

## Citizen science in the humanities: implementing the Collaborative History Model (CHM) in the classroom

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The Collaborative History Model offers a new generic citizen science model within the humanities, engaging citizens in the production and analysis of qualitative data. The model consists of three parts: 1. An elaborate co-designed learning module. 2. Data collection. 3. Research and digital processing of the data in a digital archive. During the autumn of 2021, we ran a test pilot with 14 high school classes (13 teachers and approximately 400 high school students). The pilot demonstrated the potential for activating and engaging students in an academic topic, improving their scientific literacy, and collecting valuable new data for research. The 131 life-story interviews will allow for researchers to make significant scientific contribution on an often-overlooked perspective, namely the lived experiences of "ordinary" people.

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## 1. Introduction

At the Engaging Citizen Science Conference 2022 at Aarhus University, Denmark, our poster was one among almost 60 posters. The whole conference testified to the fact that many researchers within the field of citizen science (CS) had been impatiently waiting to physically attend conferences again, showcase new projects, and share new ideas. Even though there was a sheer abundance of posters, very few of them connected CS with disciplines from the humanities. Our poster was one of a few examples that demonstrated that humanities are gaining a foothold in CS [1], albeit slowly. Our poster won the poster competition at the conference in the category "Citizen Science in Education".

We propose a new generic CS-model within the humanities. We have developed a model named the Collaborative History Model (CHM) that engage citizens with qualitative data. The model consists of three parts: 1. an elaborate co-designed learning module; 2. data collection; 3. research and digital processing of the data in a digital archive.

## 2. Background

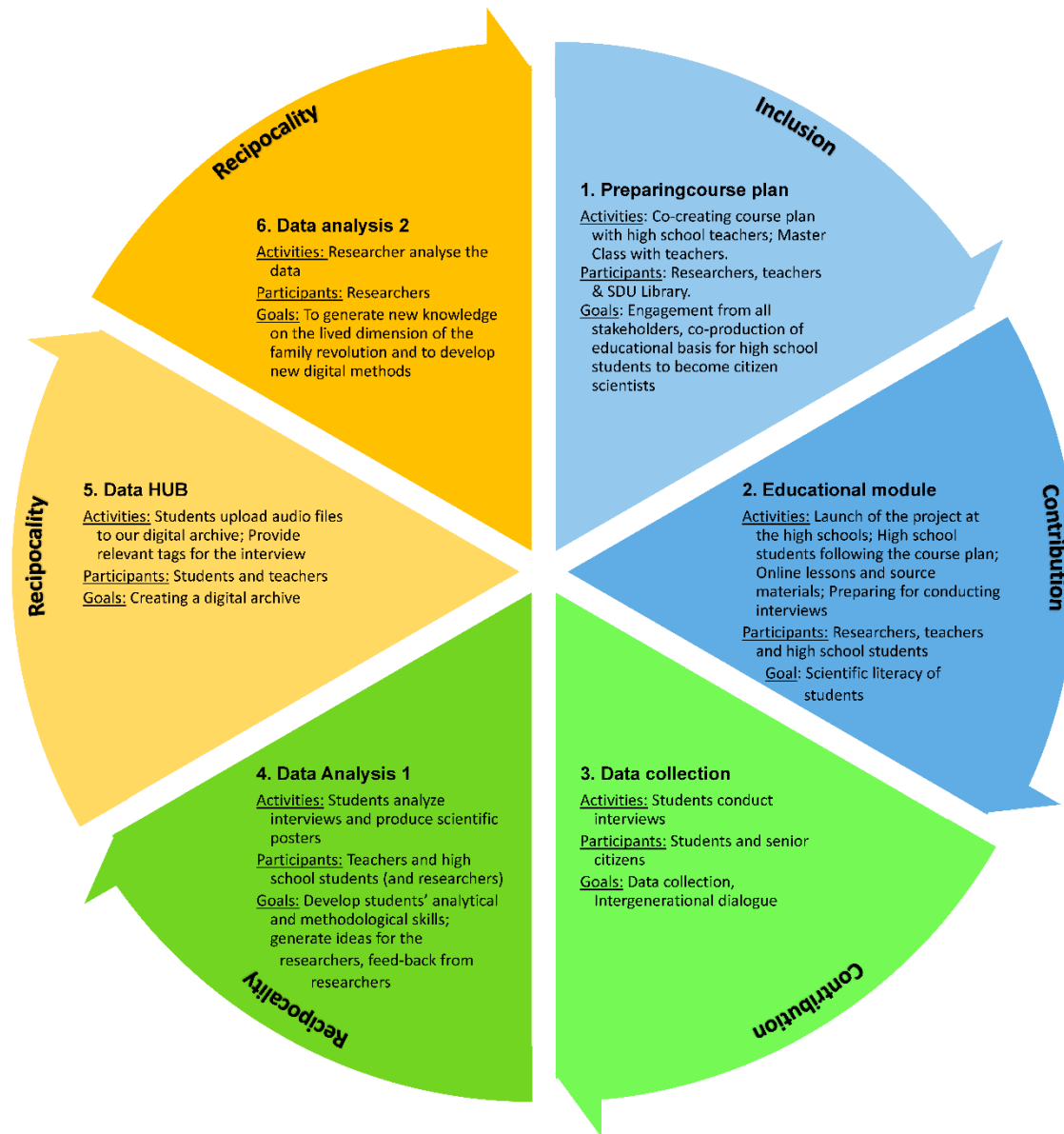
The CHM is a citizen science project engaging high school students. Our pilot project, Our History (in Danish, Vores Historie) has enabled us to test the different components of the model. The historical topic of our pilot project is the so-called "family revolution" as it occurred in Denmark in the decades from 1960 to 1980s, a time when married women and mothers entered the labor market in greater numbers, public daycare centers dramatically expanded their services, and other societal changes took place. During this period, the family underwent dramatic changes in its form and functions, but we still know next to nothing about how these changes in family life were experienced by so-called "ordinary" citizens. Our historical topic is thus on the so-called "family revolution", but it is our proposition that the CHM model can be adapted to a fit wide range of historical topics that apply an oral history approach.

