# Databrary Advisory Board Spring Meeting

April 7, 2014 NYU





# Meeting Agenda

- 1:00-1:15 Welcome and recent accomplishments
- 1:15-1:45 Roadmap
- 1:45-2:15 Policies
- 2:15-2:30 Break
- 2:30-3:30 Beta: Upload and search
- 3:30-4:00 Researcher asks and support
- 4:00-4:10 Break
- 4:10-5:00 Positioning Databrary for the future
- 5:00-5:30 Wrap up and discussion



#### Announcements

- Next Board Meeting: October 13, 2014 at NYU
- Wi-fi access: nyuguest
  - Guest ID: guest132
  - Password: keddlith
- Meeting will be recorded
- Push-to-talk microphones
- Reimbursement form and receipts to Lina Wictoren Roy
- Dinner following at Hundred Acres
  - 38 Macdougal Street, corner of Prince



#### **Databrary Pls**



Karen Adolph NYU



Rick Gilmore Penn State



David Millman NYU

#### Agency partners

- ▶ Jim Griffin, NICHD, Science Officer
- Lisa Freund, NICHD, Program Officer
- Laura Namy, NSF, Director DLS



## **Special Guests**

#### Lynn Liben

Distinguished Professor of Psychology, Penn State,
President of the Society for Research in Child Development

#### Daphne Maurer

 Distinguished University Professor of Psychology, Neuroscience & Behaviour, McMaster University,
President of the International Society on Infant Studies

#### Amanda Woodward

William S. Gray Professor of Psychology, University of Chicago,
President of the Cognitive Development Society



#### Special thanks to NYU

- David Ackerman: IT support, storage, hiring
- Nancy Daneau: Authorization
- Alison Dewhurst and Marti Dunne: Participant release, IRB
- Pamela Morris: IHDSC, administrative support
- ► Eric Rasmussen and Mark Righter: Authorization, university agreements, legal



# Very special thanks

Richard Louth



## Databrary team



Dylan Simon



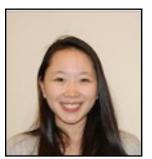
Mike Continues



Jon Coe



Jesse Lingeman



Vicky Foo



John Franchak



Lisa Steiger



Andrea Byrne



Lina Wictoren Roy

#### Board member updates

- Welcome to new advisors
  - Daniel Messinger, University of Miami, analytic tools
  - Brian Nosek, University of Virginia, COS
  - Tal Yarkoni, University of Texas, neurosynth.org
- Farewell to departing member
  - Sarah Morrow, PSU



#### **Publications**

- Submitted
  - International Journal of Digital Libraries
- In progress
  - WIRE's Cognitive Science (invited paper)
  - Best practices in behavioral coding
  - Call to arms
  - Top 10 reasons to share
  - Top 10 concerns about sharing



#### Presentations

- NFAIS/CENDI/Library of Congress (Nov. 12, 2013)
- CNI 2013 Fall Meeting (Dec. 9-10, 2013)
- Spatial DataMine Workshop (Feb. 7-9 2014)
- ▶ 12+ presentations to psychologists, pediatric physical/occupational therapists, movement scientists

#### Datavyu

- Released stable version of Datavyu 1.1
- Published user guide
- Best practices in behavioral coding forthcoming



#### Seeding the repository: Datasets acquired

- Adolph
- Tamis-LeMonda
- Karasik
- Gordon
- LoBue



## Forthcoming datasets

- Messinger lab
- Gernsbacher lab
- Maher longitudinal study
- CHILDES videos
- Gesell archives
  - ◄ In partnership with MIAP, Howard Besser



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- Challenge in developmental psychology
  - Most developmental researchers collect video data
  - Not exploiting the richness in video
  - Good data going to waste
  - Impeding transparency and the pace of discovery



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  - Most developmental researchers collect video data
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  - Impeding transparency and the pace of discovery
- Collecting and storing video is costly



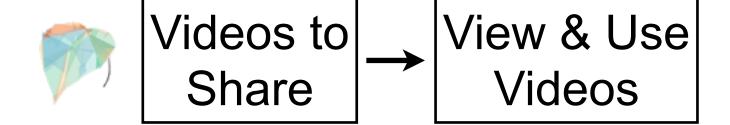
- Challenge in developmental psychology
  - Most developmental researchers collect video data
  - Not exploiting the richness in video
  - Good data going to waste
  - Impeding transparency and the pace of discovery
- Collecting and storing video is costly
- Open up videos to be repurposed for new questions



## Key aims of the Databrary project

- Build Databrary repository for sharing video
- Create appropriate policy environment
- Provide data management tools
- Enhance Datavyu tool for scoring video
- Transform the culture of developmental science!









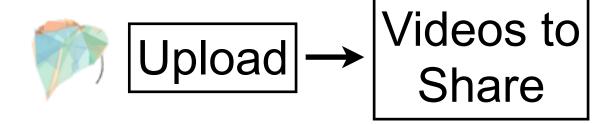
- Data dump
  - Datasets are browsable but not searchable at session level

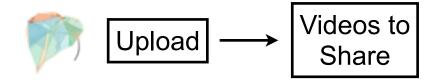


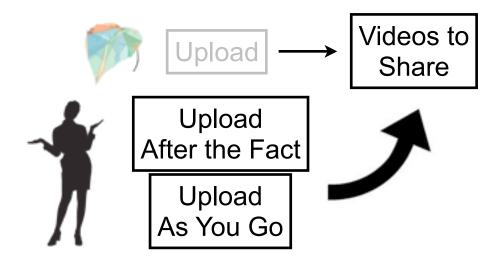
- Data dump
  - Datasets are browsable but not searchable at session level
- Structured datasets and studies
  - Assign appropriate metadata to each session

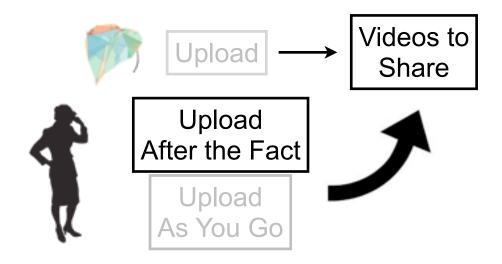


- Videos are identifiable
  - So each video (session) must have a release level
  - Dataset dump not possible because metadata tags for each session are required



