6-19-2019

Using Affinity Networks to Scaffold Community Collaboration: A Methodological Technique to Support the Use of Qualitative Data in Community-Based Research

Catharine Biddle  
*University of Maine, catherine.biddle@maine.edu*

Ian Mette  
*University of Maine*

Follow this and additional works at: [https://nsuworks.nova.edu/tqr](https://nsuworks.nova.edu/tqr)

Part of the [Civic and Community Engagement Commons](https://nsuworks.nova.edu/tqr), and the [Quantitative, Qualitative, Comparative, and Historical Methodologies Commons](https://nsuworks.nova.edu/tqr)

**Recommended APA Citation**


This How To Article is brought to you for free and open access by the The Qualitative Report at NSUWorks. It has been accepted for inclusion in The Qualitative Report by an authorized administrator of NSUWorks. For more information, please contact nsuworks@nova.edu.
Using Affinity Networks to Scaffold Community Collaboration: A Methodological Technique to Support the Use of Qualitative Data in Community-Based Research

Abstract
Cooperation is increasingly required to craft solutions to complex problems in our society, while the role of cultivated, academic expertise is being challenged as a model for solving social problems. Participatory or community-based approaches are often suggested as a solution to this dichotomy; however, few analytic methods are purposefully engineered to support this work. Affinity networks combine interviewing with data visualization to produce data analysis that can be easily fed back into collaboratives with community partners. This article provides a step by step introduction to producing affinity networks using Computer Assisted Qualitative Data Analysis Software, as well as suggestions for using them to advance community partnerships.

Keywords
Affinity Networks, Community-Based Research, Research-Practice Partnership, University-Community Partnership, NVivo, CAQDAS

Creative Commons License
This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 4.0 License.
Using Affinity Networks to Scaffold Community Collaboration: A Methodological Technique to Support the Use of Qualitative Data in Community-Based Research

Catharine Biddle and Ian Mette
University of Maine, Orono, Maine, USA

Cooperation is increasingly required to craft solutions to complex problems in our society, while the role of cultivated, academic expertise is being challenged as a model for solving social problems. Participatory or community-based approaches are often suggested as a solution to this dichotomy; however, few analytic methods are purposefully engineered to support this work. Affinity networks combine interviewing with data visualization to produce data analysis that can be easily fed back into collaboratives with community partners. This article provides a step by step introduction to producing affinity networks using Computer Assisted Qualitative Data Analysis Software, as well as suggestions for using them to advance community partnerships. Keywords: Affinity Networks, Community-Based Research, Research-Practice Partnership, University-Community Partnership, NVivo, CAQDAS

Introduction

Several paradigms for recognizing and leveraging the experience and understanding of non-academic individuals in local contexts have been put forward to help connect academic researchers with the expertise born of lived experience, and to try to honor that within the generation of scientific knowledge production (Guajardo, Guajardo, Janson & Militello, 2015; Lasker, & Weiss, 2003). These paradigms include many varieties of participatory research, including activist scholarship, university-practitioner partnerships, participants as co-researchers, and other forms (Cammarota & Fine, 2008; Coburn & Penuel, 2016; McIntyre, 2007; Strand, Cutforth, Stoecker, Marullo, & Donohue, 2003). While these strands of research each have their own nuances in practice, they all share a respect for the context in which knowledge is produced and the wisdom generated through experience as important for informing both policy and practice (Guajardo et al., 2015).

Cooperation amongst diverse individuals and sectors is increasingly required to craft solutions to complex problems in our society (Chircop, Basset & Taylor, 2015; Valli, Stefanski, & Jacobsen, 2016). Issues with complex causes and consequences, such as poverty, cannot fully be conceptualized and understood without contributions from multiple sectors or disciplines, as well as those affected (Iceland, 2006; Siedlok, Hibbert, & Sillince, 2015). As a result, the study of how diverse groups form to address problems, how these groups conceptualize the problems that they are going to address, and how they learn to come to a consensus and work together across contexts and expertise is increasingly important (Kollock, 1998; Nowell, 2010). Understanding and confronting the points of agreement and disagreement, as well as taboos or silences within a group can help create productive opportunities for dialogue about cooperative work and work in groups (Feger, 1991; Johnson & Johnson, 1987).

It can be intimidating to the novice or early career researcher to undertake participatory research (McIntyre, 2007). There are few methodological roadmaps for such work as it relies...
heavily on the often non-replicable and non-linear business of cultivating excellent working relationships with community partners. Working in partnership—an undertaking between equals—requires subverting the natural flow of power towards the researcher in such work, generated by their formalized credentials and guarded by the highly specialized and often inaccessible language for many common-sense concepts within social science research production (Coburn & Penuel, 2016). While much of this work is relational, it can be supported through knowledge of methods and data analysis strategies that are amenable to partnership and ultimately support and enhance relationship building through their accessibility.

