

Informal science education
research techniques to
consider for more effective
science education
outreach effort; looking
beyond pre/post surveys!



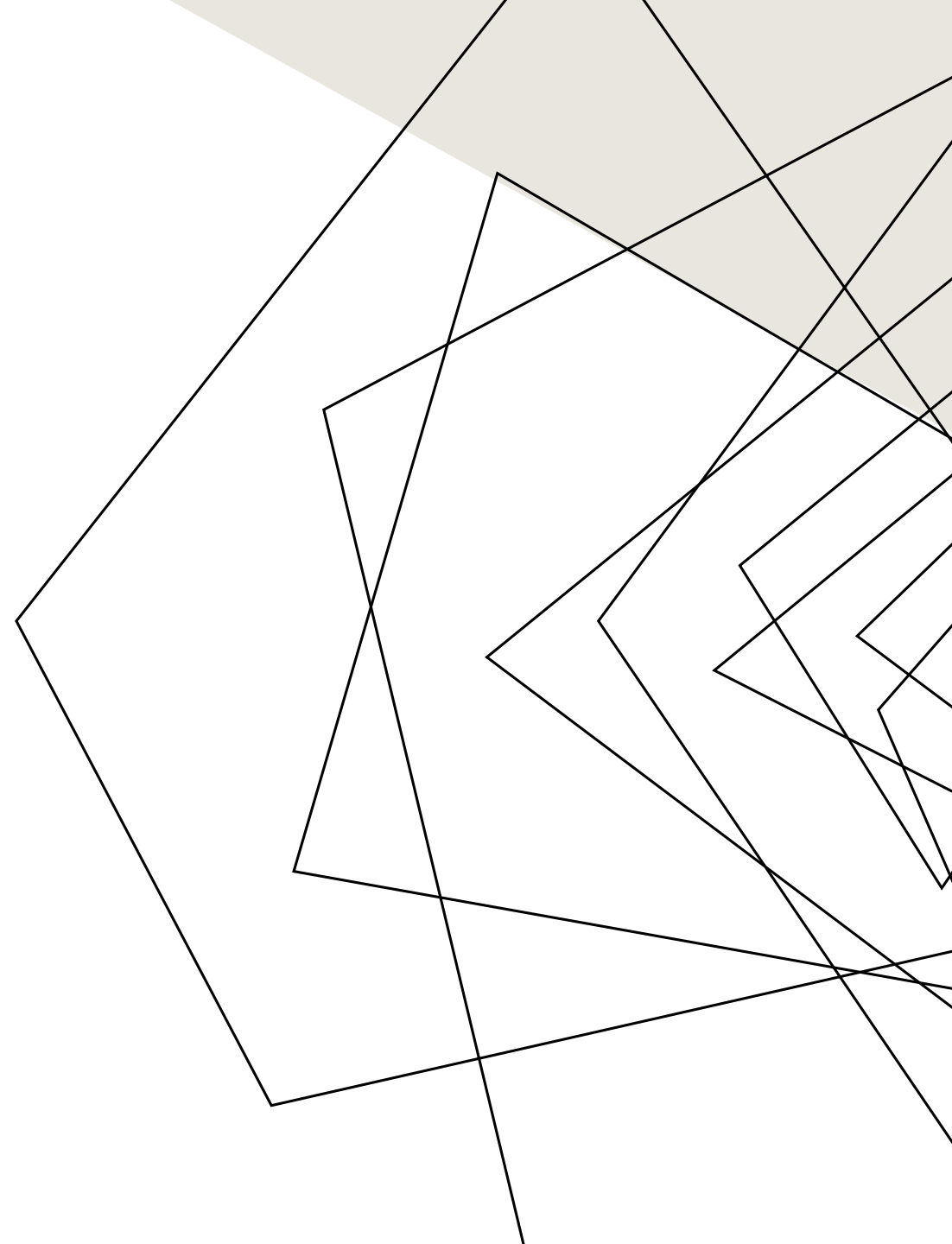
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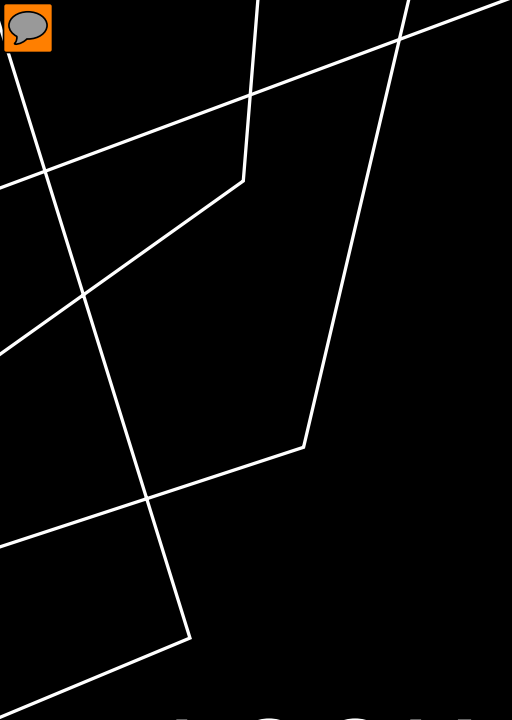


