

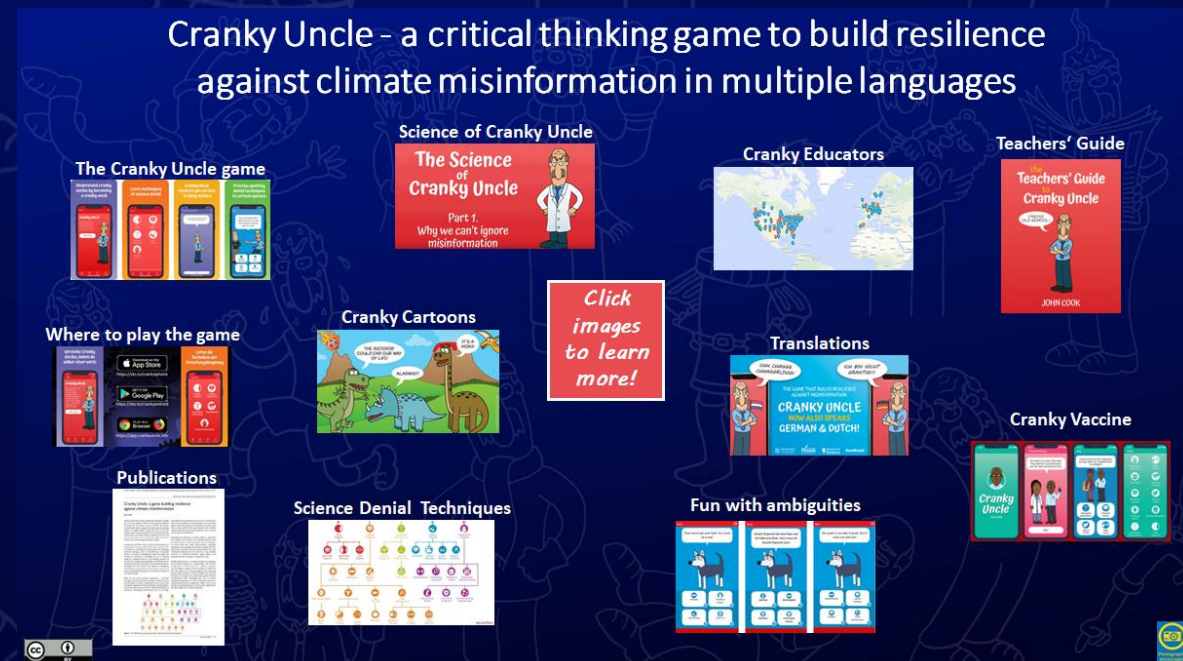
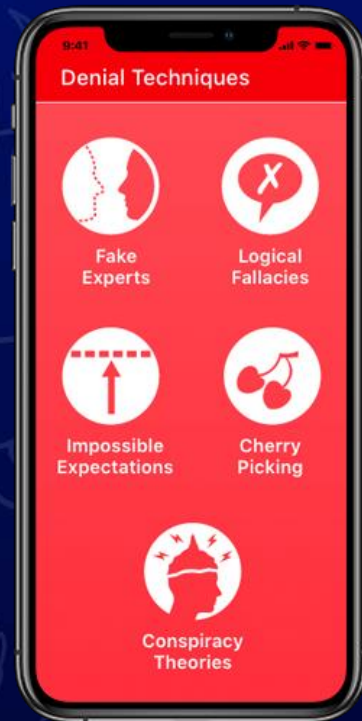
Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Bärbel Winkler and John Cook – EGU 2023 – EOS1.3 – Wednesday, 26th April 2023

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Two Minute Madness

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Details



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

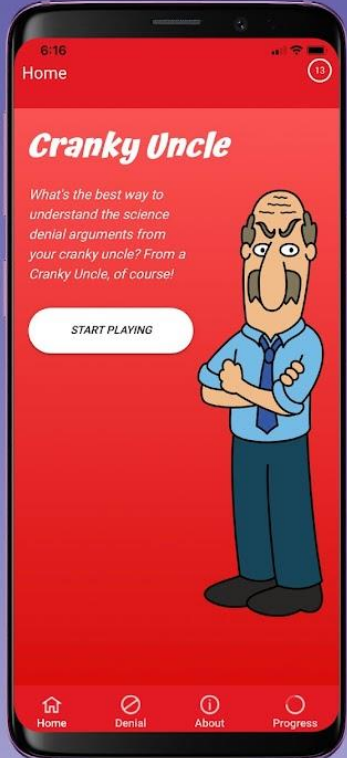
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Two Minute Madness starts here!



