CITIZEN SCIENCE

SDG

CONFERENCE

14.–15.10.2020

Knowledge for Change: A decade of Citizen Science (2020–2030) in support of the Sustainable Development Goals

MUSEUM FÜR NATURKUNDE
BERLIN

Using Analytics for Community Monitoring and Support in Online Citizen Science Projects

Sven Manske, *Julia Lorke*, Peter Lemm and Ulrich Hoppe

CS Track – Project Goals

– Broadening our **knowledge about citizen science** and its impact on a large and diverse set of citizen science activities.

– Identifying and disseminating **good practices**.

– Formulating **knowledge-based policy recommendations**.

– **Maximizing the potential benefit** on individual citizens, organizations, and society at large.

What we look at in this context

- Citizen Science Online Communities
  - knowledge production
    - research
    - learning
  - interactions
    - with professional scientists
    - with other participants
  - data quality

Aristeidou, M., Scanlon, E., & Sharples, M. (2017)

Ponciano, L., & Brasileiro, F. (2015)

Lukyanenko, R., Parsons, J. and Wiersma, Y.F. (2016)

Trouille, L.; Lintott, C.J., Fortson, L.F. (2019)

Aristeidou, M. and Herodotou, C. (2020)

Masters et al. (2016)

Ponti, M., Hillman, T., Kullenberg, C., & Kasperowski, D. (2018)

Crall et al. (2017)

Crowston, K., Mitchell, E., & Østerlund, C. (2019).

Rohden, F., Kullenberg, C., Hagen, N. and Kasperowski, D., 2019.

Curtis, V. (2015)
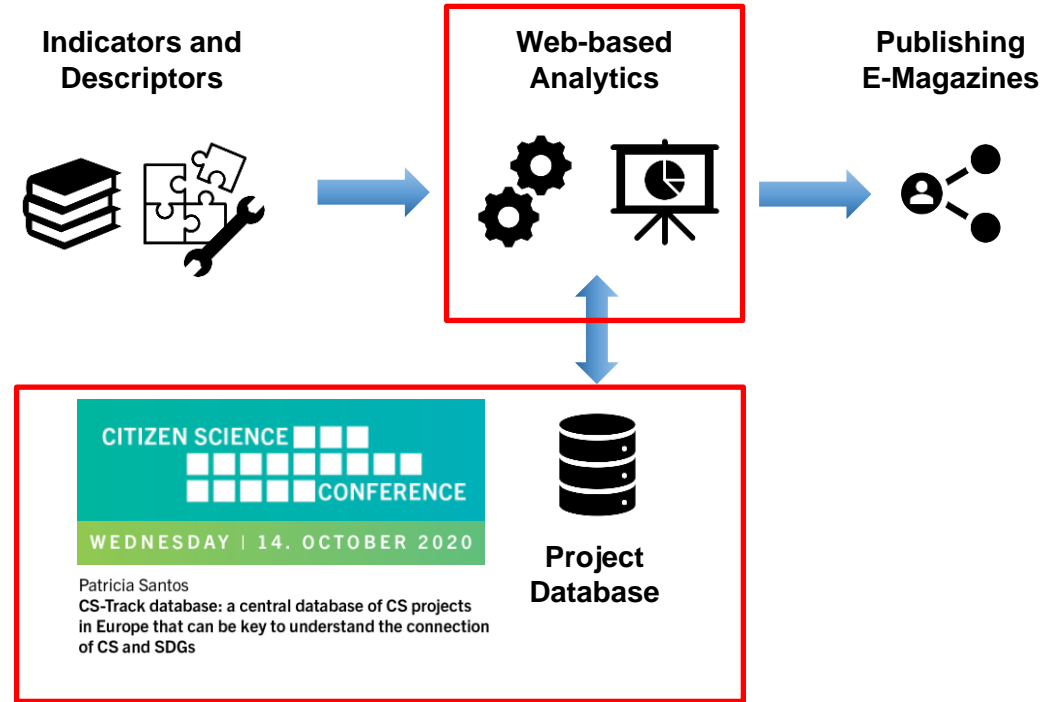
Jennett, C; Kloetzer, L; Gold, M; Cox, AL; (2013)

Jackson et al. (2019)

# Monitoring of CS Activities / Analytics in CS Track

CS Track approach: monitoring and observation of CS projects and activities

- Definition of project **descriptors and indicators** for CS projects (e.g. output, participation, outreach to public media).

- Using **web-based analytics** for monitoring and observation of CS projects and activities.

- Storage of information from descriptors and results of analytics in a **central database** (cf. talk by Patricia Santos yesterday).

- Publishing results in an **e-magazine**.

