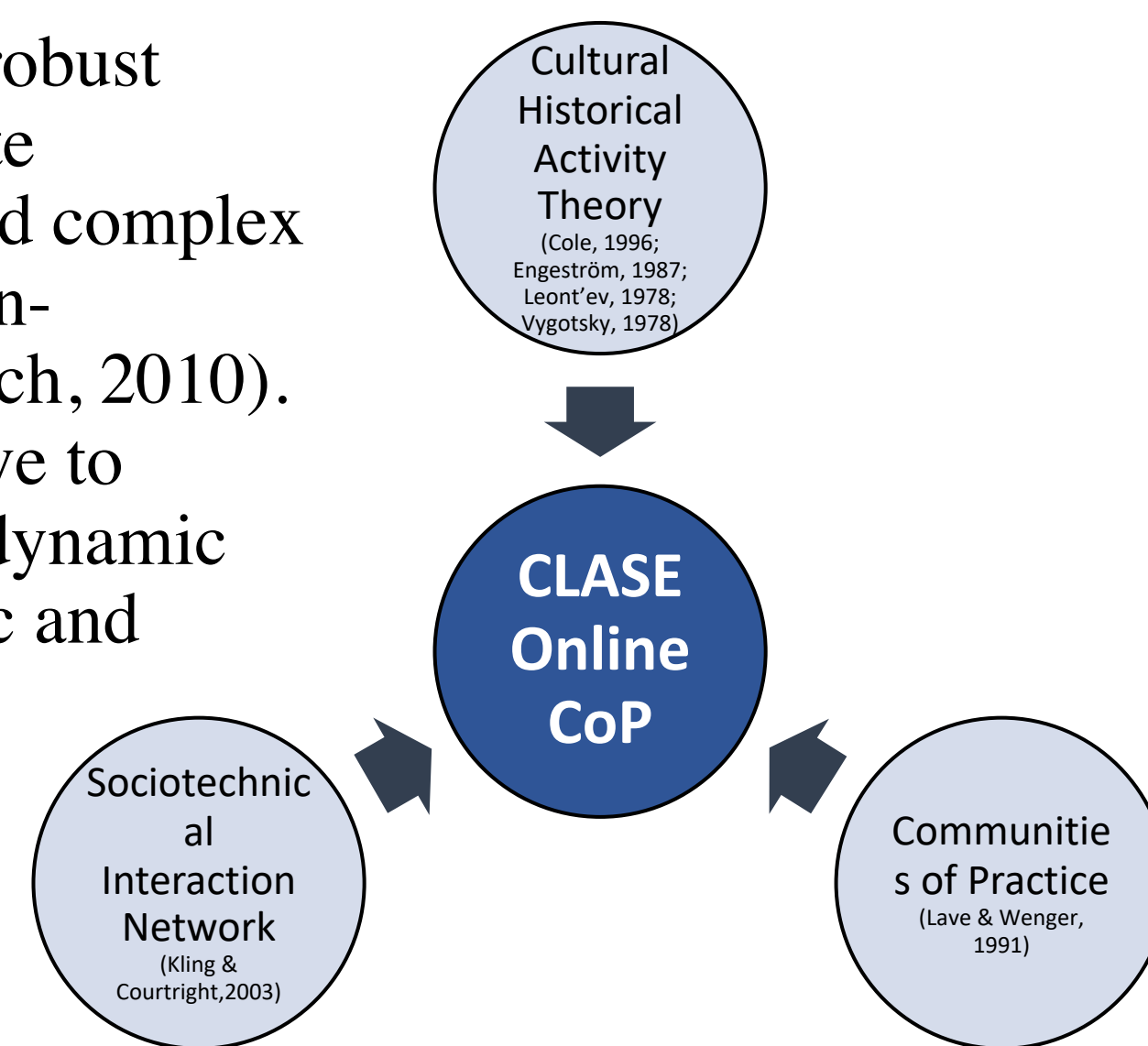


## BACKGROUND

- The Center for Latino Achievement and Success in Education (CLASE) launched an online platform in summer 2016 for teachers to build a community of practice (CoP) around the Instructional Conversation pedagogy.
- The Instructional Conversation pedagogy is an evidence-based model that positively impacts the academic achievement of English learners and other students by fostering small-group dialogue (Gokee, 2017; Portes, González Canché, Boada, & Whatley, 2018; Sharp & Gallimore, 1991).
- Much of the research available on online teacher professional development is anecdotal, relies on teachers' self-reported surveys, does not evaluate long-term effects, and does not build on informal learning opportunities (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009; Grover, Walters, & Turner, 2016).
- An online community needs to emerge from the needs and interactions of its participants and cannot be designed from an instructional perspective (Barab, MaKinster, Moore, Cunningham, & The IFL Design Team, 2001).