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Understand cranky uncles by becoming a cranky uncle



Learn techniques of science denial



Cranky Uncle mentors you on how to deny science



Practise spotting denial techniques in cartoon quizzes

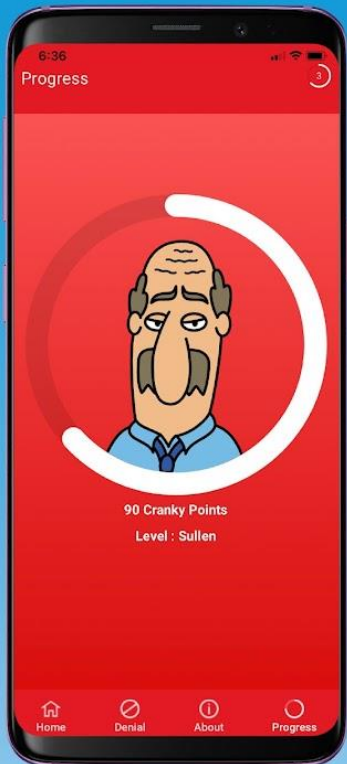


2 minute madness

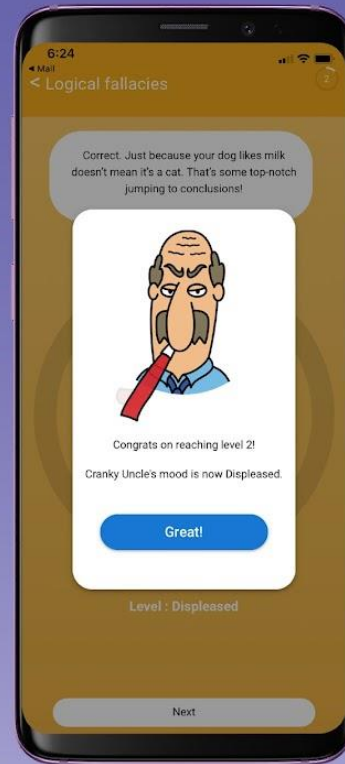


Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Build up
cranky points



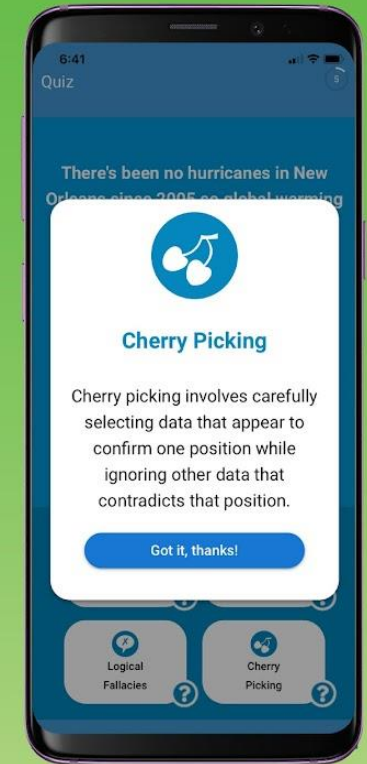
Level up and
see your mood
get crankier!



Unlock new
denial techniques



Definitions of
each denial technique
at your fingertips



2 minute
madness

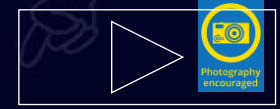


Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Game is also already available in
Dutch, French, German, Italian, Portugues, Spanish, Swedish & Turkish



Additional languages soon to be released: Albanian, Macedonian & Finnish!



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Full presentation available at sks.to/EGU23-abstract-2

The Cranky Uncle game



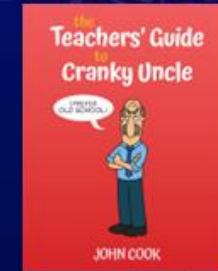
Science of Cranky Uncle



Cranky Educators



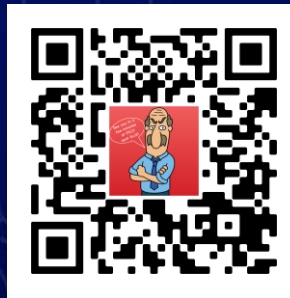
Teachers' Guide



Where to play the game



Cranky Cartoons



Translations



Cranky Vaccine



Publications



Science Denial Techniques



Fun with ambiguities



Bärbel Winkler



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See you in a few minutes at PICO spot 3a.12!



