



UNH Cooperative Extension

Well Connected Communities

2021 Social Network Analysis

PREPARED FOR

Heidi W. Barker

*Extension Field Specialist, Healthy Living
UNH Well Connected Communities Principal
Investigator/State Project Coordinator*



PREPARED BY

JULIEN KOUAMÉ, M.P.H, PH. D.

EXTENSION SPECIALIST FOR PROGRAM DEVELOPMENT AND EVALUATION

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EXECUTIVE SUMMARY

Evaluation Purpose

This study aims to enhance our understanding of the impact of UNHCE support through the Well Connected Communities (WCC) grant initiative. “Well Connected Communities (WCC) is a national well-being initiative of America’s Cooperative Extension System in partnership with National 4-H Council. WCC was launched in 2018 and is using the power of combined youth-adult voice and action to recognize and address systemic health inequities. It is scaling successful innovations from this work across the Extension network in order to catalyze ambitious changes at the local, state, and national levels, so that everyone has an equal opportunity to live a better, healthier life” (Center for Community Health and Evaluation, March 2021). The evaluation focuses on the WCC effort to impact participating member’s capacity to connect to other organizations through coalition work. This study is the first of the kind and should be used as a base-line accomplishment.

Design

The study design employed for this independent impact evaluation is social network analysis (SNA) to assess the participants connections to other organization members. The survey instrument used to gather data was an adaptation of a former instrument used by UNHCE staff to assess their internal collaboration dynamic. In addition to the SNA questionnaire, participants were asked to provide their opinion on eventual benefits of WCC. We used Social Network data to qualify and quantify network members effort to interact with other organizations’ members. The analysis focuses on a one-way relationship mapping (directed). That is, what organizations participants of the study connected to since the implementation of the WCC grant? The additional question offered a general sense of WCC’s perceived benefits.

The adapted social network survey was sent to 51 participants of the targeted WCC coalition: Androscoggin Valley Farm to School Network located in Coös County. As this study aims to explore participants connections, we focused only on their effort to connect to other institutions members of the WCC. The data were collected between August and September 2021 (12 months after the beginning of the WCC). The data include the participants’ reported connections, participants’ level and frequency of collaboration with reported organizations, and participants’ perception on WCC effort.

Results

Of the 51 potential participants, only 27 attempted to respond to the survey. Of the 27 respondents, only 17 provided complete information, useful for the SNA. We produced a Social Network diagram of professional relationship using the social network analysis application Gephi to visualize the pattern of relationships between participants and other institutions of the network.

As a result of the data analysis, we found that the UNH Cooperative Extension is presented as a principal link between the communities, without which the system could be nonexistent.

INTRODUCTION

The current report is provided by Dr. Julien Kouamé to document the network connectivity of the Well Connected Communities initiative implemented at the University of New Hampshire Cooperative Extension (UNHCE). The “Well Connected Communities (WCC) is a national well-being initiative of America’s Cooperative Extension System in partnership with National 4-H Council. WCC launched in 2018 and is using the power of combined youth-adult voice and action to recognize and address systemic health inequities. It is scaling successful innovations from this work across the Extension network in order to catalyze ambitious changes at the local, state, and national levels, so that everyone has an equal opportunity to live a better, healthier life” (Center for Community Health and Evaluation, March 2021). This study aims to enhance our understanding of the impact of UNHCE support on the WCC program. The evaluation focuses on the Well-connected effort to impact participating member’s capacity to connect to other organizations. This study is the first in the kind and should be used as a base-line accomplishment.

METHODS

The study design employed for this independent impact evaluation is social network analysis (SNA) to assess the participants connections to other organization members. The survey instrument used to gather data was an adaptation of a former instrument used by UNHCE staff to assess their internal collaboration dynamic. The survey used the levels of collaboration identified by Bruce B., et al. (2006). In addition to the SNA questionnaire, participants were asked to provide their opinion on eventual benefits of WCC. We used Social Network data to qualify and quantify network members effort to interact with other organizations members. The analysis focuses on a one-way relationship mapping (directed). That is, what organizations participants of the study connected to since the implementation of the WCC? The additional question offered a general sense of WCC’s perceived benefits.

