Social Cohesion and Sport in Overijssel

A Social Network Analysis

Derrik Simmons

UNIVERSITY
OF TWENTE.

Master of Science – University of Twente
Business Information Technology

Supervisors:
Dr. Klaas Sikkel
Dr. S.A. de Vries

Table of Contents

Management Summary

The province of overijssel is aiming to increase social quality in overijssel. It is for this reason that they have decided to fund programs that they believe will promote social quality in the communities. For this year's programs they have decided to focus on sports programs. While they give funding to sports clubs and sport's programs that meet their requirements, they do not have evidence that the funding is having the desired effect of promoting social quality. This is where the University of Twente and this paper come into place.

While the province spends money they believe is helping to promote social quality, they don't have a way to back that belief up. The first step to help is to determine what social quality is and how such a thing can be monitored. After conducting a literature review, it was discovered that leading theories of social quality splits social quality into four interconnected sub-parts. Economic security, social cohesion, social inclusion and self-empowerment. Of these four, social cohesion is most often associated with sport participation, so this became the focus of this research paper. How can sport participation promote social cohesion?

Delving deeper into literature, it was found that social cohesion is often defined using the concept of social capital. People can grow their social capital through their network of people they meet throughout their lives. Social capital growth leads to opportunities in education, employment and social mobility. There are two important types of social capital when it comes to sport participation, bonding and bridging capital. Bonding is the capital between close friends and family, while bridging is the relationships created by new people that can help bring you into new groups and communities. The literature showed that sport participation helped to create and develop both bonding and bridging capital, which helps to create higher levels of social cohesion.

With the discoveries it was time to tackle the problem of the province, how can it be determined if their interventions in sport programs are having the desired effect of increasing social cohesion? After conducting a survey with 44 sport participants in the province, it was shown that people, who participate in sport, do in fact have social capital that they would not otherwise have if they did not participate in sport. It was also shown that the people who participated heavily in sport (3+ times in the week) had bigger social networks and capital than people who participated less.

With this accomplished the paper showed that the provinces funding in sport programs was not misplaced to promote social cohesion, but maybe there is another way in which it can be visualized, to perhaps make smarter choices of where to focus sport funding. Using the idea of a social network analysis, and with additional information from the survey where the participants listed their social networks, visualizations were created to show just how sport participants create bonding and bridging capital. With a proper approach it would be possible to see the effects the sport funding has on communities and how it connects members of sports clubs to other sport clubs, cities, people and job opportunities that they would not have, if they did not participate in sport.

1. Introduction

The province of overijssel spent 6.8 million Euros in 2016 and 2017 on the implementation of a Social Quality Program. While this program has multiple goals, the top most priority is the development of Social Quality, along with knowledge and understanding of how higher levels of social quality can be achieved and monitored. The document can be seen in Appendix A (Written in Dutch.). One way in which they hope to accomplish this task, is by investment into sport clubs. Following the guidelines set by the program leaders and funders, sport clubs can apply for a grant. Once the grant is received there is little to no procedures in place to learn if this investment achieved the ultimate intention of increasing social quality. It is on the onus of the funding receiver to provide the province with the results the increased funding had on their club or program.

In essence, the province has a very broad and ambiguous project in which it hopes to create social quality through sports programs, and be able to monitor the success. Other governments from around the world have used sport as a social tool such as South African communities (Hoglund, 2008), Australian communities (Spaaij, 2009) and Northern Ireland communities (Mitchell, 2016). The method in which these examples attempted to harvest information about the effectiveness of the programs was purely through interview of sport participants, which revealed conflicting results.

The use of data-driven methods to display the results of projects is a recent and popular approach to solving a multitude of problems. By adopting a data-driven approach to solve their problem, the province of overijssel may be able to gather the knowledge and information they desire from their social quality projects, as well as monitor the effects that funding the sport clubs has on community social cohesion.

Research Focus

An accepted and leading theory on social quality is that it can be split into four interconnected components. One integral component of social quality is *social cohesion* (Abbott, 2012). Social cohesion is based on communities, groups and individuals relationships with each other. It is in this sub component of social quality that this paper will focus, as it aligns with the goals of the province as the document in Appendix A describes.

Through literature review, it was discovered that social cohesion can then be measured using a term called social capital. After giving a theoretical establishment to this association, an approach will be presented in which the province can use to solve the before outlined problems.

This leads to the research problems of the paper:

RQ1: Do sport participants have social capital, which they otherwise would not have?
RQ2: How can an abstract concept such as social cohesion be monitored?
RQ2.1: What data can be used to determine levels of sport participation?

RQ2.2: What is a practical data driven approach to show the relation between sport participation and social cohesion?

1.1 Design Science Methodology

In order to bring structure and to create a foundation for the development approach of this report, as well as provide answers to the research questions the Design Science Methodology for Information Systems Research (Peffers, 2006) will be practiced.

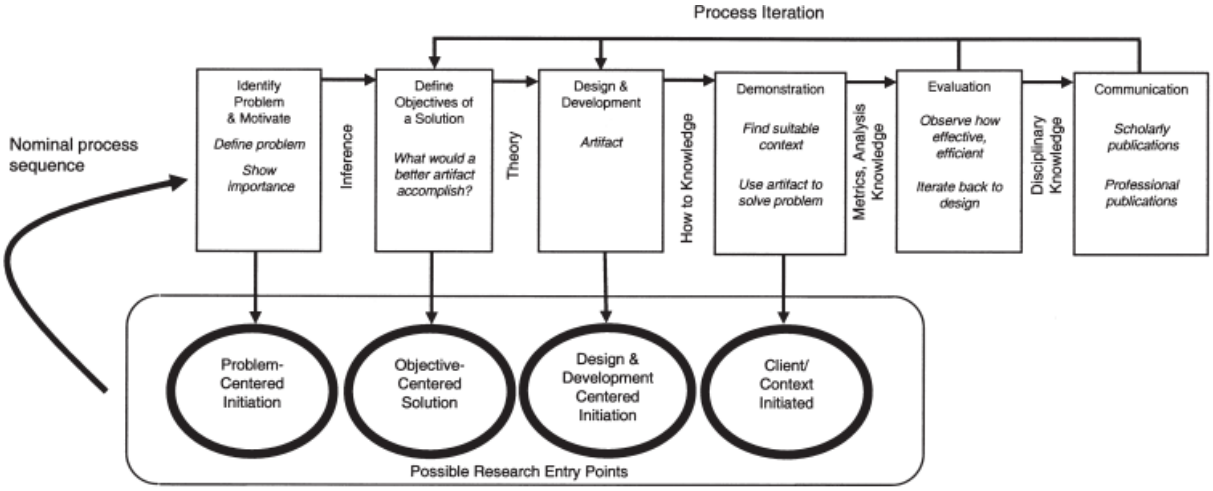

Figure 1.1: Peffers Design Science Methodology Model

Identify Problem and Motivate
In the Introduction, the problem was identified that the province would like an approach to monitoring the relation between sport participation (an effect of their program) and social cohesion. The motivation for this is that the province would like to monitor the effects of their social quality programs.

Define Objectives and Solution
In chapter two of the paper, the concept of social quality will be dissected. It will be split into its different components and sport participation will be associated to social cohesion through previously researched examples in areas around the world.

The objective in this case is to design an approach to monitor real data as it relates to the success of sport initiatives. With this realization, the province of overijssel will have concrete evidence as to whether or not certain sports projects have a positive, negative or neutral influence on creating social cohesion and community togetherness, and in turn use this evidence to enhance future projects. The solution will contain an approach to gathering the proper data for the current problem, cleaning and loading this data into visualization tools so it is easy for one to see the results.

Design and Development
In Chapter 3, the design will be presented gather and use data to make our conclusions and answer the remaining research problems. First by making contacts at sports clubs, and by creating a social network through a survey. Using known contacts at a local club in Enschede, I will be able to gather social network data of the Tex Town Tigers baseball and softball club. Once an appropriate amount of data is collected, a social network analysis will be performed to see how communities develop and associate with each other. This should be able to provide a visualization of the growth and creation of social capital and its various forms.

Demonstration
With the social network analysis, the province should be able to see before, during and after how their project effects sport participants' social networks, demonstrating the creation and reinforcement of bonding and bridging capital.

The visualization of open data should be able to show the effects over time of sport projects in overijssel.

Evaluation and Communication
In this part of the cycle, the province of overijssel will need to determine how well this design serves their purpose and provides feedback to their sports to promote social cohesion programs. They will need to communicate how well it works, and what needs to be the focus on the next iteration.

This paper will also serve for the communication purpose of the cycle.

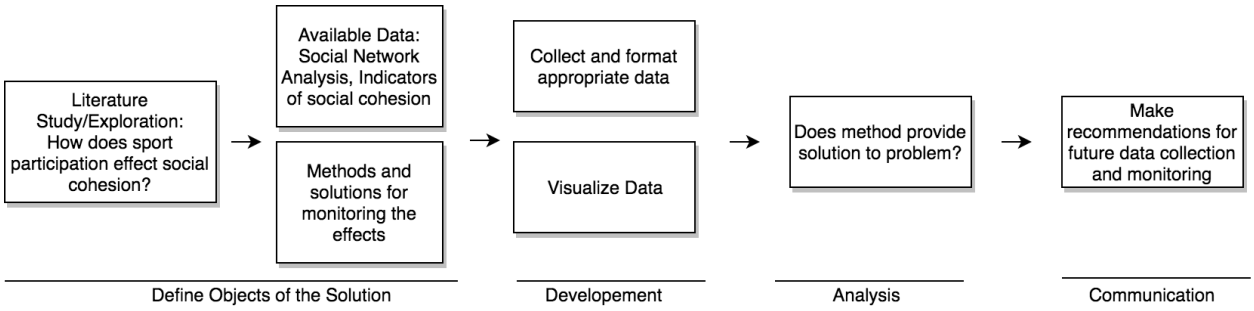

Figure 1.2: Design Science Methodology as pertains to this research

2. Literature Review

The goal of this literature review is to provide a theoretical grounding to either confirm or dispute the assumption the province has made that increased participation in sport can lead to increased levels of social cohesion. Another goal is to discover similar sports projects funded by government entities and their outcomes.

To begin this literature review that is relevant for the topic of sport participation and its relationship to social cohesion, a systematic search was performed on the SCOPUS literature database. The obvious input of '"Social Cohesion" AND sport' retrieved 103 articles. From these 103, 67 could be discarded based purely on the title of the article. The next step was to read the abstracts of the remaining 36 articles. Of these 36 articles it appeared 12 were relevant to the study.

While the findings from these papers will be presented in the following sections, it was clear that this single search would not bring to light all of the appropriate results for this comprehensive literature review. While reading these relevant articles, it was shown by the researchers that oftentimes social cohesion was described and defined using the term social capital. With this new information another search was performed using the input of '"Social Capital" AND sport '. From this input, 227 articles were retrieved. Using the same process as before, 141 articles were removed based on title, and a further 73 based on the abstract. This left 14 relevant articles relating to social capital and sport.

Another piece of information acquired from the reading of these articles, was that frequently the studies were performed in either urban or rural environments with mixed results. It appeared that more desirable outcomes for sport participation leading to increased levels of social cohesion occurred in rural areas. This led to a final search to find articles that focused purely on sport participation in rural areas to see if this hypothesis was correct. The searches '"Social Capital" AND sport AND rural"' and '"Social Cohesion" AND sport AND rural' were performed, and an additional five papers were obtained.