EVALUATION METRICS

“Evaluation is crucial for education and outreach programs as it provides a systematic and objective assessment of their effectiveness, allowing for informed decision-making, continuous improvement, and the enhancement of overall outcomes.”

– NSF’s Research Infrastructure Workshop
Literature





LOOK TO WHAT WE
KNOW FROM OUR
ECOLOGY LESSONS...
DIVERSIFY



LOOK TO K-12 FOR INSPIRATION





FORMATIVE EVALUATION

Venn diagram

Product testing/effectiveness

Data documentation

Exit slips

Turn and talks

Flow charts

Student notebooks

Learning goal poster

Brainstorming

Hands-on, minds-on investigations

agree/disagree corner

KLEWS chart

Thumbs up/down

Observations of explorations/discussions

Small group discussions

Graphic organizers

Building models

Sketches/blueprints

Presentations

Gallery walk

Whole group discussion

Student makes worksheets

General diagrams

Paper on topic

Project on topic

CER chart

1 on 1 conference

Debate

Speech

Teaching partners

Word webs

Teach back

Reflection (meta cognition)

Replication of inquiry with other materials

Journal (written and/or illustrative)



POSTCARD EXAMPLE

Used by nature centers across Maine as
part of program evaluation.






Please take some time to reflect on your week at The Ecology School. Here are some ideas to help you out:

- Something I learned that I am really excited about telling people back at home about.
- A new thing I tried or saw this week.
- Something I am proud of about my experience at The Ecology School.
- Something I am excited to continue at home or school.

BLANK PROMPT

Date: _____

Dear _____
insert your name on the line above



Sincerely, _____
sign your name on the line above

We will send these letters to your classroom teacher in the spring. In order to make sure that you receive your letter, please carefully fill out the section below.