John Cook



THE UNIVERSITY OF
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Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Bärbel Winkler and John Cook – EGU 2023 – EOS1.3 – Wednesday, 26th April 2023



2 minute
madness

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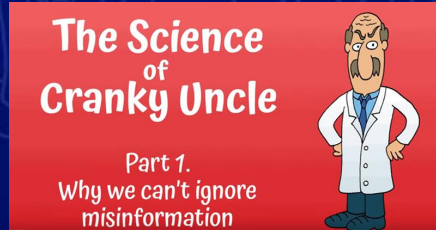


Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

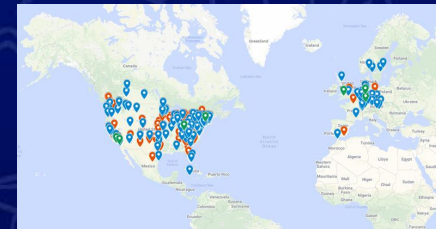
The Cranky Uncle game



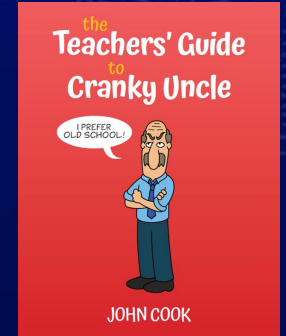
Science of Cranky Uncle



Cranky Educators



Teachers' Guide



Where to play the game



Cranky Cartoons

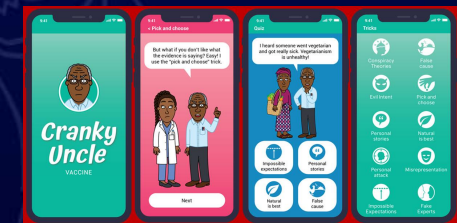


Click images to learn more!

Translations



Cranky Vaccine



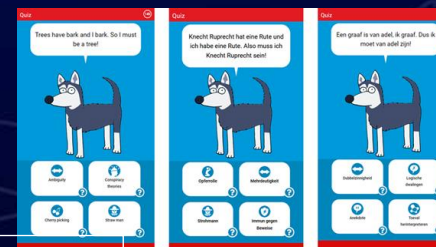
Publications



Science Denial Techniques



Fun with ambiguities



2 minute madness

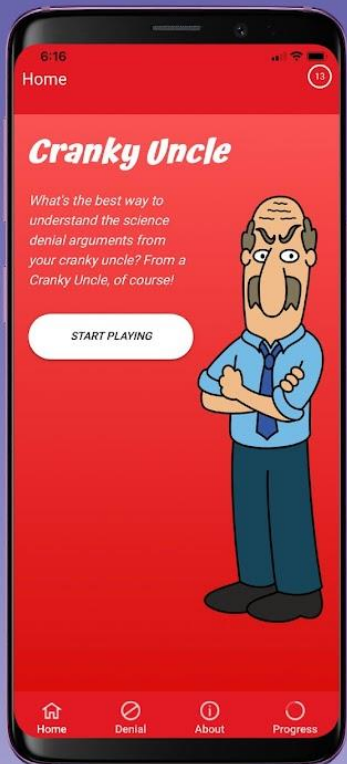
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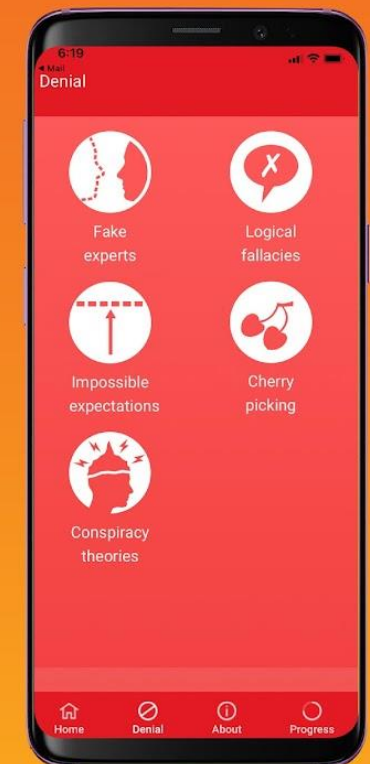
How the game works (1)

Understand cranky uncles by becoming a cranky uncle



The game helps players to understand cranky uncles by becoming cranky uncles themselves.

Learn techniques of science denial



To begin with, players learn the techniques of science denial: fake experts, logical fallacies, impossible expectations, cherry picking and conspiracy theories.

These can be easily remembered via the abbreviation FLICC.