Literature Review Process

Input	Articles Retrieved	Title Discard	Abstract Discard	Relevant Articles
"Social Cohesion" AND sport	103	67	26	12
"Social Capital" AND sport	227	141	73	14

“Social Cohesion” AND sport AND rural	7	5	1	1
“Social Capital” AND sport AND rural	18	12	2	4

2.1 Social Cohesion and Social Capital

A cohesive society is one which works towards the well being of its members, fights exclusion, creates a sense of belonging, promotes trust and offers its member the opportunity of social mobility. While the notion of social cohesion may be a familiar one, there isn’t any conceptual clarity surrounding it and what it means (Cloete, 2014). Some describe it simple as the glue that holds the community together (Spaaij,2009). Whichever definition of social cohesion one finds, more often than not the term ‘social capital’ will come up. For the sake of this research, the definition of social cohesion will be a characteristic of society which depends on the accumulated social capital (Cloete, 2014). It is quite reasonable to argue that social capital is one of the key elements of social cohesion. That the difference between social capital and social cohesion is that the former refers to a group of individuals whilst the latter include the entire society. Social capital is seen as a prerequisite for social cohesion.

Although there are a variety of definitions of social capital, the core elements seem to be the networks, trust, norms and reciprocity that exist between individuals and groups. Social cohesion could be viewed as the positive outcome of social capital formation for a community that in return could lead to more social capital formation (Cloete, 2014).

Social Capital can be distinguished into three different types: Bonding, Bridging and Linking. Bonding social capital refers to the ties between like people in similar situations, such as immediate family, close friends and neighbors. It should be noted that bonding social capital, by creating strong in-group loyalty, could also create strong out-group antagonism and social exclusiveness. Bridging social capital refers to more distant ties with like persons, such as loose friendships and work colleagues. It can generate broader identities, mutually accepted norms of trust and cooperation. Bridging networks are viewed to be better for linkage to external assets and for information distribution. Linking social capital is concerned with relations between individuals and groups in different social strata. Linking social capital reaches out to unlike people in dissimilar situations, such as those who are entirely outside the community, thus enabling members to leverage a far wider range of resource than are available within the community (Cloete, 2014).

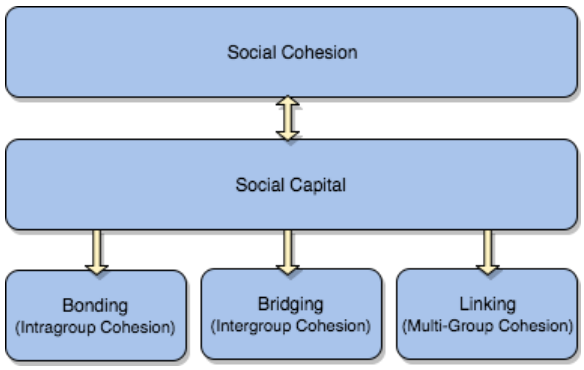

Figure2.1: Relationship between Social Cohesion and Social Capital

An important finding of this research is that, if the goal of creating social cohesion through increased sport participation is to be achieved, it will be achieved through the creation of social capital and/or a mixture of the sub-parts of social capital: bonding, bridging and linking capital.

2.2 Sports to Promote Social Cohesion

Sport-for-Development projects have increasingly been relied upon to contribute to social cohesion, particularly in divided societies, within the United Nations. There are cases using sports to repair politically fractured societies, sports to help integrate immigrants, sports to develop underdeveloped communities or sports to promote health and opportunity for children.

Sport participation in communities where a basis of trust in local policy is prevalent, sport can act as a vital community hub for social cohesion and give players opportunity to build social capital. They frequently provide opportunities for community members for education, jobs and networking that they otherwise would not have (Hoye, 2015).

2.2.1 Sport-for-Development Programs

Sport-for-Development programs and their associated frameworks are used to guide the strategic investigation of sport projects and their contribution to understanding and measuring social impacts and social outcomes all around the world, particularly in the United Nations (Skinner, 2008).

Some types of sport-for-development organizations can provide relatively inclusive sports development programs, enabling many young people to have access to sporting opportunities and some non-sporting resources (e.g. education, foreign travel) that they would not otherwise have had. In some circumstances they offer compensation for certain aspects of weak civic structures, disintegrating families and inadequate education systems. They can develop forms of social and human capital by providing some young people with opportunities to participate in decision making, confront exploitative gender relations, encourage ambition and recognize the value of education, develop relationships based on trust and reciprocity, provide opportunities for the development of aspects of human capital – especially via volunteer youth peer coaches and educators. These possibilities make such organizations an attractive investment for aid

agencies, as they increase the yield of aid and investment – you get a lot for your money (Coalter, 2010).

However, it is noted in research that the strength of the social capital generated by such programs will depend on the size and type of organization (urban or rural) and their relationship with the community. There is agreement that perspective policy-led attempts to construct social capital (i.e. sport-for-development) may fail as social capital is based on activities, relationships and norms freely engaged in by individuals (Coalter, 2010).

2.2.2 Sport to Repair Fractured Societies

In areas of political and racial unrest, such as Northern Ireland, South Africa and Malaysia, studies have been conducted to determine the effectiveness of the sport policies aiming to promote social cohesion. It has been noted that in the case of South Africa, that the dismantling of apartheid within South African sport, was the catalyst for the dismantling of apartheid generally. As a result, in today's South African communities sport is seen as having a vital function in social cohesion.

Reversely, during Malaysia's bid for independence, sport was not emphasized at all as a national identity builder. As a result, sport is not viewed as a source for social cohesion, and their sport program is floundering. This could mean that social views on sport in a fractured society are built at the time of the attempt to repair the community.

In a politically divided Northern Ireland, sport is being used as a peace building function to promote social cohesion. Sport is used as an explicit vehicle for community-relations education and cross-community contact among young people with the aim of building a shared and cohesive society, reversing segregation and mutual suspicion, which sharpened during years of violence in Northern Ireland. However, these attempts are being constrained by the unresolved conflicts that remain in Northern Ireland, such as territorial division, education separation and residential segregation(Mitchell, Somerville, & Hargie, 2016).

These studies show that sport *can* be used to repair fractured societies, if the formula is correct. It appears in the case of South Africa that it worked well because sport was integrated early on in the policy (unlike Malaysia). One reason perhaps it is not working in well in Northern Ireland is that the borders are contested, and the symbolic representations of the state remain contested.

2.2.3 Sport for Integration

Multiple examples and studies have been performed on the effectiveness of using sport to promote social cohesion by integrating ethnic minorities into their new host society.

In Denmark (Agergaard, 2011), sports clubs are seen as organizations that distribute social capital, promote equality within society and facilitate informal learning. Sport clubs are viewed as places where outsides can learn shred norms and values. With this integration policy sport clubs are portrayed as a social community that are able to promote not only integration of ethnic

minorities in sports (increased sport participation), but also integration through sport (providing connections to jobs and education.).

In Queensland Australia (Li, Sotiriadou, Auld, 2015), policy-promoting sport is used as an attempt to integrate Chinese immigrants. However, it has not been viewed as a success. In interviews with Chinese immigrants, it was shown that often they do not take advantage of the program and its opportunities, due to the fact they were not familiar with these types of activities. This suggests that time of stay in an unfamiliar environment can play a role in sport participation. As the more acclimated Chinese migrants participated more in sports because it was more familiar to them then newer immigrant.

A side effect of sport for integration is despite it being intended as a move towards inclusivity and openness, sports can create a more insular version of in-group socialization.

2.3 Sports and Social Cohesion in an Urban Environment

After reviewing multiple papers about the relationship between social cohesion and sport, an interesting conclusion was made. For the papers that conducted studies in an urban environment there appeared to be a causal relation between social cohesion and sports, which was not present in the studies from rural areas. This section will describe the causal relation that levels of social cohesion in an urban area affect the amount of sports participation.

Cradock and Kawachi (Cradock, Kawachi, 2009) recognized (through survey) that in Chicago, United States, many youth members of the community were not meeting recommended levels of physical activity. They examined whether the neighborhood-levels of social cohesion were a factor in this. Two characteristics of perceived neighborhood safety and criminal occurrences (social disorder) used to rate neighborhoods level of social cohesion. Other important ones, but harder to define, is residential stability. The research shows that the neighborhoods with the lower perceived safety, and higher social disorder was perceived to have less sport participation, which higher perceived safety and lower social disorder had increased amounts of participation. It was concluded that strategies to increase social cohesion, would also assist in the promotion of sport participation.

Kramer and Stronks (Kramer, Stronks, Maas, Wingen, & Kunst, 2015) conducted a study in Eindhoven, Netherlands (population around 223,000) to observe that relation between social neighborhood environment and sport participation. Using perceptions of neighborhood social safety and social capital found from this survey:

Item	Response category
Neighborhood social safety	
Nuisance from direct neighbors	1 (often) to 3 (never)
Nuisance from other neighborhood residents	1 (often) to 3 (never)
Nuisance from youth	1 (often) to 3 (never)
I am afraid to be troubled or robbed in this neighborhood	1 (totally agree) to 5 (totally disagree)
Neighborhood social capital	
It is unpleasant to live in this neighborhood	1 (totally agree) to 5 (totally disagree)
I feel attached to this neighborhood	1 (totally agree) to 5 (totally disagree)
I feel at home in this neighborhood	1 (totally agree) to 5 (totally disagree)
I am in touch a lot with my direct neighbors	1 (totally agree) to 5 (totally disagree)
I am in touch a lot with other neighbors	1 (totally agree) to 5 (totally disagree)
People treat each other nicely in this neighborhood	1 (totally agree) to 5 (totally disagree)
I live in a social neighborhood with high levels of solidarity	1 (totally agree) to 5 (totally disagree)
People in this neighborhood hardly know each other	1 (totally agree) to 5 (totally disagree)
I am satisfied with the population composition of this neighborhood	1 (totally agree) to 5 (totally disagree)

Figure 2.2: Example survey of how social capital was measured

Sport participation data was obtained using the Dutch Short Questionnaire to Assess Health-enhancing physical activity. The results showed that higher levels of neighborhood social safety and social capital lead to increased sport participation. Also mentioned in the article that it appeared that adults living in very densely populated areas were more likely to participate in sports. The studies show the causal effect of social cohesion in an urban setting and sport participation.

A paper by Kamphuis and Lenthe (Kampuis, Lenthe, 2008) summarizes that small social network and low social cohesion increase the likelihood of doing no sports. However, in a rural setting the results are much more interesting, and in fact, research can be shown that sport participation in rural areas can lead to increased levels of social cohesion by means of building social capital that residents in are not able to find elsewhere.

2.4 Sports and Social Cohesion in Rural Communities

Through multiple case studies and reviews, the concept of social cohesion has been linked to sports participation in rural areas. Sport Participation in all contexts contributes to community building in a wide variety of ways, sport is being used intentionally, with increased frequency, for social and economic development purposes(Brown, Hoye, & Nicholson, 2014). However, multiple studies have found that in an urban environment, high levels of social cohesion lead to further participation rates in sport. Interestingly enough, preliminary research shows that while urban social cohesion leads to an increase in sports participation, sport participation in rural environments leads to increased levels of social cohesion. In this section we will review these cases and discover the specifics of how sports participation contributes to social cohesion in a rural setting.

2.4.1 Rural Ontario, Canada

In an ethnographic study on a Family (Ice) Hockey Tournament (Rich, Bean, & Apramian, 2014), which has been taking place in a small, northern municipality in Ontario, Canada for nearly 30 consecutive years. With a population of 3000, the tournament is one of the community's most prominent sporting events. In the tournament locals come together to

compete against each other in kin-based teams related through blood or marriage. With a low level of competition players are playing for pure enjoyment, pride and community engagement.

The discoveries obtained were that community members are likely to retain reputations, identities, social capital, and social structures created by the (ice) hockey tournament and the associated activities. Participation in the tournament not only contributes to community cohesion, but also establishes a platform for the creation of various types of social capital it provides a source of community cohesiveness, nostalgia and heritage, while encouraging community participation, culture, and opportunities for life-long participation in sport. Participation in the tournament may contribute to the formation of family and community identities participation can also provide a platform for the creation of bonding and bridging capital within the community. The tournament provides community member with the chance to bond together as family groups, as well as forge intergroup relationships within the community. This means the tournament holds the potential to have wide-ranging effects upon the local community's social structure at the tournament governs both active and passive participants' positions within the social hierarchy, and shapes individual participant's' role within the community.