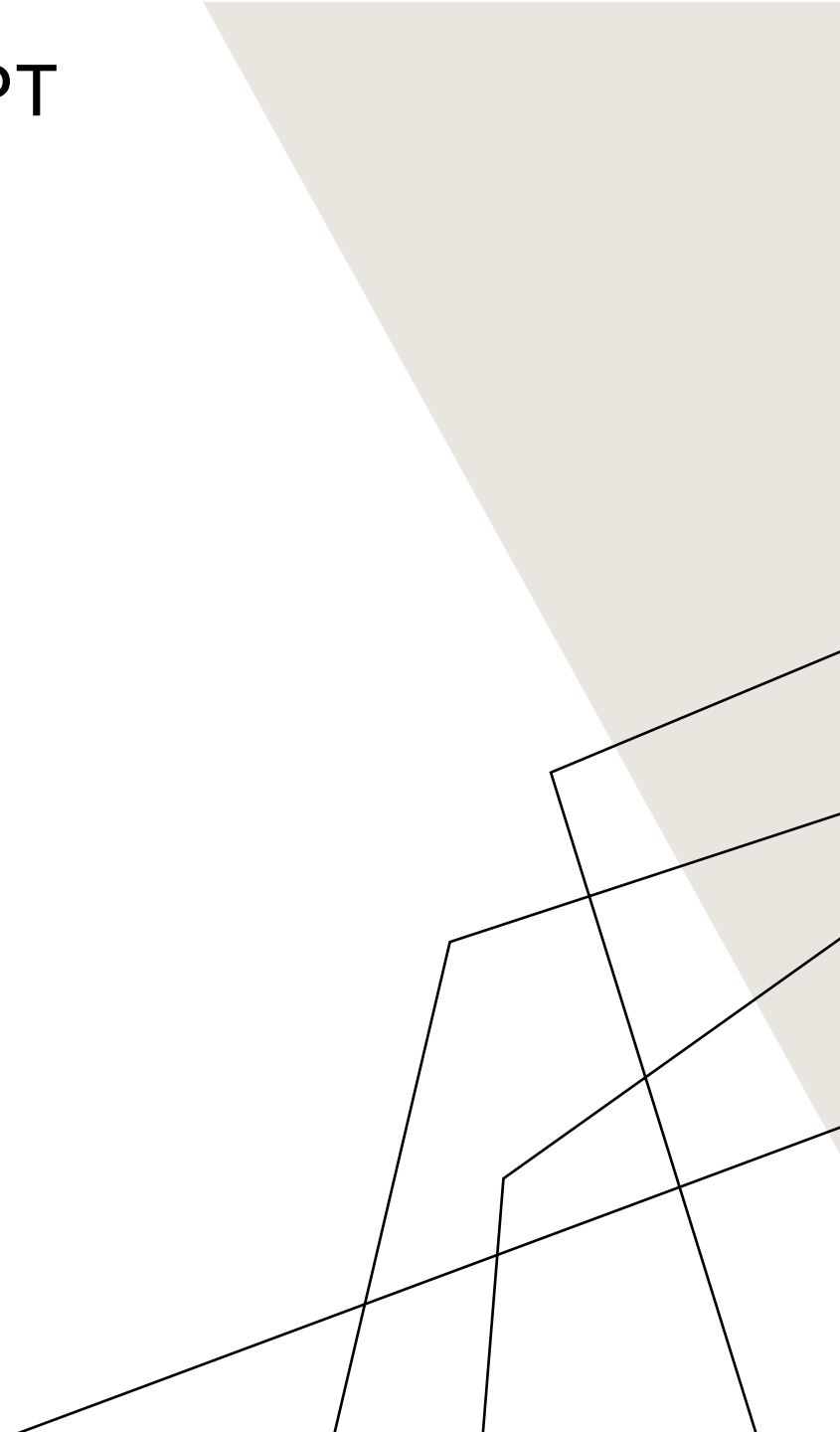
Full name: _____ School: _____

Grade: _____ (Homeroom) Teacher: _____

Dates you were at The Ecology School: _____

I do NOT give permission for The Ecology School to use quotes, pictures or stories from my postcard.

Below, feel free to decorate the front of your postcard!





JOURNAL EXAMPLE

Used by organizers as part of a multi-day
conference gathering.





What did you learn today?

Your answer

What excites you about the idea of a Cosmovisions network?

Your answer

What makes you nervous or concerned about a Cosmovisions network?

Your answer

How do you see yourself in the Cosmovisions network?