## THEORETICAL FRAMEWORK

- Cultural-Historical Activity Theory is a robust framework to design, model, and evaluate instructional contexts to better understand complex human-human, human-object, and human-technology relationships (Yamagata-Lynch, 2010).
- Sociotechnical Interaction Networks serve to understand the highly transactional and dynamic nature of the activity system in a dialogic and symmetrical relationship between human and non-human actors (Kling et al., 2003).



## PURPOSE AND RESEARCH QUESTIONS

The purpose of this mixed methods study is to describe the formation, development, and evolution of an online teacher CoP to support teacher's implementation of the Instructional Conversation pedagogy.

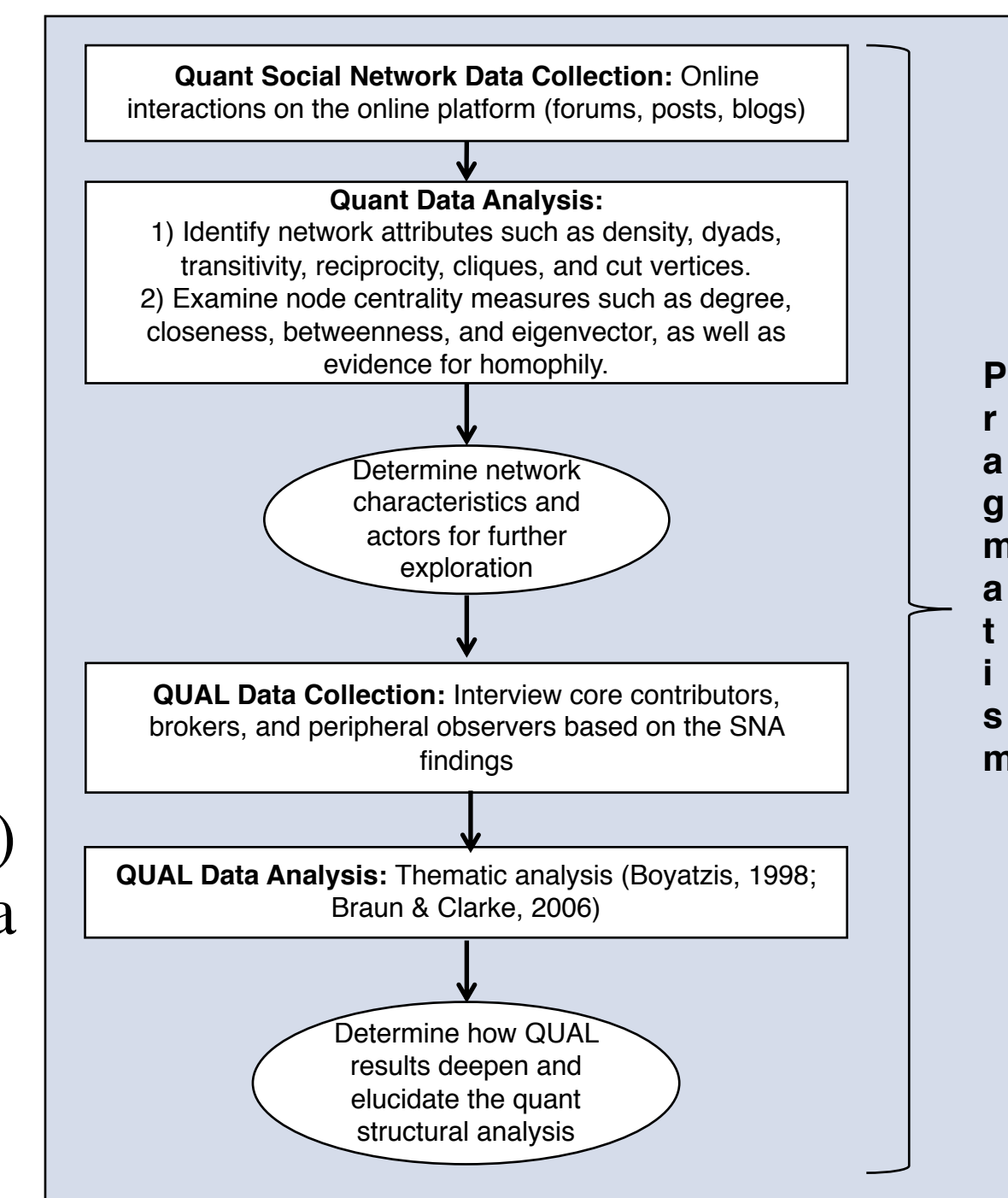
| Question   | Data Sources  | Analyses  |
|--|---|---|
| 1. How is the online CoP structured as a social network?<br>a) What network attributes can be identified in the online CoP?<br>b) What does node centrality reveal about the CoP formation?<br>c) What does node assortativity suggest about how members interact with each other? | Online interactions on the online platform (i.e. forums, posts, blogs, comments, etc.)                                      | Social Network Analysis (Scott, 2013; Wasserman & Faust, 1994).<br>R Statistical Software (Kolaczyk & Csárdi, 2014) |
| 2. How do teachers perceive the social network dynamics and the value of their participation in the online CoP?  | Semi-structured interviews with actors of interest (i.e. two core contributors, two peripheral observers, and two brokers). | Thematic analysis (Boyatzis, 1998; Braun & Clarke, 2006)<br>N Vivo for Mac  |
| 3. How do teachers' perceptions about the online CoP help explain and expand the structural network analysis?  | Given the explanatory sequential design (Creswell, 2014), new data were not collected to answer this research question.     | Meta-inferences based on both quantitative and qualitative findings (Teddle & Tashakkori, 2003)                     |

