

A woman with brown hair tied back is seen from the side, holding a smartphone to take a photo of a large cluster of bright yellow flowers. The phone's screen shows a close-up of the flowers. The background is filled with more of these yellow flowers and green leaves, creating a vibrant, natural setting.

Designing Diversity into Citizen Science

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**OPEN
SCIENCE**
making **every**
aspect of the
scientific
process
available to
everyone

GERMANY HAS A STRONG COMMITMENT TO OPEN SCIENCE

IN 2016

**GERMAN FEDERAL
MINISTRY FOR EDUCATION
AND RESEARCH PUBLISHED**

**“OPEN ACCESS IN
GERMANY”**



PROJECT DEAL

2020 - 2022

**700 GERMAN RESEARCH
INSTITUTIONS AND
LIBRARIES**

**13,000 ARTICLES
EXPECTED TO BE
PUBLISHED**

CITIZEN SCIENCE

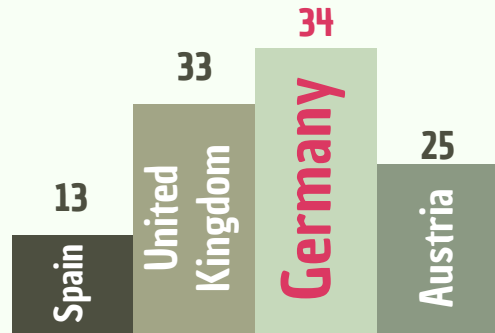
IS A METHOD TO **ADVANCE** THE OPEN
SCIENCE MOVEMENT

IS A **COLLABORATION** BETWEEN
PROFESSIONALS AND
NON-PROFESSIONALS



GERMANY IS A LEADER IN UTILIZING CITIZEN SCIENCE

“open innovation, open science,
open to the world”
-European Union vision (2015)



CITIZEN SCIENCE PROGRAMS IN EUROPE (2017)

IN 2019

96

CITIZEN SCIENCE PROGRAMS
OFFICIALLY REGISTERED WITH THE
*GERMAN FEDERAL MINISTRY FOR
EDUCATION AND RESEARCH*

“10 PRINCIPLES OF
CITIZEN SCIENCE”

DEVELOPED IN FIRST *EUROPEAN
CITIZEN SCIENCE ASSOCIATION
CONFERENCE
IN BERLIN*



DIVERSITY IN CITIZEN SCIENCE PROGRAMS CAN **SIGNIFICANTLY IMPACT** THE OPEN SCIENCE MOVEMENT BY PROMOTING THE MAIN PRINCIPLE, **“SCIENCE FOR ALL”**

A black and white photograph of a lone, gnarled tree in a field. The tree is positioned on the left side of the frame, with its trunk and branches leaning towards the right. The ground is covered in dense, low-lying vegetation, possibly grass or small shrubs. The background is a clear, light-colored sky. The overall mood is one of isolation and resilience.

**THERE IS AN OBSERVED
LACK OF DIVERSITY WITHIN
CITIZEN SCIENCE PROGRAMS
WORLDWIDE**

THE IGB'S **INVOLVEMENT** WITH CITIZEN SCIENCE IS PRIMARILY THROUGH THE **ACTION PROJECT**



**ALONGSIDE ACTION, WE AIMED TO ESTABLISH
A SET OF GUIDELINES TO INCREASE
DIVERSITY IN CITIZEN SCIENCE PROGRAMS
WORLDWIDE**



1

UNDERSTAND
PROGRAM STRUCTURE
AND DIVERSITY



2

UNDERSTAND
FACTORS THAT
PREVENT DIVERSITY



3

ESTABLISH
METHODS TO
DIMINISH THESE
FACTORS



4

CREATE
MEANS FOR PROGRAM
LEADERS TO ACHIEVE
DIVERSITY

We collected data in three different ways:



**Literature
Review**



Interviews



Survey



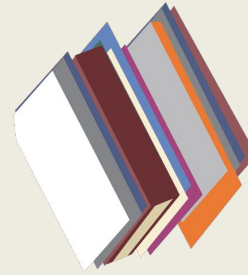
UNDERSTAND HOW
CITIZEN SCIENCE PROGRAMS
ARE STRUCTURED AND HOW DIVERSITY
IS DEFINED

Secondary Research
Interviews



1. CITIZEN SCIENCE PROGRAMS VARY IN STRUCTURE

Literature Review: no set structure for citizen science



Online Data Collection



Community Based Programs



2. DIVERSITY IS BEST DEFINED THROUGH DEMOGRAPHICS

**MOST PREVALENT DEFINITIONS
IN INTERVIEWS:**

- 1. LOCATION**
- 2. EDUCATION LEVEL**
- 3. ETHNICITY**
- 4. GENDER**



3. DIVERSITY IS RECOGNIZED AS IMPORTANT, BUT STEPS TOWARDS INCLUSIVITY ARE INCONSISTENT

“But it's like we almost don't care because we're open to anyone. So, you know, we wouldn't be worried if we were not reaching people that we thought should be reached, but... because we are so... open to participation... there's no barriers on our side.”

