

Thinking About Digital Climate Change

Warning!

Thinking about digital climate change can be a great enrichment, but it can also have unpleasant consequences. It can help to better understand the world of media and to better orientate yourself in the jungle of diverse information offers and entertainment possibilities.

It may also be that some things seem complicated on occasion and that influential people are not happy if you broaden your horizon more than they want you to, and draw your own conclusions from your considerations.

WARNING

DIGITAL CLIMATE CHANGE DISCUSSION AHEAD

Heading for new shores

Kathi and Tobias got a tip from Robin the other day. Apparently, there are chatbots you can talk to on the social media platform Kik. They know and use online services such as WhatsApp, Snapchat and Instagram to exchange ideas with others, share pictures and music or pass on important information. They've heard of chatbots and stuff like that before, but they haven't tried it yet. They are curious and quickly find the download link, enter their data and off they go.

It doesn't take long and they discover the Bot Shop with many cool offers in areas like fashion and beauty, fun with friends as well as entertainment and lifestyle. Kathi and Tobias think that the Translator Bot could also be used at school. However, they quickly realize that such tools do not play a role in basic digital education.

"That's a good thing, because digital global warming is already progressing far too fast," the two hear from a teacher after deciding to develop their own bot and try it out at organizing parties. Kathi's older sister knows a lot about apps and software applications. She's promised to help them. Tobias's little brother is good at painting and drawing and will definitely have great ideas for a suitable avatar. And since they can realize this project without financial support, nothing should stand in the way of a successful media experiment.

Quick side question

They are having a lot of fun making the bots and their friends also want to know how this works.

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Platform: These are "flat forms" of all kinds, i.e. things, figures and shapes that are somehow flat and at the same time "raised" in one way or another, so that certain activities are made possible or easier.

Examples: Observation platform, drilling platform, station platform, learning platform, oil platform, internet platform, communication platform, advertising platform, computer platform for application programs, etc.

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Tools:

Working materials, aids, instruments or devices; in connection with digital media, the term refers to tools for programming or useful auxiliary programs

Avatar:

An artificial figure in the media world or a graphic representation on the Internet that embodies a physical person, an artificial "person" in the form of a graphic representation of a flesh and blood person. *Additional note:* In Hinduism, Avatar is understood as the "descending" and embodiment of a deity on earth.

Social Media:

Websites, programs and apps through which users can network and share content.

Note:

It isn't the rule that exchange and joint use of social media platforms have something to do with the social concerns of non-profit or charitable associations. For providers, the main focus is usually on the exploitation of data streams, profiles and usage habits.

In a quiet minute, Tobias asks Kathi: "Did you understand what the remark about 'digital global warming' was supposed to mean?" "Not really," she replies and continues: "We've heard a lot about climate change, but that's about the rise in sea levels, the many storms and floods and temperature rises and things like that." "Yes, but even that doesn't seem so clear after all. On the other hand, with the emergence of 'Fridays for Future' there's now a movement that makes clear how serious the situation has become," says Tobias, adding: "And if we are now in the middle of a digital climate change, what does that mean for us? Should we protect ourselves from flooding or dress warmly or buy solar-powered tablets or what?" "I haven't seen a solar tablet yet," says Kathi, "but we can ask and find out whether there's actually something to this topic." Kathi and Tobias keep thinking about it and ask around among their friends and teachers.

A mixed bag of answers

Tobias and Kathi come across very different views on the subject of “digital climate change”:

Yes, there’s something to this. In the past, it was only possible for newspaper and radio journalists or film and television producers to reach really big audiences with their offers. Today it is possible for many people to distribute news on a massive scale via their own channels or to get in touch with many others at the same time. This is also true for young people who make great music, for example. If you don’t believe it, then watch Sina on YouTube as she starts playing her drums – it’s not just Ian Paice from Deep Purple who looks old in comparison.

The media landscape has changed completely. Ask your parents and grandparents how they met, where they looked up things they wanted to know, how they were in contact with each other and with their friends, how they played music or listened to it, how they got news from other countries and how they were mobile!