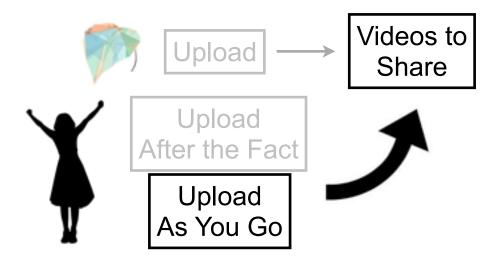


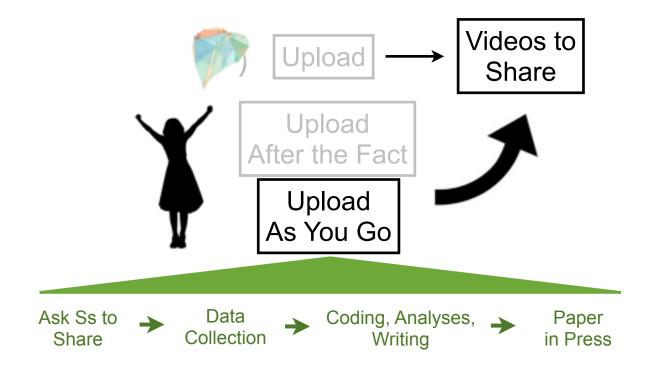


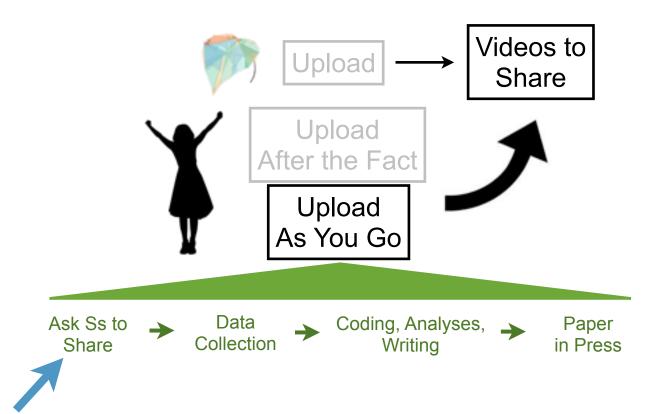


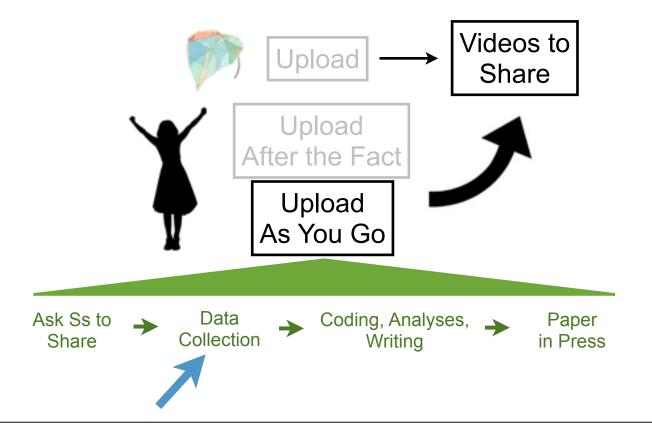
Incentives: Preservation; data easily available to collaborators; mensch...? Disincentives: Time; effort; \$.

