Social Network Analysis of Youth Volunteers in Afghanistan

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About the Report

USIP Research Notes make available to a wider audience research, data, or analysis generated in support of USIP publications and projects.

This report describes a project conducted by the United States Institute of Peace (USIP) in Afghanistan in 2012 and 2013 to assess how youth volunteers communicate and work together. USIP worked in coordination with a local partner, Afghan Amputee Bicyclists for Rehabilitation and Recreation, and local media development group Nai Supporting Open Media. The project was supported by the Department of State's Bureau of International Narcotics and Law Enforcement Affairs.

Introduction

Experts on Afghanistan, rule of law, media, and technology collaborated to implement a project in Nangarhar province in Afghanistan to support youth volunteers who teach conflict resolution and assist in resolving local conflicts. The United States Institute for Peace (USIP) worked with these self-funded youth volunteer individuals and groups to provide training and educational resources from June 2012 through May 2013. USIP worked in coordination with a local partner, Afghan Amputee Bicyclists for Rehabilitation and Recreation (AABRAR) and local media development group Nai Supporting Open Media on media and communication activities. The youth volunteers were trained on social media and radio production skills in order to foster collaboration and to help them achieve greater coordination and impact as a group.

To determine how the network of volunteers and the relationships between them changed over the course of the project, as well as to evaluate the utility of the media and communication components of the project, USIP designed a social network analysis (SNA) to evaluate the extent to which the project volunteers communicated and worked together, how often, and by what means. Traditional SNA is significantly broader than the current trend of analyzing online social networks and can be used to assess the dynamics of any group, including offline groups. USIP also looked into how demographics and access to and utilization of mobile and Internet services affected the network of volunteers. The objective of this SNA was to assess the existing project and to gain insight into group dynamics and individual characteristics that would help in planning future volunteer network projects.

The key findings of the SNA were as follows:

- The preactivity network was relatively fragile, reliant on a small number of people as the primary conduits for interaction and collaboration. Age differences did not appear to be a barrier to relationships. Gender, however, was a significant factor, with men substantially better networked than women volunteers.

- After the project, the number of relationships among the volunteer network increased from 52 to 229, an increase of more than 400 percent. After the project, all volunteers had at least one relationship within the network; whereas two of the volunteers had had no relationships prior to the project.

- Although the number of central members of the network (those who linked many others) grew during the project, there was still a distinct central group, with peripheral members linked to the network via these central figures. The network could be considered stronger overall, but it still had potential weak points that could lead to some volunteers losing contact with the network.

- In-person activities were the most effective network-building tools, but where individuals had access to mobile or online services, media activities were effective in fostering relationships.

Baseline Survey

To collect the information necessary for the SNA, USIP developed and deployed two surveys: a baseline survey and a postproject survey. USIP relied heavily on Kabul-based staff to ensure that the questions and methodology were contextually and culturally appropriate and to assist local staff in successfully administering the survey.

The baseline survey was designed to develop an accurate understanding of the preproject relationships among volunteers. USIP staff asked respondents, via phone or in person, basic demographic information and information regarding their access to mobile and Internet services. Volunteers were asked to provide information about their relationships with other volunteers. Each volunteer was asked to rate his or her relationship with others based on two classifications: how often they communicated and how often they worked together (see fig. 1 for the scale given to each volunteer).

Figure 1. SNA Survey 1 Rating Scale

How many times did you communicate with [volunteer's name] about your learning and/or teaching in your own community before the AABRAR project?

Strength Rating 0: No information was shared
Strength Rating 1: 1 conversation
Strength Rating 2: 2-3 conversations
Strength Rating 3: 4-5 conversations
Strength Rating 4: 6-8 conversations
Strength Rating 5: 9-10 conversations
Strength Rating 6: more than 10 conversations

How many times did you work with [volunteer's name] on problem solving and/or advocacy activities before the AABRAR project?