## RESEARCH DESIGN

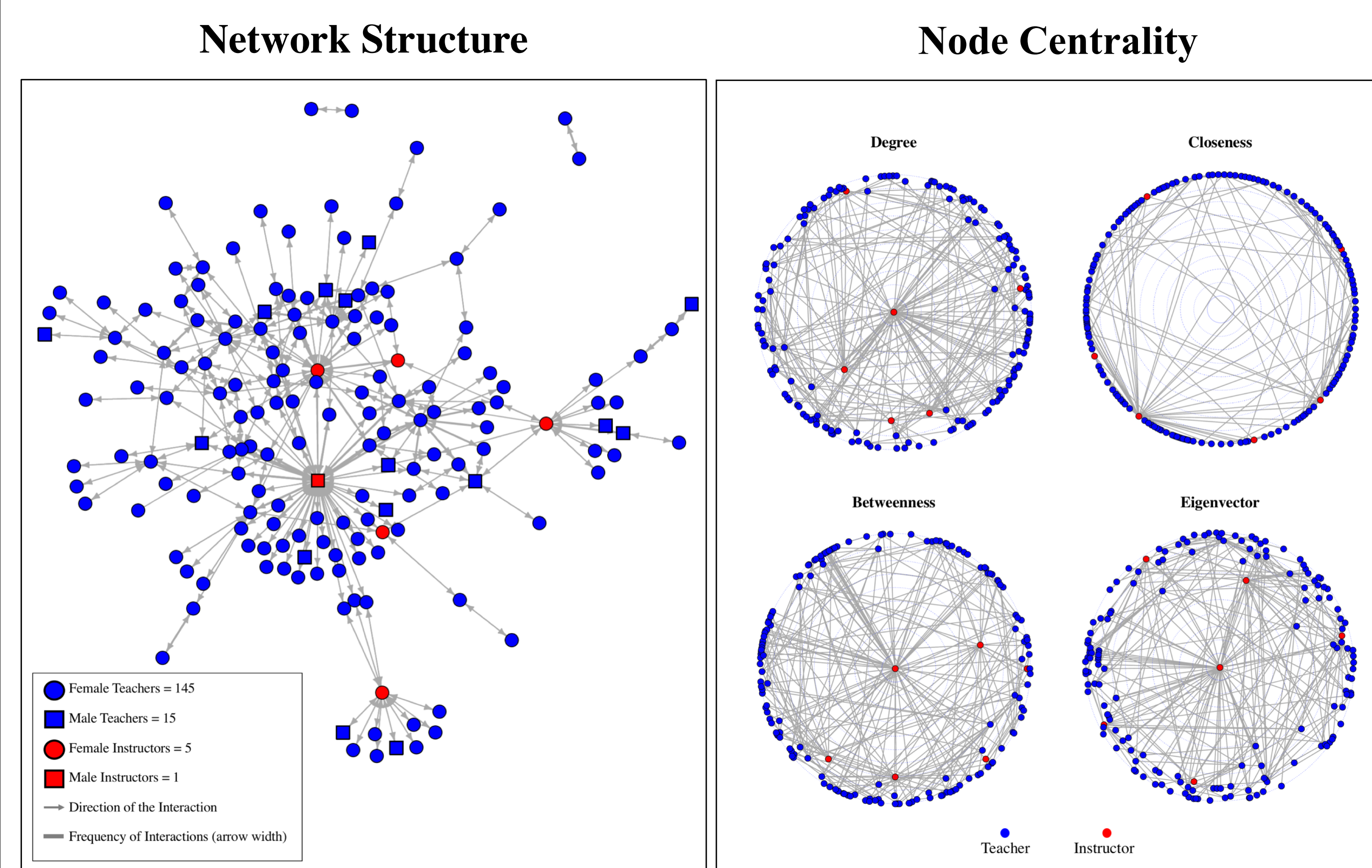
This study followed an explanatory sequential design (Creswell, 2014).