-Program leader, Penguin Watch



UNDERSTAND
THE FACTORS THAT
PREVENT DIVERSITY IN
CITIZEN SCIENCE



ESTABLISH
METHODS TO ELIMINATE
OR DIMINISH THESE
FACTORS

Literature Review
Interviews
Survey

1. LACK OF RESOURCES AND TIME COMMITMENT ARE THE BIGGEST BARRIERS TO DIVERSITY

A lack of resources can be individual or within the project

Find other means of data collection



Many people don't feel like they have the extra time to commit

Offer different levels of participation



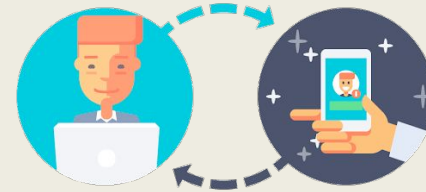
2. A LACK OF EFFECTIVE COMMUNICATION CAN EXACERBATE OTHER BARRIERS TO DIVERSITY

Community based organizations can...

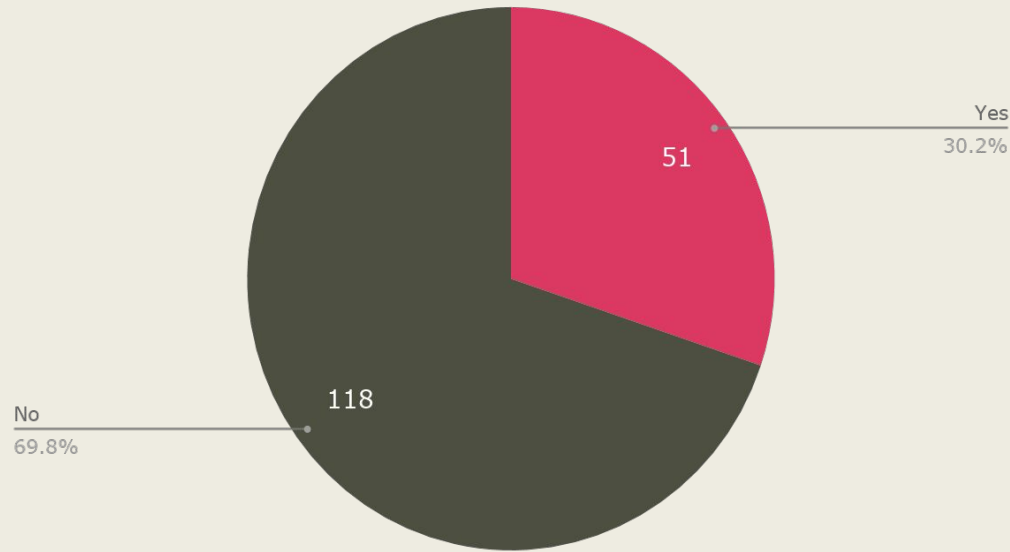
implement co-design principles
ex. Baltimore Mosquito Study

Large-scale projects can...

provide individual feedback
ex. iNaturalist



3. MANY PEOPLE DO NOT KNOW WHAT CITIZEN SCIENCE IS



Survey Results: "Do you know what citizen science is?"