Strength Rating 1: 1 time
Strength Rating 2: 2-3 times
Strength Rating 3: 4-5 times before the meetings
Strength Rating 4: 6-8 times before the meetings
Strength Rating 5: 9-10 times before the meetings
Strength Rating 6: more than 10 times before the meetings

Baseline Survey Analysis

Network Analysis

The baseline survey yielded a wealth of information about the network that existed among the youth volunteers prior to USIP's engagement. Fifty-two relationships were documented between the thirty-four individuals surveyed. Two volunteers were isolated from the network, that is, they had never communicated or worked with any of the other volunteers. Figures 2 and 3 show the network of volunteers. For security reasons and to protect the volunteers' privacy, the volunteers were anonymously identified and each was given a number (Vol#). The two volunteers isolated from the network are labeled here as Vol10 and Vol26.

Figure 2. Baseline Network—Communication Ratings

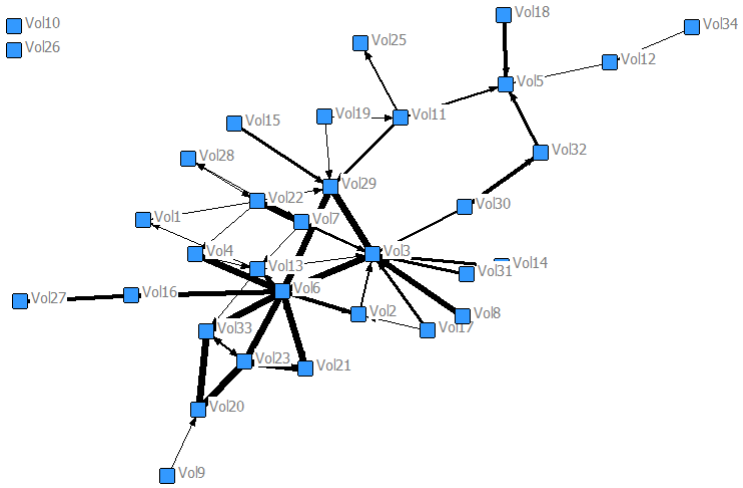
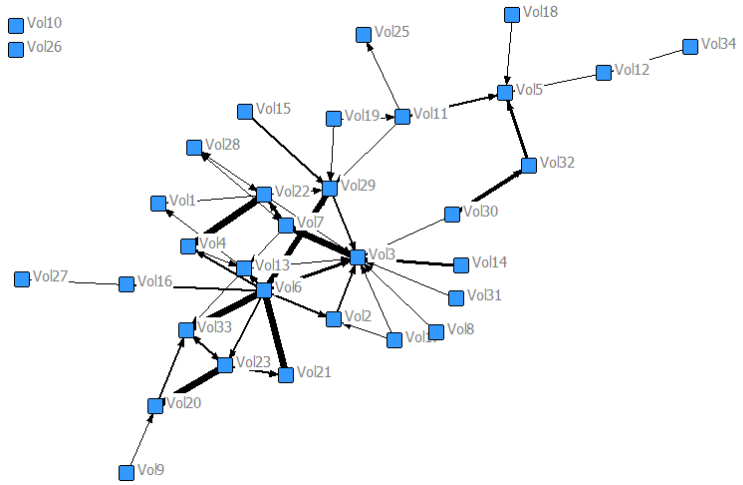


Figure 3. Baseline Network—Collaboration Ratings

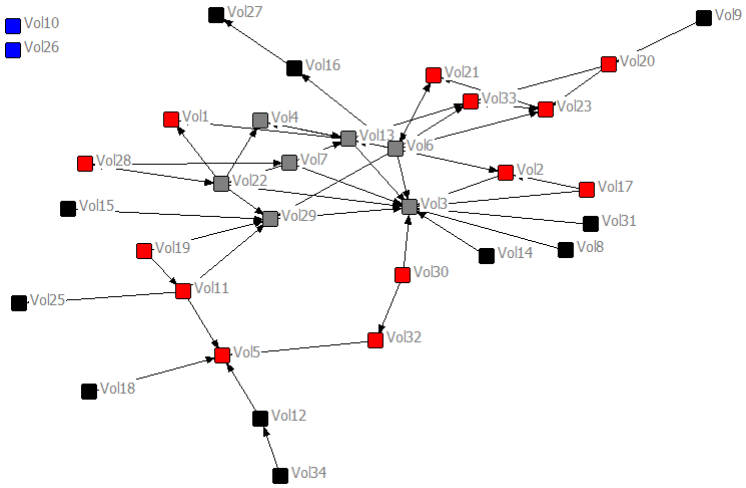


The bold line in the figures indicates the strength of the relationship between volunteers—the boldest lines indicate that volunteers communicated with or collaborated with another volunteer at least nine times before the project began. The arrowheads indicate the direction of the relationship—the responder is at the end of the arrow, which points in the direction of the volunteer with whom the responder reported a relationship.

