CHALLENGE 8: COMMUNICATING SCIENCE TO LAY-AUDIENCES

HOW TO DEAL WITH MISINFORMATION AND DISINFORMATION DURING PUBLIC HEALTH EMERGENCIES

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Learning objectives

1. Recognize the importance of science communication
2. Understand its challenges for institutions
3. Familiarize with its pre-requisites, ethical principals and good practice

SCIENCE COMMUNICATION MATTERS

- we need **public engagement** (e.g. to adopt new behaviors) to advance on many issues (e.g. prevention of non-communicable diseases)

- for **evidence-based decisions at the policy levels**, decision-makers need to have an understanding of science and of scientific evidence

INSTITUTIONS NEED TO TAKE IT ON

- Institutions at the international, national and regional/local level
  - WHO, ministry of health, public health authorities, universities, hospitals, patient associations, etc.

- **If they do not take on science communication, someone else will fill the information gap** (e.g. people promoting conspiracies and pseudoscience)

→ For which topics/areas are you an expert?

CHALLENGES OF SCIENCE COMMUNICATION:
THE "NATURE" OF SCIENCE

EVOLVING KNOWLEDGE

Scientific knowledge is like a **puzzle**. Every study is a piece of the puzzle, but to understand a complex phenomenon, you need many studies

→ It **takes time** and in the meanwhile, no comprehensive picture

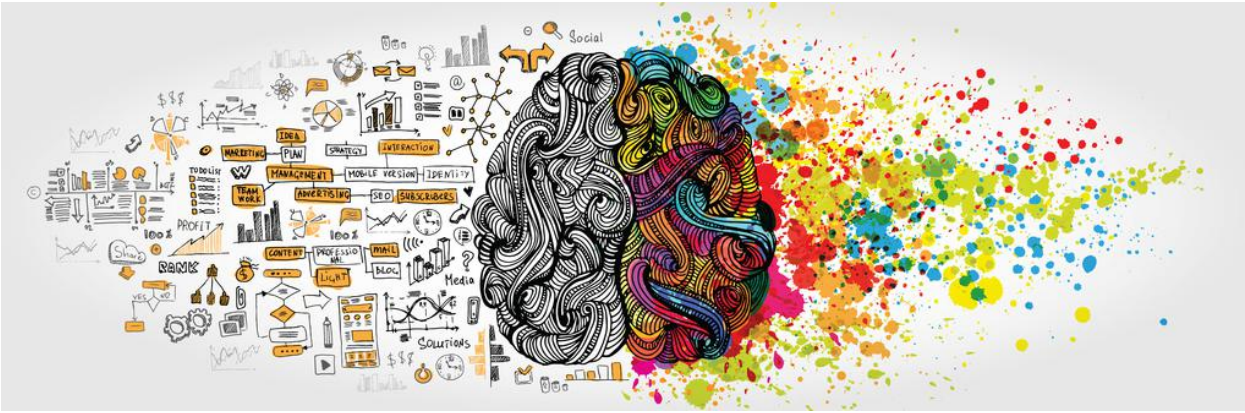
→ What is true today might be **contradicted by new, more advanced knowledge**

Epistemic uncertainty

Sources of epistemic uncertainty

- problems of measurement
- statistical margins-of-error
- limited knowledge and ignorance about underlying processes
- expert disagreement
- …

→ Often not communicated because of fear that it will generate **feeling of uncertainty**, affect the **credibility** of science and people's **trust** in science



CHALLENGES OF SCIENCE COMMUNICATION:
COMMUNICATION ASPECTS

1. Understanding science and media

Institutions need to be familiar with the “codes” of two worlds: science and the media

- Scientific language, methods, etc.
- Communication strategies and channels, importance of narratives, bad news is good news, etc.

2. Negotiating two logics

- **Immediacy** …but scientific discoveries do not happen overnight
- **Drama and heroes** …but scientific discoveries are usually the result of a laborious process of a team of researchers
- **Short** articles/videos …but how to explain complex scientific topics in 500 words?