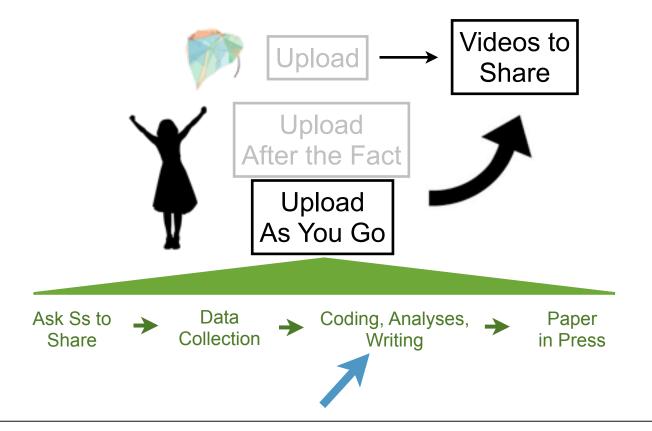


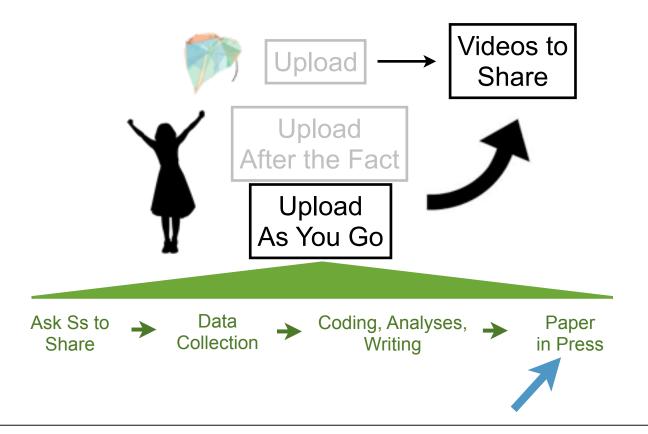


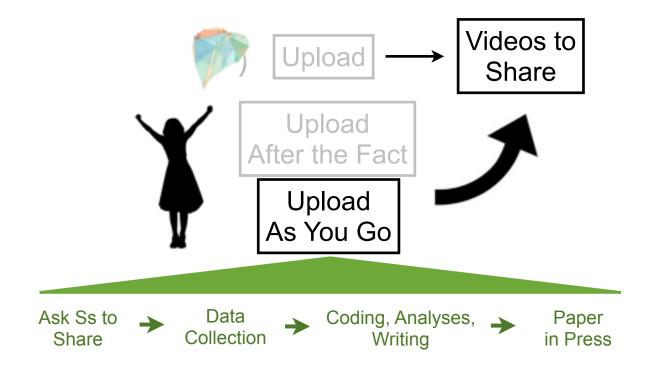


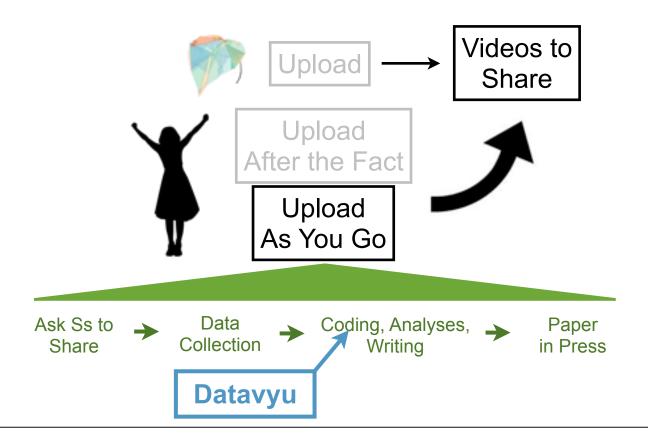


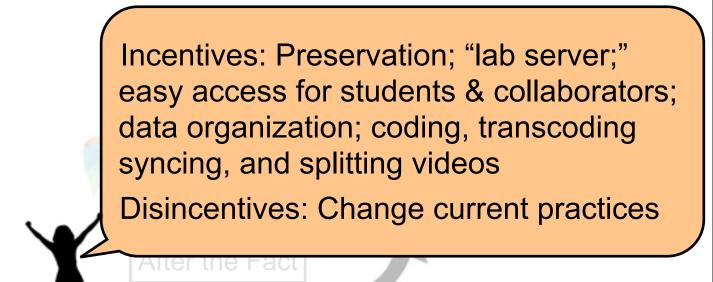




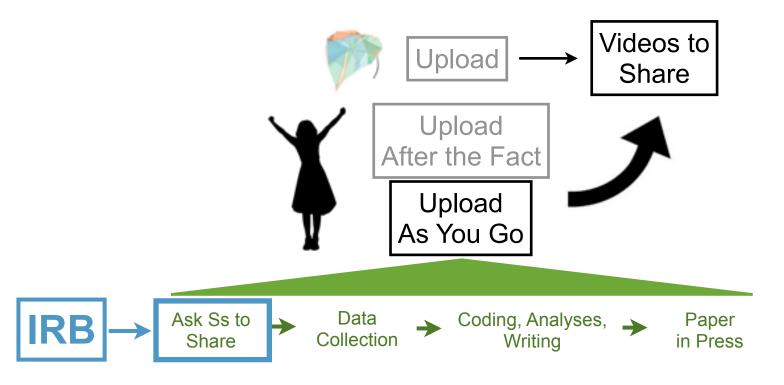


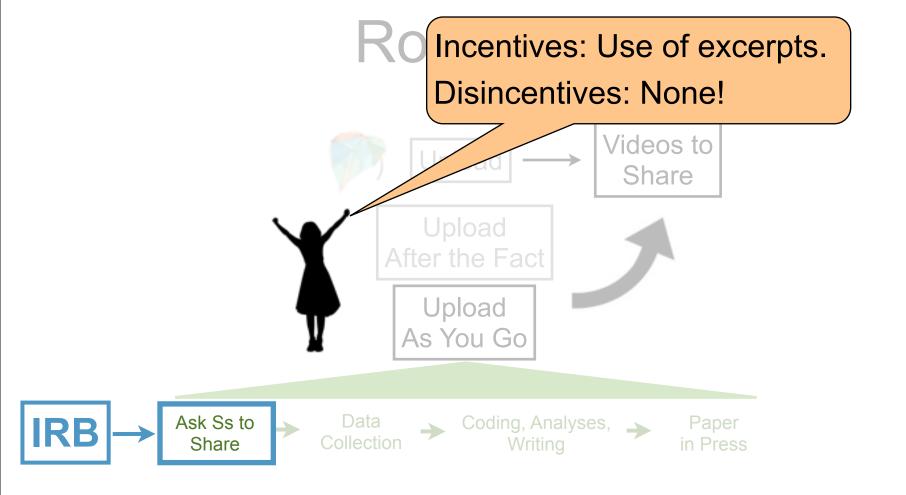


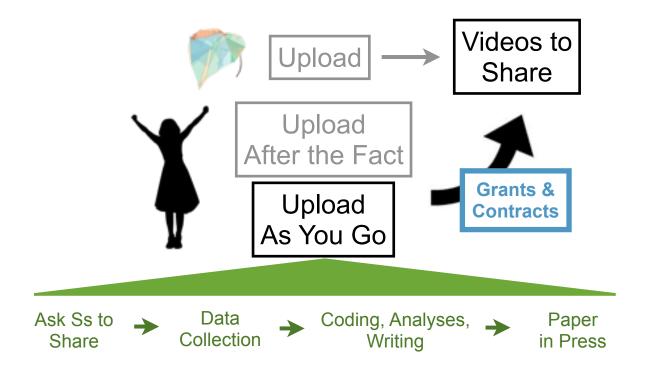


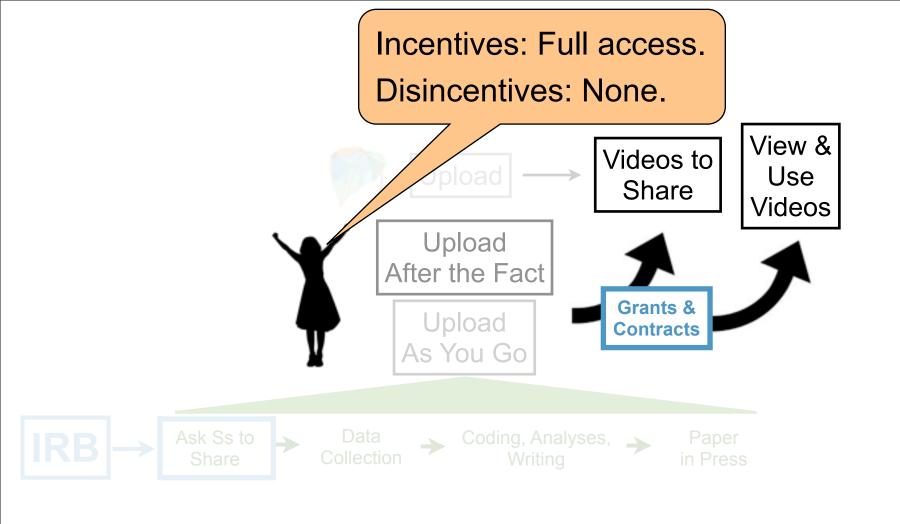


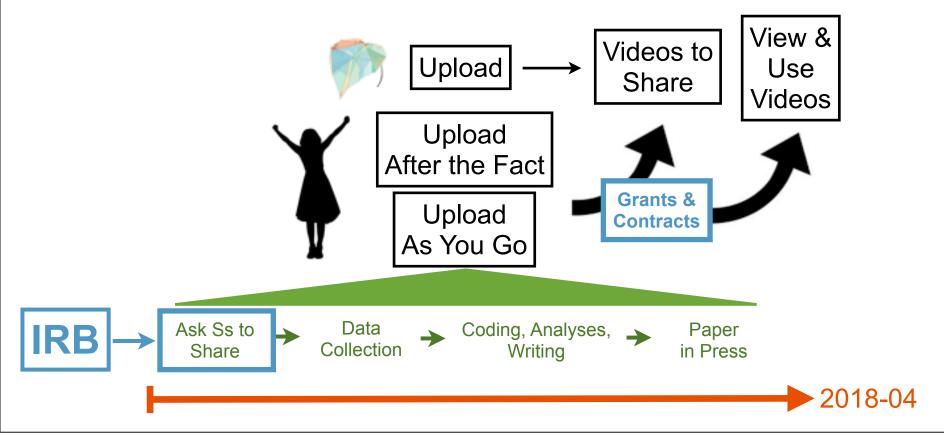
Ask Ss to Share Data Collection Coding, Analyses, Paper in Press