An analysis of the network's overall strength provides information about its vitality and its internal dynamics. This strength is determined by the number of relationships between the volunteers and how interconnected individual volunteers are to others. If certain groups within the network have multiple connections linking them but others have fewer relationships, the network may be centralized toward a certain number of people; this contributes to a weak network. A strong network is characterized by a more even density of relationships throughout the network, making it stable. The network of volunteers prior to USIP's engagement was a network with few ties; most relationships were centralized around a few key members. If relationships are centralized around only a few volunteers, the absence of those key actors would have a huge impact on the entire network. In this case, the baseline network was fragile and prone to fracturing over time.

By looking at the "k-core rates"—the number of relationships that each volunteer has with others in the network—one can infer the process by which information flows throughout the network and what roles individuals tend to play in the network (leaders, collaborators, or passive members). Referring to figure 4, note that those with the highest k-core rating, those most likely to be the leaders of the network, are central in the map and have the most connections with other volunteers, as evidenced by the gray nodes. This trend can shed light on how the information provided to volunteers on rule of law issues filters throughout the network. If information is provided to a volunteer with a high k-core rating, there is a greater chance that the entire network would have access to that information.

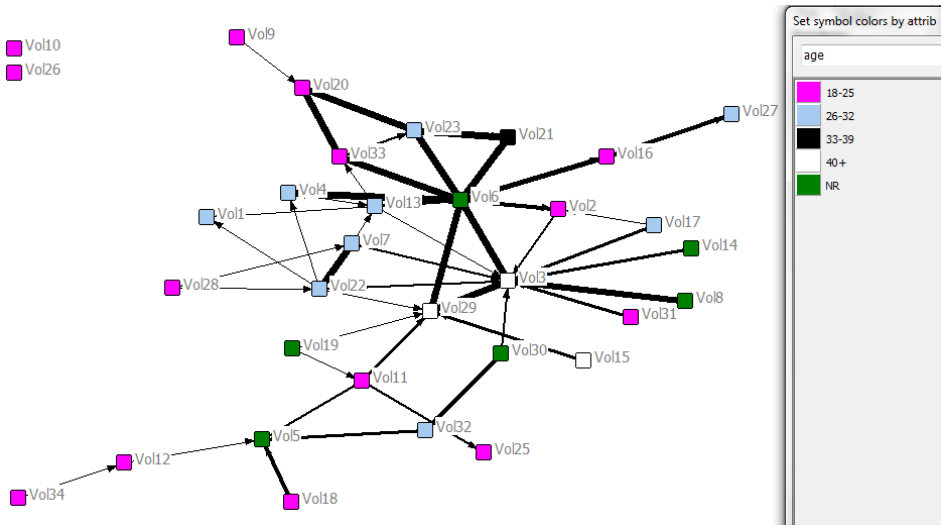
Figure 4. Baseline Network—K-Core Analysis of Communication Ratings



