What do people do online? Using data donation to understand digital behavior.

a workshop at the SPP Junior Researcher Meeting

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3️⃣ What is data donation?

The researcher’s perspective.

🤔 What are methodological decisions researchers have to take in data donation studies?

🔑 Key decisions

- Which theoretical questions do I want to answer?
- How do I operationalize key variables via my data donation tool?
- How do I integrate the tool in surveys & recruit participants?

Survey

Request & Download Data

Extract Data

Inspect Data

Consent

Decisions we took

Frame and Motivate:
Testing strategies to increase participation in data donation studies.

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- **Goal**: Feasability to implement data donation in a labor market panel, develop best-use practices, and understand non-response bias
- **Issues**: Data availability, low response rates and bias (e.g., (Keusch et al. 2024))
  - Behavioral intentions as "willingness to donate" high (79-52% of survey respondents)
  - Actual behavior as "participation in data donation" low (37-12% of survey respondents)
  - Well known intention-behavior gap; where 🤑 seems to help (Kmetty et al. 2025)
- **Sample**: A non-probability panel (online access panel)

Survey

- Survey concerning...
  - online platform usage (YouTube, Instagram, and LinkedIn),
  - labor market characteristics,
  - and common indicators for non-participation.

Data request & download

Data extraction

🛠️ Strategy to make the extraction work

1. Take a look at the DDP; download it, best for multiple time periods and for different languages
2. Understand the structure of the JSON or CSV.
3. Get an example file running.
4. Write the code for the extraction script.
5. Test your script, first locally and then in the wild.
6. Adapt your script.

📢 Task: Try it yourself.

Take a look at your downloaded data. What do you see; anything caught your eye?

Feel free to work in groups of 2-3 people for 5 minutes.

Different degrees in standardization for DDP content (Hase et al. 2024)...

- Documentation
  - DDP structure?
  - Measurements?
- Completeness & scope
  - Missing data?
  - Limited time frames?
  - Language sensitive?

🚨 Key issues (Hase et al. 2024)

- Missing documentation by platforms (e.g., file structure)
- Sudden changes in DDPs
- Differences across languages & devices
- Insufficient in-tool classification (e.g., LLM integration)

Example: Extract list of subscriptions

	A	B	C	D
1	**Channel Id**	**Channel Url**	**Channel Title**	
2	UC0vBXGSyV14uvJ4hECDOl0Q	http://www.youtube.com/channel/UC0vBXGSyV14uvJ4hECDOl0Q	Techquickie	
3	UC1H1NWNTG2Xi3pt85ykVSHA	http://www.youtube.com/channel/UC1H1NWNTG2Xi3pt85ykVSHA	Jordan Harrod	
4	UC4NNPgQ9sOkBjw6GlkgCylg	http://www.youtube.com/channel/UC4NNPgQ9sOkBjw6GlkgCylg	Ben Vallack	
5	UC6-ymYjG0SU0jUWnWh9ZzEQ	http://www.youtube.com/channel/UC6-ymYjG0SU0jUWnWh9ZzEQ	Wisecrack	
6	UC6DUUo63tKyr1_BHN26OiJw	http://www.youtube.com/channel/UC6DUUo63tKyr1_BHN26OiJw	Wahre Verbrechen.Wahre Stories	
7	UCAD-xOOaUI6N7Uq9laOVbcw	http://www.youtube.com/channel/UCAD-xOOaUI6N7Uq9laOVbcw	Code Therapy w/ RenÃ© Rebe	
8	UCAXCI-ASTfZqfv9-YklfPlA	http://www.youtube.com/channel/UCAXCI-ASTfZqfv9-YklfPlA	PacKMeN	
9	UCApPPpJ4d3ueW38lArwiWoA	http://www.youtube.com/channel/UCApPPpJ4d3ueW38lArwiWoA	Kenny Beats	
10	UCBa659QWEk1AI4Tg--mrJ2A	http://www.youtube.com/channel/UCBa659QWEk1AI4Tg--mrJ2A	Tom Scott	
11	UCDhu1klCDnf2glev0YbYkDA	http://www.youtube.com/channel/UCDhu1klCDnf2glev0YbYkDA	BeHaind	
12	UCFZms3ivokCP_HO8o5JzxEw	http://www.youtube.com/channel/UCFZms3ivokCP_HO8o5JzxEw	moTricksTV	
13	UCGII8SK7YD2B0Gd43DZk4NQ	http://www.youtube.com/channel/UCGII8SK7YD2B0Gd43DZk4NQ	mattes	
14	UCHnyfMqiRRG1u-2MsSQLbXA	http://www.youtube.com/channel/UCHnyfMqiRRG1u-2MsSQLbXA	Veritasium	
15	UCJXa3_WNNmIpewOtCHf3B0g	http://www.youtube.com/channel/UCJXa3_WNNmIpewOtCHf3B0g	LaurieWired	
16	UCJkMlOu7faDgqh4PfzbpLdg	http://www.youtube.com/channel/UCJkMlOu7faDgqh4PfzbpLdg	Nerdwriter1	
17	UCMELMEuQqmxTqM4_ArhHPjQ	http://www.youtube.com/channel/UCMELMEuQqmxTqM4_ArhHPjQ	High5	
18	UCMI9UhY1ehLGfOP5KNIKIaQ	http://www.youtube.com/channel/UCMI9UhY1ehLGfOP5KNIKIaQ	Doktor Allwissend	
19	UCMu5gPmKp5av0QCAajKTMhw	http://www.youtube.com/channel/UCMu5gPmKp5av0QCAajKTMhw	ERB	
20	UCN29LJGZ8FY30ysxdTnDsaw	http://www.youtube.com/channel/UCN29LJGZ8FY30ysxdTnDsaw	Filmanalyse	
21	UCNTwGcSEDHIbGhk7l5xFGwA	http://www.youtube.com/channel/UCNTwGcSEDHIbGhk7l5xFGwA	tinseltown	
22	UCOpcACMWblDls9Z6GERVi1A	http://www.youtube.com/channel/UCOpcACMWblDls9Z6GERVi1A	Screen Junkies	
23	UCU98JVxJf-VQXbPQPNbkbQQ	http://www.youtube.com/channel/UCU98JVxJf-VQXbPQPNbkbQQ	Meditations for the anxious mind	
24	UCUyeluBRhGPCW4rPe_UvBZQ	http://www.youtube.com/channel/UCUyeluBRhGPCW4rPe_UvBZQ	ThePrimeTime	