2.4.2 Northwest Victoria, Australia

Many people in this part of rural Australia herald what they consider to be profound contributions of sport to the social fabric of their rural community. These perceived effects remain seriously undervalued in the thriving sport-for-development debate (Spaaij, 2009).

This study builds upon research conducted in northwest Victoria in 2008 and 2009, where a population of 1600 people primarily lives on farms. Within each sporting environment of the town, semi-structured interviews and focus group discussions were held with participants of the sport club. Many participants viewed the sport clubs as important hubs for social interaction, providing a shared focus and outlet. For many residents of the community, the significance of sport as a site for social interaction has greatly increased in recent decade, while historically dominant form of associational engagement, such as church groups, has diminished.

Residents saw sport as a focal point of community life that brings people together and creates an opportunity for meaningful social interaction. The role of bonding capital was particularly evident, with numerous people discussing the way in which sport creates a sense of local pride and forms the basis of a 'tight knit' community. Indicators of bonding social capital, such as elements of trust and cooperation, were particularly evident.

The significance of sporting competitions in the creation of bridging social capital in northwest Victoria is enhanced by two characteristics of the regional sport landscape. Firstly, population decline has forced some football/netball clubs to merge. Although most local residents interpret this as a loss of identity and local pride, amalgamations also provide new opportunities for social connections between people of different towns, enhancing trust and cooperation in both an economic and a social context.

One side effect of ‘sport being vital for the community’ in this study, was that visible minorities could become ostracized from social life in rural Victoria if they were not involved in sports. However, the paper concluded that residents view voluntary sport organizations as vital community hubs fostering social cohesion, identity and a shared focus and outlet.

2.5 Literature Review Results

The first take-away from the literature review is the definition of key terms. A cohesive society is one which works towards the well being of its members, fights exclusion, creates a sense of belonging, promotes trust and offers its member the opportunity of social mobility. It was also discovered that a practical way to measure the societal cohesiveness, is by measuring social capital. Social capital can be split into two types: bridging and bonding. In this figure we see the relationship between these terms, and how the province can hope to create social capital.

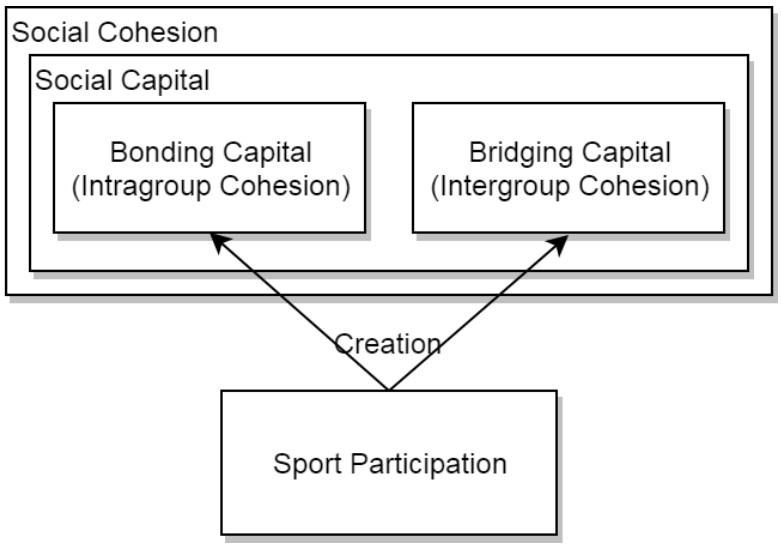

Figure 2.3: Conceptual Model for sport leading to social cohesion

This figure describes how province funding, which should in theory lead to increased participation, can generate both bonding and bridging capital in sport participants. This increased amount of social capital will contribute to overall community social cohesion.

Other results from the literature study were the attempts of other locations to promote social cohesion through sport. Many examples were shown with varying degrees of success of how sport can lead to social cohesion. The biggest factor to these degrees of success was trust in local government as well as natural inclination to participating in sport. If sport is part of local society from the beginning, then the community members have a higher chance of participating in sport.

Another discovery was the difference between urban and rural sport participation, and the contribution it has to social cohesion. In urban areas, from the literature it would appear that the existing levels of social cohesion have a greater effect on whether the members of the

community participate in sport or not. In rural areas, where sport is often the only outlet for obtaining social capital, it is often ties the basis for social cohesion in the community. While this discovery does not directly affect the rest of this paper, it is important to note for future research and iterations of this research paper.

The rest of this research paper aims to build upon the knowledge of social cohesion, social capital and its different forms to answer the remaining research questions.

3. Methods and Procedures

This section will discuss the method of research, subjects of the study, research instrument, data gathering procedures and finally how the data was treated to make it appropriate for this method.

Method of Research

According to Journal of Information Science (Otte, 2002) social network analysis (SNA) is a strategy for investigating social structures. SNA conceptualizes social structure as a network with ties connecting members and channeling resources. It focuses on the characteristics of ties rather than on the characteristic of the individual members. It views networks of individual relations that people foster, maintain, and use during their daily lives.

Using a SNA as part of this approach, the province will be able to see the social structures of the it's communities, then by conducting the same approach after funding a sport program, observe the effects. With a SNA they will be able to see how their funding grows and influences social cohesion.

In addition to the SNA, with the data collected, various statistics will be measured to see the effect of sports on an individual's personal social network (bonding capital).

Subjects of Study

The subjects of this study are sport participants that are members of a club in overijssel. The survey was dispersed to members of clubs Tex Town Tigers (Baseball/Softball club in Enschede), Giants (Baseball/Softball Club in Hengelo), Jugglers (Basketball Club in Enschede) and OHC Bully (Field Hockey Club in Oldenzaal).

Research Instrument

To collect the network data of sport participants, Google Forms was used. Google forms is a survey tool developed by Google in which anyone with a Gmail account can create their own surveys. This tool is a basic survey provider with a little to no learning curve. You simply type the question you want to ask, and whether you want the answerer to provide text as an answer, checkboxes for multiple predefined answers or radio buttons to answer single predefined answers.

The survey in which was created to conduct this research was meant to take no longer than 5-10 minutes, and required no critical thinking from the surveyee. A second survey was created, but with all the questions in Dutch, as to make it easier for the surveyees to complete. They could choose either the English or the Dutch version. For the questions and reasoning behind the questions, please see Appendix B.

Data Gathering Procedures

To distribute the survey, members of the Tex Town Tigers were contacted to see if they would be interested in dispersing the survey to their respective teammates. It was also requested that if they had contact with other clubs that they could provide contact information. This was how contact was made with the Giants, OHC Bully and the Jugglers. The survey was distributed to as many people as possible that participated in sports at these clubs. The survey was distributed to 161with a 27% completion rate. It is also notable that the Tex Town Tigers accounted for 59% of the completed surveys.

Using this approach outlined in this chapter, we can see the answer to research question 2.2. What makes it practical is that all the steps were accomplished. The survey was created and distributed. The data was then generated, cleaned and organized. Conclusions could be made on the data, and finally the data was able to be input into a social network analysis software to be studied further. In the following chapter this analysis will be conducted as well as insights provided concerning the approach and how it can be improved.

4. Analysis and Results

In this section, the data retrieved from the survey will be analyzed. It will then be combined with other sources such as opponent club information and location. The data will be loaded into social network analysis software Gephi where different patterns and visualizations of the networks can be identified.

4.1 Survey Data

The survey was split into two parts, the goal of part one was to obtain meaningful data about the participants. The second part was purely to discover who their social network is, and how they came to meet these people.

This section will be divided into three parts. The first will summarize data obtained in part one, the second will summarize data obtained in part two, and the third will use a combination of the two to glean meaningful information about the relationship between the two parts.

4.1.1 Survey Part One

A total of 44 surveys were completed. The 44 subjects were split between six sports clubs, with the majority listing the Tex Town Tigers as their primary sport club. The following table displays the number of subject's and their respective primary club:

Primary Sport Club	Sport	Location	# of Subjects
Tex Town Tigers	Baseball/Softball	Enschede	26
OHC Bully	Hockey (Field)	Oldenzaal	8
Jugglers	Basketball	Enschede	5
Giants	Baseball/Softball	Hengelo	3
EHC	Hockey (Field)	Enschede	1
Golfclub Driene	Golf	Enschede	1

Figure 4.1: Breakdown of subjects by primary club

The reason the term primary club is used, is because oftentimes sport participants participate in more than one sport. In the survey the subject's were asked if they played a second sport and if so for what club. The following is a breakdown of those results:

Secondary Sport Club	Sport	Location	# of Subjects
Jugglers	Basketball	Enschede	6
N/A	Fitness	N/A	3
Tex Town Tigers	Baseball/Softball	Enschede	2
Slapping Studs	Hockey (Ice)	Enschede	1
TC Diekman	Tennis	Enschede	1

Figure 4.2: Breakdown of subject by secondary club

Of the 44 participants, 13 listed a secondary sport and club. Two clubs exist on both previous figures, the Jugglers and the Tex Town Tigers.

To measure the subject's amount of participation, the question was asked how many times per week during the sport season do they practice and/or play a game. Participants who played/practiced one to two times per week were put into the "Normal Participation" category. The average sport has at least one practice per week as well as one game. Two to three times per week were put into the "Medium Participation". Finally, four or more times per week were put into the "Heavy Participation" category.

Category	# of subjects
Normal	16
Medium	19
Heavy	9

Figure 4.3: Sport Participation amount for Primary Sport

It is important to note that the figure above is for the primary sport. The following figure will consider the secondary sport in addition to the primary sport, if a secondary sport was listed.

Category	# of subjects
Normal	13
Medium	11
Heavy	20

Figure 4.4: Sport Participation categories for Primary Sport + Secondary Sport

When including the secondary sport participation, the normal and medium categories dropped, while the heavy category increased by eleven participants. When referring to amount of participation and a subject's category going forward, it will be referring to participation in both primary and secondary sports, as this is the amount of participation per week the subject engages in regardless of club or sport.

4.1.2 Survey Part Two

The next part of the survey focused on the network of the subject. Each was asked to list 5-10 people they know other than family and how they came to know them. In total, the 44 survey

participants listed 296 people, coming out to an average of 6.7 listed per participant. The following figure will give a summarization of the participant's social networks.

Network Statistics					
	Total	Sport	School	Work	Other
Sum	296	157	72	35	32
Average	6.7	3.6	1.6	.8	.7
Percentage		.53	.24	.12	.11

Figure 4.5: Overall Statistics of Participants Network

This chart displays the breakdown of all the network contacts the participants of the survey listed. The average participant listed 6.7 people in their network, with the most (by 53%) of the contacts being met through their sport participation. The percentage was calculated by take the total number of contacts met through the specific category divided by the total amount.

4.1.3 Combination of Both Parts of Survey

Using data provided from the two separate parts of the survey, it is possible to see if the amount of participation in sport the subject partakes in effects their social network makeup.

Normal Participation Category - Network Statistics					
	Total	Sport	School	Work	Other
Sum	86	42	20	18	6
Average	6.6	3.2	1.5	1.4	.5
Percentage		.49	.23	.21	.07

Figure 4.6: Normal Participation Statistics

Medium Participation Category - Network Statistics					
	Total	Sport	School	Work	Other
Sum	57	31	72	35	32
Average	5.2	2.8	1.5	.4	.5
Percentage		.54	.28	.07	.11

Figure 4.7: Medium Participation Statistics

Heavy Participation Category - Network Statistics					
	Total	Sport	School	Work	Other
Sum	153	84	36	13	20
Average	7.7	4.2	1.8	.7	1
Percentage		.55	.24	.08	.13

Figure 4.8: Heavy Participation Statistics

The important figures in these graphs are the averages and percentages. In all three cases sport represent the biggest part of the subject's social network. The heavy participation listed much more sport related members of the network, but proportionately (by percentage) listed the same amount as the medium participation category.