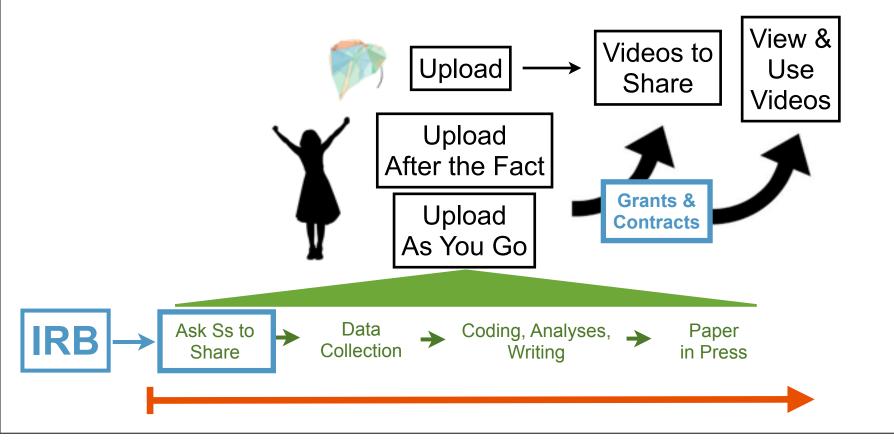


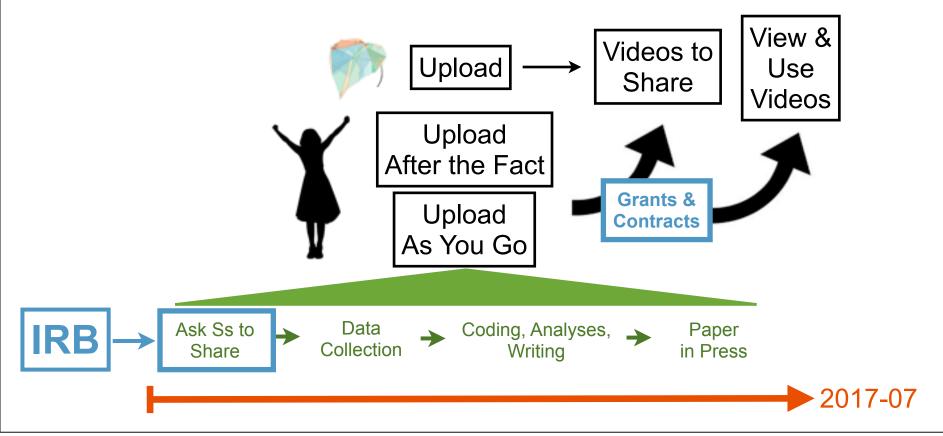


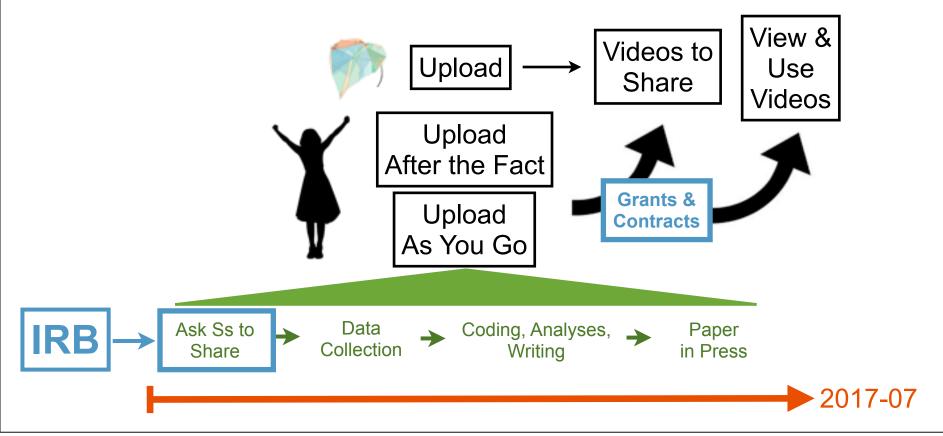


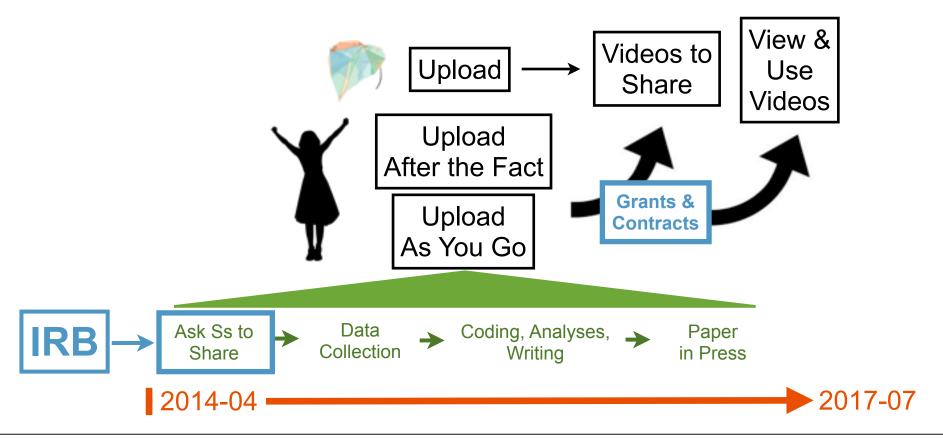


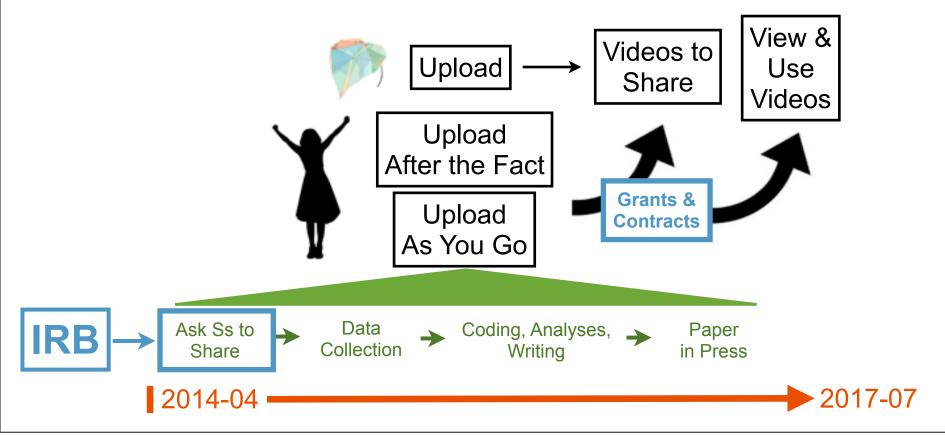


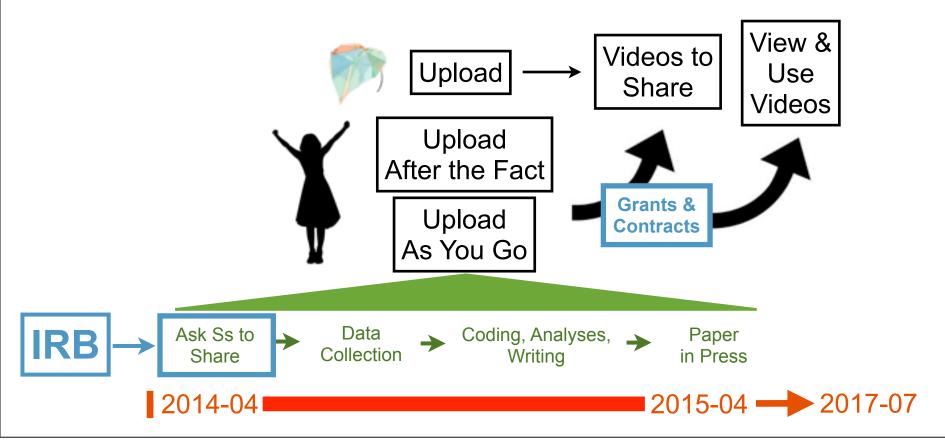


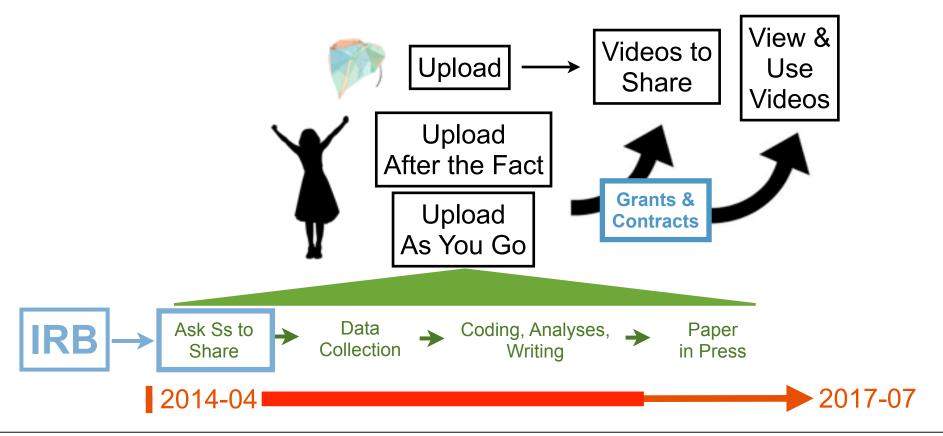


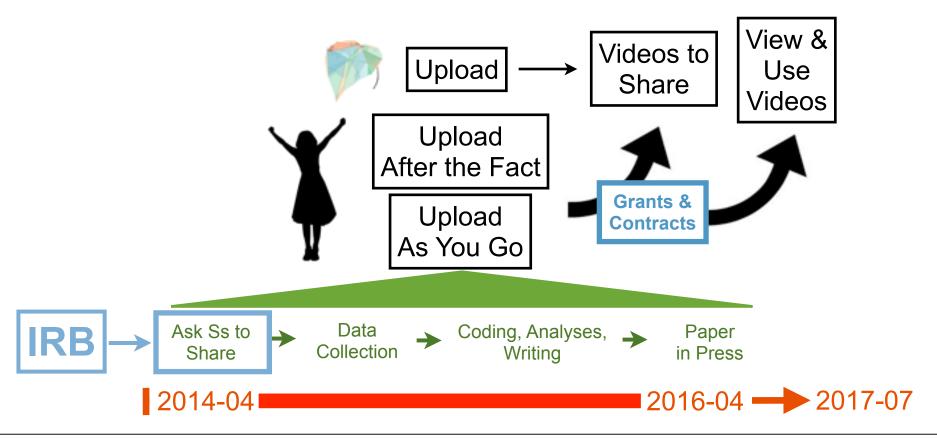


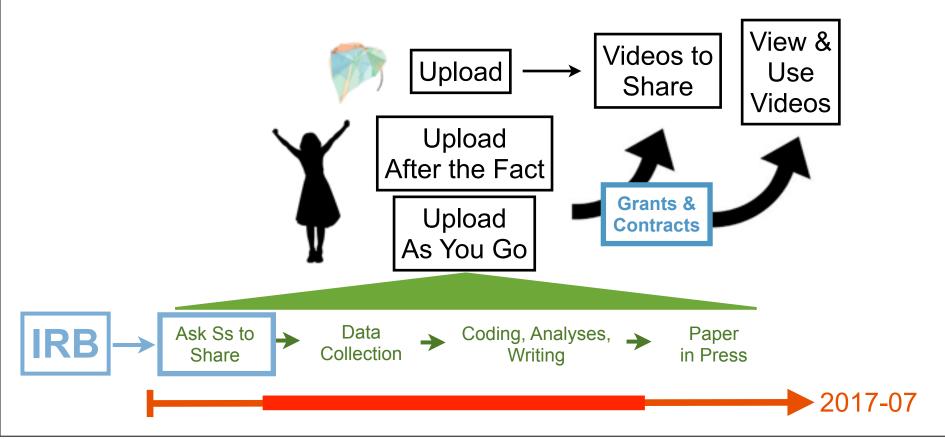


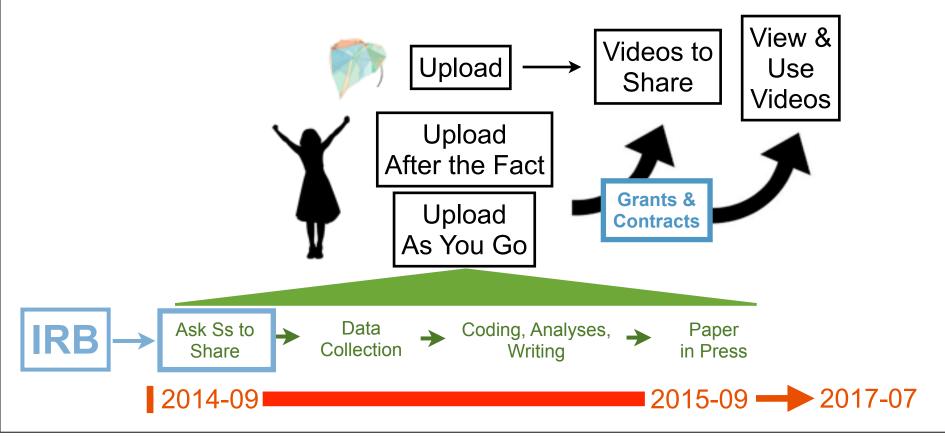


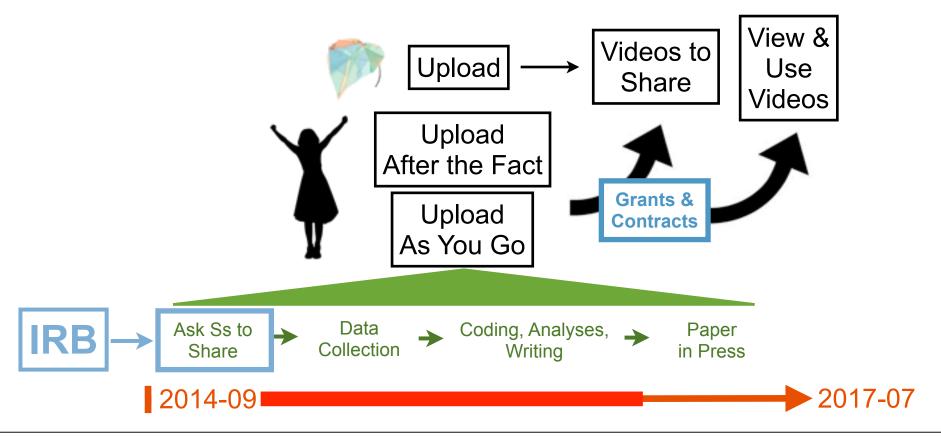


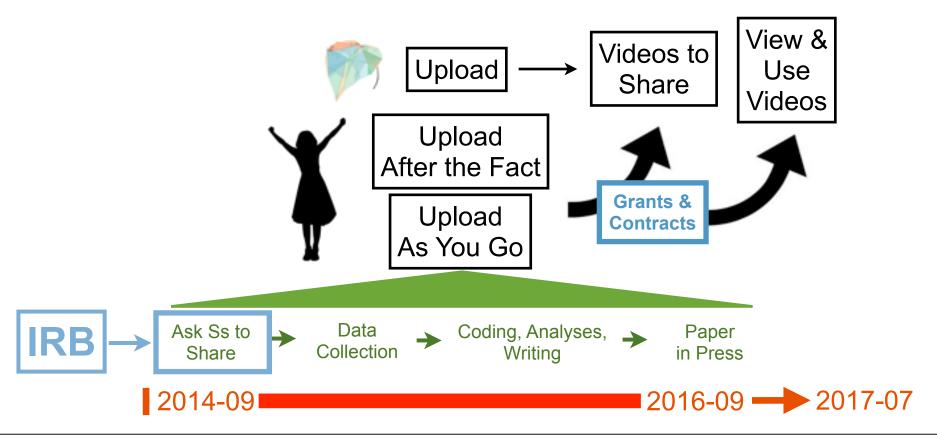












## Upload as you go (Labnanny)

- We need to get the video data into Databrary
- We can't rely on researchers uploading data after their paper is submitted
- We need to make it easy to upload data while researchers are collecting it



## What we need from advisory board

- Advocate for data sharing and Databrary
- Lead by example
- Identify and share already-collected data
- Request participants to share their data
- Become authorized Databrary Investigators
- Explore the beta site and give us feedback
- Provide insights for designing upload and search

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## Policy framework

- Special problem with video: Identifiable data
- Policies that enable open sharing of identifiable data
  - Informed consent to share videos
  - Ensuring adherence to a common set of practices and ethical principles



### Databrary release

- Template release form
- Informed consent: can share identifiable data if you tell participants (all depicted individuals) and they agree
- Standardization across contributors
  - Developed to correspond directly with release levels



#### Release levels

- Available restrictions on identifiable data:
  - Did not ask: If undocumented; functions as private
  - Private: Restricted to data owners and editors