This paper explores the ways in which we created what we call affinity networks, aided by the computer-assisted qualitative data software NVivo, can help channel researcher expertise into an effort that is supportive of community organizing work and collective action while also providing the opportunity for data collected from community groups to speak back to research and support our growing understanding of collective action. Inspired by affinity diagramming activities commonly used in community organizing work (Magis, 2010), we define affinity networks as social maps that depict the relationship between social entities in a bounded network and the valence or divergence of ideas, or in some cases, ideology. This article provides a step-by-step guide to producing these maps, with consideration given to the research designs that will support this analysis to the steps required to use NVivo to produce them. Affinity networks can be a useful way of visually depicting group data for community partners that can spur reflection on group processes, spark dialogue, or draw attention to silences within coalition work.

**Background**

Our work with affinity maps began as a result of our involvement as research partners in a coalition called Rethinking Education in Rural Spaces (RERS). RERS was begun by a group of educators, social service providers, mental health professionals, and members of the Dawn Waters tribe (pseudonym) all interested in addressing the complex problem of childhood adversity and poverty in the context of rural Lafayette County (pseudonym) where they all live. Located in a Northern state, Lafayette County—like many rural places in America—has faced a variety of economic and social challenges over the past several decades. Traditionally dependent on lumber and fishing, the changing nature of these industries in the late 20th century through automation, decreased demand, and consolidation of the major players has meant that fewer and fewer living wage jobs are available to Lafayette County residents. Rising poverty has increased the stress that individuals and families experience, particularly stress for children. These economic stresses, when compounded with other kinds of adverse childhood experiences (ACEs) that may occur such as abuse, neglect, substance use disorders, or other types of challenges within a family creates long-term effects on child development and poor outcomes for some Lafayette County youth (Fellitti et al., 1998).

RERS has brought together an advisory board of stakeholders from both inside and outside the county to address this issue of toxic stress and trauma for children. Stakeholders from inside the county included social service providers, guidance counselors, members of the Dawn Waters tribe, educators from the local K-12 schools and regional institutions of higher education. Members of the advisory board from outside the county included higher education faculty from two additional institutions located in the state, invited for their expertise, their childhood connections to the county, or their relationship with the governor of the board. The advisory board has chosen to focus on repairing the fractured social service network within the county and leveraging schools as key rural institutions in addressing adverse childhood experiences. In bringing together such a diverse group, however, it was challenging to get traction as there were many common understandings that had to be developed. A common
vision of the problem, options for solutions, recognition of each other’s expertise and the unique strengths of both professional and cultural knowledge had to be recognized. Additionally, the work of this coalition was not happening within a vacuum; rather historical relationships between the Dawn Waters tribe and the predominantly White communities of the county were the source of some distrust, particularly regarding schools and social service providers, both of whose policies had actively harmed the tribe in the past through assimilationist policies (see Biddle, Mette, & Mercado, 2018, for a detailed analysis of these relationships).

As the group had some early meetings that attempted to unpack key ideas and come to a common understanding of poverty, toxic stress, trauma, and substance abuse disorders (all issues within the county), two of the higher education faculty invited by the organizers to participate in the advisory board offered to interview advisory board members to capture their hopes and anticipated challenges for the project, their perceptions of the opportunities and challenges faced in Lafayette County, and the role of schools, social service providers and the tribe in addressing these challenges together. The idea behind conducting these interviews was that as outsiders to Lafayette County, we could come to know the County and define our role in supporting the project more clearly, as well as hold a mirror up to the organizing endeavor as they worked to establish clear goals and cooperate across groups. The advisory board was amenable to this work and 16 out of 22 advisory board members agreed to participate in interviews. As we transcribed and began to analyze the data from these interviews, it became apparent that sharing this data back with the group in a way that protected the anonymity of the participants (something that we had guaranteed) would be very challenging in such a small group. As a result, we began to explore ways to reflect the ideas and patterns in the data across groups back to the advisory board visually.

**Existing techniques for mapping relationships between social entities and ideas**

There has been a turn in social science research in the last two decades towards an understanding of the connections that constitute our social world. These connections have been explored through a variety of techniques, many of which are still producing exciting new developments for the field through the innovation of their users. Social network analysis (SNA), for example, is used to explore social structures and their relationships to one another. Nodes within the network may be individuals, organizations, or other social entities (Marin & Wellman, 2011). Social network analysis seeks to analyze the relationships between these social entities within a network by looking at the presence or absence of ties between nodes, the density of ties, the isolation of specific nodes, and other types of relational patterns within the network (Marin & Wellman, 2011).