Your answer

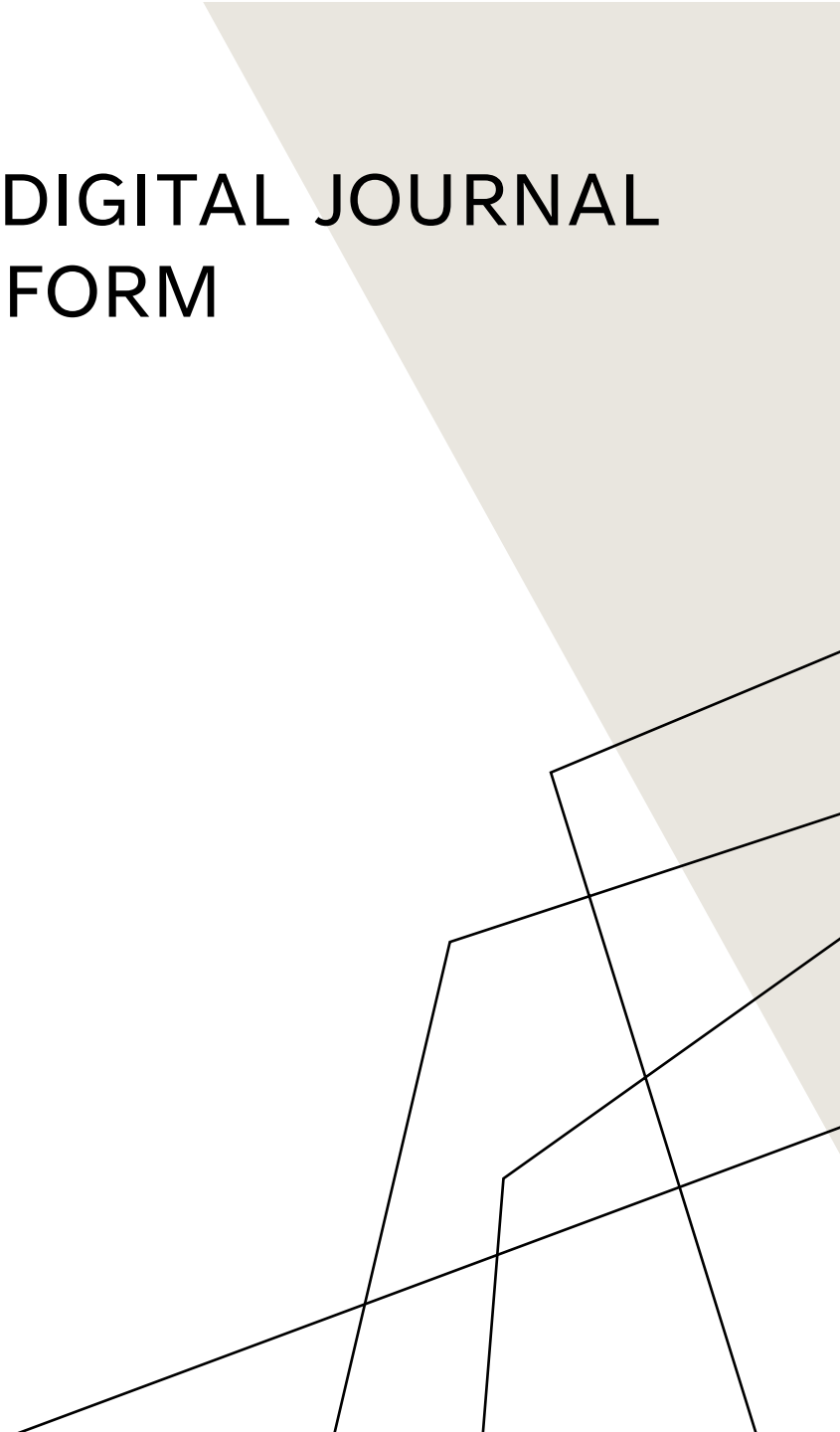
What question(s) do you have?

Your answer

Anything else you want to remember, share, or consider?