  - Shared: Restricted to authorized Databrary investigators
  - ◆ Shared + excerpts: Restricted like shared, but excerpts may be used for informational, scientific, and educational purposes
  - Public: Available to the public



## What data are being released?

- Videos from a session (or part of a session)
  - Can decline sharing for sessions or segments of sessions that contains sensitive information
- Session- and participant-level metadata that are identifiable
  - Birthdates, faces, names, interior of homes, classrooms, disabilities, self-reported health info, etc.
- Codes of behaviors

## Databrary release: What is unique?

- Completely separates consent to participate from release to share
  - Consent to participate (in the study) before
  - Release to share after—it's clear what was recorded



### Our template works

- Multiple iterations of release form and procedure for talking with participants
  - Tested on our own participants!
- Adaptable and flexible
  - Only local IRB must approve
  - Can collect decisions of all depicted individuals on one page
- Used in many contexts
  - International, oral/written, diverse ethnic groups, children with disabilities

## Video example

databrary.org/user-guide/getting-started/release-script/example-videos.html

### Video example



databrary.org/user-guide/getting-started/release-script/example-videos.html

#### Just do it!

- Asking to share does not obligate you to share
- Can't share without asking
- We'll store everything, so long as participants are asked
- We need as many researchers as possible to incorporate Databrary releases



### Progress on releases

- 9 labs are currently requesting participant release
- 10 labs have pending IRB protocol amendments
- 17 other labs in process of adding Databrary to IRB