Attribute Analysis

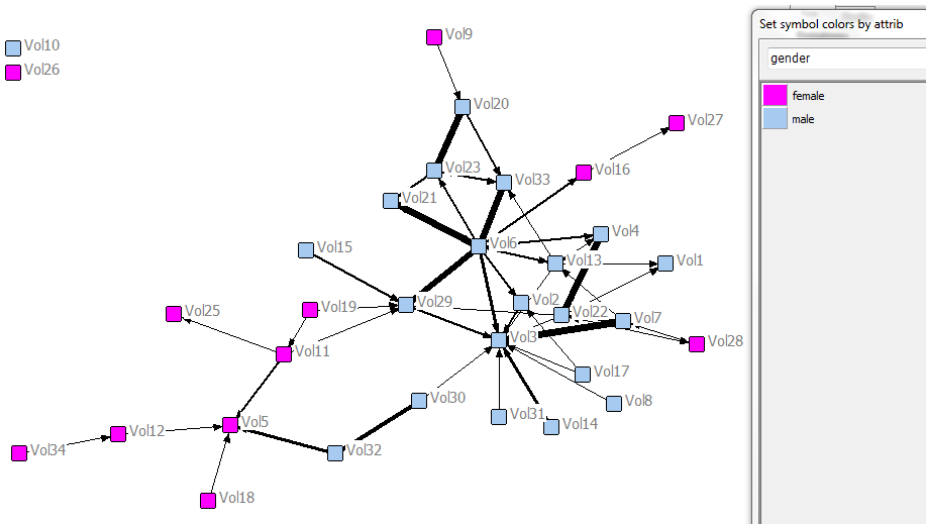
Demographically, the majority of the volunteers were between the ages of 18 and 25; several were between the ages of 26 and 32. Relationships, both strong and weak, existed between those of all age groups (see fig. 5). Ages are color coded in figure 5, as shown on the key on the right.

Figure 5. Baseline Network—Communication Ratings by Age



Prior to USIP's engagement, gender appears to have played a strong role in the relationships between volunteers. The network was made up of eleven females and twenty-three males. Figure 6 shows that relationships were more prevalent and stronger between male volunteers than across gender groups or between female volunteers.

Figure 6. Baseline Network—Communication Ratings by Gender



The initial survey revealed additional information about the volunteers:

- The volunteers live in several districts across Nangarhar.
- Most volunteers were engaged academically as students or teachers.
- The majority of volunteers had access to mobile service in their homes, but not where they work or in public places in their community.
- The majority of volunteers sent text messages fewer than five times a day.
- Most volunteers did not have Internet access in their homes, at work, or in their communities.
- Those who did have access to the Internet used it primarily for email rather than for entertainment, to socialize, or for networking purposes.
- The volunteers tended to report the same rating for times they communicated and times they worked with other volunteers.
- All but two volunteers paid for their mobile phones themselves, in other words, no third party subsidized the costs.

Postproject Survey

The postproject survey was administered by USIP staff, asking respondents either via phone or in person to provide information about their relationship with the other volunteers during USIP's engagement with the group. Each volunteer was asked to rate his or her relationship with the others based on two classifications: how often they communicated and how often they worked together. The volunteers were also asked to rate how useful different platforms were in fostering communication and working together (see fig. 7 for the scale given to each volunteer).

Figure 7. SNA Survey 2 Rating Scale

How many times did you communicate with [volunteer's name] about your learning and/or teaching in your own community during the AABRAR project?

Strength Rating 0: No information was shared
Strength Rating 1: 1 conversation
Strength Rating 2: 2-3 conversations
Strength Rating 3: 4-5 conversations
Strength Rating 4: 6-8 conversations
Strength Rating 5: 9-10 conversations
Strength Rating 6: more than 10 conversations

Rate 1 - 6 (6 being the highest)

How useful you found **Facebook** to be to communicate with [volunteer's name]
How useful you found **Radio Programming** to be to communicate with [volunteer's name]
How useful you found the **Meetings** to be to communicate with this [volunteer's name]

How many times did you work with [volunteer's name] on problem solving and/or advocacy activities during the AABRAR project?

Strength Rating 0: No work was done together
Strength Rating 1: 1 time
Strength Rating 2: 2-3 times
Strength Rating 3: 4-5 times
Strength Rating 4: 6-8 times
Strength Rating 5: 9-10 times
Strength Rating 6: more than 10 times

Rate 1 - 6 (6 being the highest)