Your answer

DAILY 3 MIN DIGITAL JOURNAL VIA GOOGLE FORM



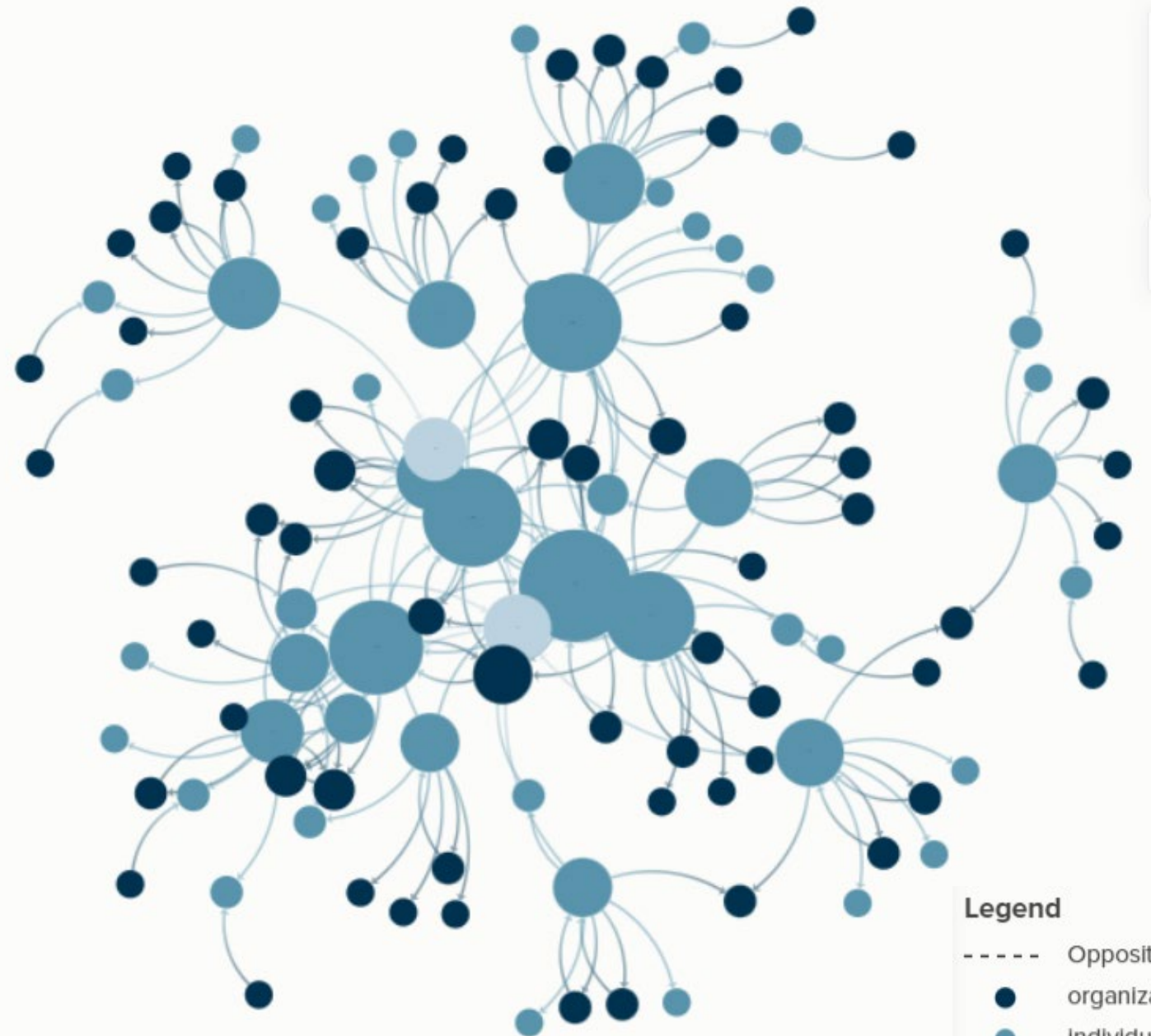


SOCIAL NETWORK ANALYSIS OPTION

Specific research technique used across multiple projects that are part of networks.