CREATE MEANS TO HELP PROGRAM LEADERS ACHIEVE DIVERSITY IN THEIR CITIZEN SCIENCE PROGRAMS

Guidelines

Video



1. GUIDELINES

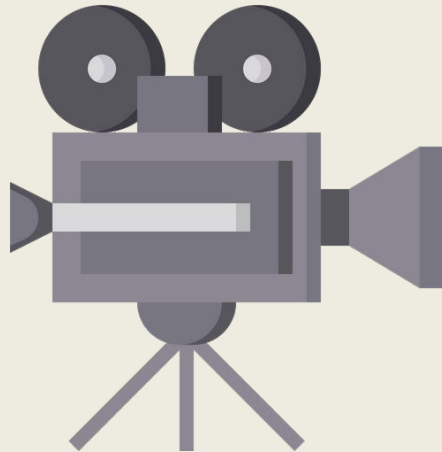
**FORMED THROUGH
COLLABORATION**



**5 CATEGORIES:
STRUCTURE
RECRUITMENT
VOLUNTEER RESOURCES
COMMUNICATION
RELEVANCY**

2. VIDEO

**DESIGNED TO START THE CONVERSATION ABOUT
DIVERSITY**



1

STORYBOARD

2

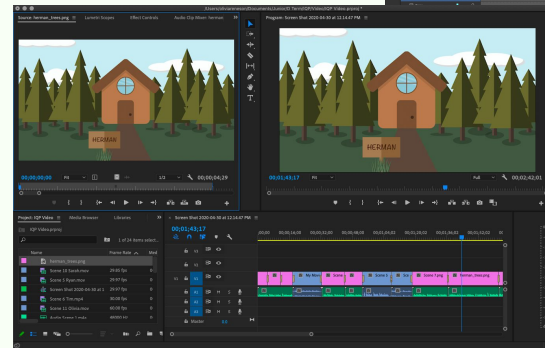
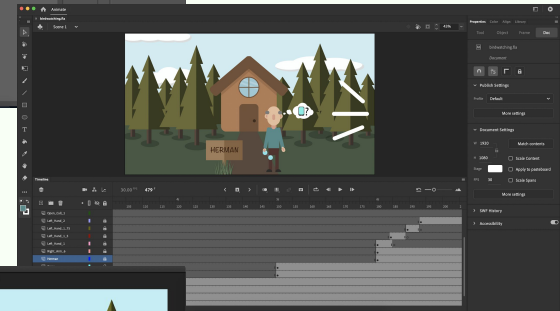
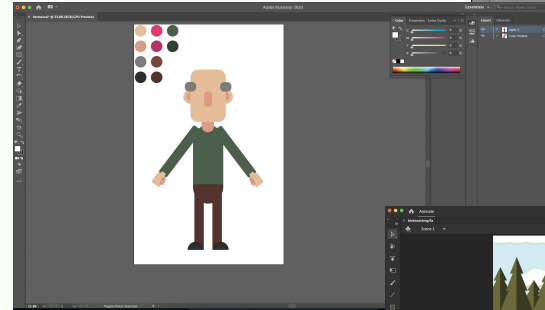
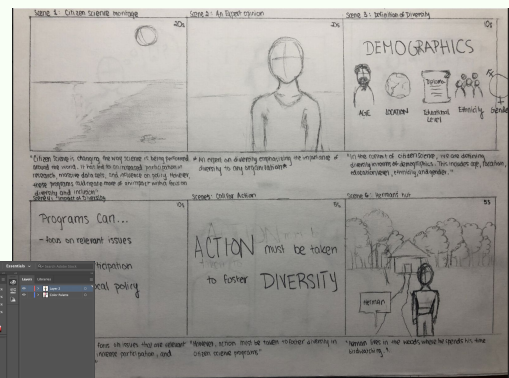
MEDIA

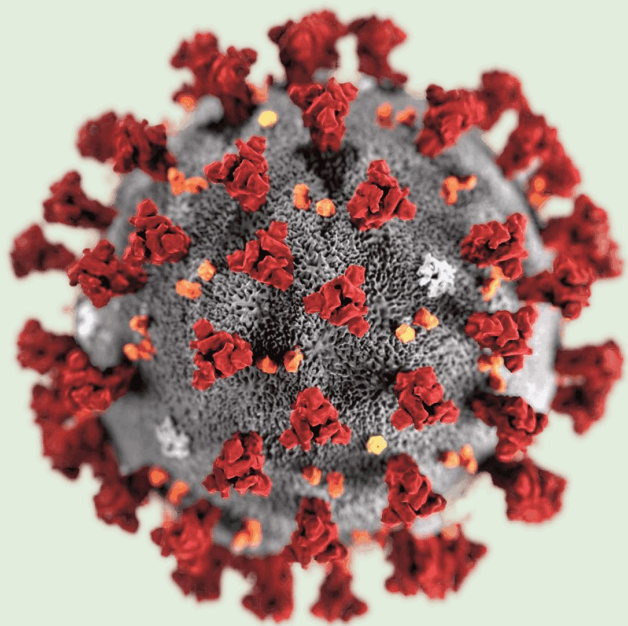
3

ANIMATION

4

PRODUCTION





Constraints

Next Steps

1. Evaluation rubric
2. Translations
3. Adding resources

In the end...

Collaborated with program leaders and volunteers
around the world

Deliverables made with implementation and impact in
mind



Thank You!

Questions?