No one can stop digital climate change any longer. It’s like global warming. In one case, average temperatures will rise and that will happen faster than ever before in Earth’s history. In the other case, there is no turning back: digital media permeate everything – from managing birth certificates to online cemeteries, from work to leisure, and so on.

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Chatbots:

Programmed machines that “talk” to us or communicate in writing; such “dialogue systems” are often combined with avatars; they function on the basis of stored question-answer sequences and programs that try to imitate our “natural language”.

Social Bots:

These are programmed messengers that function similarly to chatbots and disseminate and reinforce messages and opinions on social media on behalf of people. They can text, comment, like and forward tweets. In this way, many people can be influenced politically or in their buying behavior.

Tweet:

Short messages that are distributed via the service of the Twitter platform.

Exercise 1a Reflection and Research

What do you know about climate change on Earth? What is it all about?

Where did you get the information on this topic from?

Do you remember the difference between weather and climate?

Research task:

Find a current source in the library and a second source on the Internet on climate change:

To what extent do the different sources agree or disagree?

How do you rate the quality of the sources?

What suggestions and recommendations are given on how we can deal with climate change?

“Digital climate change,” what’s that supposed to be? Think about the changes in history: A long time ago, things were carved into stone or written and distributed on papyrus. In the course of time, thanks to the invention of the printing press, more people could be reached than through speeches on market squares and in churches. Tablets have always existed - think of the clay tablets of the Assyrians or the blackboards of your great-grandparents! Whenever media bring upheavals to society and culture, there is a lot of noise: some people are happy about their power and sources of revenue and others warn of the downfall. The talk of a digital climate change is nothing but nonsense and self-aggrandizement of a few.

Exercise 1b Reflection

What comes to mind when you hear the term “**digital climate change**”?

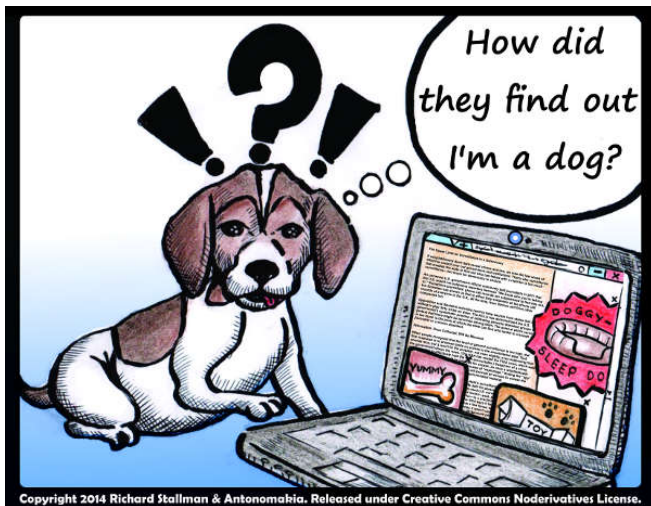
Write down the ideas in the form of keywords or small sketches.

If you think about your school: How would you describe the **school climate**? Think about what can be said at the moment and keep other things to yourself.

If you had to announce short-term atmospheric changes in school in the form of a weather forecast, what would the forecast look like? Bright spells, a mix of sun and clouds, occasional showers and thunderstorms in the mountains, changing clouds, clear skies, no prospect of improvement, etc.?

The mood and atmosphere in interpersonal communication are sometimes described as the **climate of conversation**. Occasionally people report on the **working atmosphere** in the company in which they work.

What is similar and different about these ways of speaking of “climate”?



Source: <https://www.gnu.org/graphics/dog.small.jpg>

Well, I don't know, the comparison with climate change is very far-fetched. Isn't it rather the other way around? With climate change, we have a warming problem that we have to cope with. And with digital climate change we are dealing with increasing coldness in our society. But I cannot say how much this is connected with digital developments. Because there is coldness in face-to-face communication and some people say that the mass media of the 20th century have already promoted an increase in social coldness. If everyone is just staring at their screens, most people certainly lack the human warmth that they all need somehow in order to feel comfortable.