4.2 Social Network Analysis

After the analysis on the raw data from the survey, the data was formatted into a VNA file and loaded into the Social Network Analysis (SNA) software GEPHI. The results of this analysis are as follows. For a guide on how to create a VNA file and upload it into GEPHI to create social network visualizations, please see Appendix C.

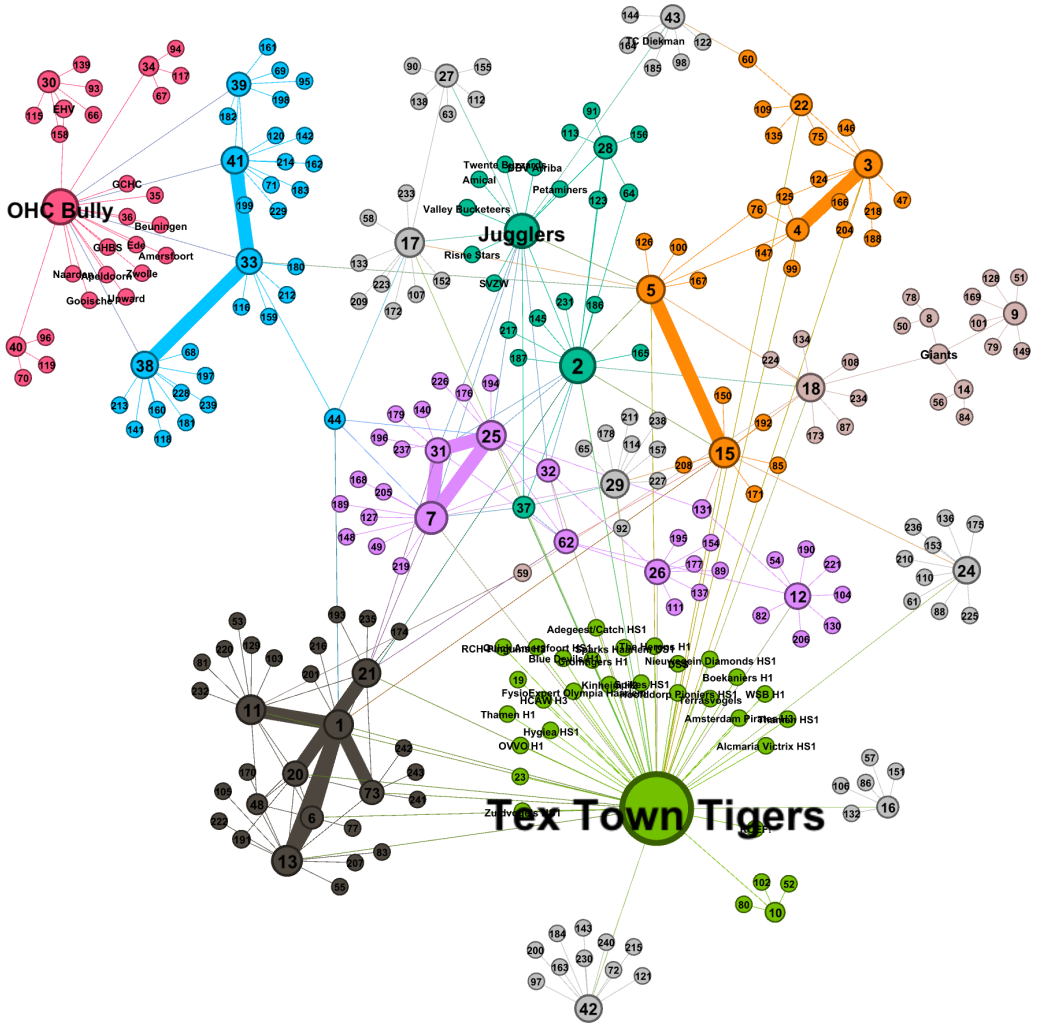

Figure 4.9: Initial Visualization of Social Network

All the dots on the visualization (nodes) are the actors in the survey. They represent the survey takers, the listed network as well as sport clubs. The lines are the edges or the links between the different nodes. In this particular visualization, the colors represent clusters or close knit communities. These clusters have something in common that the clustering algorithm has put

them together. The Tex Town Tigers, and the clubs associated to the Tex Town Tigers took the green color, while a group of Tex Town Tigers women's softball team players took the black color. The Tex Tow Tigers who also play on the jugglers can be see above the Tex Town Tigers. These are just a couple example of how communities become clustered in GEPHI.

In an SNA, the term "centrality" comes into play quite often. A couple of different types of centrality that can be measured in the tool are:

- Degree Centrality – The number of links a node has. In the figure above, the nodes are sized based on this type of centrality.
- Closeness Centrality – This is the average length of the shortest path between any node and all other nodes on the graph.
- Betweenness Centrality – Based on the number of time a node is crossed by each of the least cost paths (the shortest routes between nodes)

These concepts of centrality can be tied back to social cohesion and social capital. With degree centrality, we are looking at these particular nodes social networks, or their bonding social capital. With degree being the number of edges a node has (their network) this is a simple association to make. Betweenness and closeness can be associated with bridging social capital. The nodes betweenness and closeness can show how far a node is removed or how relevant they are to other clusters in the visualization. Closeness is the best example of this as it provides a statistic of how close a node is to any other node in the visualization. If a particular node has a high closeness, than it has high bridging social capital. With betweenness this gives more of an idea of how influential that node is, and could be a good indicator for the province of who to contact that has many ties or relationships in a network.

Using the concepts of closeness centrality and between centrality, the most influential nodes can be identified in this social network.

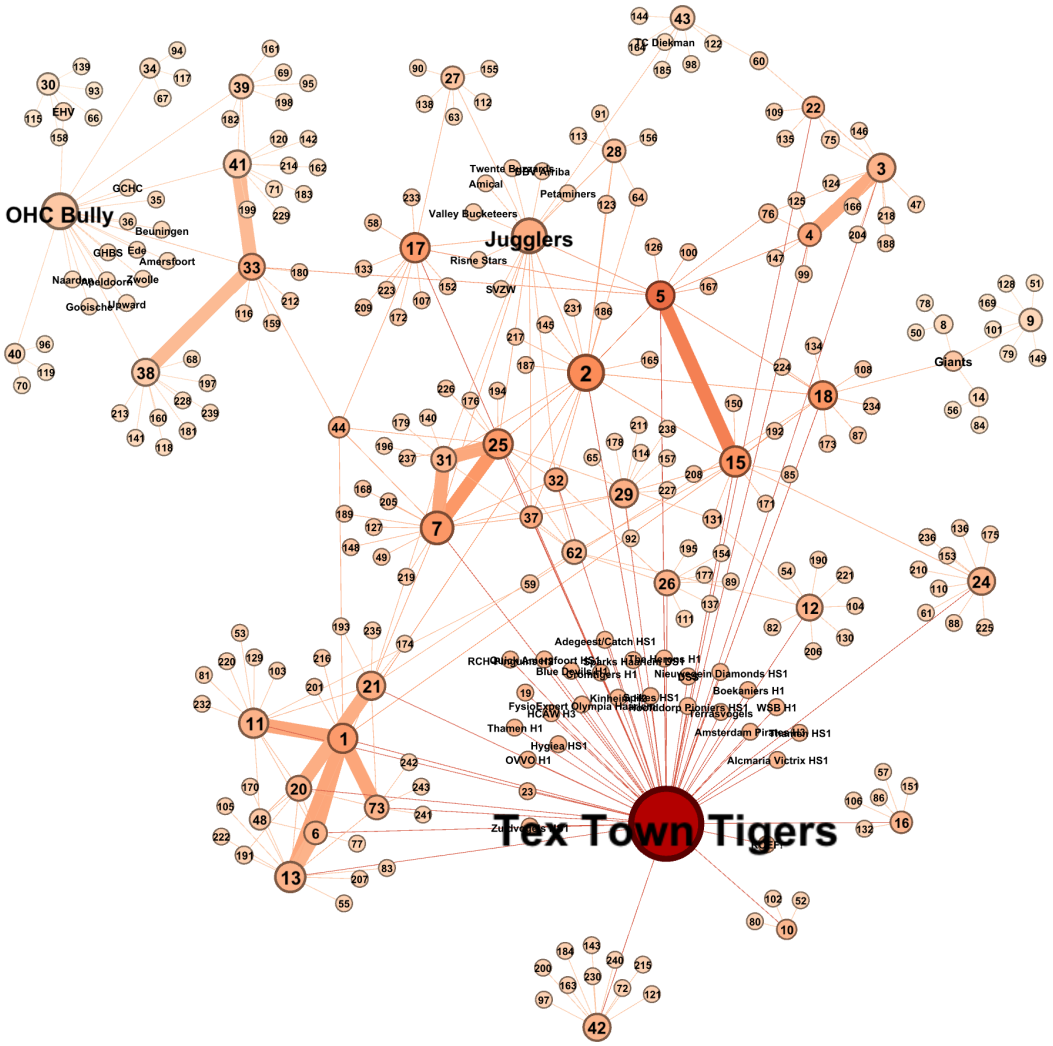

Figure 4.10: A look at the network with coloring based on closeness.

Not to jump into the discussion right away in this chapter, but obviously the data is a bit skewed based on how many connections and survey participants came from the Tex Tow Tigers. It would be more interesting if they were taken out of the graph, to discover the nodes with the highest closeness.

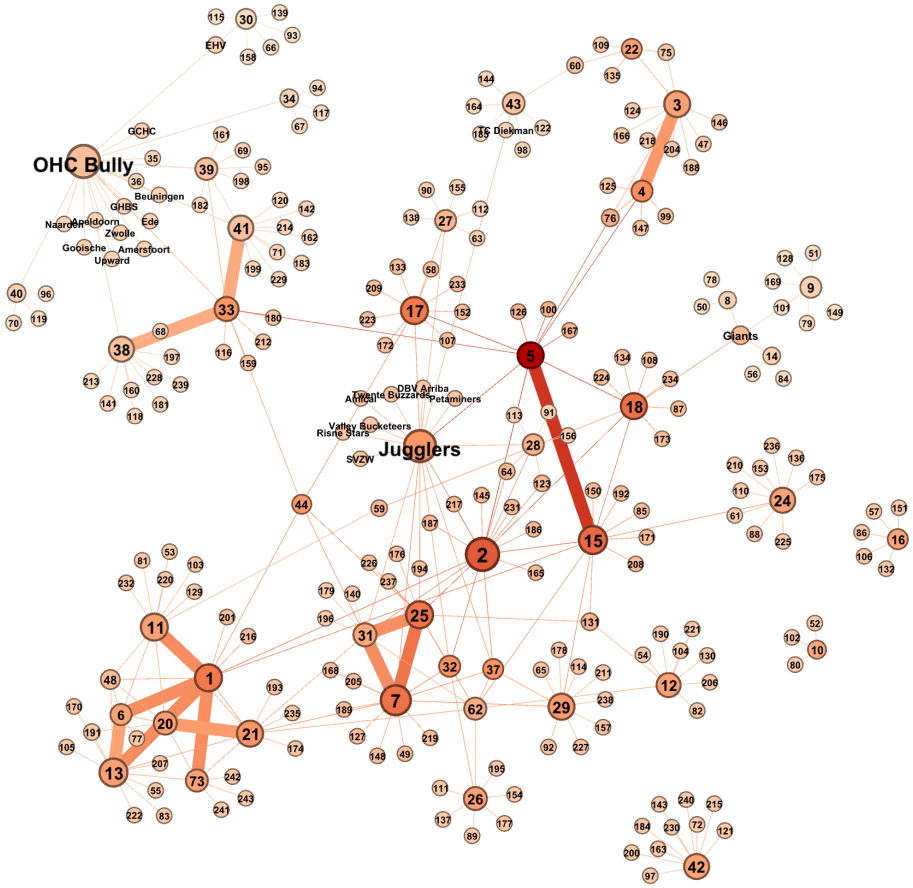

Figure 4.11: Closeness of network once Tex Town Tigers was removed

Removing the Tex Town Tigers and rerunning the clustering algorithm shows a different look of the network visualization. Here we can see that person number 5 has the shortest path to every other node on the chart (besides the islands created by removing the Tex Town Tigers. Other observations are that the strong community in the bottom right, it is possible to see that node number 1 is a main connector to the other clusters. It is these kinds of insights that can be obtained when conducting a social network analysis. Let's take a look at the betweeness of the network.