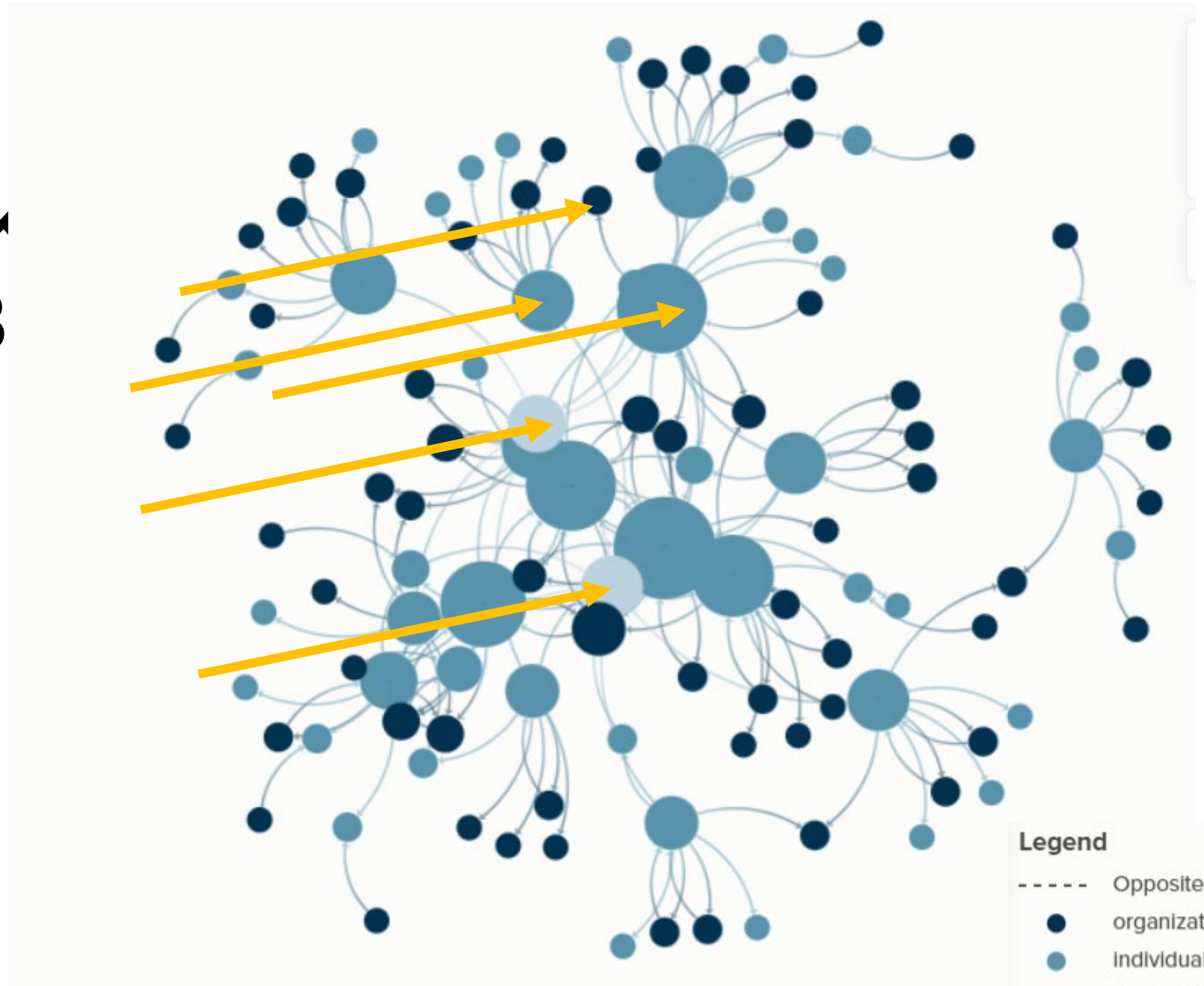
Social Network Analysis (2023 Data Visualization)



Play with the visualization in Kumu: <https://kumu.io/sbyrd23/astroaccel-non-anon-2023#draftv4/b046>