Indicators and Descriptors

Web-based Analytics

Publishing E-Magazines

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WEDNESDAY | 14. OCTOBER 2020

Patricia Santos
CS-Track database: a central database of CS projects in Europe that can be key to understand the connection of CS and SDGs

Project Database

Example 1: Analysis of the *Chimp & See Talk Pages*

- Analysis of the a ***Zooniverse discussion forum*** (Chimp & See „talk pages")

- ***Distribution of roles*** within the forum and the communication structures
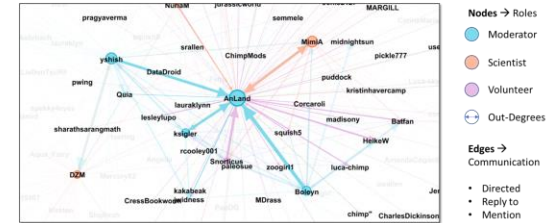
- Prescribed roles: ***Moderator***, ***Scientist***, ***Volunteer***
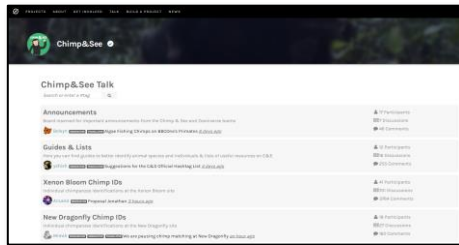
Talk Pages

Data	Description
Board Category	Sub-Forum
Post Number	Sequential post id
Time stamp	Date of the post
Title	Title of the post
User Type/Role	Moderator | Scientist | Volunteer
Username	Username
Response To	Direct response
References to Users	Mentioning (@)
References to Objects/Tags	Hashtag / Object references
Post Content	Textual representation of the post
URL	URL of the thread
Raw HTML	Raw HTML

Discourse Dataset

Social Networks

Nodes → Roles
- Moderator
- Scientist
- Volunteer
- Out-Degrees

Edges →
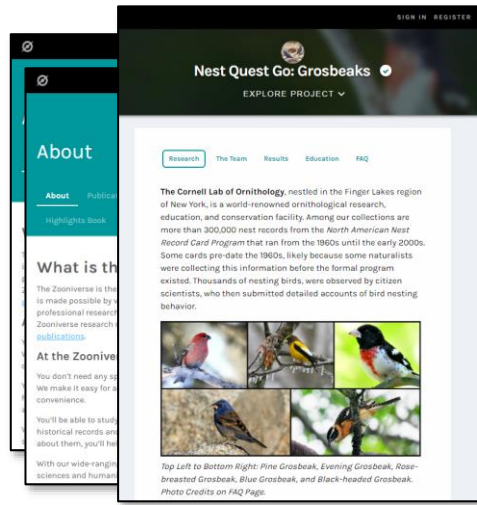Communication
- Directed
- Reply to
- Mention