Overall, the CHM framework has three interrelated democratic dimensions: 1. improving the students' scientific literacy with respect to qualitative data; 2. strengthening the intergenerational dialogue in society; and 3. writing more multifarious and inclusive histories that include citizens' lived experiences.

In Figure 1 below, we have illustrated the circular process of the model, and for each component we have highlighted the activities involved in this component, the participants, and the goals.

## 3. Testing the Model

During the autumn of 2021, we ran a pilot test of the CHM in four different high schools, engaging a total of 14 classes (more than 300 students) and 13 teachers. We recruited the participating classes through our network of high schools. The teachers volunteered and signed up their classes to the project, and they were responsible for the implementation of the CHM in their history classes. The goal of the pilot study was to test and calibrate the generic model. The pilot project was coordinated by the SDU Citizen Science Center. The center functioned as a mediator and coordinator of the different needs from teachers and researchers [2, 3].



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Figure 1 The CHP Model

#### 4. The Learning Model

We emphasize training to a larger degree than other CS projects, because the students work with qualitative data. Students need some basic knowledge on the historical topic and on conducting life-story interviews, before the students were capable of actually doing science [4]. The formalized learning structure is a pivotal part of our project collaboration. During the semester, the high school students followed a 10-week flexible lesson plan, including learning materials produced by the researchers involved in the project (e.g., podcasts, videos, reading materials and exercises) on an online learning platform on the historical topic and practicing their methodological skills, in this case regarding conducting and analyzing life story interviews. The lesson plan and materials were developed in a collaborative effort by the SDU Citizen Science Center, the researchers, and the teachers.

Due to the importance of the role of the teachers as “team leaders and data quality filters” [5] all teachers were invited to a Masterclass prior to class teaching. The aim was to acquaint them with the purpose of the project and to offer them professional learning training as facilitators in the process.

## 5. Data Collection

The high school students, aged 17–19 years old, had to find their own informant to interview. The only criterion was that it had to be senior citizens who had themselves experienced the family revolution. The senior citizens could be a grandparent, a neighbor, or a resident at a care home. The students followed a semi-structured interview guide with some general questions about education, family life, care and paid work, etc. The informants consented to participate in the project prior to the interview, and all interviews will be anonymized. Moreover, the project has been GDPR approved by the University of Southern Denmark.

After conducting the interviews, the students tagged the interview according to a flexible list of keywords [6] and uploaded the interview to a future digital archive, making it available for researchers. Using Dunn and Hedges' typology on crowdsourcing in the humanities [7], the tasks of the students in the investigation project are: recording and creating content; collaborative tagging. Once the interviews have been transcribed and processed, we will establish an open-access, digital archive. The students also reflected on their role in the research project and the value of their collected data. These reflections are important for obtaining the educational goals [8].

