Climate Education for Action

The climate is changing.
So should we!
#ActNow
We do not inherit the earth from our ancestors; we borrow it from our children

-- Chief Seattle
hopeless
anxiety
Fear
guilt
climate
worried
angry
wreck
sad
dystopia
60% of youth (16-25) is anxious or extremely worried about climate change.

40% of young adults are choosing not to have kids.
Climate Education on YouTube
Why YouTube??

My YouTube Channel Link
2015
Began studying Earth science and physics at UAH

2017
Teacher assistant for a course on air and water pollution

2018
Participated in direct climate action in DC, met CLEAN members at AGU

2019
Seriously began producing videos on environmental health, pollution, and climate change, graduated in December

2022
The journey continues
YouTube's Legacy

Social Platform
- Second most visited website

Users
- Approximately **2 billion users** every month

Watch Time
- **1 billion** hours watched by users EVERY DAY

Videos Watched
- **5 billion** videos watched DAILY
77% of all climate change related videos are uploaded by news channels (source). Many are alarmist in nature optimized for selling fear.

33% less than 33% of videos attempt describing how to act on climate change.
Misinformation videos account for over 20% of views for top 100 related videos for the search term "global warming". Each circle is a video whose size is equal to number of views, and only videos with more than 500,000 views labeled. Based on the top 100 related videos for global warming related search queries.
Climate Misinformation Stats

**Pillar 1**
For the search term "global warming," 16% of the top 100 related videos included under the up-next feature had disinformation about climate change *(Source - Avaaz)*

**Pillar 2**
70% of the time users spend on YouTube is driven by the platform’s recommendations

**Pillar 3**
The climate misinformation videos Avaaz reviewed had 21.1 million views collectively.
<table>
<thead>
<tr>
<th>Search term</th>
<th>Channel</th>
<th>Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>What They Haven't Told You about Climate Change</td>
<td>PragerU, 2.31M subscribers</td>
<td>2,695,102</td>
</tr>
<tr>
<td>The truth about global warming</td>
<td>Fox News, 3.5M subscribers</td>
<td>2,000,427</td>
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<tr>
<td>Climate Change: What Do Scientists Say?</td>
<td>PragerU, 2.31M subscribers</td>
<td>1,982,846</td>
</tr>
<tr>
<td>Nobel Laureate Smashes the Global Warming</td>
<td>1000frolly PhD, 31.3K subscribers</td>
<td>1,738,290</td>
</tr>
<tr>
<td>ACTUAL SCIENTIST: Climate Change is a Scam!</td>
<td>StevenCrowder, 4.13M subscribers</td>
<td>1,371,327</td>
</tr>
<tr>
<td>The Great Global Warming Swindle - Full Documentary HD</td>
<td>Wisdom Land, 328K subscribers</td>
<td>859,213</td>
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<tr>
<td>WHY I SAID GLOBAL WARMING IS THE BIGGEST FRAUD IN HISTORY - Dan Pena</td>
<td>London Real, 1.07M subscribers</td>
<td>694,352</td>
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<tr>
<td>Pena</td>
<td>London Real</td>
<td></td>
</tr>
<tr>
<td>Fatal Flaw In Climate Change Science</td>
<td>Suspicious0bservers, 426K subscribers</td>
<td>266,921</td>
</tr>
<tr>
<td>Lord Christopher Monckton - Global Warming is a Hoax</td>
<td>Ideacity, 27.8K subscribers</td>
<td>258,563</td>
</tr>
<tr>
<td>25 NASA Scientists Question the Sanity of the Global Warmists</td>
<td>1000frolly PhD, 31.3K subscribers</td>
<td>255,348</td>
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Trio of Climate Info on YT

Misinformation/Lack of Systems View

Alarmism

Lack of Solutions
Solutions for YouTube

- **Data based videos**
  Actual data based facts need to be presented with references and visualization

- **Engaging Videos**
  Engagement and audience retention is difficult to maintain with educational/informative videos. The challenge is to make them entertaining.