Digital climate change? An interesting play on words: On the one hand, we are increasingly flooded with information and entertainment. We don't seem to want to live without a smart phone anymore. Even in poor countries and in many areas far away from the big cities, there are mobile Internet access points. On the other hand, many developments are taking place in the background: We don't know exactly what is happening with our data or which surveillance cameras in public spaces can recognize our faces. A private life doesn't seem to exist anymore – someone can always do something with your data tracks. We can tell the mowing robot when it should be active, but who understands how the molecular propeller of a nanobot only a few millionths of a millimetre in size works?

This is all completely contradictory: Some say that never before have so many books been sold as today while others constantly talk about the extinction of books and describe bookstores as deserts. You have to take a closer look at this before you can talk about a “digital climate change”!

Great, I think this digital climate change is great: I can learn a lot on the net. I think it's great to see the skills of Fabio Wimmer or the pranks of KsFreakWhatElse on YouTube. And Viktoria Sabrina: Where else would I get the casual beauty and fashion tips from? At school you don't hear anything at all about all this.

There is no such thing as digital climate change – there are digital technologies that are increasingly interconnected with each other and very powerful software programs that perform many tasks in the background. We have all, so to speak, become “programmed beings” who cannot understand how images are created on screens, how digital money is traded, how data traffic is regulated and who can get away with violating the rules.

Yeah, we're in the middle of a digital climate change. Most people have not yet understood this and pretend that you can reach your goals in the sea of tomorrow with a compass from yesterday. There will be a rude awakening when the robots do even more work for us and 10, 20 companies are richer than the richest countries in the world. It is hard to imagine what will happen if new technologies and global corporations continue to be promoted at the expense of us and the people in poor countries. We must finally be ready to share our prosperity with those who have little or nothing.

Exercise 1c Interview and Documentation

Team up in pairs or small groups and prepare a short oral interview of three or four people. Think about who you can ask, where and when this can work and who you expect to provide interesting answers. Choose people who are of different ages and work in different professions. Also pay attention to gender and other aspects that you think can make a difference.

The three research questions are:

1. What do you think about the keyword “digital climate change”?
2. Which aspects of this topic are particularly important to you?
3. What do you think should be done in this context?

Write the answers on a notepad. If the respondents agree, you can also record the interview on your mobile phone and then transcribe the answers.

Briefly summarize the answers:

Are there similarities?

How do the answers differ?

Are there answers similar to those documented in the assessments on “digital climate change” received by Kathi and Tobias?

Or do answers go in a different direction?

Are there any answers that you find surprising, pleasing or annoying?

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WORLD INTERNET USAGE AND POPULATION STATISTICS DEC 31, 2017 - Update

World Regions	Population (2018 Est.)	Population % of World	Internet Users 31 Dec 2017	Penetration Rate (% Pop.)	Growth 2000-2018	Internet Users %
Africa	1,287,914,329	16.9 %	453,329,534	35.2 %	9,941 %	10.9 %
Asia	4,207,588,157	55.1 %	2,023,630,194	48.1 %	1,670 %	48.7 %
Europe	827,650,849	10.8 %	704,833,752	85.2 %	570 %	17.0 %
Latin America / Caribbean	652,047,996	8.5 %	437,001,277	67.0 %	2,318 %	10.5 %
Middle East	254,438,981	3.3 %	164,037,259	64.5 %	4,893 %	3.9 %
North America	363,844,662	4.8 %	345,660,847	95.0 %	219 %	8.3 %
Oceania / Australia	41,273,454	0.6 %	28,439,277	68.9 %	273 %	0.7 %
WORLD TOTAL	7,634,758,428	100.0 %	4,156,932,140	54.4 %	1,052 %	100.0 %

NOTES: (1) Internet Usage and World Population Statistics estimates in Dec 31, 2017. (2) CLICK on each world region name for detailed regional usage information. (3) Demographic (Population) numbers are based on data from the [United Nations Population Division](#). (4) Internet usage information comes from data published by [Nielsen Online](#), by the [International Telecommunications Union](#), by [GfK](#), by local ICT Regulators and other reliable sources. (5) For definitions, navigation help and disclaimers, please refer to the [Website Surfing Guide](#). (6) The information from this website may be cited, giving the due credit and placing a link back to www.internetworldstats.com. Copyright © 2018, Miniwatts Marketing Group. All rights reserved worldwide.