## Discussion re: excerpts

- Most common (pre-Databrary) use case
  - Clips for talks, teaching
  - Demonstration of specific procedure or method
  - Relations between behaviors and codes
- Why ask for excerpts separately?
  - Effectively public
  - Needs to be clear to participants



### Databrary and excerpts

- Should Databrary make excerpts publicly available on the site?
- Who decides which excerpts are public on Databrary?
  - Only the data owner or any PI on Databrary?



### Authorization

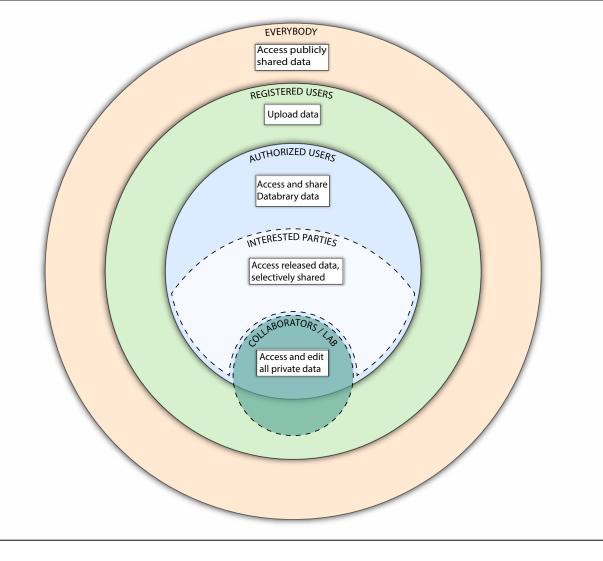
- Access to shared videos
- Contribute and/or use data
  - No requirement to contribute
- Institutional sign-off by Authorizing Official
  - Grants and contracts
  - No IRB needed



#### Access

- Pls can authorize and manage affiliates
- Can also add lab members and collaborators
  - Regardless of authorization
- Four pre-selected options
  - Lab and collaborators only
  - Databrary data only
  - Lab data and Databrary data
  - Proxy





## Terms of the agreement

- Researcher upholds same ethical standards as with their own data
- Responsibility of researcher to get whatever approval is necessary when use constitutes human subjects research
- Institution must verify that Investigator is eligible to be a Databrary Principal Investigator

### Progress on authorization

- 7 schools signed:
  - ◀ NYU, PSU, Rochester, Indiana, McMaster, UVA, Rutgers
- Points of clarification
  - Does not go to the IRB office for signing
  - Further, IRB approval not required for authorization
  - Only authorizing official can bind institution or enter agreement



### Feedback

- Agreement written with NYU and PSU
- Piloted agreement on advisory board
- We want as much feedback as possible
  - Where are researchers getting hung up?
  - Where are institutions getting hung up?