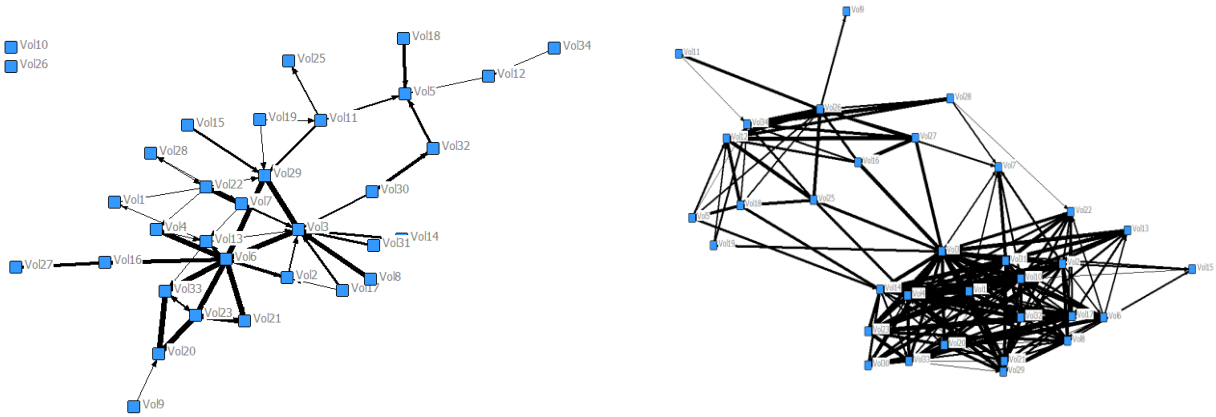
How useful you found **Facebook** to be to work together with [volunteer's name]
How useful you found **Radio Programming** to be to work together with [volunteer's name]

Postproject Survey Analysis

Network Analysis

The postproject analysis revealed drastic changes in the network of youth volunteers. It documented 229 relationships among the thirty-four individuals surveyed. After the culmination of the project, the two volunteers who had been isolated from the network were much more integrated, each having developed several relationships with other volunteers. Figures 8 and 9 show comparisons of the networks of volunteers and their relationships before and after the project.

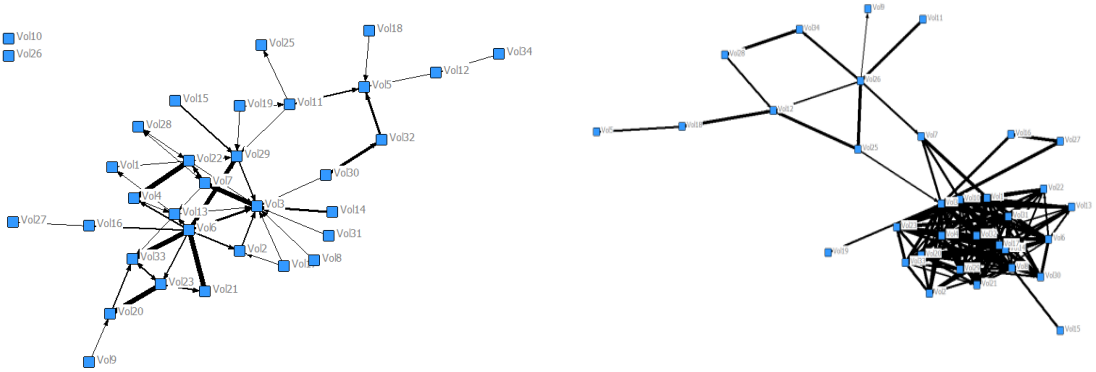
Figure 8. Baseline Network/Postproject Network Comparison—Communication Ratings