2 minute
madness



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Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

How the game works (2)

Cranky Uncle mentors players on how to deny science. He does this by explaining how he goes about doing just that and by posing some trial questions.

Once players have learned one of the denial techniques they can practice their denial spotting with the help of cartoon quizzes and other forms of quiz questions.



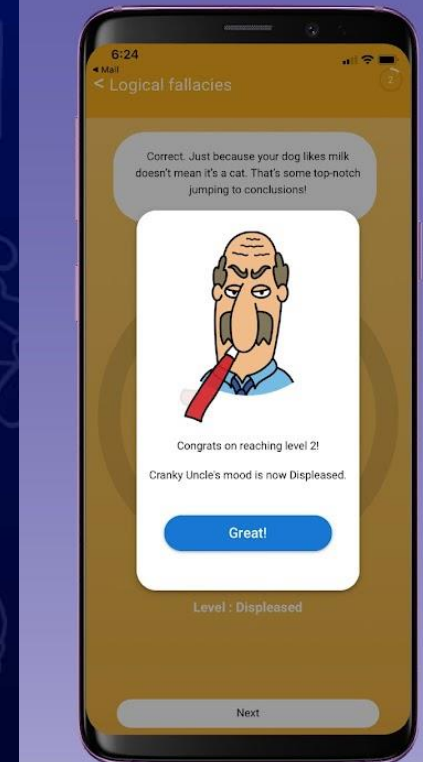
Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

How the game works (3)

Whenever players answer quizzes correctly, they earn and build up their cranky points, making it rewarding to stick with the game.



Level up and see your mood get crankier!

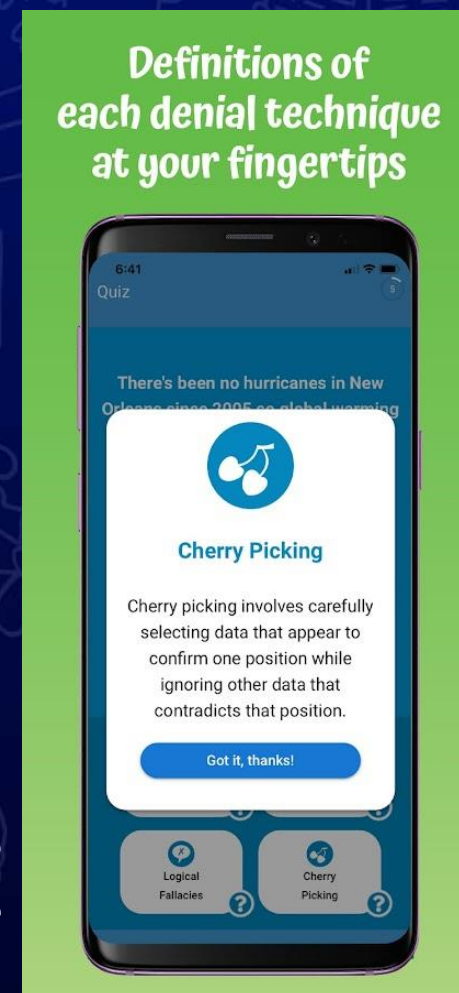
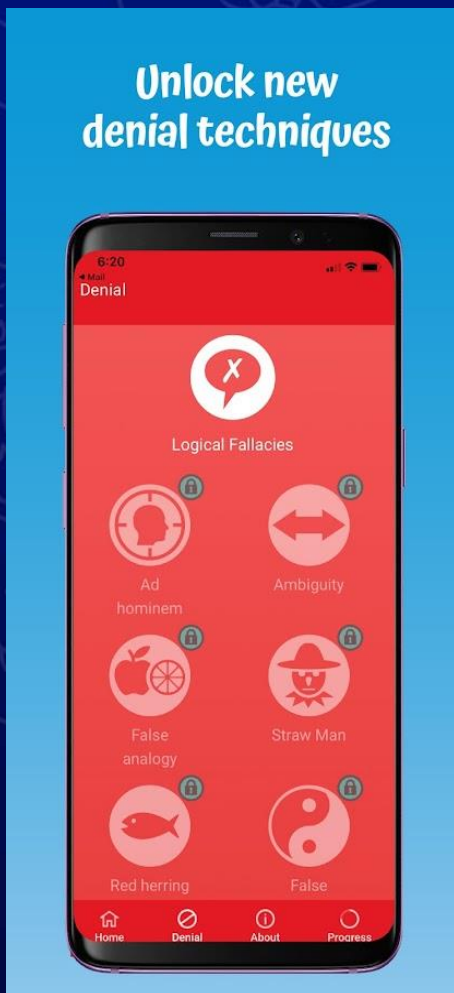


Whenever a threshold of cranky points is passed, players go up one cranky level and their mood gets ever crankier.

Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

How the game works (4)

Once a player has learned the initial five techniques, further denial techniques become available “below” logical fallacies (7), cherry picking (2) and conspiracy theories (7).



Definitions for the fallacies are readily available as pop-ups in the multi-fallacy quizzes.



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Teachers' Guide

the Teachers' Guide to Cranky Uncle

I PREFER
OLD SCHOOL!



JOHN COOK

The Teachers' Guide to Cranky Uncle offers background information and classroom activity ideas for educators interested in using the Cranky Uncle game to teach critical thinking in their classes.

English



sks.to/crankyguide

Dutch



sks.to/crankyguide-nl

German



sks.to/crankyguide-de

2 minute
madness



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Photography
encouraged

Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Cranky cartoons as FLICC examples



sks.to/flicc-cartoons

A collection of cranky cartoons – each representing a different logical fallacy from the FLICC taxonomy – are available in 1920 x 1080 JPEGs. Each image also links to a high-resolution PDF so you can print out the cartoons.

Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

The Science of Cranky Uncle video series

The Science of Cranky Uncle

Part 1.
Why we can't ignore misinformation



The Science of Cranky Uncle

Part 2.
Inoculation theory



The Science of Cranky Uncle

Part 3.
Fighting misinformation with critical thinking



The video series titled “The Science of Cranky Uncle” explains, why we can’t ignore misinformation, examines research into the different ways misinformation does damage, looks at research into how inoculation theory offers an approach for building public resilience against misinformation. It also explains how critical thinking can be used to deconstruct misinformation and identify misleading reasoning fallacies and rhetorical techniques.



sks.to/crankyscience-vids



2 minute
madness

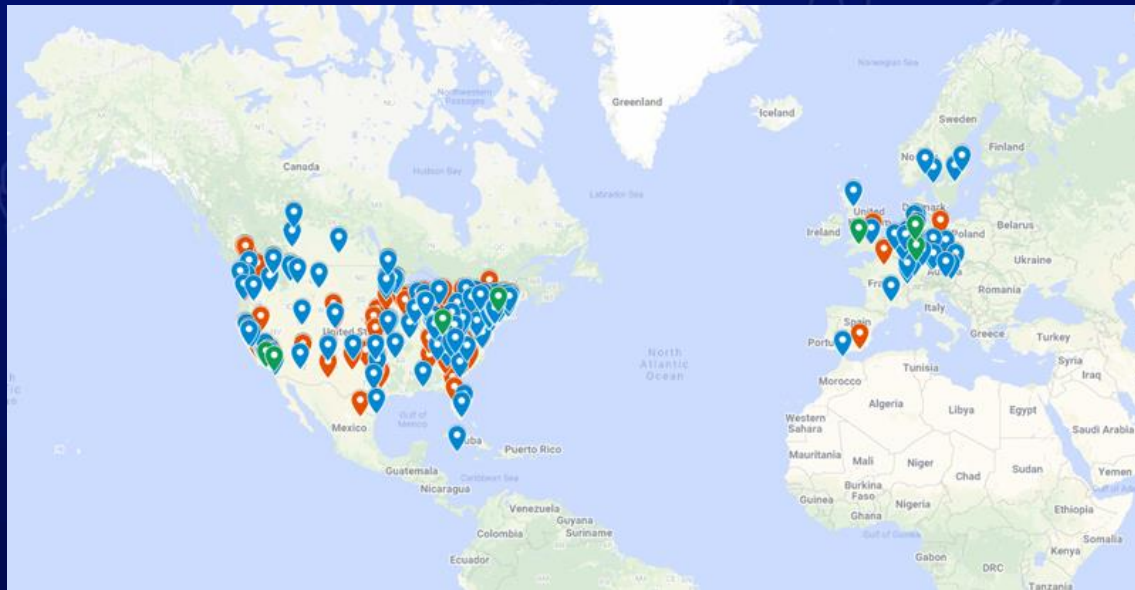


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Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Educators from many countries are already using the Cranky Uncle game



sks.to/crankyclass

Teachers can [sign up for a group code](#) making it quick and easy for students to anonymously enter the game (avoiding the need to enter an email to play the game). So far, teachers have signed up from 40+ U.S. states and 16 other countries.