## 6. Research and Digital Processing of the Data

Once the interviews were collected, the students produced posters based on their interviews. In December 2021, almost 200 students participated with 72 posters in a poster competition at the University of Southern Denmark. There were three categories in the competition: "Best Poster", "Best Analytical Angle", and "Best Pitch". The winners of these three categories were elected by a panel of established researchers. Moreover, there was a fourth category, where the students could vote for the best poster. The posters not only summarized the empirical findings in interviews but even provided new ideas for us as researchers. Some of the relevant topics that emerged from the posters included the use of alternative forms of care and age as an analytical category. The CHM can thus be characterized as a collaborative project in that the citizen scientists (here the high school students) contribute to the project with data, but also help refine the project's framework and research questions [9].

As the students pitched and discussed their findings with the researchers, a dialogue between the two was established. Finally, the researchers held a lecture on their temporary findings and the next step in the project.

## 7. The Data Quality

Running the pilot test also revealed some challenges that need to be addressed. The CHM faces two challenges both related to data quality. One of the challenges concerns the quality of the interviews. By using students as citizen scientists, we have the potential of collecting data on a large scale which is unusual within the humanities, since conducting interviews for qualitative researchers is both time-consuming and expensive. We have instead invested our resources into building the students' knowledge and scientific literacy to conduct "good enough" interviews. We are currently in the process of assessing the quality and content of the 131 interviews. The reason why this is a slow process concerns the second challenge;

converting the interviews from audio files to text. At present, we are testing different speech-to-text conversion software to find the most suitable software for our project. Danish is not a major language, so we will probably need to do some extra manual quality checking. Once this process has been worked out, we will make the interviews publicly available in a digital archive, fully anonymized obviously.

### 8. Assessing the Model

The purpose of running a test of the CHM was to assess whether it is scalable. We issued an evaluation survey and received feedback from seven teachers and 243 students. The main results are summarized in Table 1:

Table 1: Evaluation
The students generally found the learning materials and the online platform useful (accessed more than 9,000 times)
93% of the students felt well-prepared for performing their interview
96% of the students stated that they felt that they benefitted from their participation in the project
77% stated that they gained a high or very high degree of intergenerational insight
The teachers assessed that the students profited from their participation and that they would recommend the project to other colleagues
The teachers felt well-prepared for teaching the course and found the online lesson plan useful

The evaluation forms were sent out by the SDU Citizen Science Knowledge Center, one for students and one for teachers with anonymized responses. The CHM was positively received by both teachers and students, which was an essential benchmark for our plan for the project—namely extending the project to a national scale. The teachers played a crucial role in the project’s success [10]. They were engaged prior to the kick-off of the test pilot where they helped develop the online learning platform, and they also participated in a masterclass for their own professional development.

Importantly, the students responded positively to engaging with scientific content, in this case a historical topic on the family revolution, which moves "from the abstract to the tangible involving students in hands-on, active learning" [11]. The life-story interviews with senior citizens about their experiences with the family revolution in the 1960s–1980s make the students reflect on their own subjectivity and place in history, and this intergenerational insight strengthens the

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democratic dialogue in society. By implementing the CHM into a classroom setting, we have engaged the students in *doing* science (the hands-on, active learning), their self-efficacy in science (conducting interviews), their motivation for science (the intergenerational dialogue), and their skills for science inquiry (conducting and analyzing interviews) [12]. Hence, the CHM does not only produce new data for historians, but it also has a distinct educational ambition.

## 9. Conclusions

The overall assessment of the CHM has been overwhelmingly positive. The CHM includes core elements of CS, namely inclusion, contribution, and reciprocity. High school students were included and activated in the scientific research process (*inclusion*). They contributed with data, while the students acquired new knowledge and skills which they put into practice in their data collection and poster production. This hands-on learning process gave them an understanding of the research process (*contribution*). The poster competition established a two-way communication between the researchers and the students. At the closing of the test pilot, we will try to find a way to disseminate our findings broadly throughout Denmark to reach out to as many of our participants and informants as possible (*reciprocity*). [13].

The project's strength lies in the fact that it strives to have ambitious goals in both an educational setting and in research. We are actively involving high school students in the process of producing a genuine scientific outcome. In this context, enabling us as researchers to write a more polyphonic and multifarious history that include citizens' lived experiences. The test pilot will run again in the autumn of 2022 with six high schools (including the four schools from the pilot of 2021). The project has hitherto received funding from the Faculty of Humanities at the University of Southern Denmark, but we will apply for external funding to bring the project to a national level, running for five years or more.

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<sup>i</sup> Link and password to site (in Danish): <https://libguides.sdu.dk/vh> (password VH2021). This will most likely be altered over time, and it will not necessarily remain at the same webpage. The webpage is a template, and we plan to make it more user friendly and have a professional web designer produce it.