Worldwide Internet usage and population statistics at the end of 2017 - An overview compiled by the Miniwatts Marketing Group. Source: <https://www.internetworldstats.com/stats.htm> (as of July 7, 2018)

The talk of “digital climate change” only makes sense if one takes a long-term perspective. However, the mass diffusion of digital technologies has only existed for a few decades. If you consider the level of centuries, you can quickly see that the ancient Greeks were already complaining about the corrupted youth and memory loss because of writing. The introduction of book printing was also seen as a threat by many, and the brightest doctors and educators in the 18th and 19th centuries warned against young people’s reading addiction and women’s novelism, because this was supposed to be harmful for the psychological as well as intellectual and physical development. The preachers who today warn against digital climate change should not be taken any more seriously than the waffling know-it-alls of earlier times.

I don’t know what exactly is meant by digital climate change. But I make sure that I don’t become too dependent on the media I use. I already did this back when there were no handsets. I work with digital tools and put them aside time and again. I like to watch explainer videos and music clips and I also play an instrument myself. I think it’s great that I can be in contact with my friends online, and it’s just cool when we do something together outdoors or go dancing all night.

Infobox 1v



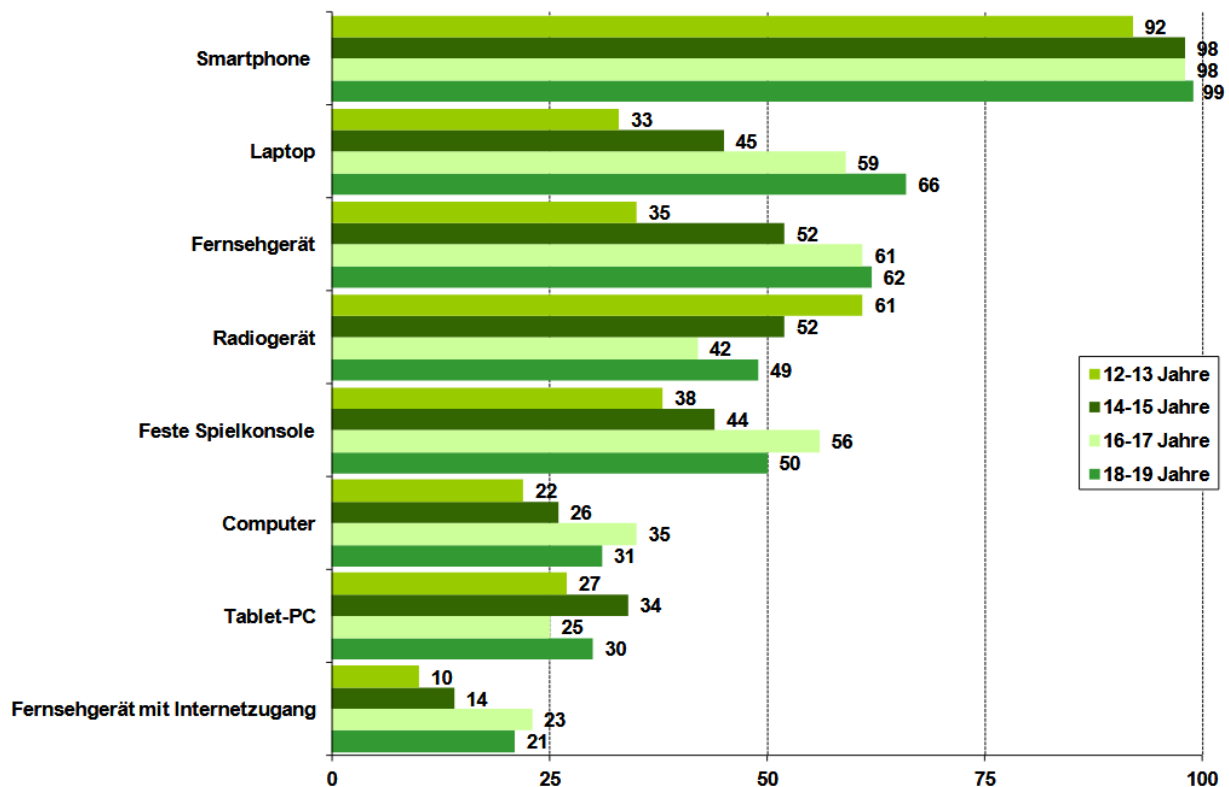
Contracts with mobile operators in billions –figures from 2012 and 2016 and an estimate for 2020