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Translations of the game (1)

In February 2022 the multilingual version of the Cranky Uncle game was launched. The first two languages available were Dutch and German, followed by Spanish and Portuguese in August and French, Italian and Swedish in December. More languages will be launched soon!



sks.to/crankyml



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Translations of the game (2)

If you'd like to get involved with the translations of the Cranky Uncle game, please fill out the form at sks.to/crankytranslationfrm to let us know.

Already available: Dutch and German

Soon available: Italian and Spanish

In process: French, Polish, Portuguese, Romanian, Swedish

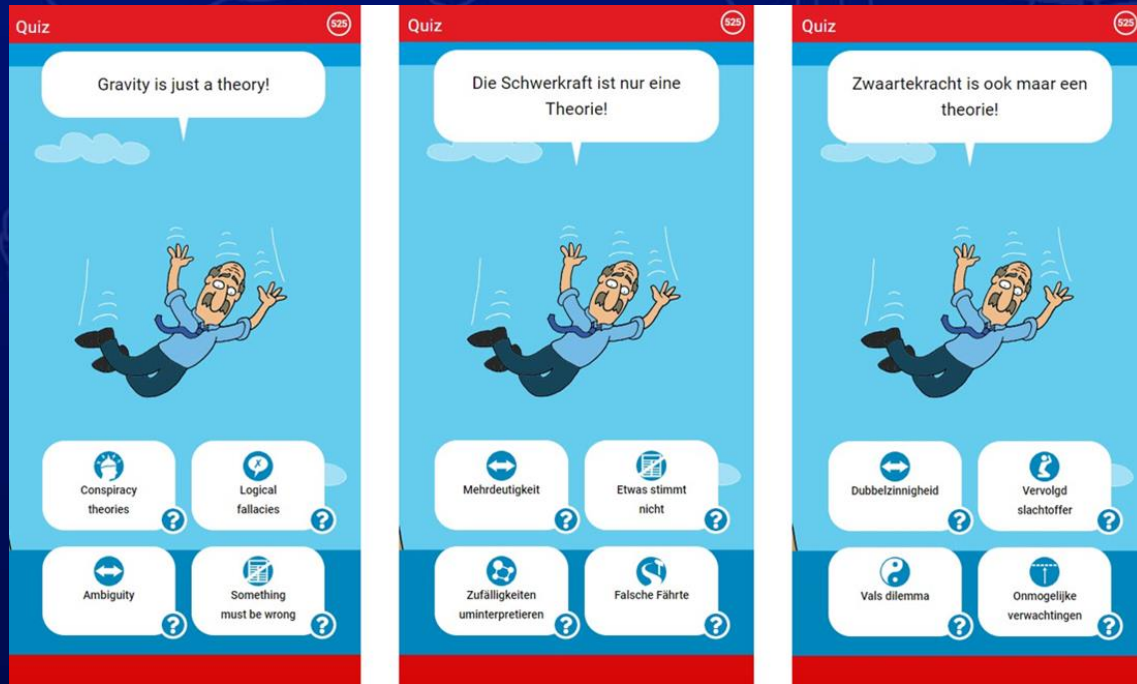


sks.to/crankytranslationfrm



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Translation fun with ambiguities - simple



The really hard to resolve issues for the translation teams were those related to the 'Ambiguity' fallacy where one word has different meanings for scientists and lay people which then gets exploited by science deniers. Not all are as easy as the word "theory" which translates 1:1 into other languages and also has the same meaning scientifically on the one hand and in everyday language on the other.



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Translation fun with ambiguities – tricky (1)



Here is an example from the English version of the game where the quiz displays a dog:

“Trees have **bark** and I **bark**. So I must be a tree!”

Run this through a translator and you get this for German:

“Bäume haben eine **Rinde** und ich **belle**. Also muss ich ein Baum sein!”

...and this for Dutch:

“Bomen hebben **schors** en ik **blaf**, dus ik moet een boom zijn“

Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Translation fun with ambiguities – tricky (2)

Quiz

Knecht Ruprecht hat eine Rute und ich habe eine Rute. Also muss ich Knecht Ruprecht sein!

Opferrolle
Mehrdeutigkeit
Strohmännchen
Immun gegen Beweise

Quiz 140

Een graaf is van adel, ik graaf. Dus ik moet van adel zijn!

