everio GZ-EX515 or Panasonic HC-V777EG-K) with auto-focus and external microphones. In the editing phase they rely on the laptops received at the beginning of the year from IHE Delft (HP Probook 650 G2 laptop). As editing software, in the last two years we have been using Camtasia 18 for Windows (version 2018.0), since IHE Delft has purchased several licenses for preparing online courses. The rationale behind these choices of hardware and software is that students should be able to replicate in the future what they have learnt during the summer course - for instance if they wish to make a video on their MSc thesis research topics – with what they have at disposal within the Institute.

On the other side, in several cases this combination of hardware and software proved to be problematic, especially when filming was

done in high resolution. When the students tried something more elaborated than simple cuts, like adding special effects, drawings, multiple layers of video and audio, many computers got stuck or the operations became incredibly slow. This generated frustration in the students or fear of losing their material and work. Three strategies have been adopted to overcome this challenge. The first is filming in lower resolution. The second one is to use computers and software other than those provided by IHE Delft, namely students or staff's personal ones. The third is to minimize the risks by refraining from too sophisticated editing solutions. The latter seems indeed a pity since the course aims to elicit students' creativity and push them to dare to experiment with video and stories. To address the problem in a more structural way, an option could be to rent at least one more powerful laptop per each student crew. Eventually, practicing with different combinations of hardware and software would help the students to become aware of what is feasible with the standard equipment at their disposal, and what might instead require more professional tools.

5. Happy end

The story of IHE Delft summer course "Visual methods for water communication" ends with the conclusion that video-making is a collaborative and inter- or trans-disciplinary effort.

The long list of people credited below is the tangible confirmation of the first lesson learnt: making videos is – most of the time – a collective enterprise. Just like water governance, video-making requires and fosters plenty of negotiation and collaboration skills – often under time pressure – with people with different professional and disciplinary backgrounds, goals, esthetics, epistemologies about water and the broader reality we live in.

Second, in our case such collaboration had a specific inter- and trans-disciplinary dimension. Staff and students from different disciplinary and professional backgrounds worked together in planning and delivering the course and the videos. These endeavors offered a practical confirmation that communication is key to integrating different disciplines in interdisciplinary research projects, or to collaborating with actors outside academia in transdisciplinary research (Menken and Kestra, 2016).

At a time when communication, outreach and inter- or trans-disciplinarily are increasingly hailed as a must in academic research, the IHE Delft summer course "Visual methods for water communication" has proved to be a practical and fun experience for the staff and the students to walk together in that direction.

6. Credits

Like in every movie, there is always a long list of people to credit at the end. I would like to thank all those who contributed to the three successful editions of the summer course "Visual methods for water communication", and who commented on a previous version of this article: the filmmakers Roland Postma and Karen Schagen; the lecturers Maria Rusca, Joanne Craven, Paolo Paron, Juliette Cortes Arevalo, Anna Wiesselink, Abraham Abishek, Tatiana Acevedo Guerrero; Wim Glas, Jerome van Dam and Fedor Baart for their technical support; IHE Delft Education Office coordinator, Erwin Ploeger; all the students who took part to the course, and the people who acted in their videos.

I would also like to thank Emilie Buist for her comments to the initial version of this article, as well as Elisa Bignante and Marco Maggioli for their patience in waiting for this article and for their comments on it.

7. Coming soon…

Like all successful TV or movie series, we are already thinking about future episodes. What's next? Nowadays when you make a video on a project or on a story you often have to work simultaneously at different versions of it: a short one for social media, perhaps a more technical one for a conference, or a longer version to be featured on the project website… For the next edition of the summer course, it would be interesting to invite each crew of students to explore a specific format (trailer, video for online education purposes, video for social media

without audio and only text…) to produce as a class a multi-media and multi-platform communication project on the same topic. So…stay tuned!

Bonus content

Promotional videos featuring the course first edition (2017).

Vlog featuring the course second edition (2018).

Students' video of the course third edition (2019).

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