Source: Groupe Speciale Mobile Association (GSMA) (2017): The Mobile Economy 2017. Available online: <https://www.gsma.com/> (December 19, 2017)

Infobox 1vi

Gerätebesitz Jugendlicher 2017

- Auswahl -



Quelle: JIM 2017, Angaben in Prozent
Basis: alle Befragten, n=1.200

Source: mpfs – Medienpädagogischer Forschungsverbund Südwest (2017): JIM 2017. Jugend, Information, (Multi)Media. Basisstudie zum Medienumgang 12- 19-Jähriger in Deutschland. Stuttgart, p. 8. Available online: https://www.mpfs.de/fileadmin/files/Studien/JIM/2017/JIM_2017.pdf (July 7, 2018).

Results of Considerations

Kathi and Tobias have collected some statements which are shown in italics in the previous section. “This is even more complicated than the story of global warming, nobody knows anything about it,” he says to her. “That’s true - they all understand something different. There doesn’t seem to be a clear yardstick for digital climate change,” she replies and adds: “But there is one thing I noticed – there are lots of pictorial expressions: we are flooded with information, the bookstores have become deserts, the coldness is increasing in our society.” “Yes, the cameras recognize faces, there are data tracks everywhere, we walk around as ‘programmed’ people and books supposedly die out, but I don’t see it that way at all,” says Tobias.

“That’s no wonder, because ‘digital climate change’ is just as much a pictorial expression. It acts as if the media worlds function in the same way as the physical and chemical processes in the atmosphere,” emphasizes Kathi. “This comparison does not work, because computers and digital media wouldn’t exist without human inventions, while the Earth’s atmosphere was there before us,” says

Recommended reading



For all who like comics and want to know more about Big Data and data protection on the Internet.

Source: <http://www.jacobystuart.de/buecher-von-jacoby-stuart/neuerscheinungen/big-data-das-ende-der-privatheit/>

Tobias. “That’s what I think,” says Kathi, “but I noticed something else: All these statements can be divided into two groups. Some people talk about the changes in digital media and others about the changes that digital media bring about!” “I don’t understand that - what do you mean?” asks Tobias. “Quite simply, it makes a difference whether the media and the technologies themselves change or whether the way we deal with them changes,” explains Kathi, giving an example: “Just think of your quadcopter. These drones can be given as an example of ‘digital climate change’ in that this toy would not exist without the digital developments in electronics and without sensors and microcontrollers and whatever the stuff is called. The change of technologies makes it possible that the thing is light and flies and so on.”

“Wait a minute,” Tobias says, “this isn’t just a toy! I also use it to take great photos of our sports activities and film shots from the air.” Kathi: “Sure, but your parents couldn’t have done that. And today these things buzz around everywhere and are often annoying. You don’t want the most thrilling moments of your love life to be filmed from the air and streamed live into the Internet – do you?” “Ok, you’re right. I can see that climate change in this case refers not only to changes in media technology itself, but also to the way we encounter each other in public or in private, how we deal with images, how we represent something and, ultimately, what is considered ‘normal’ in our culture,” says Tobias. “Exactly, and some of our habits and behaviors change relatively quickly, but we are still supposed to do mental arithmetic in math, even though calculators have been around for decades,” says Kathi with a telling allusion to her experiences at school.