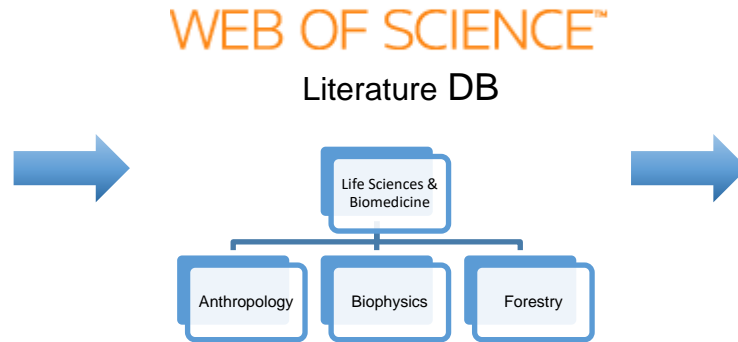# Distribution of Roles and Communication Patterns
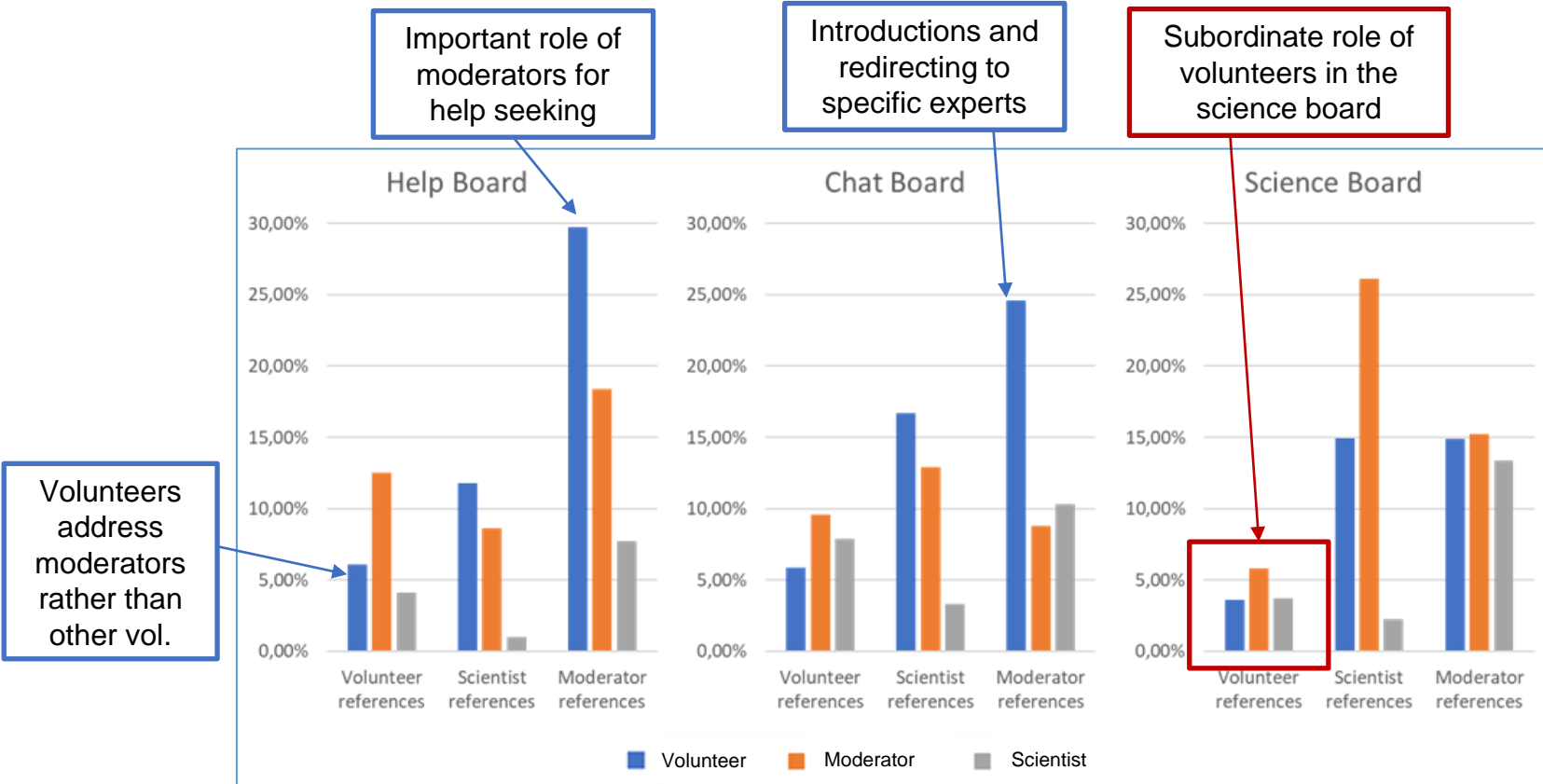
*Numbers are relative to the number of references per board
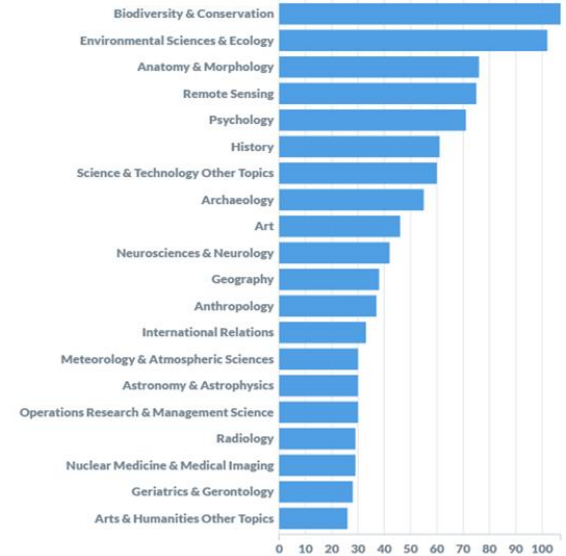
Example 2: Research Areas on Zooniverse (in progress)

- *Automatic extraction* of research areas from 217 Zooniverse projects
- Exploration of *inter-disciplinarity* of CS activities and projects

Info Pages of 217 Zooniverse Projects

Comparison to the Web of Science Taxonomy using ESA (*Explicit Semantic Analysis*)

Distribution of *Research Areas*

Outlook

Outputs of the project: CS Track methods, analyses and database/community platform

What the citizen science community can gain:
- Deeper understanding
  - community interaction level
  - individual trajectories
- New monitoring techniques (research areas, participation, knowledge production, etc.)

How this can improve Citizen Science experiences:
- Improve design
- Tailor recruitment & facilitation efforts

Contact us @CS Track!

SCAN ME

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  🐦 @cstrackproject

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> *Thank you!*