Baseline Network

Postproject Network

Figure 9. Baseline Network/Postproject Network Comparison—Collaboration Ratings



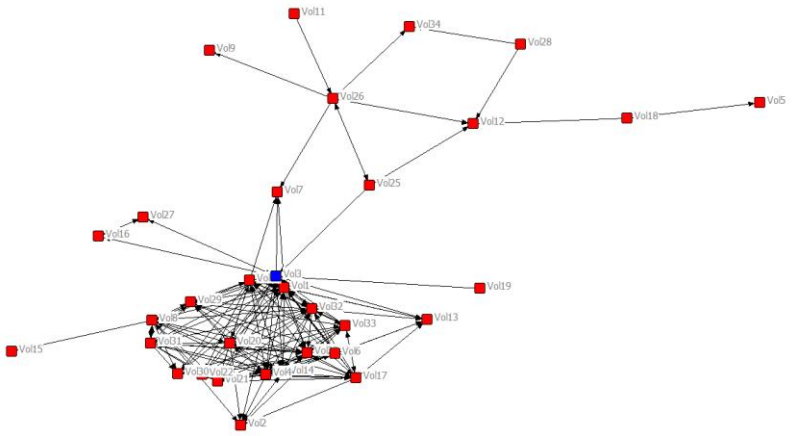
Baseline Network

Postproject Network

In comparing network maps before USIP's engagement with the volunteers and after, one immediately notices increase in the number of bold lines, which indicate that the strengths of the relationships among volunteers increased in addition to the increase in the number of relationships or ties in the postproject network maps. The majority of the volunteers responded that they had a relationship with a high rate of communication or collaboration if a relationship was defined at all. Few relationships below a 4 were documented, indicating that volunteers had communicated or worked together at least six times over the course of the project.

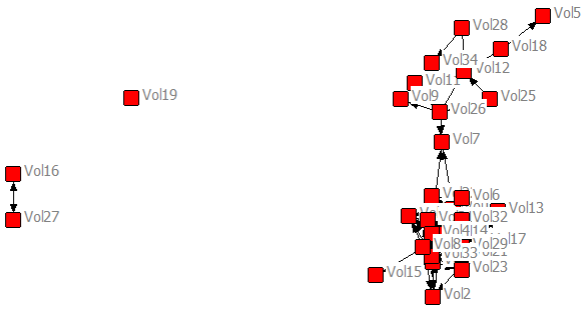
Although there were more ties in the postproject network than in the baselines network, most relationships were still centralized around particular volunteers, although that group of volunteers was larger than the central group identified during the baseline survey analysis. The postproject network was stronger than the network that existed prior to USIP's engagement, but primarily for those volunteers in that central group. A few volunteers were included in the network via only one or two relationships, making it likely that they could become isolated from the other volunteers. For example, in analyzing the postproject network by collaboration ratings, Vol3 was identified as a "cut point" (a volunteer who is the only connection between a volunteer or a group of volunteers to the larger network), as seen in figure 10 (Vol3 is blue).

Figure 10. Postproject Network—Cut Point Analysis of Collaboration Ratings



If Vol3 is removed from the network, then three volunteers would no longer have connections to the network. Additionally, Vol7 would become a cut point—a crucial link between two large groups of volunteers (fig. 11). This is a clear indication that the network was still weak and, to remain a viable network with communication flows between volunteers, more relationships need to be fostered across the network to reinforce ties between larger groups.

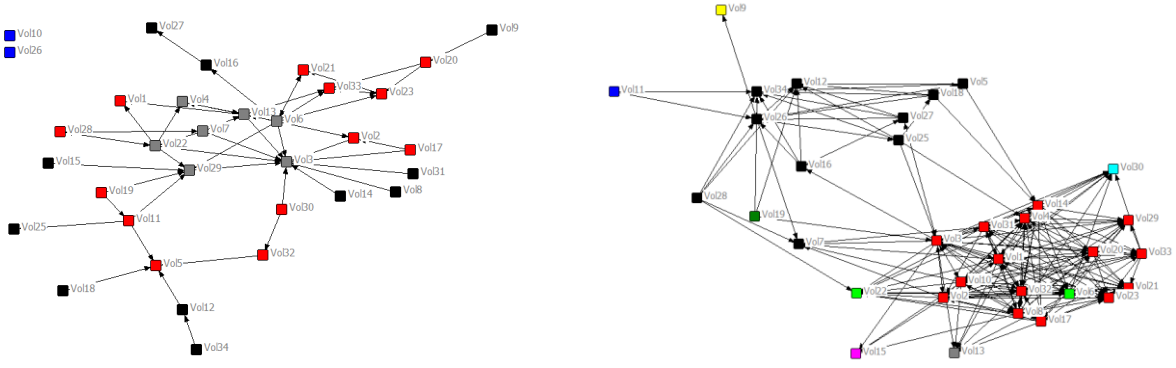
Figure 11. Postproject Network—Cut Point Analysis of Collaboration Ratings (Cut Point Removed)



The postproject network analysis reveals that the network was more interconnected, but that the volunteers largely played the same role that they did in the baseline network. The most connected individuals, those colored red or green, are the same individuals who had the highest k-core score from the baseline network analysis. Figure 12 shows that, although the network changed over the course of the project, the volunteers likely maintained the same roles.