The adapted social network survey was sent to 51 participants of the WCC. As this study aims to explore participants connections, we focused only on their effort to connect to other institutions members of the WCC. The data were collected between August and September 2021 (12 months after the beginning of the WCC) using the Qualtrics survey system. The data include the participants’ reported connections, their level and frequency of collaboration for food access, resource development, and local fresh foods availability. In addition, participants were asked to provide their perception on WCC effort.

Data obtained from the Qualtrics survey system were imported into Microsoft Excel for treatment (cleaning), then transferred to Gephi¹ for analysis. The additional question was

¹ Gephi is the leading, open-source and free visualization and exploration software for all kinds of graphs and networks.

analysis using SAS. We provided produced a Social Network diagram of professional relationship using the social network analysis application Gephi to visualize the pattern of relationships between participants and other institutions of the network.

RESULTS

Sample Description

Out of the 51 participants, 27 (53%) attempted to respond to the survey. However, only 17 complete the survey and presented data that are useful for the report, resulting in a final response rate of 33%. Together, the 17 participants reported 24 organizations with which they connect with specifically around topics related to resource development, food access, and local, healthy, fresh foods in the Androscoggin Valley region. See Appendix B for the full list of reported organizations.

Connection (Average Degree)

The average connection (with all participants considered) is 1.146 ranging from 1 to 5 and one outlier that reported 10 organizations.

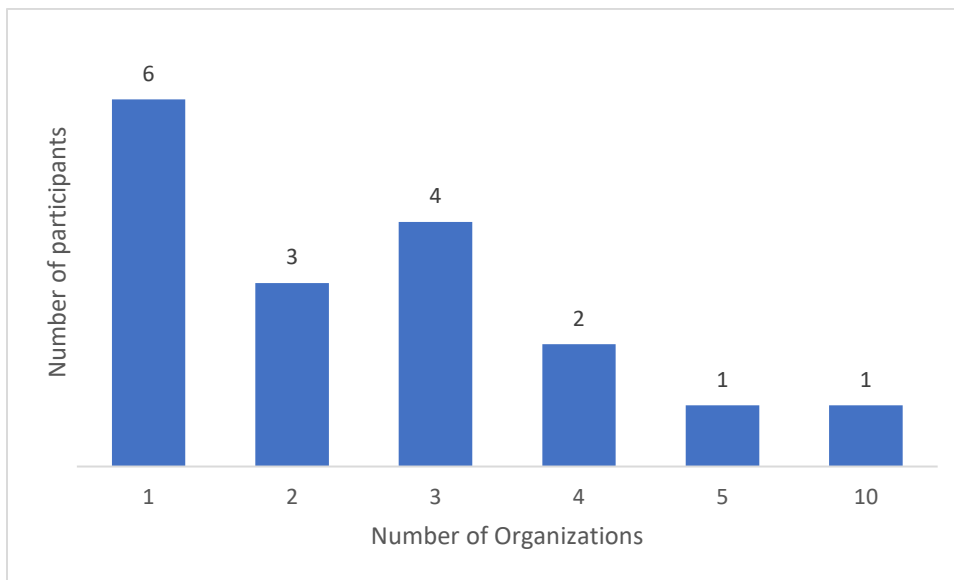
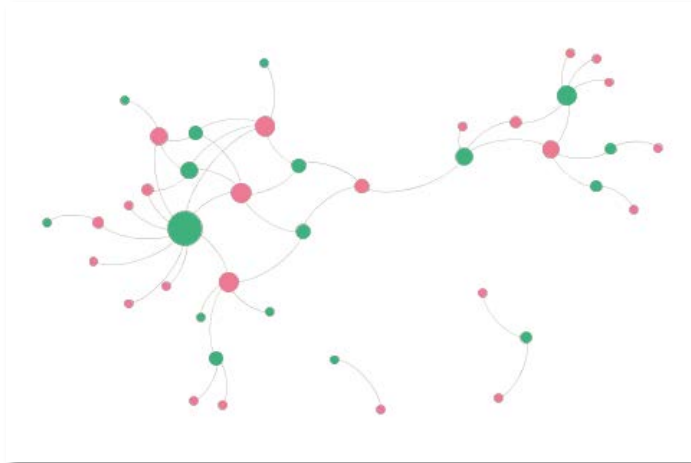