One way in which social network analysis has been used to examine the valence of particular ideas across a network is by pairing it with content analysis, or the systematic analysis of particular types of documents or other artifacts (Himelboim, McCreery, & Smith, 2013; Neuendorf, 2016). Content analysis, as an analytic strategy, looks at artifacts in a systematic fashion in order to quantify their messages in a way that they can be easily understood and compared (Neuendorf, 2016). When paired with social network analysis, often to understand human behavior in digital networks, analysis of message is often paired with information about audience and relationships that allow content to be paired with context. However, digital networks provide a data set that is often unable to be replicated in real-world social relations.

Affinity diagramming, on the other hand, is a method of mapping the valence of ideas to one another in real time across individuals working collaboratively. This technique, pioneered in the world of design, has often used for market research on customer experience
or satisfaction (Hanington & Martin, 2012), but is also popular amongst community organizers (Magis, 2010). The researcher or group facilitator has members of a collaborative record ideas relevant to assessing a need or solving a problem and then asks them to work collaboratively to group these ideas into larger categories. A weakness of this method from a research practice partnership perspective is that it loses the individual generation of ideas, telling us important information about where these collaboratives begin and the power of this process for helping us understand where they end.

To capture the complexity of real-world convergence and divergence of ideas across groups in real time, we propose the use of affinity networks, drawing from the same theoretical basis as social network analysis and content analysis, but using interview data to examine the relationship of social entities to ideas within a bounded network. In this way, affinity networks are constructed through approaches that are a bit closer to the early stages of grounded theory, which prizes the open-coding of participant data in order to generate specific, in vivo codes—codes that preserve participant concepts and beliefs as closely as possible (Charmaz, 2006).

Through a combination of open-coding and the use of NVivo’s project mapping feature (NVivo, 2019a), we created affinity networks to demonstrate to the advisory board the valence and divergence of ideas across their network of participating individuals. The purpose of this visualization ultimately was to foster dialogue that would allow the advisory board to leverage areas of convergence and confront areas of difference and possible distrust. These network maps allowed the data to remain anonymous while still providing the opportunity to see the results. In the following section, we describe the process we used to create these maps and the possibilities for supporting participatory work, as well as the implications for research.

**Steps for creating affinity networks from interview data in NVivo**

The following “how to” describes an analytic process that uses individual interviews from individuals that wish to collaborate with one another or are in the process of collaborating with one another on a common project. It is possible that affinity networks in this style could be generated from focus group data collected from homogeneous groups or could be generated through open-coding of documents created by stakeholder groups. It is important to acknowledge that not all datasets collected within the context of community-based research will lend themselves to creating affinity networks, nor are affinity networks useful to all kinds of community work. The most important factor for doing this type of analysis is a) the identification of the data with unique groups of stakeholders; and b) the assumption of present or future collaboration between those stakeholders, which creates the theoretical justification for examining this within a network. Assuming that these two conditions are met, the following steps demonstrate how NVivo can be used as a supportive tool in this work, as well as how this data can be used to spur dialogue on potentially challenging topics within collaborative efforts.

1. **Open code the data to determine the initial categories**

Import all of the sources that will provide data for the affinity networks into NVivo. Interview transcripts, focus group transcripts, or documents may serve as sources, as long as these sources can be affiliated with a theoretically-relevant group and are representative of their perspective in the collaboration. Concept documents or mixed stakeholder focus group data that represent collaborative efforts or perspectives will not provide useful data for this type of analysis unless it is possible to identify the individual contributions of particular stakeholders.
2. Complete open-coding of all interviews

Open codes will provide the basis for connections in the affinity network. For our analysis of the RERS data, we used an open-coding strategy informed by Charmaz’s (2006) approach to generating grounded theory, making sure to use *in vivo* codes wherever possible to preserve participant words and key framings. We began our analysis by coding a transcript from one of each of the theoretically relevant groups for our affinity network, in this case, an educator, a social service provider, a higher education faculty member, a Dawn Waters tribal member, and a guidance counselor. From these selected transcripts, we generated initial codes, calibrated our understanding of how individuals from different theoretically relevant groups expressed similar ideas and reconciled discrepant coding across our team.