The centrality of some outlying volunteers did not increase over the span of the project, that is, they did not become more integrated into the network. However, the volunteers through whom these outliers were connecting to the rest of the network did change over time. For example, in the baseline network, Vol9 was connected to the network through one volunteer, Vol20. In the postproject network, Vol9 was connected through a different volunteer, Vol26 (see fig. 12). Thus, the project did have some effect in diversifying the relationships between volunteers, but the roles of many of the volunteer remained the same.

Figure 12. Baseline Network/Postproject Network Comparison—K-Core Analysis of Communication Ratings



Baseline Network

Post-Project Network

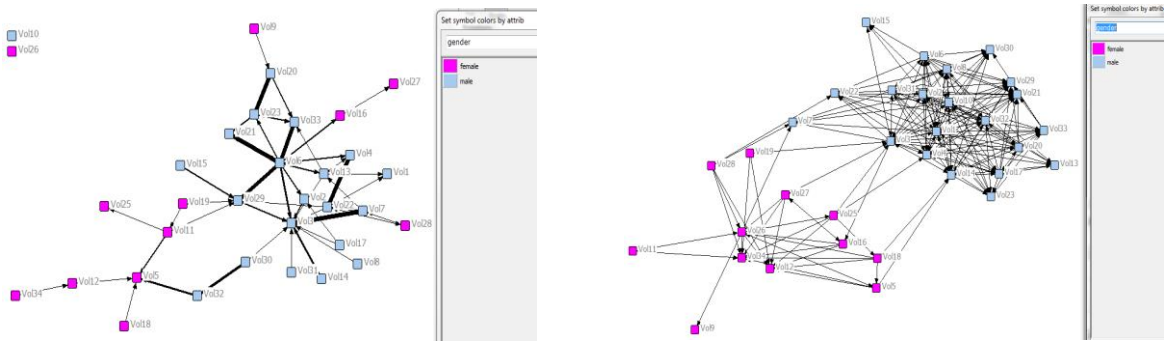
To develop long-term engagement strategies, it is important to identify the roles that different individual played in the network. Vol9 may have prioritized a few strong relationships over building

relationships with many different people. It is possible that Vol9 will remain an outlier, regardless of efforts to integrate him or her into the network. This kind of analysis provides a more strategic approach to programming, helping staff devote resources to interventions that are likely to have the highest impact.

As with the baseline network, demographics, access to mobile service, and access to Internet service did not appear to affect relationships between volunteers. People continued to maintain relationships mostly with those of the same gender. Five volunteers reported relationships across gender lines during the baseline survey, and five volunteers reported relationships across gender lines during the postproject survey. Interestingly, these were not the same people, demonstrating the fluid nature of network connections between genders.

The directionality of the relationships across genders changed over the course of the project. In the baseline network, males identified some relationships with female volunteers, whereas in the postproject network, only female volunteers reported relationships with male volunteers (figure 13). None of the male volunteers responded that they had communicated or collaborated with female volunteers during the project.

Figure 13. Baseline Network/Postproject Network Comparison—Communication Ratings by Gender



Baseline Network

Post-Project Network

Analysis of Means of Communication and Collaboration

The postproject survey asked volunteers to rate how useful different platforms were in fostering communication and collaboration. The platforms were monthly meetings in Jalalabad, a closed Facebook group created specifically for this project, and training in community broadcasting techniques with groups of volunteers working together to create radio programs about their work. The radio programs aired on local radio stations.