subscriptions.csv (before processing)

```
...
    "subscriptions": {
        "extraction_function": ef.extract_subscriptions,
        "possible_filenames": ["Abos.csv", "subscriptions.csv"],
        "title": {
            "en": "Which channels are you subscribed to?",
            "de": "Welche Kanäle haben Sie abonniert?",
            "nl": "Op welke kanalen ben je geabonneerd?",
        },
    },
...
```

```python
def extract_youtube_content_from_zip_folder(zip_file_path, possible_filenames):
    """Extract content from YouTube data export zip file using filenames"""

    try:
        with zipfile.ZipFile(zip_file_path, "r") as zip_ref:
            # Get the list of file names in the zip file
            filenames = zip_ref.namelist()
            # Look for matching files
            for possible_filename in possible_filenames:
                for filename in filenames:
                    if possible_filename in filename:
                        try:
                            # Process based on file extension
                            if filename.endswith(".json"):
                                with zip_ref.open(filename) as json_file:
                                    json_content = json.loads(json_file.read())
                                    return json_content
                            elif file_name.endswith(".csv"):
                                with zip_ref.open(file_name) as csv_file:
                                    csv_content = pd.read_csv(csv_file)
```

```python
def extract_subscriptions(subscriptions_csv):
    """Extract YouTube channel subscriptions"""

    # Define column name
    if "Kanaltitel" in subscriptions_csv.columns:
        channel_column = "Kanaltitel"
    else:
        channel_column = "Channel Title"

    # Define description
    channel_name = "Subscribed Channel"

    # Create DataFrame with just the channel names
    subscriptions_df = pd.DataFrame({channel_name: subscriptions_csv[channel_column]})
    return subscriptions_df
```

0 Which channels are you subscribed to?

1 2 3 4 5 6

6 pages

Search

Subscribed Channel
Techquickie
Jordan Harrod
Ben Vallack
Wisecrack
Wahre Verbrechen.Wahre Stories
Code Therapy w/ René Rebe
PacKMeN

Adjust

No adjustments

subscriptions.csv (after processing)

Data inspection

☑ Data donation

- A data donation platform helps to guide them through the process
- The process should be made as easy as possible for participants

📚 Workshop Takeaways

- There are many ways in which researchers can learn about people's online behavior through digital trace data
- People can request, download and finally donate their (anonymized) data form most online platforms
- Data donation can be burdensome for participants
- Data quailty heavily depends on the platform and what kind of data you extract from participants

🙃 Thank you for participating; happy to talk with you about data donation (and anything else) throughout the next days.

EXTRA: Can I extend the data?

- Manual annotation by participants during data donation
- APIs/scraping to extend collected data
- Text-as-data methods for classification

EXTRA: Errors in representation

For example ...

- **Coverage error**: Who is (not) represented in the sampling frame? (e.g., social media users vs. YouTube users)
- **Sampling error**: Who is (not) represented in the sample? (e.g., non-probability samples)
- **Non-response error**: Who does (not) want to participate in the data donation?
- **Compliance error**: Who is (not) able to participate in the data donation?

🤔 What do you think: Which participant characteristics may correlate with non-response or non-compliance?

EXTRA: What’s next for data donation studies?

Advancing the method

- 📸 Multimodal & cross-platform data (Wedel, Ohme, and Araujo 2024)
- In-tool, local classification (e.g., local ML/LLMs?)
- Workflow/UX-perspective

Data as a political tool

- Platforms do (willingly?) not provide data according to the GDPR/DSA (Hase et al. 2024)
- The EU has started to sanction platforms like X/TikTok
- DSA may become the subject of larger geo-political debates with the USA (Seiling, Ohme, and De Vreese 2025)

🚀 Can we improve & apply the method?

- Can the method actually be applied for empirical research? (few examples, like (Thorson et al. 2021; Wojcieszak et al. 2024))
- Requires interdisciplinary perspectives (e.g., addressing bias, integration in probability-based panels)

🤔 Questions?

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