- **Scientific Sources**
  References to peer-reviewed articles are included in the video description

- **Call to Climate Action**
  Specific resources and practical tips with examples need to be described in the video for various levels of society
Video Focus Points
How to drive action from scientific videos

Specific Climate Action Tips
Instead of vague climate action tips, provide resources and examples of real life action

Systems View of Climate Change
Focus on co-benefits of climate action and interconnections with society and Earth systems

Personalize the message
How does climate change affect the viewer and how can they benefit in social or financial ways from climate action?
Planetary Boundaries

Credit: Rockstrom et al., 2009

BREAKING BOUNDARIES DOCUMENTARY
"Humanity’s 21st century challenge is to meet the needs of all within the means of the planet. In other words, to ensure that no one falls short on life’s essentials (from food and housing to healthcare and political voice), while ensuring that collectively we do not overshoot our pressure on Earth’s life-supporting systems, on which we fundamentally depend – such as a stable climate, fertile soils, and a protective ozone layer. The Doughnut of social and planetary boundaries is a new framing of that challenge, and it acts as a compass for human progress this century."

- Kate Raworth
Climate Action Co-Benefits

- Secure & affordable power for all
- Reducing energy imports and freeing government resources
- Empowering communities and citizens
- Health and wellbeing of people
- National economy, local businesses and jobs
- Mitigating conflicts over scarce resources (e.g. water, land)
- Disposable income
- Public budgets
- Resource management
- Local air pollution
- Employment
- Health and well-being
- Poverty alleviation
- Industrial productivity
- Energy efficiency
- Asset values
- Energy savings
- GHG emissions
- Energy security
- Energy delivery
- Energy prices
- Macro-economic impacts

Source - Helgenberger et al., 2019
Target Audience Avatars

Age Groups
- High School - 16-19
- College and Early Professionals - 18-25
- Young Parents - 26-34

Interests
- Sustainability
- Eco-friendly behaviors
- Zero waste
- Science documentaries
- Sustainable technologies
- Healthy eating
- Biomimicry

Hobbies
- Hiking and Camping
- Cycling
- Reading sci-fi and non-fiction
- Gardening
- Animal care
- Volunteering
- Coding

Professions/College Majors
- Earth/Climate science
- Environmental studies
- Chemistry/Physics
- Biology/Ecology
- Civil engineering
- Sociology/Psychology/Anthropology
- Data science
Video Framework

Introduction - Hook

Hook the viewer with an anecdote or interesting storyline related to the issue before explaining any statistics.

Problem and Impact

Describe the problem and how it may affect the viewer personally, go over the latest research on the topic and communicate science/data.

Call to Actions

Detailed examples of how the viewer can actually help solve the issue with links to resources and other pointers.
Levels of Actions to Communicate

Level 1: Individual climate actions
Level 2: Involving and talking to family and friends
Level 3: Actions in local neighborhoods, community, schools, and cities
Level 4: Political actions - protesting, petition sign, lobbying
Journey of Climate Ed. on YT

Interviews
Conversations with changemakers and scientists on specific topics

Showcase
Demonstrate real examples of technologies, communities, and cities which mitigate cc

Learn and produce
Keep improving with each video and become a better video creator with more detailed info

Fundraise
Raise funds and support impactful climate action oriented organizations

Classroom Resources
Have videos a part of curriculum discussions or assignments
Ultimate Goal of Climate Ed. on YT

- Climate Change
- Related Environmental Issues
- Social Issues
- Solutions and Examples

Positive Visions of the Future
Other Climate Education Channels

1. Our Changing Climate
2. ClimateTown
3. Beckisphere
4. Just Have a Think
5. ClimateAdam
6. Engineering with Rosie
7. Kurtis Baute
8. Sustainability Illustrated
9. Drgilbz
In order to **change** an existing paradigm you do not struggle to try and change the problematic model. You create a new model and make the old one **obsolete**.

~Buckminster Fuller