Volunteers identified the monthly meetings as the primary means of enabling communication and collaboration with other volunteers. Nearly all the volunteers rated meetings as the most useful way of connecting with each of the other volunteers. Although many volunteers rated Facebook as somewhat useful, there were times when they did not use Facebook to communicate or collaborate with certain volunteers. Of those volunteers who were highly connected and central to the network, the ratings varied for how useful they found Facebook to be in connecting with others. The

inconsistency of how useful volunteers found Facebook could be due to limited Internet accessibility, making Facebook less useful for the purposes of this network. The radio programs received similar results as Facebook, with ratings that it was somewhat useful and only with certain volunteers.

Conclusion and Recommendations

The SNA was conducted to determine the following:

- How the network of volunteers and the relationships between them changed over the course of the project
- How demographics, access to mobile service, and access to Internet service affected the network of volunteers
- The utility of introduced communication components in creating relationships between volunteers

Prior to USIP's engagement with the volunteers, the youth network had few ties and most relationships were centralized around a few members. Based on the analysis of the network after USIP's engagement, there were more relationships between volunteers and stronger relationships between volunteers. No volunteers were isolated from the network and fifteen volunteers had stronger interconnectivity throughout the network than before the project started. The connections between the volunteers were more stable, and the network was more likely to be used to disseminate information.

Although mobile use and Internet use did not seem to affect the relationships between the volunteers, this is a topic that warrants further study. How members of the network tend to use mobile phones and the Internet in their work will likely evolve as the mobile and Internet infrastructure in Nangarhar improves.

The means of communication introduced to help facilitate communication and collaboration were all rated as useful. Monthly meetings were reported to be the most beneficial, but many of the volunteers noted that the Facebook group and the radio projects were valuable in connecting with certain volunteers.

Although the network was strengthened and important information was gathered as a result of the project, the following recommendations could lead to an even stronger and more stable volunteer network:

- For future programming, certain volunteers should be targeted for direct engagement that reinforces the network and its sustainability:
    - Some volunteers are key connectors and are essential in bridging the central group to connect with volunteers who are marginal in the network. Vol7 and Vol3, and to a lesser extent Vol22, connected the less involved volunteers with the larger network and were integral to the flow of information and collaboration throughout. These volunteers should be encouraged to remain involved and to build and sustain relationships with those less involved.

- Other volunteers play a major role in the central group and form the most relationships with key connectors. The consistently involved volunteers, such as Vol1, Vol32 and Vol10, are likely to disperse information and work with their colleagues. These volunteers' involvement should be to promoted and they can be relied upon to disseminate information about rule of law issues for peacebuilding purposes to the wider network.

- Certain female volunteers are vital to maintaining the network among female volunteers. To further maintain connections with female volunteers and assist with their integration into the larger network, Vol12 and Vol5 should be engaged directly. This engagement should specifically encourage their involvement and facilitate more and stronger relationships within and across genders.

- Most volunteers reported that they did not have Internet access in their homes, at work, or in their communities. USIP worked to establish access to micro-internet cafes where volunteers could connect to the Internet through mobile 3G broadband connections. USIP provided fifteen organizations with broadband modems and one month of service. As provincial communication infrastructure improves, specifically as the availability and cost of 3G services improves, greater impact can be expected from social media activities.

- Cultural restrictions in Afghanistan make in-person, mobile, and online communications difficult for women. Further research is needed to successfully integrate female volunteers into the network without putting them in dangerous or insecure situations. More participation by women would substantially strengthen the network and ensure that information on best practices could be more easily disseminated to all volunteers.

- Additional network analysis should be conducted to derive how information travels within the network, how that information evolves as it is dispersed throughout the network, and who in the network is vital to the transfer of information. This would be particularly useful if the group of volunteers continues to be utilized to implement best practices or share information about important rule of law issues.

- Further research should be conducted about the status of the network after the conclusion of this project to determine the sustainability of the network. If the network strength has declined, an engagement strategy could be developed to build the capacity of volunteers to ensure that the network stability is maintained over a longer period of time.

- A long-term engagement strategy should seek to further identify the roles that each volunteer plays and work with those volunteers most likely to build stronger relationships with several volunteers across the network.

By following these recommendations, observers can understand more about the volunteers themselves and their roles in this community of youth working to educate others on the value of peace.