Dubbelzinnigheid
Logische dwalingen
Anekdote
Toeval herinterpreteren

The direct translation loses the ambiguity present in the English text with the word “bark” because “Rinde” and “belle” are two obviously completely different words in German as are “schors” and “blaf” in Dutch. We eventually came up with this:

German

“Knecht Ruprecht hat eine Rute und ich habe eine Rute. Also muss ich Knecht Ruprecht sein!” (This translates back to “Knecht Ruprecht [he’s accompanying Santa Claus in Germany] has a rod and I have a tail. So I must be Knecht Ruprecht!”)

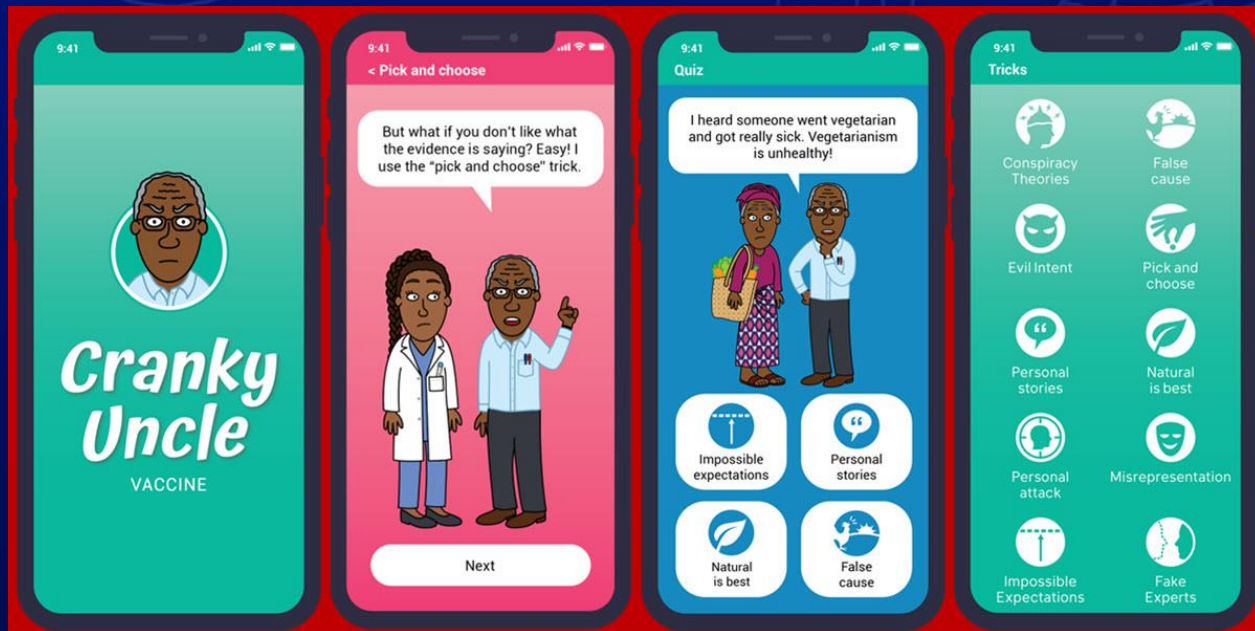
Dutch

“Een graaf is van adel, ik graaf. Dus ik moet van adel zijn!” (This translates back to “A “count/earl” is of nobility, I “dig”. So I must be of nobility!”)



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Cranky Vaccine Edition



During 2022, the Cranky Uncle team has been working with UNICEF, the Sabin Vaccine Institute, the University of Nairobi, and Makerere University to develop a vaccine edition of the Cranky Uncle game for East Africa. This involved a series of co-design workshops in Uganda, Kenya, and Rwanda. Participants played the game, which targets common fallacies in vaccine misinformation, and offered feedback on how to make the game's content and cartoon characters more culturally relevant in their country.



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

FLICC – the five main techniques of science denial



Fake Experts

Presenting an unqualified person or institution as a source of credible information.



Logical Fallacies

Arguments where the conclusion doesn't logically follow from the premises. Also known as a non sequitur.



Impossible Expectations

Demanding unrealistic standards of certainty before acting on the science.



Cherry Picking

Carefully selecting data that appear to confirm one position while ignoring other data that contradicts that position.



Conspiracy Theories

Proposing that a secret plan exists to implement a nefarious scheme such as hiding a truth.



Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

History of FLICC – the techniques of science denial

When John Cook led a 2015 collaboration between the [University of Queensland](#) and [Skeptical Science](#) to develop the free online course [Denial101x: Making Sense of Climate Science Denial](#), he made FLICC the underlying framework of the entire course. An important component of their debunking of the most common myths about climate change was identifying the denial techniques in each myth. Which is exactly what the Cranky Uncle game now teaches!



sks.to/flicc



2 minute
madness



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Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

Game is available for iPhone, Android and Browser



sks.to/crankyiphone



sks.to/crankyandroid



sks.to/crankybrowser

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<https://doi.org/10.5194/egusphere-egu23-9138>

EGU General Assembly 2023

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Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages

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Misinformation about climate change does damage in multiple ways. It causes people to believe wrong things, polarizes the public, and reduces trust in scientists. Climate misinformation reduces support for climate action, delaying policies to mitigate climate change. One of the most insidious aspects of misinformation is that it can cancel out accurate information. When people are presented with fact and myth but don't know how to resolve the conflict between the two, they may disengage and believe neither. Consequently, an effective way to counter misinformation is to help people resolve the conflict between facts and myths. This can be achieved through inoculation theory, a branch of psychological research that applies the concept of vaccination to knowledge. Just as exposing people to a weakened form of a virus develops resistance to the real virus, exposing people to a weakened form of misinformation builds immunity to real-world misinformation. In other words, rather than getting lost in details, you explain the misleading rhetorical techniques and logical fallacies used in misinformation. Inoculation has been found to be effective in neutralizing misinformation casting doubt on the scientific consensus on human-caused global warming. However, there are many misinformation techniques and inoculating people against them all is a communication and education challenge. Games offer engaging tools for incentivizing people to repeatedly perform misinformation-spotting tasks in order to build up their critical thinking skills. Games that are fun to engage with while serving a useful educational purpose are known as serious games, and are already being explored as a tool for building resilience against misinformation, using an approach known as active inoculation. Typically, inoculation interventions are passive, with messages received in a one-way direction from communicator to audience. In contrast, active inoculation involves participants in an interactive inoculation process – having them learn the techniques of science denial by ironically learning to use the misleading techniques themselves. The *Cranky Uncle* game adopts an active inoculation approach, where a “cranky uncle” cartoon character mentors players to learn the techniques of science denial. *Cranky Uncle* is a free game available on iPhone and Android smartphones as well as web browsers and can already be played in eight languages. The player's aim is to become a “cranky uncle” who skillfully applies a variety of logically flawed argumentation techniques to reject the conclusions of scientific communities. By adopting the mindset of a cranky uncle, the player develops a deeper understanding of science denial techniques, thus acquiring the knowledge to resist misleading persuasion attempts in the future. The game is available in several languages and creating the translations involved some creative problem solving to come up with suitable alternatives where the English content couldn't simply be translated directly. For example, some terms were ambiguous in one language but the ambiguity was “lost in translation”, actual people mentioned in quiz questions were not known outside of the US, or a fallacy was named differently in another language, requiring a new icon.

How to cite: Winkler, B. and Cook, J.: Cranky Uncle - a critical thinking game to build resilience against climate misinformation in multiple languages, EGU General Assembly 2023, Vienna, Austria, 24-28 Apr 2023, EGU23-9138, <https://doi.org/10.5194/egusphere-egu23-9138>, 2023.

2 minute
madness

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Cranky Uncle - a multi-lingual critical thinking game to build resilience against climate misinformation

Related publications

- Cook, J. (2021). Cranky Uncle: a game building resilience against climate misinformation. *Plus Lucis*, 3(2021), 13-16.
- Cook, J., Ellerton, P., and Kinkead, D. (2018). Deconstructing climate misinformation to identify reasoning errors. *Environmental Research Letters*, 11(2).
- Vraga, E. K., Kim, S. C., & Cook, J. (2019). Testing Logic-based and Humor-based Corrections for Science, Health, and Political Misinformation on Social Media. *Journal of Broadcasting & Electronic Media*, 63(3), 393-414.
- Cook, J. (2020). Deconstructing Climate Science Denial. In Holmes, D. & Richardson, L. M. (Eds.) *Edward Elgar Research Handbook in Communicating Climate Change*. Cheltenham: Edward Elgar.
- Lewandowsky, S., Cook, J., Ecker, U. K. H., Albarracín, D., Amazeen, M. A., Kendeou, P., Lombardi, D., Newman, E. J., Pennycook, G., Porter, E. Rand, D. G., Rapp, D. N., Reifler, J., Roozenbeek, J., Schmid, P., Seifert, C. M., Sinatra, G. M., Swire-Thompson, B., van der Linden, S., Vraga, E. K., Wood, T. J., Zaragoza, M. S. (2020). The Debunking Handbook 2020. DOI:10.17910/b7.1182

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