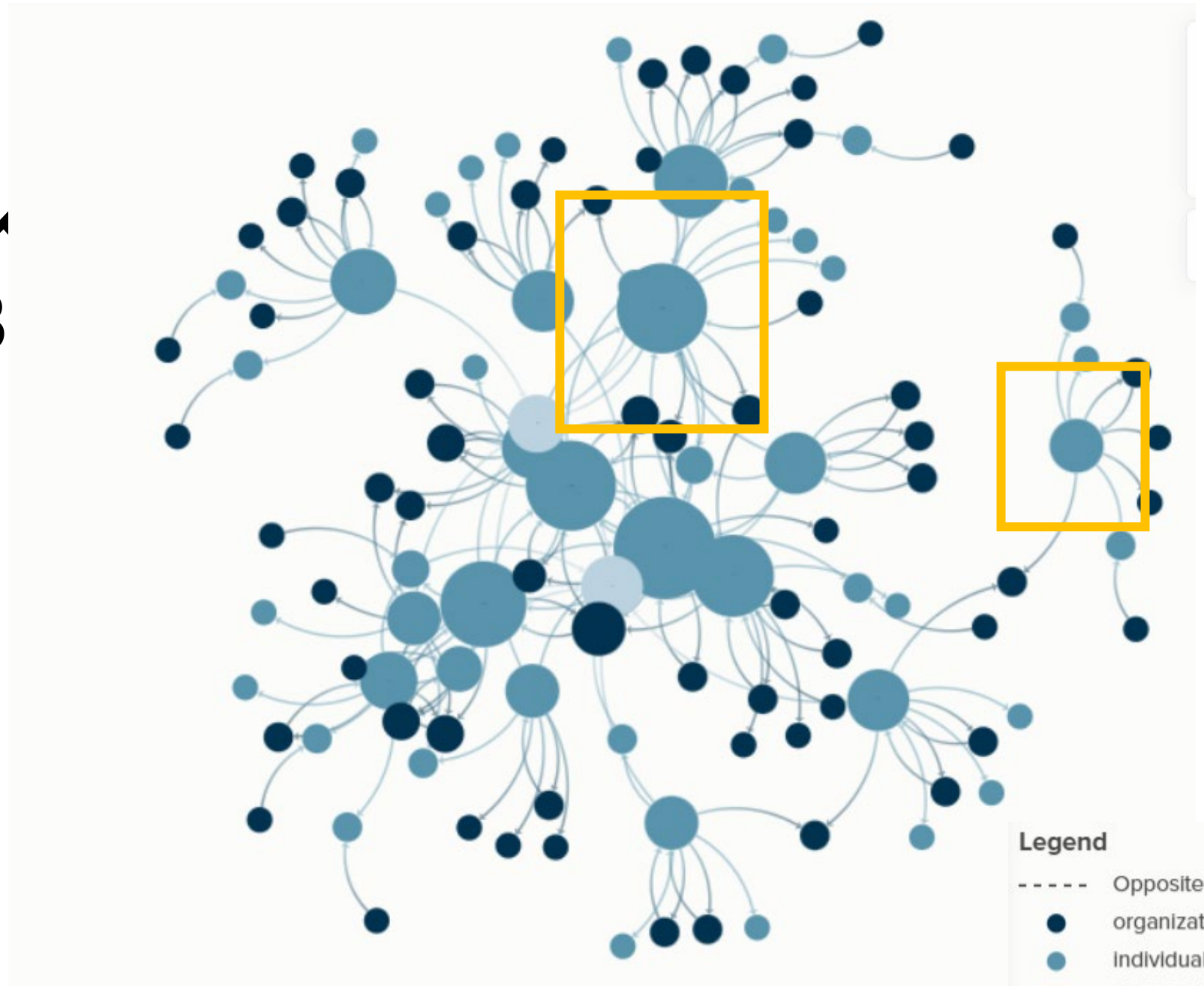


Social Network Analysis (2023 Data Visualization)





Social Network Analysis (2023 Data Visualization)