Figure 1. Number of Organizations Reported by Participants

When the outlier is ignored, the analysis reveals that each participant reported on average 2.3, about two (2) connections.

Communities

Using the participants' reported connections to local organizations, we produced the network presented in Figure 2. Except for two participants, all the participants are linked into a system of people and organizations.

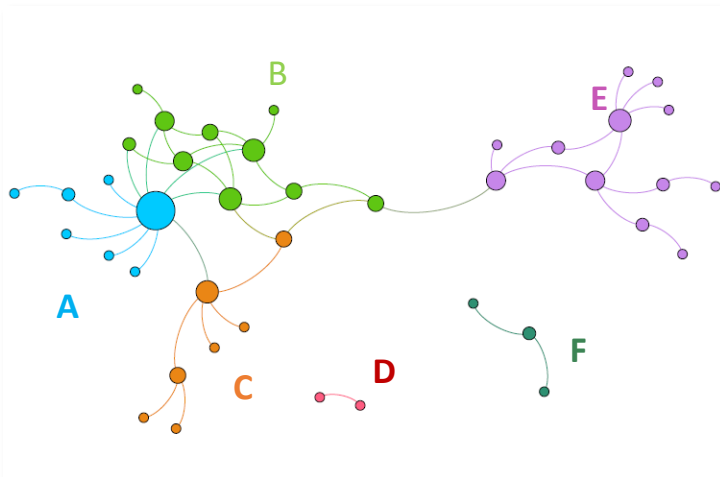


Network size: 41 (17 People, 24 organizations)

Mean of connection: 2.3

Figure 2. WCC People to Organization Network

The data collected for this study focuses on people’s connections to organizations, therefore, the interpretation will be more meaningful if focused on the organizations. We could not interpret the network as relationship between nodes. A closer look of the network shows six distinctive communities established by participants connections to organizations. Each community is made up of people and organizations. Two communities, D and F made of one person each are independent and isolated from the global network.