(Murray, Schwartz, Lichter 2001; Welbers et al. 2015; Staab 1990)

3. BE(COM)ING "SOCIAL"

If institutions want to be heard, they must be present also in the online world and play according to the rules of the online world

→ Have a **"social" face**: Invest in spokesperson who become an influencer, engage with influencers to increase the reach of your message

→ Adopting new **formats** (e.g. videos), new **channels** (e.g. social media) and new **communication styles** (information provision vs. engage with people)

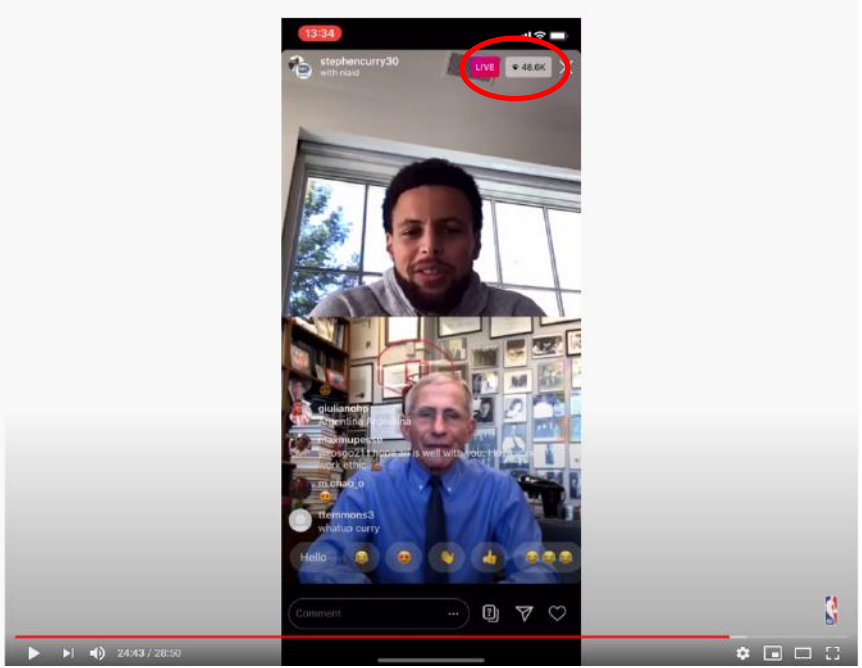
- For more details: check the module 4 (Credibility)

Example: Engaging with influencers

On March 26, **Dr. Anothony Fauci and NBA superstar Steph Curry** went **live on Instagram** to talk about what the public should do to help stop the spread of the new coronavirus

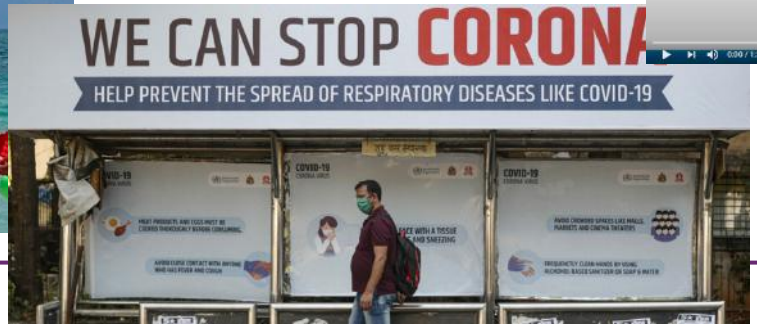
The day before, Curry asked his followers what questions they had for Fauci, then asked them during the live conversation

The video is since then available on **YouTube on the NBA channel** (14.5 Min followers)



Example: New channels

To meet people where they are: At the beach, at the bus stop, online



4. AVOIDING THE "EASINESS EFFECT"

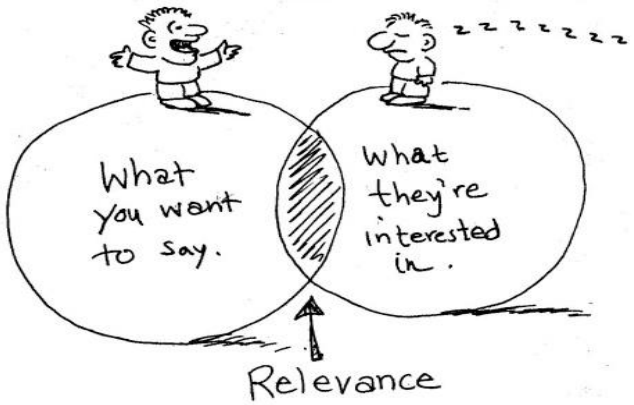
- **adverse effect** of science communication
- = the experience of easily understanding simplified information may mislead laypeople to consider that the underlying scientific subject matter is equally easy