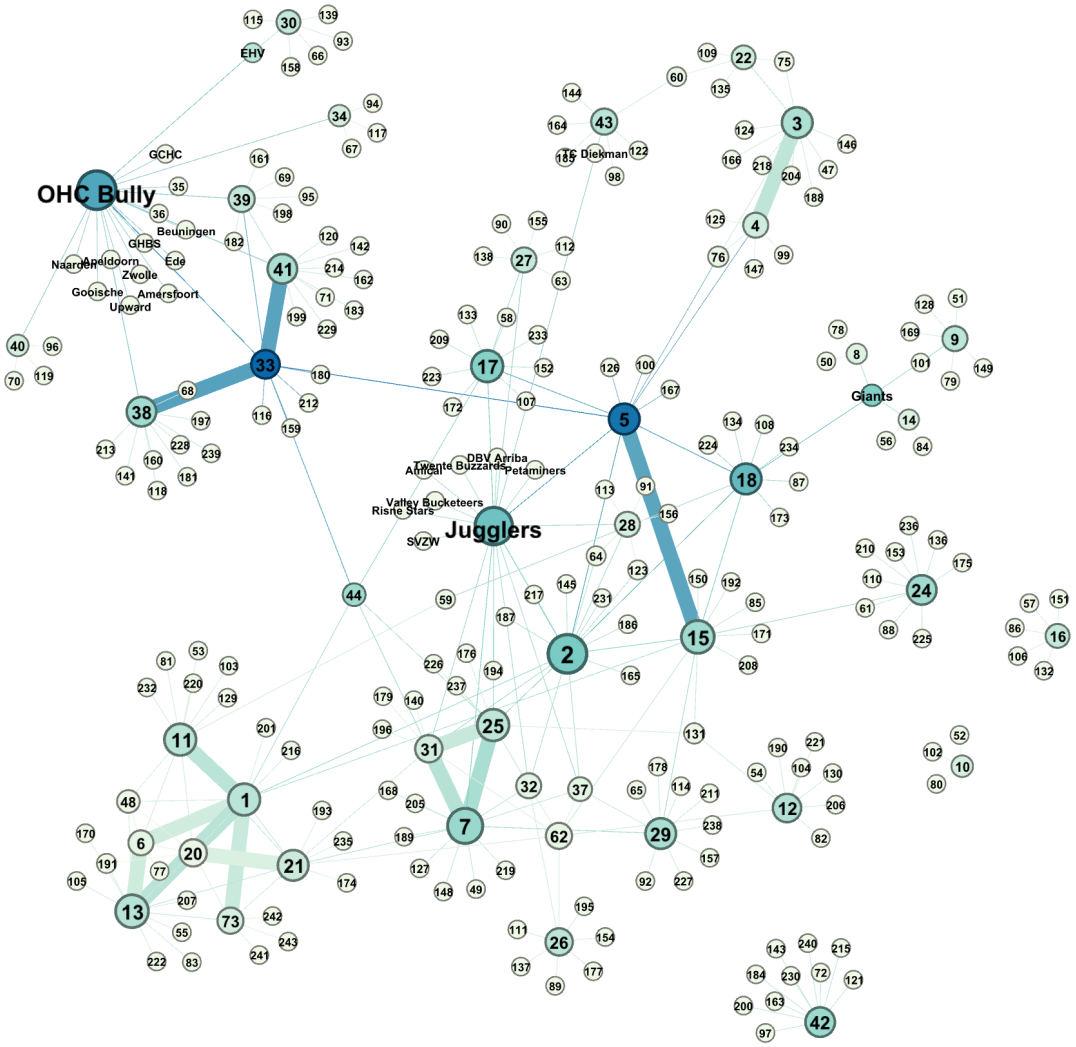

Figure 4.12: Network with gradient based on betweenness

Again, node 5 has quite a high betweenness, but surprisingly node 33 has the highest. This means that the shortest paths of all nodes to get to any other nodes, many of them go through node 33. To make this concept a bit clearer, let's highlight some individual nodes and their edges.

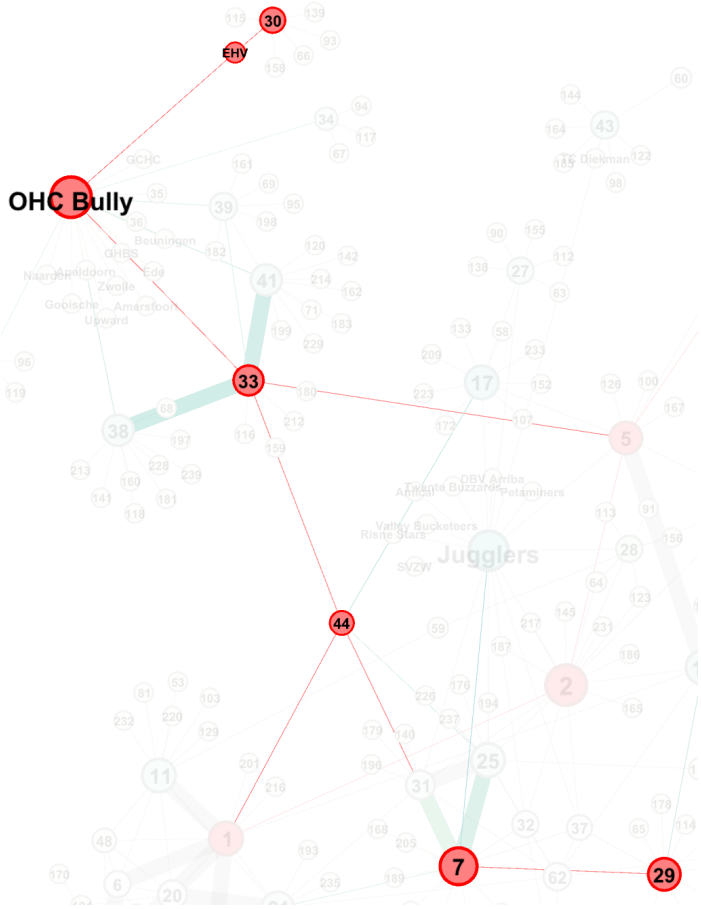

Figure 4.13: Path showing how node 29 is connected to node 30

In this figure we see how two of the more remote nodes are connected to each other. Node 29 passed through node 7, 44, 33, OHC Bully and EHV to finally have contact with node 30. This would lead one to believe that those middle nodes are more influential ones.

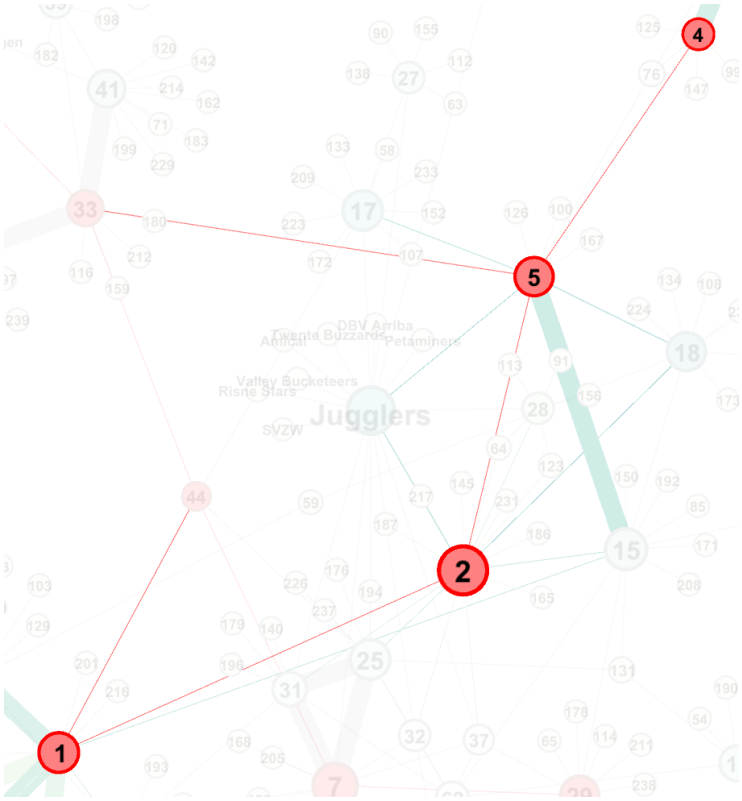

Figure 4.14: Path for node 1 to reach node 4

In this figure it is show a much shorter path between two nodes. Very similar to the last figure, but we see that other influential connectors in the network are nodes 2 and 5.

The results and analysis of this data relates directly to research question 2.2. Collecting the data and organizing it in this way allows for the researcher to see how sports affect social cohesion. The raw data shows that more than 50% of a sport participant's social network was acquired through their participation in sport. There is also evidence that the more a person participates in sports (higher participation level) the larger their social network will potentially grow.

In addition, in this approach one can see the growth of bonding and bridging capital. This is how:

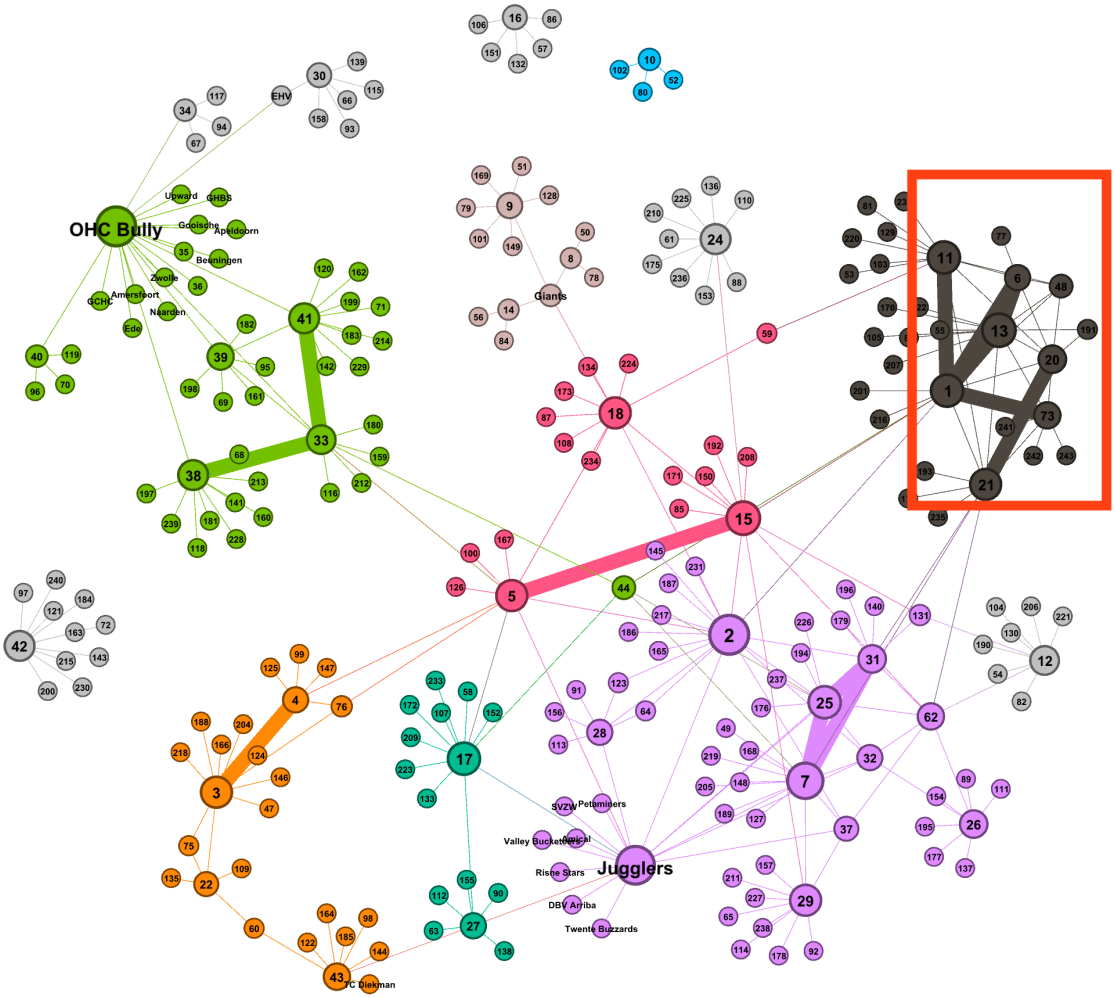

Figure 4.15: Display of groups with high bonding capital

Switching the visualizations color scheme back modular based (each cluster is colored based on the algorithm); each color represents a group with high bonding capital.

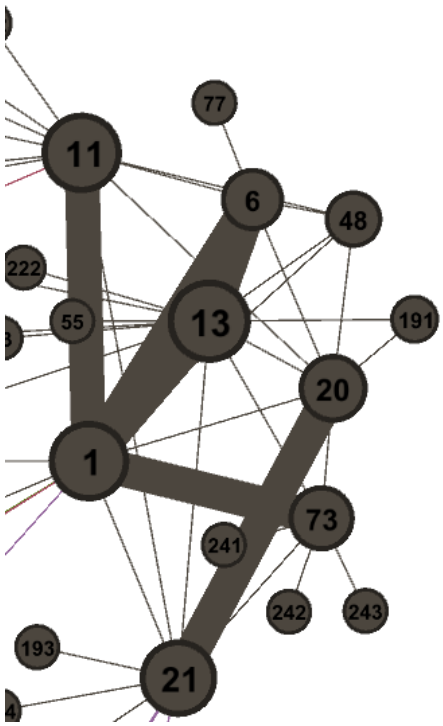

Figure 4.16: Close-up of bonding social capital cluster

Once the figure is zoomed in, it is possible to decipher that this group is quite “tight knit”, and fits the definition for a group with high bonding capital, meaning the modular based color scheme is correct in giving this area a uniform color. Many members of this group listed each other as contacts. The thick edges represent people who have listed each other as contacts. So node 20 and 21 listed each other, this is why the edge is thicker. This can be thought of as a “strong tie” relationship. As we can see the weak tie relationships are also important, as these are the relationships that bring the different clusters and groups of people together. While modular centrality makes the bonding capital growth quite easy to see, it is the betweenness and the closeness that illustrates the bridging capital.

By the definition from the literature review, “Bridging social capital refers to more distant ties with like persons, such as loose friendships and work colleagues”, we can think of bridging capital as those “friend of a friend” situations. Using this network visualization and data one can easily see who these friends of friends are, and based on closeness who the most important links are in these networks.

If another iteration of this study were performed after investment from the province. They could hope to see farther-reaching networks, based on playing different teams, increasing number of members and more teams at the club. The province would also hopefully see the overall betweenness of the network become smaller. In figure 4.13, it was shown how many nodes existed between node 29 and node 30. There were 5 nodes between them. This betweenness is increasing the average betweenness of the entire network. If with the help of provincial

intervention, the betweenness between these nodes could perhaps decrease, and it could be shown in the visualization that there has been a positive amount of social capital growth in these networks.

4.3 Insights

After completion of one iteration of this approach, here are some brief insights as to my experience with the approach. The limitations will be discussed in the next chapter, and at the end of the paper some recommendations will be made.

The first insight is that I believe it is a little difficult to display the bridging capital in the social network analysis with concrete certainty that those with high closeness have high bridging data. While it is plausible, these nodes with high closeness could possibly just people the nodes with the highest influence of the data collected. The province should recognize these people as influential members of the network, and depending on their goals perhaps reach out to these nodes when conducting projects like these.

With the next iteration, it would be prudent for the province to really have a clear goal in mind when conducting this study. In the case of this paper the only goal that the province has was to increase social quality. It should be identified exactly what they want to accomplish with their sport program initiatives. Do they want to increase membership at sports clubs? If so, that should be the focus and then we can see from results such as this paper provides what the end term of effect of increased sport membership is.

This approach was relevant in answering the research questions provided for this paper, and the provided goals of the province.

5. Limitations

The first limitation encountered in this report, was the willingness of people to participate in the survey. Many clubs were contacted and asked if they wanted to partake. Many of which did not reply. Of the clubs who did participate, a very small number of their sport members took the survey. It seemed by pure chance that so many members of OHC Bully did in fact take the survey. Without this limitation, there could have been many more participants a bigger variety of participants regarding sport and location. Along the same lines, a few of the people who did fill out the survey, did not follow the instructions and often did not list any people for their social network and/or if they did, made the names indistinguishable making it impossible to know if the person listed existed anywhere else in the survey, to create a relationship.

The proclivity towards subjectivity of a social network analysis could also be viewed as a limitation. While there are ways to color the nodes based on modularity, closeness or betweenness, the visualizations remain subjective. It will be up to the viewer or the creator of the analysis to determine if social cohesion is increasing or decreasing based on what they find in the analysis.

The final limitation of this project is the manual nature of it. Collecting the data was manual, and required a lot of prodding to obtain a sufficient amount. Once the data was acquired, it had to be manually combed over and clean to ensure an effective analysis. This approach will take multiple iterations to hone in on the best way to collect the data, and then display it in a meaningful way.

6. Discussion

The purpose of this section is to interpret and describe the significance of the findings in this paper as well as make recommendations for future research. While this was somewhat accomplished in the analysis chapter, this section will delve deeper. The topics to discuss are how the research and survey could be improved to provide better insight, how a club such as Tex Town Tiger's plays a significant role in social cohesion and the reusability of an approach such as this in area's other than just sports.

The most surveys completed were from sport participants of the baseball and softball club in Enschede, the Tex Tow Tigers (TTT). This created a bit of bias towards the club in the analysis as far as the visualization went. The closeness and betweeness of nodes basically depended on whether or not the node had an edge to the TTT cluster. This however, does not diminish the value of the approach or other findings in the research. TTT was also the only club to provide a contact to obtain additional details about the club.

TTT is the biggest softball/baseball club in the Netherlands (based on membership). Digging into why this is, it became quite clear. Baseball and softball are both relatively niche sports in the Netherlands. When looking at the golden league (highest league in the Netherlands) softball teams, every single one is either in Haarlem or around the Amsterdam area, except of course, the Tex Town Tigers which is based in Enschede. This means that if a player that lives in the eastern part of the country wants to play at the highest level of softball, either now or in the future, their best chance is to either move/travel to the west, or join TTT. Combining this assumption with the visualizations, it can be interpreted that TTT plays an important role in social cohesion and the creation of social capital (through sport) in overijssel. Established as well as budding softball players go to TTT and are instantly connected to a huge network of players, coaches and resources to further their development inside and outside of sport, and also have the opportunity to make it to the highest level of sport. If the player makes it to this level, it is shown in the collected data that their social networks will grow beyond that of players who don't.

7. Conclusion

In this report, an approach to help the province of overijssel was presented. The province has a difficult time determining how their sport programs affect social quality in the region. In the current process, after a sport program is provided funding, the sport club itself must show the province what they did with the funding and how it helped either increase membership or community social quality. In the presented approach, the province itself will be able to visualize the affect the programs have on social quality, and after iterations, selectively choose programs for funding that they believe will have the greatest effect on provincial social quality.
After listening to the needs of the province for monitoring their social quality programs, and defining for ourselves what social quality is, research questions were formulated. Throughout the report answers to these research questions were conceived.

RQ1: Do sport participants have social capital, which they otherwise would not have?

In the survey to collect data about sport participants' social network, the subjects were also asked to provide the means in which they met the people in their network. In this sample, on average, 53% of a person's social network is made up of contacts in which they met through sport. Had the subject not participated in sport, perhaps school or work would be the main contributor to the person's social network.

The definition of social capital that was explored in the literature review reveals that social capital is the networks people maintain, cultivate and reciprocate with each other. This leads us to the answer of RQ1 that indeed sport participants' do have social capital, which they otherwise would not have, if they did not participate in sports.

RQ2: How can an abstract concept such as social cohesion be monitored?

As this paper defined social quality, we decided to use social cohesion as our measurement, as it fit the best in what the province is trying to accomplish with the goal. But how can this concept be monitored. How can we see growth or decay in social cohesion in the communities?

In the analyses chapter of this report an application called Gephi was used to visualize social networks. Using this software, inferences can be made about social networks, relationships, betweenness, closeness and modularity. These tools can show the health of the social networks and be used to monitor social cohesion. Following the iterational approach the networks can be monitored in all these aspects over time to determine growth and success of the provinces project.

RQ2.1: What data can be used to determine levels of sport participation?

An interesting question that was researched in the report was if *more* participation in sport led to bigger social networks. The question asked, "How many times per week do you train/have a game?" By splitting up the subject's by amount of participation, it showed that the subjects who

had higher amount of participation had not only a higher percentage of their personal networks associated with sport, but a higher number of social contacts in general. Meaning they had more social capital.

RQ2.2: What is a practical data driven approach to show the relation between sport participation and social cohesion?

The approach presented in chapter three, and then conducted in chapter four provides a practical data driven approach to show the relation between sport participation in overijssel and social. By collecting data about sport participants their associated clubs, and perhaps the people they have most contact with it is possible to see growth, decline or stagnation of social capital. This can indicate whether or not the desired effects of sports programs by the province are being achieved. Conducting a social network analysis can help to visualize how different clubs or people interact with each other and can also indicate if the increased funding is helping to grow these networks?

Using this approach, the province of overijssel will be able to monitor their programs, and track the affects that their investment in local sports clubs has on the community. Furthermore, it will be a validation that the sport clubs are in fact helping to grow social quality in the form of social cohesion and social capital.

The biggest advantage of doing a social network analysis would be to recognize where the efforts of the province are best focused. When visualizing these networks it may be possible to recognize a club or a location where if they had more participation, could increase the overall social cohesive well being of the province. Perhaps a small isolated cluster could greatly benefit from increased funding causing it to become part of the larger network of sport participants. This would enable citizens to benefit from increased social capital and could help provide new opportunities they otherwise would not have.

8. Future Recommendations

There are a few recommendations I, as the researcher, would like to make to enhance the future iterations of this process should the province decide to do so.