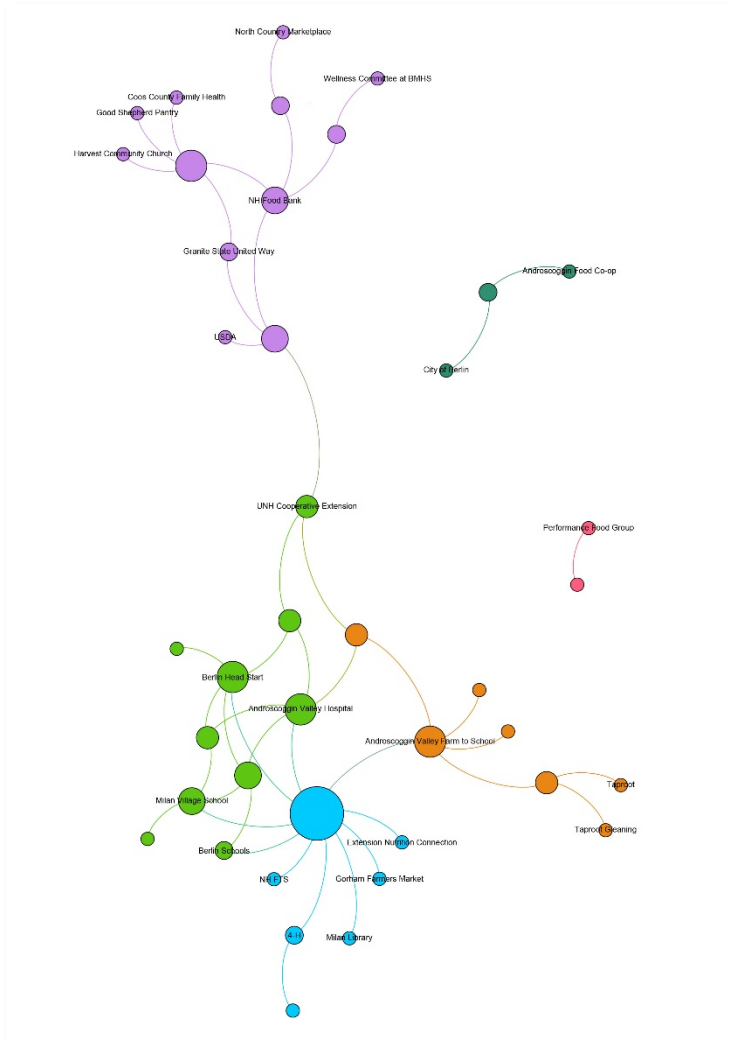


Network size: 41 (17 People, 24 organizations)

Number of communities: 6

Figure 3. WCC Network’s Communities

The graph presents New Hampshire Food Bank, Androscoggin Valley Hospital, Androscoggin Valley Farm to School and Berlin Head Start as referenced organizations within their respective communities. UNH Cooperative Extension is presented as the broker of the network. See Figure 4 below. That means without that organization, each community would be isolated.



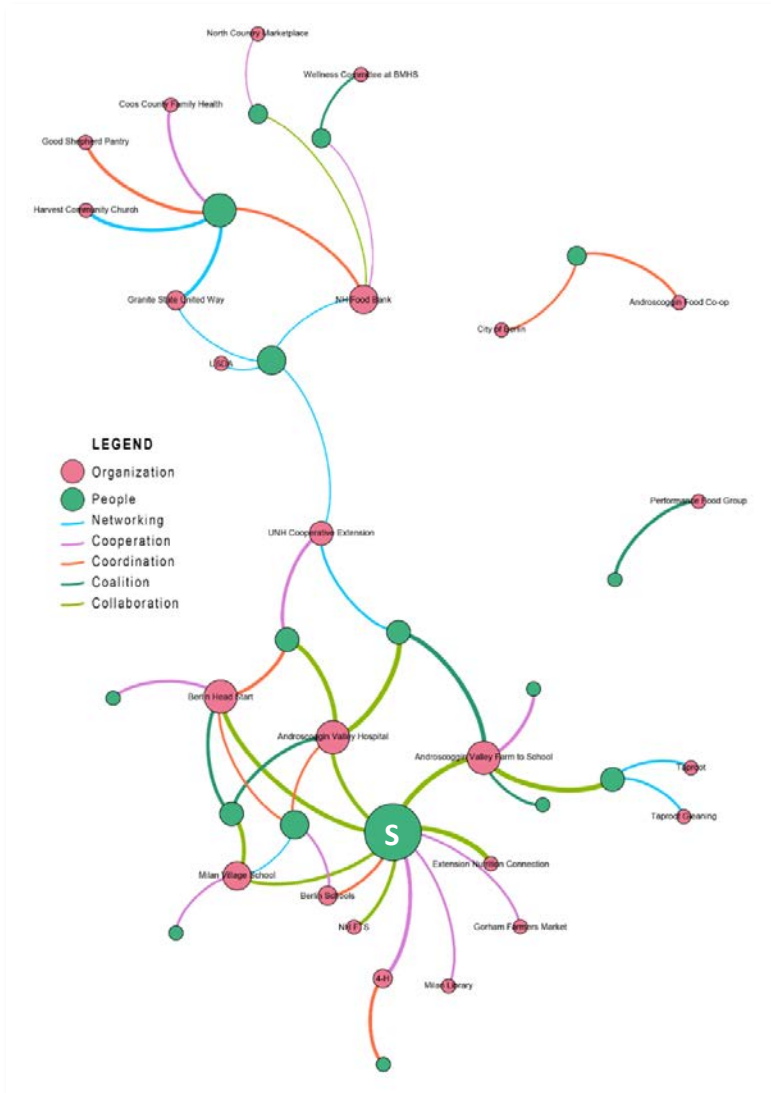
Network size: 41 (17 People, 24 organizations)