Using the codebook, we completed coding of all 16 interviews, meeting periodically to adjust or even to consolidate categories as appropriate. All in all, 203 unique codes were created in service of our project with the RERS advisory board, ranging from “teachers as knights” to “school can’t see racism.” Because NVivo allows the grouping of codes under parent nodes, we grouped codes according to the subject that was being discussed, which was roughly correlated to our interview protocol itself. These groups included: Perceptions of Lafayette County, perceptions about schools, perceptions about social service providers, perceptions about the Dawn Waters tribe, perceptions about poverty, perceptions about trauma, perceptions about the role of the advisory board, hopes for the project and challenges for the project. This type of axial grouping is in keeping with the grounded theory approach advocated by Charmaz (2006).

3. Assign classification nodes to interviews to create group types in your network

To create an affinity network that will sufficiently mask the identities of those who participated in the initial round of data collection, classifications must be created for each of the relevant stakeholder groups. Classifications are a function within the program that are used to store descriptive information about sources, such as the date and time of an interview, or in this case, the type of stakeholder the interview was with (For more information, see NVivo, 2019b). These classifications will create hubs within your affinity network that show how each stakeholder group’s beliefs are similar to or different from other stakeholder groups. Classifications can be created within NVivo 11 by clicking on the “Create” Ribbon¹. Select “Source Classification” and then use the dialogue box which appears to create a source classification for each of your stakeholder groups involved in the project. Once these have been created, you can return to your sources and assign each of the files for these sources to a classification by right-clicking on the source, and then selecting “Classification.” It is critical to classify each source that you wish to be included in the project map. While using the “case” function of the program would accomplish the same goal, for this purpose, Classifications and Cases produce equally functional affinity network maps. We chose to use classifications, rather than cases, because we felt that classification was more descriptive of the way in which we were disaggregating the data, as stakeholder groups did not constitute a “case.”

4. Create a new project map in NVivo

Select the “Explore” ribbon and click on the “Project Map” icon. This will bring up a dialogue box that asks you to name your map. Create a name for the map and click OK. This

¹ While the analysis for this study was performed in Nvivo11, the mapping functionality has been preserved in the most recent version of the software, Nvivo12.
named map is now located under the “Maps” menu on the sidebar on the far left. Navigate to the “Maps” screen by clicking on the sidebar heading and you will see your newly named map. Select this map. You will see that there is now a prompt in the center that says “To get started, click Add Project Items on the ribbon or drag items from the List View.” (See Figure 1)

![Figure 1. Creating a new project map](image)

5. **Add sources and source classifications to your project map**

By selecting the “Add Project Items” icon, you will first want to add the sources you coded to the map, as these will drive the visualization of the connections. Select all of the sources that you wish to include, making sure that these represent the stakeholders whose beliefs you want to visualize within a network. Be careful that source names are generic—in our example, we have titled each interview “Educator 001” or “SSP 002” to indicate educators and social service providers. This is important as one purpose of creating affinity networks is to create visuals that can be shared back with your community partners in a way that does not compromise their anonymity.

Next, continue to add project items by selecting the “Source Classifications” that you created in the previous step. Once these are added, you will see that these are automatically connected with the sources that you have added to the project map by small, thin arrows. This will allow you to cluster your sources with their classifications, creating hubs within your

---

2 The labels for these arrows can be toggled off and on by selecting or deselecting the “Connector Labels” checkbox on from the “Project Map” tools.
network with which your project nodes (i.e., your open codes) will connect (See Figure 2). Save this map as a “base map” so that new affinity networks can be created easily without having to repeatedly add sources and source classifications.

**Figure 2.** Adding classifications to the affinity network

6. **Add the project nodes of interest to the project map**

First, create a copy of the base map that you have just created and give it a unique name, likely corresponding to the top-level concept that you wish to map. In our project, we created maps to look at shared beliefs around particular topic areas, including trauma, poverty, Lafayette County (as a place), as well as the characteristics of the school response to children with ACEs, barriers to social service provision, and the relationship of the Dawn Waters tribe to the White community. Because of the detailed level of open-coding conducted in the first round of analysis, the resulting maps represented dense and interesting connections across stakeholder groups. In our example here, we create a map for perceptions of school supports for students with adverse childhood experiences.

Through the “Add Project Items” icon, you will be able to examine your list of nodes (by selecting “Nodes” from the left-side menu in the dialogue box) resulting from the open coding that you did to decide what selections of items would be best included in the project map. Select these items and click OK. What will appear on your project map are icons labeled
with the nodes you selected, connected to the sources in which they are coded by small, thin arrows (See Figure 3).