Exercise 1d Reflection and Discussion

Team up in small groups, consider the following points and ask yourselves:

- Which developments, feelings and facts are particularly often mentioned or highlighted in the descriptions?
- Which aspects are rarely mentioned?
- What do the pictorial ways of talking about “digital climate change” draw our attention to? What do they make clear and shed light on?
- What do these pictorial expressions obscure and to what extent are they also misleading?
- What have we learned about digital climate change as a whole?

Discuss your reflections in the group and be aware that there may be both shared and different views and assessments.



Quelle: https://cdn.pixabay.com/photo/2013/12/03/07/58/exchange-of-ideas-222789_960_720.jpg

Exercise 1e Summary

Summarize the results of your reflection and discussion individually for yourselves and write down in keywords what has become important to you:


- “Digital climate change” means to me
- The pictorial ways of speaking draw my attention to the fact that
- Digital media developments open up the following freedoms for me:
- For me they are also associated with the following restrictions and constraints:
- From all this I draw the following conclusions for myself:

Infobox 1vii

Let's return briefly to climate change in the sense of global warming. Among others, the Austrian Institute of Ecology provides some information online (see <http://www.umweltchecker.at/klimawandel.htm>). As far as climate protection is concerned, cities are of particular importance. They make up only about two percent of the earth's surface, but they account for more than a quarter of the world's energy consumption and are responsible for about 80 percent of the emissions of those problematic gases that contribute to the so-called greenhouse effect. In addition, more than half of the world's population lives in cities.

In October 2005, the then Mayor of London, Ken Livingstone, invited representatives of 18 megacities to set up a climate protection network. A year later, 40 of the world's largest cities were organized in the C40 Cities Climate Leadership Group. These C40 cities document their activities online at <https://www.c40.org/>. The people there have agreed to use the following icons in order to communicate among each other and with other people:



HAZARD GROUP	HAZARD (MAIN TYPE)	CITY CLIMATE HAZARD (TYPE)	CITY CLIMATE HAZARD (SUB TYPE)	RELATED NATURAL HAZARD:
 Meteorological	Precipitation	Rain storm	Monsoon	Insects and micro-organisms Flood Chemical change Wave action Wild fire Water scarcity Subsidence Landslide Drought
		Heavy snow	Snowstorm/blizzard	
	Wind	Severe wind	Dust storm/sandstorm	
		Tornado	Extratropical cyclone	
		Cyclone (Hurricane/Typhoon) Tropical storm		
	Lightning	Electrical storm	Lightning/thunderstorm, derecho	
	Fog	Fog		
	Extreme temperature - Cold	Extreme winter conditions	Ice, hail, freezing rain, debris avalanche	
		Cold wave Extreme cold weather	Cold snap, frost Cold days	
Extreme temperature - Hot	Heat wave			
	Extreme hot weather	Hot days		
 Climatological	Water scarcity	Drought	Lack of precipitation and seasonal melt (snow, glacial)	Rockfall Avalanche Landslide Subsidence
	Wild fire	Forest fire		
		Land fire	Bush fire, grass fire, pasture fire, scrub fire	
 Hydrological	Flood	Flash/surface flood	Glacial lake outburst	Subsidence Insects and micro-organisms Landslide Flood
		River flood		
		Coastal flood		
	Wave action	Groundwater flood	Waterlogging	
		Storm surge	Seiche	
	Chemical change	Salt water intrusion		
Ocean acidification				
 Geophysical	Mass movement	Landslide	Lahar, mud flow, debris flow	Chemical change Flood
		Avalanche	Debris avalanche, snow avalanche	
		Rockfall		
		Subsidence	Sudden subsidence (sinkhole), long-lasting subsidence	
 Biological	Insects and micro-organisms	Water-borne disease	E.g. Cholera, Typhoid, Legionnaires' disease	Extreme temperature - hot Flood
		Vector-borne disease	E.g. Malaria, Dengue Fever, Yellow Fever, West Nile Virus, Bubonic Plague	
		Air-borne disease	E.g. Pneumonic Plague, Influenza	
		Insect infestation	E.g. Pine beetles, killer bees, termites	

Source: City Climate Hazard Taxonomy. C40's classification of city-specific climate hazards. p. 1 and p. 4. Available online: <https://www.c40.org/researches/city-climate-hazard-taxonomy> (07.07.2018).