# Registration demo



## Next step for authorization policy

- Shift to institutional agreements
  - Once schools are comfortable with Investigator Agreement
  - No substantive changes to re-frame as an institutional agreement
- Allows universities to manage their authorizations on Databrary



#### Beta release

- Sending email tomorrow (4/8) with private beta link
  - Register and request authorization
- Explore the site and tell us what you think!
- We will authorize you temporarily through the beta if needed
- Please don't download Tajik videos



## Outreach plan for Databrary 1.0

- Community outreach
  - Invites to ICIS, CDS, SRCD members
  - Conference exhibits at major academic society meetings
  - Workshops on sharing identifiable data
- Timesavers as incentives
  - Developing 'boilerplate' Databrary language for grant proposals and reports
  - Data management plans (partner with DMPtool)
  - Resource sharing plans



## What we need from advisory board

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## Datavyu current and future

- Released stable Datavyu 1.1 desktop version and user guide
- Addressing remaining bugs as they trickle in, but otherwise complete
- Next steps (to begin 2015+): Bring Datavyu into Databrary web framework
  - Target simple coding tasks, on-line
  - Later possibility for off-line version



## Databrary site



## October 2013 board meeting

- Lots of videos
  - Piled up into studies
  - Minimal organization
- "Static" views
  - Single presentation option
  - Limited flexibility



## Development progress

- Revised technical requirements
  - Flexible discovery, browsing options
  - Responsive, intuitive editing, uploading
  - High-level visualizations, summaries
  - ◄ API, scripting interface
- Built new, completely dynamic JS interface
- Front-end uses API

## Uploading after the fact

- Learned a lot from manually curating and organizing existing and new datasets
- Broadened types of possible, standard metadata
- Developed better ways to group and relate videos, metadata, studies, datasets

### Lessons from the data

- Always exceptions, irregularities in real data
  - Missing, multiple videos
  - Don't fit cleanly in defined groups
  - Excluded and later re-purposed data
  - Always something non-rectangular
- Different types of data (classroom, public, longitudinal) have different needs



## Updated model

- Better understanding of constraints, required flexibility
- Need responsive, iterative, "data-driven" approach
  - Real data are always more nuanced



# Walkthrough of live site

## Next steps

- Improve discovery within and across datasets
  - Searching: by keyword, text, descriptions, names, etc.
  - ◄ Filtering: limiting results by age, gender, numeric values, etc.
  - Sorting: order to present results, for scanning visually
- View summarized or aggregated data (counts, distributions, visualizations, etc.)
- Many existing user stories and use cases



## User stories: Teaching and talks

- Video clips for teaching
- Illustrate an idea
- Show the range of behaviors and exceptions
- Show an excerpt in a talk



### User stories: Pre-research

- Browse the work in my field
- Decide whether a study is worth doing
- Preliminary data for grant proposal
- Ideas and inspiration
- Replicate, expand on, or review previous work based on the procedure or coding manual



### User stories: Research

- Repurpose videos for new uses
- Replicate existing work by recoding videos
- Grow sample size
- Include participants from other contexts and populations
- Conduct integrative analyses
- Complete grant progress report



## Next steps

- Primary focus was on browsing, searching, using (downloading, coding, commenting, tagging)
- New focus: Upload as you go
- Build browser interface that also makes sense for entering and editing data



## User stories: Upload as you go

- Describe study design (conditions, groups, etc.)
- Enter (type/paste/import) session metadata
- Upload new video, associate it with session
- Keep track of which data were entered
- Export previously entered data for analysis
- Customize presentation of dataset (title, excerpts, display)



## Design process for upload as you go

- Focus group including developers, UI/UX experts, researchers
- Refine user stories
- Identify requirements and priorities
- Iterative process, test and improve interface



## Inferring structure as you go

- Initial questions about study design are useful
- But, things are always changing midcourse
- Allow users to iterate easily by finding smart ways to expand structure as they go

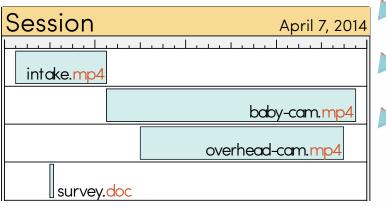


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### Session is the basic unit



- Covered by a release level
- Data collected at same time
- Contains timeline of raw data files
- Annotated with metadata



### Session metadata

- Release level
- Date

- Pilot
- Excluded
- Participants
- Conditions
- Tasks
- Groups
- Location



### Session release level

- Not asked
- Private
- Shared
- Shared + excerpts
- Public



### Session date

- Technically considered identifiable information
- Could be unknown (Gesell)



### **Pilot**

Indicates that the methods used in the session were not finalized or standard



### **Excluded**

Indicates that session was not usable for the target study

#### Reason

- Did not meet inclusion criteria
- Procedural/experimenter error
- Withdrew/fussy/tired
- Outlier
- **4**



## Participant

Represents an individual depicted or represented in this session

- Subject ID
- Birthdate
- Gender
- Race (NIH)
- Ethnicity (NIH)

- Disability/typically dev
- Language
- Country (of origin)
- ▶ SES?

#### Task

Represents a particular task, activity, or phase that occurred during all or a portion of the session

- Name
- Summary
- Description



#### Condition

Represents an experimenter-determined manipulation (within or between sessions)

- Name
- Summary
- Description
- Other variables...



## Group

Represents a grouping of sessions determined by an aspect of the data (participant ability, age, experience, measurements used/available)

- Name
- Summary
- Description
- Other variables...