### Participants

- A total of 382 educators: 265 elementary school teachers, 56 middle school teachers, 10 high school teachers, and 28 school administrators.
- 98 schools from 24 school districts in Georgia
- 352 females (92.1%) and 30 males (7.9%)
- Members of the CLASE platform taught a variety of content areas including art, ELA, ESOL, math, physical education, science, social studies, Spanish, and special education.



## SOCIAL NETWORK ANALYSIS



| Network Attributes  |                      | Assortativity Coefficients |             |
|---------------------|----------------------|----------------------------|-------------|
| Directed            | Yes                  | Variable                   | Coefficient |
| Nodes               | 382                  | Role                       | -0.24       |
| Edges               | 518                  | Gender                     | -0.14       |
| Isolates Nodes      | 149                  | School Name                | 0.04        |
| Isolated Posts      | 0                    | School District            | 0.07        |
| Density             | 1.9%                 | Level                      | 0.07        |
| Diameter            | 9                    | Grade                      | 0.09        |
| Average Path Length | 3.56                 | Subject                    | 0.03        |
| Mutual Dyads        | 248                  |                            |             |
| Asymmetrical Dyads  | 22                   |                            |             |
| Transitivity        | 2.9%                 |                            |             |
| Reciprocity         | 95.7%                |                            |             |
| Maximal Cliques     | 25 cliques of size 3 |                            |             |
| Components          | 3                    |                            |             |
| Cut Vertices        | 33                   |                            |             |

## QUALITATIVE FINDINGS

Based on the social network analysis, six members of interest were identified for in-depth interviews. A thematic analysis between- and across-cases revealed eight themes:

- The online CoP was characterized by collaboration and mutual support.
- Community members needed to set norms and expectations.
- The online CoP helped to reduce isolation and provided ongoing support.
- Access to high-quality instructional materials was one of the main reasons to join the online CoP.
- Teachers found personal and professional value through their participation.
- Teachers preferred to reach out in person to members of the online CoP at their workplace.
- Time was the main constraint to participate in the online CoP.
- Mixed qualitative evidence was found regarding assortativity.

## META-INFERENCES

- The interviews confirmed the role of core contributors, brokers, and peripheral observed as indicated by the SNA.
- Both peripheral observers interviewed were "lurkers", that is, they benefited from the CoP although they were not active members.
- The online CoP does not capture face-to-face teacher collaboration and exchanges as well as teachers' extended network and resources.

## DISCUSSION AND CONCLUSIONS

- The SNA revealed the structure of the network, patterns of engagement, and helped identify members of interest for interviews.
- Participants reported positive attitudes towards the CoP and increased opportunities for reflection, collaboration, and mentorship.
- After triangulation of methods, there was not enough evidence to suggest that teachers were more likely to interact with each other based on similar characteristics such as teaching the same grades or content areas (assortative mixing).
- From an instructional design perspective, providing a safe online environment, building trust, and promoting social ties among members are critical aspects to leverage the CoP formation.
- This study reinforces the critical importance of real-life interactions to strengthen trust and sense of community in online communities.

## LIMITATIONS AND FURTHER RESEARCH

- Both communities and networks are very sensitive to local contexts and the composition of their members. Therefore, this study findings should be interpreted with caution, particularly concerning the transferability of findings to other contexts.
- Case selection and sample size for in-depth interviews remains a limitation.
- Both *communities* and *networks* are separate but complementary aspects of the "social fabric of learning" (Wenger et al., 2011). More research on the interplay between network and community is necessary to better understand teacher learning.