Note: An icon is a sign with a special property. This property consists in the fact that between the sign and what it stands for there is a visual, phonetic or other shape-like similarity or a kind of "image relationship". Put simply, it already expresses visually what it is about.

Tip: If you don't know words like "hazard," you can also look up what they mean online at <https://www.merriam-webster.com/> or on Wikipedia.

Exercise 1f Illustrations on the topic of “digital climate change”

Back to our topic. At the beginning of this chapter there is a written warning, emphasized by a visual representation. Have you noticed that the invitation to reflect and discuss contradicts the warning “Digital climate change discussion ahead”? On the one hand, people are encouraged to think for themselves and ask questions of others, on the other hand, this can also cause difficulties.

Individual work: Pause for a moment and consider to what extent this may be the case and why it can still be worthwhile to have a discussion about the changes that digital technologies are bringing about in many cultures and societies.

Finally, we want to encourage you to be creative. You certainly know many traffic signs and also warning signs of all kinds. The shapes and colors do not have the same meaning in all countries. In Austria, triangles with a red border are among the danger signs, round signs with a red border represent prohibition or restriction signs and blue signs contain orders or information. The green panels indicate safety or rescue equipment.

In North America, however, there are street signs with white letters on a green background. The white signs with black lettering, for example indicating a speed limit, should be observed and the maximum speed should not be exceeded. If the basic color of such a speed limit sign is yellow or orange, it is a recommendation in the sense of a recommended speed. Information boards and warning signs usually have the basic color yellow.

If you needed to put up new signs in public spaces that express briefly and concisely the results of your reflection on digital climate change issues: What would they look like?

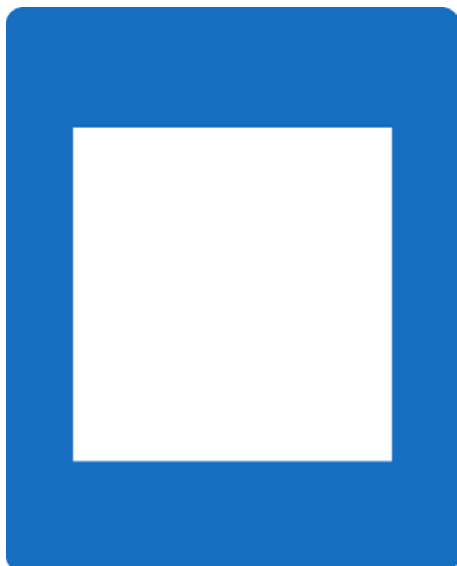
- What would be a suitable icon for a warning sign or a danger sign?
- How can you express recommendations and references in regard to opportunities for positive developments?
- Which mandatory sign could make sense?
- Which prohibition sign would you introduce?
- Which existing picture could easily be changed to do justice to your ideas and concerns?

Pick up colored pencils and a sheet of paper and sketch the signs on digital climate change that could be introduced. Alternatively, you can use graphics software and a digital brush to create signs that you think could or should be publicly distributed. Of course, you can also use the colors creatively. Who knows, maybe a rainbow sign is the best way to show the full range of your thoughts.

Classroom task: Set up an exhibition with your own signs online or with printouts in class and discuss the results. Which are similar, which are quite different to the others? Order all signs thematically and create an icon for each of the central themes in small working groups. Write a short text for each icon, explaining what they refer to.

All icons together can give a structured overview of those aspects of “digital climate change” that are important to all of you – similar to the overview of icons for the C40 cities on the previous page. The collected works could then be published on the school homepage, for example.

Finally, here are a few frames that can be the starting point for your personal designs.



Author: Theo Hug, to be published in the OER-Collection “Digital Basic Education” (n.d.) ed. by Christian Swertz (CC BY)