- During the literature review, it was discovered that many locations have created sports programs for the purpose of creating social cohesion, with varying degrees of success. Many times there is a purpose of either integrating immigrants or repairing fractured societies. If the province of overijssel were to come up with a goal for their sports programs, a concrete goal, maybe to integrate refugees, to increase economic activity, or maybe to help integrate rural clubs with city clubs, the province could use past examples of this, as shown in the literature, and create a plan to do just that.
- Another recommendation would be to perform this study by focusing on specific sports. In this paper, in order to obtain as much data as possible, multiple sports were used. While the initial thought was a good one, it did not provide very much value. These different sports had very few connections with each other and it made it difficult to show meaningful results in the SNA.
- The literature showed a penchant for sport being very vital to rural community. It is recommended that the province create contacts with these rural sport clubs, or maybe increase funding for these clubs. The literature showed that rural sports clubs were a big part of social cohesion growth. In many cases the existing levels of social cohesion in more urban areas, played a factor for if people were participating in sport or not.
- Spaaij (Spaaij, 2009) and Li (Li, Sotiriadou, Auld, 2015), warned sport program enthusiasts that people who do not have a predisposition to sport, or came from an area where sport is not part of the culture, risk being ostracized by not participation in sport. Therefore, it is important for the P\province of overijssel to conduct similar studies to this in other areas than sport. One area that could be very interesting is the growth in online communities and gaming. These could be hotspots for social cohesive growth that is yet to be researched using social network analysis methods. This could either prove to be just as useful for increasing social cohesion, or it could have the opposite effect.

References

1. Agergaard, S. (2011). Development and appropriation of an integration policy for sport: how Danish sports clubs have become arenas for ethnic integration. *International Journal of Sport Policy and Politics,3*(3), 341-353.
2. Atherley, Kim M. “Sport, Localism and Social Capital in Rural Western Australia.” *Geographical Research*, vol. 44, no. 4, 2006, pp. 348–360.
3. Brown, K. M., Hoye, R., & Nicholson, M. (2012). Generating trust? Sport and community participation. *Journal of Sociology,50*(4), 437-457.
4. Burnett, Cora. “Building Social Capital Through an `Active Community Club.” *International Review for the Sociology of Sport*, vol. 41, no. 3-4, 2006, pp. 283–294.
5. Carmo, Renato Miguel Do. “Albernoa Revisited: Tracking Social Capital in a Portuguese Village.” *Sociologia Ruralis*, vol. 50, no. 1, 2010, pp. 15–30.
6. Cloete, Anita. “Social cohesion and social capital: Possible implications for the common good.” *Verbum et Ecclesia*, vol. 35, no. 3, 2014.
7. Coalter, F. (2010). Sport-for-development: going beyond the boundary? *Sport in Society,13*(9), 1374-1391.
8. Cockburn, T. (2016). Children and the ‘Social Cohesion’ Agenda in Sport: Childrens Participation in ‘Ethnically Mixed’ Sports Teams in the North of England. *Children & Society,31*(1), 50-60.
9. Cradock, A. L., Kawachi, I., Colditz, G. A., Gortmaker, S. L., & Buka, S. L. (2009). Neighborhood social cohesion and youth participation in physical activity in Chicago. *Social Science & Medicine,68*(3), 427-435.
10. Djalal, D. (2015). The Socio-economic Value of Sports: Strengthening Social Capital through Football. *Journal of Sustainable Development,8*(6).
11. Höglund, K., & Sundberg, R. (2008). Reconciliation through Sports? The case of South Africa. *Third World Quarterly,29*(4), 805-818.
12. Hoye, R., Nicholson, M., & Brown, K. (2012). Involvement in sport and social connectedness. *International Review for the Sociology of Sport,50*(1), 3-21.
13. Kamphuis, C. B., Lenthe, F. J., Giskes, K., Huisman, M., Brug, J., & Mackenbach, J. P. (2008). Socioeconomic Status, Environmental and Individual Factors, and Sports Participation. *Medicine & Science in Sports & Exercise,40*(1), 71-81.
14. Kramer, D., Stronks, K., Maas, J., Wingen, M., & Kunst, A. E. (2014). Social neighborhood environment and sports participation among Dutch adults: Does sports location matter? Scandinavian Journal of Medicine & Science in Sports, 25(2), 273-279.
15. Kobayashi, T., Nicholson, M., & Hoye, R. (2011). Football ‘wantok’: Sport and social capital in Vanuatu. *International Review for the Sociology of Sport,48*(1), 38-53.
16. Li, K., Sotiriadou, P., & Auld, C. (2015). An examination of the role of sport and leisure on the acculturation of Chinese immigrants. World Leisure Journal, 57(3), 209-220.
17. Mitchell, D., Somerville, I., & Hargie, O. (2016). Sport for peace in Northern Ireland? Civil society, change and constraint after the 1998 Good Friday Agreement. *The British Journal of Politics and International Relations,18*(4), 981-996.
18. O’Leary, J., & Khoo, T. G. (2013). Changing the world: sport, racism and law in South Africa and Malaysia. *The International Sports Law Journal,13*(1-2), 45-54.

19. Otte, E., & Rousseau, R. (2002). Social network analysis: a powerful strategy, also for the information sciences. *Journal of Information Science*, *28*(6), 441–453. https://doi.org/10.1177/016555150202800601
20. Prins, R., Beenackers, M., Boog, M., Lenthe, F. V., Brug, J., & Oenema, A. (2014). Neighbourhood social capital as a moderator between individual cognitions and sports behaviour among Dutch adolescents. *Social Science & Medicine,105*, 9-15.
21. Rich, Kyle., Bean, Corliss., Apramian, & Zale. “Boozing, brawling, and community building: sport-Facilitated community development in a rural Ontario community.” *Leisure/Loisir*, vol. 38, no. 1, Feb. 2014, pp. 73–91.
22. Schulenkorf, N. (2012). Sustainable community development through sport and events: A conceptual framework for Sport-for-Development projects. *Sport Management Review,15*(1), 1-12.
23. Skinner, J., Zakus, D. H., & Cowell, J. (2008). Development through Sport: Building Social Capital in Disadvantaged Communities. *Sport Management Review,11*(3), 253-275.
24. Spaaij, R. (2009). The glue that holds the community together? Sport and sustainability in rural Australia. *Sport in Society,12*(9), 1132-1146.
25. Vermeulen, J., & Verweel, P. (2009). Participation in sport: bonding and bridging as identity work. *Sport in Society,12*(9), 1206-1219.
26. Walseth, K. (2015). Sport within Muslim organizations in Norway: ethnic segregated activities as arena for integration. *Leisure Studies,35*(1), 78-99.
27. Wang, C. H., Li, L., Olushola, J., Chung, K. S., Ogura, T., & Heere, B. (2012). Social capital within sport participation systems: a multi-national inquiry. *International Journal of Sport Management and Marketing,12*(3/4), 241.
28. Widdop, P., Cutts, D., & Jarvie, G. (2016). Omnivorousness in sport: The importance of social capital and networks. *International Review for the Sociology of Sport,51*(5), 596-616.
29. Browne-Yung, K., Ziersch, A., Baum, F., & Gallaher, G. (2014). On and off the field: a Bourdieuian perspective on the significance of sport to urban Aboriginal Australians. *Sport in Society,18*(6), 717-733.

Appendix

A. Overijssel Document – Goals of Social Quality Project

Bijlage II Uitvoeringsprogramma sociale kwaliteit 2016-2017 op hoofdlijnen

Voor de opgave sociale kwaliteit is in de periode 2016 en 2017 6,8 miljoen euro beschikbaar. Op basis van gesprekken met het veld, de input vanuit Provinciale Staten en gesprekken met Overijsselse bestuurders is een uitvoeringsprogramma ontwikkeld. We zullen via subsidies projecten financieren. In 2016 ligt de nadruk op het uitvoeren van projecten die het meest urgent zijn of in uitvoering kunnen.

We geven in 2016 een extra impuls aan de subsidieregeling WMO. Hiermee kunnen we tegemoet komen aan de grote vraag van gemeenten naar een bijdrage aan de door hun gezamenlijk aangevraagde projecten. Deze leveren een belangrijke bijdrage op onze prestatielijnen.

Wij ontwikkelen een *kennisinfrastructuur sociale kwaliteit*, waarin kennis wordt ontwikkeld, geborgd, vergroot, beschikbaar gesteld en gedeeld. De kennisinfrastructuur richt zich met ingang van 2017 op:

- Signaleren en agenderen van sociaal-maatschappelijke vraagstukken.
- Vertalen hiervan naar samenleving in concrete producten/methodieken.
- Gezamenlijk ontsluiten van beschikbare kennis en informatie in een open netwerk.
- Actieve monitoring van ingezette instrumenten.

Daarnaast willen we meer inzicht krijgen in de werking sociale kwaliteit en vertalen dit naar praktisch toepasbare kennis.

Voor de periode 2016 en 2017 zijn initiatieven in beeld die aansluiten bij onze ambities. Deze projecten zijn in verschillende stadia van uitvoering. Na instemming van Provinciale Staten met het programma sociale kwaliteit, wordt verder onderzocht of een bijdrage vanuit het programma Sociale Kwaliteit mogelijk is. We hebben er voor gekozen om een aantal van deze projecten in het uitvoeringsprogramma te benoemen, ter illustratie bij de in te zetten instrumenten. Hiermee is dit geen volledige lijst. Er kunnen nog projecten afvallen en bij komen.

We gaan in op de wens van gemeenten voor het (mede) mogelijk maken van gebiedsregisseurs die lokaal initiatieven ondersteunen en die vanuit een gebiedsgerichte blik mensen, organisaties en ideeën verbinden. Ook versterken we op hun eigen verzoek de samenwerking tussen gemeenten door het financieren van gezamenlijke projecten ten behoeve van de prestatielijn zelfstandig leven, waarin kennisdelen en het ontwikkelen van netwerken van belang zijn.

Daarnaast onderzoeken we in samenwerking met gemeenten hoe we vanaf 2017 kunnen aansluiten bij de ambities van het ministerie van VWS voor het versterken van breedtesport en de rol van buurtsportcoaches daarin. We investeren via subsidies in de verbinding van breedtesport en talentontwikkeling met topsport.

In cocreatie met het maatschappelijk veld, geven we gehoor aan hun wens om lokale initiatieven te blijven ondersteunen. We werken aan een regeling waarbij initiatiefnemers zelf een rol krijgen in het vormgeven van de regeling en de beoordeling van projecten.

Programmalijn per prestatie
Generieke criteria bij de ontwikkeling van instrumenten zijn:

- het stimuleren zelforganiserend vermogen
- gemeente- en thema overstijgend
- bijdragen aan provinciale kerntaken
- financiering op project- en programmabasis.

Daarnaast werken we per prestatielijn specifieke criteria uit op basis van de meest belangrijke elementen (zie volgende pagina). Voor de periode 2016 en 2017 zijn initiatieven in beeld die aansluiten bij onze ambities. Een aantal zijn ter illustratie in het uitvoeringsprogramma opgenomen.

Schematisch overzicht per prestatielijn.

Prestatielijn 1. Delen en Leren	
Specifieke criteria	Kennis ontwikkelen en ontsluiten, via een gezamenlijk open netwerk, signaleren en agenderen, uitrolbare methodieken, monitoren van instrumenten.
Instrumenten	Monitoring en evaluatie, Kennisinfrastructuur sociale kwaliteit, subsidies.
Beoogde resultaten	Ontwikkelen en inzetten van meetmethodes en verkennend onderzoek. Meer inzicht in werking van sociale kwaliteit. Praktisch toepasbare kennis. Meer inzicht in maatschappelijke opbrengst van projecten. Ontwikkeling en uitvoering kennisinfrastructuur Sociale Kwaliteit. Deskundigheidsbevordering voor lokale initiatiefnemers, professionals en (ervarings)deskundigen. Verbinden met kennis van andere trajecten.
Potentiele projecten	Academies en trainingen voor (en door) lokale initiatiefnemers, ambtenaren, bestuurders en professionals. Versterken lokaal verenigingsleven door deskundigheidsbevordering van vrijwillige besturen. Ontwikkelen van een train-de-trainerprogramma, waarin inwoners zelf met hun kennis andere verenigingen adviseren en ondersteunen.