Number of communities: 6

Figure 4. Main Organizations of reference in the WCC Network

Actors and Strength of Connection

Though UNH Cooperative Extension is a major connector between the communities, the level of collaboration participants have with the institution are those described by weak networking and cooperation. However, the community collaboration with organizations of reference such as New Hampshire Food Bank, Androscoggin Valley Hospital, Androscoggin Valley Farm to School and Berlin Head Start are at levels of collaboration and coalition. In addition to those organizations being major actors for connectivity, the individual marked by “S” in the Figure 5 acts as an essential link between six isolated organizations and the network.



Network size: 41 (17 People, 24 organizations)

Number of communities: 6

Figure 5. Type and Level of Collaboration within the WCC Network

Participant’s Believes for Well-Connected Communities Benefits

Networks can offer their participants many benefits. On a 4-point Likert scale (Strongly Agree to Strongly Disagree), we offered a list principal benefits (Appendix B) and asked the participants to indicate at which degree WCC provides those benefits. For each of the items (with the exception for one), the participants reported they either *somewhat agree* or *strongly agree* WCC has provided those benefits. However, one participant reported she/he *somewhat disagree* that WCC “mobilizes more people for action.” Table 1 summarizes participants’ responses. A complete label of items is presented in Appendix B. According to the data, the top five benefits provided by the Well Connected Communities program are the following:

1. Item 3. Aligning people around common values and goals (93.33%)²
2. Item 1. Learning & information exchange (86.67%)
3. Item 2. Building trust/relationship between my organization and others (86.67%)
4. Item 4. Creating opportunities for project collaboration (86.67%)
5. Item 6. Getting a regional and/or systems level of perspective (80.00%)

Table 1. Summary of Participants Agreement with WCC Benefits

	Somewhat Agree		Strongly Agree		Somewhat Disagree	
	Number	Percent	Number	Percent	Number	Percent
Item 1	2	13.33	13	86.67	0	0
Item 2	2	13.33	13	86.67	0	0
Item 3	1	6.67	14	93.33	0	0
Item 4	2	13.33	13	86.67	0	0
Item 5	5	33.33	10	66.67	0	0
Item 6	3	20.00	12	80.00	0	0
Item 7	5	33.33	10	66.67	0	0
Item 8	5	33.33	10	66.67	0	0
Item 9	4	26.67	11	73.33	0	0
Item 10	4	26.67	10	66.67	1	6.67

FINDING/DISCUSSION/RECOMMENDATIONS

The data revealed six linked communities within the Well Connected Communities program. Two of the communities are stand alone and not connected to the system. Each of the two isolated communities comprises one person and the organizations they have a relationship with.

Within the connected system, the New Hampshire Food Bank, Androscoggin Valley Hospital, Androscoggin Valley Farm to School and Berlin Head Start represent the detected cores of the network. The UNH Cooperative Extension is presented as a principal link between the communities, without which the system could be nonexistent (see Figure 6). Note that Figure 6 below is provided with two main assumptions: (1) UNHCE and its employees are not part of the system; and (2) the existing connections are natural and impacted by UNHCE and its employees. Given these two assumptions, the system disappears and gives place to multiple independent and not related communities.