**Figure 3. Adding nodes to the affinity network**

7. **Sort nodes within the project map to show unique, partial and shared understandings and beliefs**

Once appropriate nodes have been added to the project map, it is important to adjust the position of these nodes in the map in order to view the shared, partially shared and unique perceptions between and within stakeholder groups. Select each node icon and move it to the appropriate place within your project map based on the density of its connections with your different stakeholder groups. For example, in our project, the nodes “teachers as social service providers,” “few supports for mental health” and “limited human resources and capacity building,” among others, were all connected to at least one interviewee in each of our stakeholder groups (educators, social service providers, guidance counselors, Dawn Waters tribal members and higher education faculty). These icons were moved to the center of the map to represent their centrality to conceptions of the project (See Figure 4).
This process should be repeated for each node, sorting them into solo nodes (those connected
to only one source or one stakeholder group), and partially shared nodes (positioned around
the periphery of the central nodes) that represent concepts shared by more than one stakeholder
group but not all of them. Once this process has been finished, the entirety of the map can be
reviewed to understand the landscape of converging and diverging perspectives between
stakeholder groups on a particular perspective or issue. For example, in the case of our map of
perceptions around school supports for students with adverse childhood experiences, there was
a strong shared perception that teachers are the frontline social service providers in the absence
of few community resources for mental health and necessities for struggling families.

Because these node icons are actively connected to the nodes themselves, they can be
clicked on to bring up every instance of that code within each source. This was helpful for
providing short interpretive narrative memos for each affinity network that helped to illustrate
how different stakeholder groups had discussed these central concepts. However, the visuals
themselves were quite powerful for stimulating discussion about the shared, partially shared
and unique perspectives across the RERS collaborative.

**Conclusion**

Affinity networks created through this process provide de-identified data generated
from stakeholder groups themselves that can be used to hold a mirror up to dynamics between
collaborators from different stakeholder groups and provide opportunities to discuss
convergence and divergence in thinking across these groups in addressing challenging issues that cross sectors and stakeholder groups. Because many contemporary social challenges have roots in many different spheres of community life, it requires a collaboration of this kind to address them. Without the ability to see multiple perspectives and address these openly, many collaborations will become stalled or lose steam (Guajardo et al., 2015). In the case of RERS, these affinity networks were shared back with the leaders of the Advisory Board, representing stakeholders from all of the community groups represented within the interviews. The visuals provided an opportunity for different groups to reflect on what they could see by virtue of their organizational affiliation, and also what they could not see. For example, the educators and higher education faculty found it interesting that the schools identified their environments as safe spaces for their students and communities of caring, while Dawn Waters tribal members identified the ways in which explicit and implicit racism informed Native student experiences within schools.

Using affinity networks to help promote dialogue within community collaborations can help to contribute to research on group dynamics within community organizing initiatives (particularly the distribution of power and dominance of certain perspectives or narratives) while also helping groups to resist merely recreating larger community inequities within the context of their collaboration. An example of this within the RERS collaboration was the opportunity to represent the convergences and divergences of the Dawn Waters tribal members perspectives on the initiative and subverting the traditional silencing of those perspectives within predominantly white, rural spaces.

There are a few limitations that ought to inform how this technique is used. First, the two conditions laid out must be met—data must be linked to stakeholder groups and there must be an assumption of collaboration in the present or future. Secondly, it is possible that other computer-assisted data analysis software could be used to complete this work if it has similar project mapping capabilities to Nvivo. Using these maps, however, to further dialogue within community organizing or collaboration requires skilled facilitation in addition to the data itself. Skilled facilitation is critical to holding a space in which new understanding can emerge and to truly resist establish group dynamics. Resources from the School Reform Initiative (https://www.schoolreforminitiative.org/protocols/), for example, may help to provide protocols that can be used to carefully unpack the meaning of these maps for the group, to allow space for group members to speak to the divergences in thinking that they represent, and to create space for groups to move forward with new understanding and appreciation for each other’s thinking.

References


and pro-social behavior (pp. 281-300). Cambridge: Cambridge University Press.
Author Note

Catharine Biddle is an Assistant Professor of Educational Leadership at the University of Maine. Her research focuses on ways in which rural schools and communities respond to social and economic change in the 21st century. She is particularly interested in how schools can more effectively leverage partnerships with external organizations or groups to address issues of social inequality and how non-traditional leaders—such as youth, parents and other community members—may lead or serve as partners in these efforts. Correspondence regarding this article can be addressed directly to: catharine.biddle@maine.edu.

Ian M. Mette is an Assistant Professor in Educational Leadership at the University of Maine. His research and teaching interests include school reform, instructional supervision, and the merging of the two to drive meaningful improvement of educational systems. Specifically, his work targets how educators, researchers, and policy makers can better inform one another to drive school improvement and reform policy.

Copyright 2019: Catharine Biddle, Ian Mette, and Nova Southeastern University.

Article Citation