#### Location

Represents a particular setting or other variable aspect of where/when/how session data were collected

- Setting
  - lab, home, classroom, outdoors, clinic, museum ...
- Language (of study materials)
- State
- Country

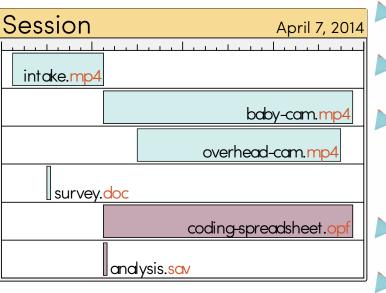


## Datasets and studies (provenance)

- Datasets: raw data collected in sessions
- Studies: generated data, analyses, papers
- Studies include sessions from datasets and "layer" files over them
- Allow re-purposing, re-presenting data



#### Session is the basic unit



- Covered by a release level
- Data collected at same time
- Contains timeline of raw data files
- Annotated with metadata
  - Analysis files layered on

#### **Datasets and Studies**

- One to one mapping likely to be rare
  - Excluded Ss, pilot Ss
  - In interest of transparency and repurposing, should be no disincentive for sharing
- Excerpts only, displays only
  - Studies, no datasets
- Repurposing data
  - Studies and datasets



#### Simple after-the-fact cases

- Easy to upload studies with:
  - Publication, abstract
  - Excerpts only
  - Stimuli, displays



#### What's on the table for standardizing?

- Metadata variables describing sessions, participants, studies, datasets
- Not interfering with the science
- Not standardizing tasks
  - Subgroups can do this (emo-group)
- Not standardizing codes
  - Datavyu is agnostic



#### Discussion: How much to standardize

- Continuum between enforced structure and flexibility
- Currently, types of metadata (participant, task, location, etc.) are fixed
  - Is this enough? Too much? Are there others?
  - Should we let users define their own?
- Variables within metadata (birthdate, language, description) are user-extensible
  - Should we restrict these? Add more?



#### Benefits and costs of standardization

- More powerful searching
  - Video or session level searches
- Aggregating across datasets

- But possible change in current practices
- More work for PIs to document measures



#### Potential solutions for flexibility

- Encourage use of existing tags (pop-up suggestions)
- Our curators clean up after the fact (merge conceptually identical tags)
- Leave the mess as-is
  - Semantic search (google: "crawl" finds "crawling", "crawlers", etc.)



## Already doing stuff as you go

- Organizing, typing, writing data anyway after each data collection session
  - How is this done now?
  - How can we make this non-invasive/simpler than current practices?
- Uploading, transcoding, splitting videos anyway
- Exporting to SPSS/Excel/Datavyu anyway



## Things that change later

- Exclusions, groups, entire study organization can change later
- Needs to be easy to do this in Databrary, drag around sessions, include/exclude, add to study, make new group
- Easy to create, download excerpts
- Last step: add publication citation, done!



#### Taking advantage of your Databrary lab

- Organization within labs requires less standardization
  - Each can have their own standards
- Search within your own data
- Mine your data for subsequent analyses
- Easy to disseminate examples
- Need effective 'overview' and 'monitoring' tools

#### What we need from advisory board

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## Meeting Agenda

- 1:00-1:15 Welcome and recent accomplishments
- 1:15-1:45 Roadmap
- 1:45-2:15 Policies
- 2:15-2:30 Break
- 2:30-3:30 Beta: Upload and search
- 3:30-4:00 Researcher asks and support
- 4:00-4:10 Break
- 4:10-5:00 Positioning Databrary for the future
- 5:00-5:30 Wrap up and discussion



#### Quick SWOT analysis

**Strengths** Weaknesses **Opportunities Threats** 



#### Strengths

- Solution for sharing identifiable data
- Growing awareness, visibility within content domain
- Flexible data model, poised for growth
- University, agency support
- Free, open-source video coding tool



#### Weaknesses

- Data curation hard, slow
- Fixing the past vs. fixing the future
- Sustainability model undetermined
- Small curation, development staff
- Datavyu user base small
  - How to compete/cooperate with commercial entities?

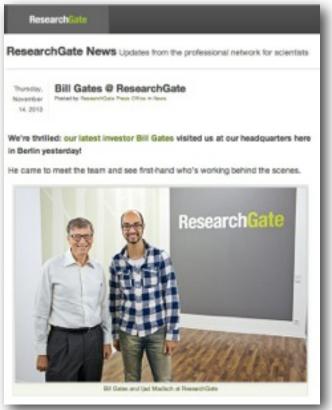
## Your thoughts?

- Strengths we neglected or overstated?
- Weaknesses we neglected or overstated?



#### **Threats**

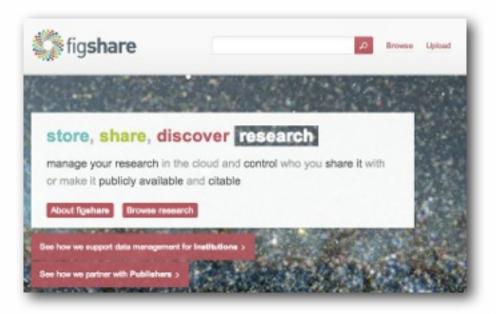
- Open science space moving quickly
- Attracting <u>venture</u> <u>capital</u>





## Data-sharing













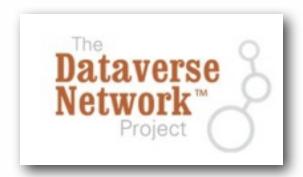




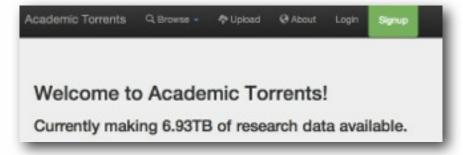


# Open Science Framework













#### **Threats**

- Databrary software not yet released
- How can Databrary compete?
- Why share with Databrary vs. alternatives?
- What features will attract, keep users?
- What features will ensure sustainability, change the culture of developmental science?



#### Your turn

- More threats?
- Different spin on them?



- Potential for partnering
  - TalkBank/CHILDES
  - Other sharing organizations
    - Research Data Alliance (RDA)
    - Center for Open Science (COS)
    - Stanford Meta-Research Center
  - Societies
    - Report on developmental society meeting



- Potential for partnering
  - Journals
    - Store supplemental data?
    - Store extended materials for all submissions?
    - Which fields?
      - Developmental science only
      - Psychology
      - Neuroscience



- Potential for partnering
  - Conferences (both society-affiliated and not)
    - Store, share talk recordings?
    - Store supplemental data?
  - Sustainability component
    - Member or attendee fees-for-service?



- Emphasize competitive advantages
  - Domain-focus, visibility
    - Your colleagues are here
  - Policies to share identifiable research data, especially recordings
  - University & Federal support
  - Stability and long-term sustainability
  - Sharing is our business model



#### Your thoughts?

- Partnerships
- Journals
- Conferences
- Sharpen our message
- Other ideas?





- labguru
- Integration with external services
  - Cloud storage/data sharing
- Offer new services via APIs
  - Lab management
  - Project/task management
  - Data visualization
  - Social media, communications
  - Electronic CV, profile management







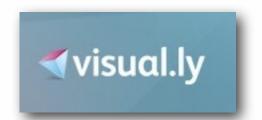


## Your thoughts?

- Do you use any of these services?
- Is providing data sharing services enough?
- Does integration with other tools help or hinder our goals?



- Beyond storing, tagging video
  - Visualization
  - Additional analysis streams



Video Annotation Tool from Irvine, California



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## Thank you