→ People become overconfident and think that **they can rely on their own judgment** (vs. rely on experts)

(Scharrer et al., 2012, 2013, 2014, 2016)

5. Credibility and trust

- If the source lacks credibility or if there is distrust between audience and source, the information won't be listened to
  - For more details, see module 4 (Credibility)



CHALLENGES OF SCIENCE COMMUNICATION:

THE AUDIENCE

1. Human nature & Cognitive biases

- Cognitive biases **affect the way in which people process information**. People tend to:
  - be hesitant to accept new information that contradicts their existing beliefs;
  - believe the first information they hear;
  - use precision for judging expertise;

- Example: if people first hear that Covid-19 is a virus created in a lab, your message about the natural origin of the virus risks not to find much audience

2. Limited science literacy

- Definition: "**knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity**" (United States National Center for Education Statistics)

- Many people have limited science literacy (Snow, Kenne 2016)
  - It goes together with foundational literacy and health literacy
  - Predictors: gender, race, education level, socioeconomic status

3. Limited numeracy

- Laypeople often **mix up uncertainty with imprecision**
- Lay people often **lack the numeracy** needed to make sense of probabilities (likelihood that something happen)
  - Example: "If you are 65 or older and you have underlying conditions your chances to be hospitalized if you catch covid-19 are *three times higher* than a healthy and younger person" → How likely is it?
- Different people might **interpret words differently**
  - Example: "It is *highly probable* that a second wave of Covid-19 will arrive in fall" → How likely is it?

4. EMOTIONS

- **Perception of risk is determined by emotions** such as anger/fear (instead of by facts)

- **Stress** decreases the ability to scan and assimilate information, and make complex decisions

SciComm: Pre-requisites

- **Allocate resources**
  - Large institutions could have a person who is responsible for media and social media
  - Local institutions could rely on larger/international institutions (e.g. WHO, public health authorities) and repost or translate their materials/posts

- **Establish trust and credibility** (see module 4)
  - Remember that it takes time to build trust and credibility and a second to lose them
  - Health professionals enjoy high credibility (which might be enhanced by the affiliation to a prestigious hospital)

SciComm: Ethical principles

- **Truthfulness, fairness, responsibility, personal integrity, and respect for self and other** (National Communication Association, 1999)
  - Health professionals enjoy high credibility and therefore also a high responsibility: when they speak, people listen to them → If they spread misinformation, this is particularly dangerous (Larson 2018)
  - Negative examples:
    - Nobel Prize for Medicine supporting conspiracies theories about covid-19
    - Doctor from prestigious hospital stating that covid-19 is a hoax

SciComm: Good practices

- Avoid reporting results that are **not "mature"**
  - If you only have partial results (e.g. results of single studies, no meta analysis, like in the ongoing pandemic): acknowledge that current knowledge is limited
- Develop a **"good message"** (e.g. SUCCESs framework)
  - simple (e.g. avoid jargon, combine written and pictorial information)
  - small bites (e.g. answering three questions: what is it? why does it matters? how does it affect the public?)
  - relevant (e.g. create link between your message and people's life)
  - concrete (e.g. use analogies with real life situations and metaphors)
  - embed in a narrative to capture and retain attention
  - …and repeat it!

SciComm: Good practices

- Use **communication theories** to make sure that your messages "speak" to a broad range of audiences
  - e.g. use both positive and negative framing, emotional and rational appeals
- Use **models of behavior change** if you want your audience to act upon your message
  - e.g. Health Belief Model, transtheroretical model of change
- Present a topic in an easy way but explicitly **highlight that a topic is complex and/or controversial** to reduce the "easiness effect"
- **Communicate uncertainty** can increase audiences' perceptions of openness and honesty and build trust > implement recommendations

TAKE HOME MESSAGE

Good science communication requires institutions / their spokespersons to…

- Be familiar with science and the media
- Negotiate the logic of science and the logic of the media
- Be able to communicate uncertainty
- Be(come) "social"
- Be credible and trusted
- Be ethical

…and take into account people's

- Cognitive biases
- Limited science literacy and numeracy
- Emotions

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