IND029

INDIVIDUAL

ID B047

METRICS

BETWEENNESS 0.030

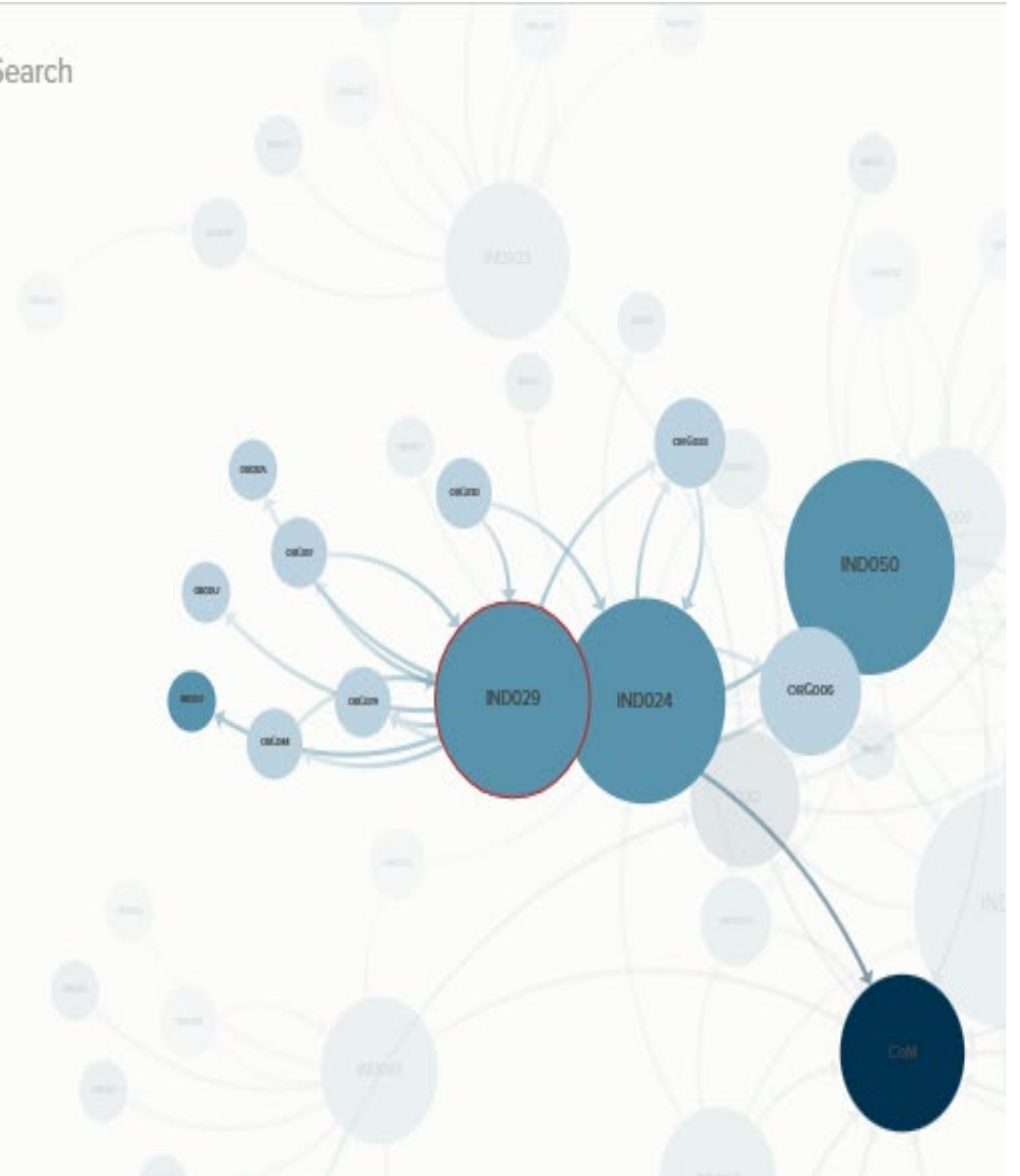
DEGREE 15

METRICS::LAST 0.030

[#draftv4/b047](#) | permalink

x

Q Search





QUALITATIVE DATA IS CRITICAL AS WELL

- Qualitative survey questions
- Interviews
- Focus groups
- Researcher memos
- Text from reports, documents, communications



CONCLUSION

Big take home points

DIVERSIFY BEYOND PRE/POST SURVEYS

- **Diversify your data:** Aim to get more qualitative (descriptive) data, and/or just make it more fun for your participants to generate the data you need.
- **Find inspiration by collaborating with educators:** Work with educators to determine what they are already planning on using for assessments and see if they might be able to be utilized or adapted to fit your evaluation goals.
- **Be willing to be creative (yet rigorous) in analysis options:** Sometimes using this kind of data can take creativity to analyze and a willingness to try other analytical methodologies beyond basic quant.



QUESTIONS? WHAT
ABOUT YOUR
PROJECT? CAN I HELP
YOU BRAINSTORM
DATA OPTIONS?

THANK YOU!



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