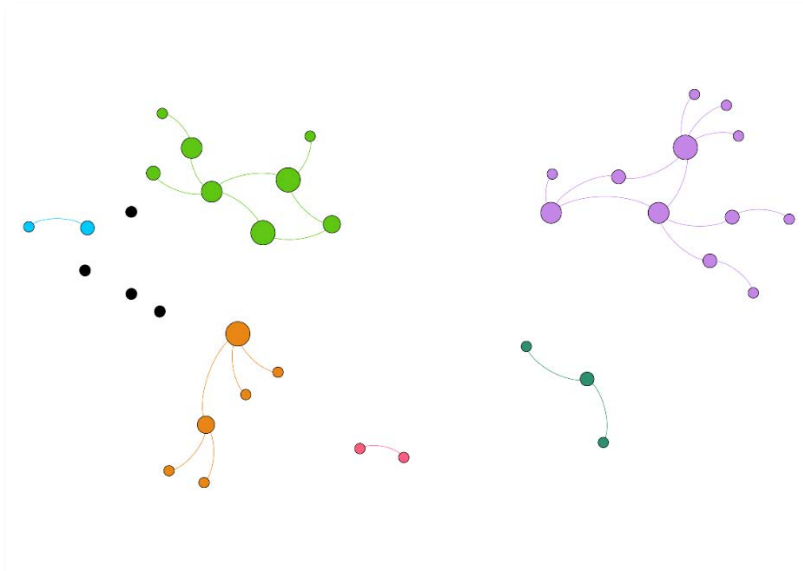
Clearly, according to the participants, WCC has successfully engaged network members around common values and goals. However, the data indicates improvement opportunities in the areas

² Percentage indicates the proportion of participants who “Strongly Agree” with the statement.

for mobilizing people for action, connecting assets and resources and enhancement effectiveness in individual organization.

In sum:

- Currently, UNHCE is playing its fundamental role which is to provide the opportunity for organizations' connectivity and engagement. within the community.
- UNHCE should purposefully reach isolated members of the WCC, identify their needs, and suggest other community organizations that could benefit those isolated individuals.
- As UNHCE is building a sustainable community system, the institution should facilitate for a community organization (i.e., the New Hampshire Food Bank, Androscoggin Valley Hospital, Androscoggin Valley Farm to School and Berlin Head Start) that could play its role in the future.



Network size: 41 (17 People, 24 organizations)

Communities

- 6 independents communities
- 4 organization with no connection

Figure 6. Individual Connection to Local Organization Without UNHCE

References

Bastian M., Heymann S., Jacomy M. (2009). Gephi: an open-source software for exploring and manipulating networks. International AAAI Conference on Weblogs and social media.

CCHE (March, 2021). Towards a new way of working: Year 1 evaluation results from WCC's Wave 2

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APPENDIX

Appendix A. Reported Organizations

Organizations	Organization ID
4-H	A
Androscoggin Food Co-op	B
Androscoggin Valley Farm to School (AV FTS)	C
Androscoggin Valley Hospital (AVH)	D
UNH Cooperative Extension (UNHCE)	E
Berlin Head Start	F
City of Berlin	G
NH Food Bank	H
Good Shepherd Pantry	I
Granite State United Way	J
Harvest Community Church	K
Coos County Family Health	L
New Hampshire Farm to School (NH FTS)	M
North Country Marketplace	N
Performance Food Group	O
Milan Village School	P
US Department of Agriculture (USDA)	Q

APPENDIX B: Summary of Participants Agreement with WCC Potential Benefits

Item #		Somewhat Agree		Strongly Agree		Somewhat Disagree
		Number	Percent	Number	Percent	
1	Learning & information exchange	2	13.33	13	86.67	
2	Building trust/relationship between my organization and others	2	13.33	13	86.67	
3	Aligning people around common values and goals	1	6.67	14	93.33	
4	Creating opportunities for project collaboration	2	13.33	13	86.67	
5	Enhancing effectiveness of my individual organization's work	5	33.33	10	66.67	
6	Getting a regional and/or systems level of perspective	3	20.00	12	80.00	
7	Accessing new or collaborative sources of funding	5	33.33	10	66.67	
8	Innovating solutions and ideas	5	33.33	10	66.67	
9	Connecting assets and resources of the community	4	26.67	11	73.33	
10	Mobilizing more people for action	4	26.67	10	66.67	

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