Prestatielijn 2. Zelfstandig Leven	
Specifieke criteria	Vergroten zelfredzaamheid van inwoners, versterken levensvaardigheden, langer zelfstandig wonen.
Instrumenten	Subsidieregeling Zelfstandig Leven, subsidie voor projecten aangevraagd i.h.k.v. Ondersteuning Uitvoering Wet op de Maatschappelijke Ondersteuning, subsidies.
Beoogde resultaten	Uitgevoerde samenwerkingsprojecten van gemeenten, gericht op het gezamenlijk ontwikkelen van aanpak of methode die het zelfstandig leven van mensen vergroten. Kwetsbare Overijsselaars die langer zelfstandig thuis wonen, toename zelfstandigheid van statushouders, toename van toeristen in Overijssel door mogelijkheid van laagdrempelige zorg, bijdrage aan sociale veerkracht van boeren met financiële en psychische problemen, toename taalbeheersing en taalvaardigheid van volwassenen en kinderen.
Potentiele projecten	Zorg op Locatie, terugdringen laaggeletterdheid, aanpak stil leed in het buitengebied. Tour du Overijssel: vluchtelingen maken kennis met Overijssel.

Programmalijn 3. Gezond Bewegen	
Specifieke criteria	Talentontwikkeling, breedtesport, maatschappelijke rol van (top)sport, inrichten openbare ruimte die bewegen stimuleert.
Instrumenten	Subsidieregeling Gezond Bewegen, subsidieregeling procesregisseurs en buurtsportcoaches, subsidies.
Beoogde resultaten	Talentontwikkeling in relatie tot topsport en breedtesport. Overijsselaars bewegen meer. Gezondere Overijsselaars. Toename van kennis over de rol van bewegen in het vergroten van het welbevinden van inwoners, uitrolbare aanpakken. Continuering inzet buurtsportcoaches. Minder jongeren met gezondheidsproblemen.
Potentiele projecten	Via inzet voetbal extra impuls aan maatschappelijke projecten, buurtsportacademy, Groen-Gelukkige buurt, Jongeren op Gezond Gewicht. Intensiveren sportieve en recreatieve fietsactiviteiten voor Overijsselaars.

Programmalijn 4. Overijssels noaberschap	
Specifieke criteria	Bijdrage aan leefbaarheid, noaberschap, lokale en bovenlokale samenwerking, toekomstvisie, passend voorzieningen- en dienstenniveau, maatschappelijke initiatieven.
Instrumenten	Subsidieregeling voor lokale initiatieven (in cocreatie met het maatschappelijk veld), continueren subsidieregeling Leefbare Kleine Kernen, servicedesk voor maatschappelijk initiatief, subsidies.
Beoogde resultaten	Uitgevoerde lokale initiatieven, vergrote leefbaarheid door een verbeterde de fysieke omgeving, meer duurzame projecten door professionele ondersteuning en inzet experts. Meer samenwerking binnen en tussen gemeenschappen. Zelfstandige lokale gemeenschappen, verantwoordelijk voor hun eigen dienstenniveau en de exploitatie en financiering daarvan.

B. Survey – Questions and reasoning

Section 1 - Data collection about subject.

Question 1: *What is your name?*

The reason a name is necessary, because as the surveyee and a node in the network analysis, connections will be made using names. To protect privacy these names will be anonymized and given instead a code representing the names.

Question 2: *In which city, town or village do you live?*

This question was presented to see where the surveyee lives, whether they travel or not to a different location to their sport club. The thought process behind this is that if a person travels from one city to another to sport, and their network then grows in the city where the sport takes place, this could be an example of social capital creation.

Question 3: *If you work, in which city, town or village do you work?*

The purpose of this question is very similar to the last. While it does not directly relate to their sport participation, it could show that sport creates more opportunity for employment.

Question 4: *Which sport do you play?*

A multiple-choice question in which the surveyee had six options. Softball, Baseball, Football, Basketball, Hockey or Other (write-in). With this data it is possible to split the subjects by sport type if desired.

Question 5: *For what club do you play that sport?*

This question will gather the name of their club. This will further be able to split the data, as well as do research to find out what other club's the team has contact with or plays matches against.

Question 6: *In which city, town or village is this club located?*

Pertaining to question 2, this can show growth of social capital to their participation in sport at this club and its particular location.

Question 7 and question 8:

In which league/division do you play?
And
How many times a week do you play/practice in the season?

Both of these questions will give an idea of the level of participation in the sport by the subject. Perhaps there is a relationship between the league/division they play in (higher or lower skill) and the number of times they play/practice in the week. It also could give an indication as to whether or not the level of participation influences their social network.

Questions 9 - 13:

These questions were repeats of questions 4-8, except for if they play a second sport or not. This question is interesting because it could make connections to other sports and other clubs, which could affect strengthen and grow the social network.

Section 2 - Data collection about subject's social network.

In this section the surveyee was given instruction to think about people they know, that weren't family. Family was intended to be omitted because it is assumed that sport participation in a club in many cases would not lead to social capital growth with family members. While it could strengthen bonding capital with members of family that you play sports with, it would not lead to new sources of bridging capital. The surveyee was asked to provide at least five people and up to ten.

C. How-To guide for a basic Social Network Analysis

Network File Creation

To begin, it is required to have some network data. Using the survey, I was able to acquire social networks associated with 44 sport participants in overijssel. The bare minimum of what is required is a way to identify the people listed in the social network. Whether you have them use their name, or special identifiers. There should only be one person with that name, or identifier. The first step, once you have your data, is to clean it and put it in the correct format to create a VNA file. The next section will detail how the VNA file for this project was created.

Data Cleaning and VNA File Creation

Using the data acquired from the Google Forms survey, the social network data was loaded into Microsoft excel. Using Microsoft Excel, and it's inherit basic functions, the data was combed through to ensure reliability. For example, one person may have misspelled one of their contacts name by mistake, and you have that same misspelled name person fill out the survey. It is important that they are spelled the same way, or identified using the same identifier; otherwise the misspelled name will count, as its separate node.
After a quick comb through, a list was made of every single contact in the survey. This includes the survey takers as well as their listed social network. For a good social network, oftentimes you will see intersections, and the same name listed twice. With this list, all the duplicates were removed to gather only unique nodes. Then to protect anonymity, each node was assigned an ID, beginning with number 1 and going until the last person had an ID.
A VNA file is split up into two parts. The first part is where data about each node is stored. This is the proper format:

```
*Node data
ID Type TookSurvey CityLive CityJob PrimarySport PrimarySportClub
"1" "Person" "Yes" "Schalkhaar" "Amsterdam" "Softball" "Tex Town Tigers"
"2" "Person" "Yes" "Enschede" "Enschede" "Baseball" "Tex Town Tigers"
"3" "Person" "Yes" "Enschede" "Enschede" "Softball" "Tex Town Tigers"
"4" "Person" "Yes" "Enschede" "Enschede " "Softball" "Tex Town Tigers"
"5" "Person" "Yes" "Enschede" "Oldenzaal" "Baseball" "Tex Town Tigers"
"6" "Person" "Yes" "Enschede" "Enschede" "Softball" "Tex Town Tigers"
"7" "Person" "Yes" "Enschede" "Enschede" "Softball" "Tex Town Tigers"
"8" "Person" "Yes" "Oldenzaal" "Oldenzaal" "Softball" "Giants "
```

Figure 1: Example of VNA first section proper format

As shown in the figure, the first line is the opener that lets the file know this is the node data.

The second line is the header for the data being stored. In this example the identifier is the ID and data about that specific ID is the type it represents, if they took the survey or not, the city they live in, if they have a job what city it's in, what their primary sport is and their primary sport club. You can add as many other pieces of data to the end of this as you think are necessary for the analysis. This file is modified to fit on the page, there were previously many more fields being stored. Quotation marks always need to encapsulate the data underneath the headers. The Node Data section of the VNA file is not required to load into the tool. Its main purpose is to store the pertinent data about the nodes that you think is important. For example, in the analysis conducted using this data, only data about the actual survey participants was added to the first section. This is because there was no data for the social networks that were listed. When adding the second section to the VNA file, nodes will be automatically created in the program (without any accompanying data).

The second section of the file is where we add our edge data. This is where all the lines are drawn from node to node to represent relationships. Here is how they are formatted:

```
*Tie data
from to
"1" "44"
"1" "73"
"1" "48"
"1" "11"
"1" "21"
"1" "6"
"1" "13"
"1" "201"
```

Figure 2: Example of second section of VNA file

As with the first section, the first line identifies this section as the tie data. The second section gives the data below a label. The first identifier is the "from" node, and the second the "to" node. The same rules apply with the quotation enclosure. To rehash, in this example, ID 201 was not created in the first section, because there was no data for it. I did not know if they played a sport, where they lived etc. Once the file is loaded into the tool, it will automatically create this node with no data associated with it, except the edge data.

Once all the data has been put into a text file, just save the file with a .vna extension. The VNA file is now complete.

Visualization using Gephi

The social network analysis tool, Gephi, can be downloaded for free here: https://gephi.org/users/download/

It can handle a ton of data, but not all computers can. Keep in mind that when doing an analysis on tons of data (upwards of thousands/hundreds of thousands of nodes), high computing power is required.
There is a bit of a learning curve with the open source application. Sometimes it is a bit buggy, but it does a good job at creating nice social network visualizations. While this guide will not go into all of the specifics and details of everything you can do in the application (would be a very long guide). This will give you a basic breakdown of the main components to get a nice visualization.

Once Gephi is started up, we can load the VNA file.

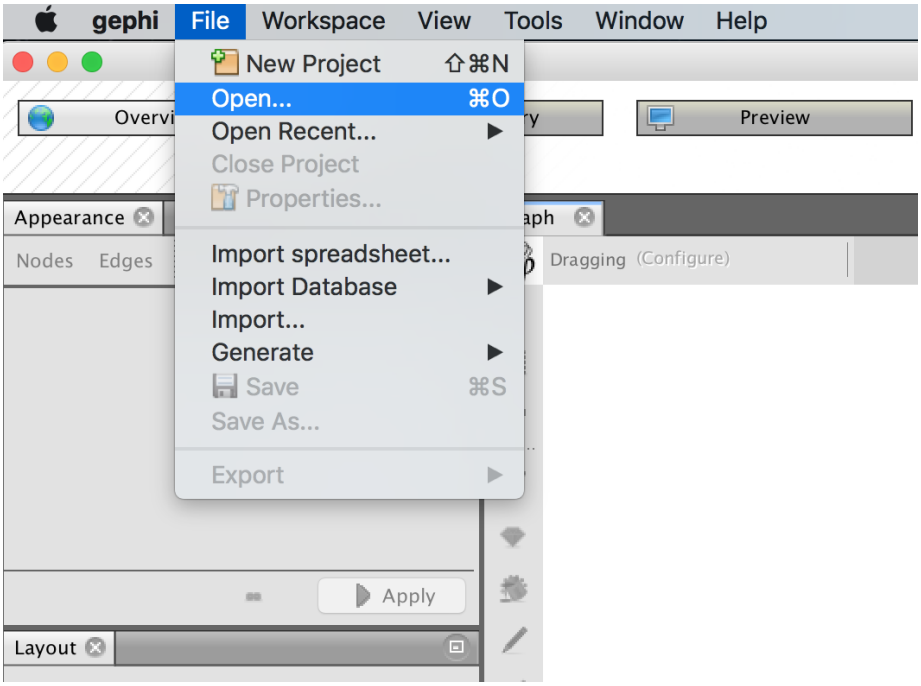

Figure 3: Loading VNA file into Gephi

Once open is clicked, find the directory where the saved VNA file is located, and double click. If your file is formatted correctly, this screen will be presented.

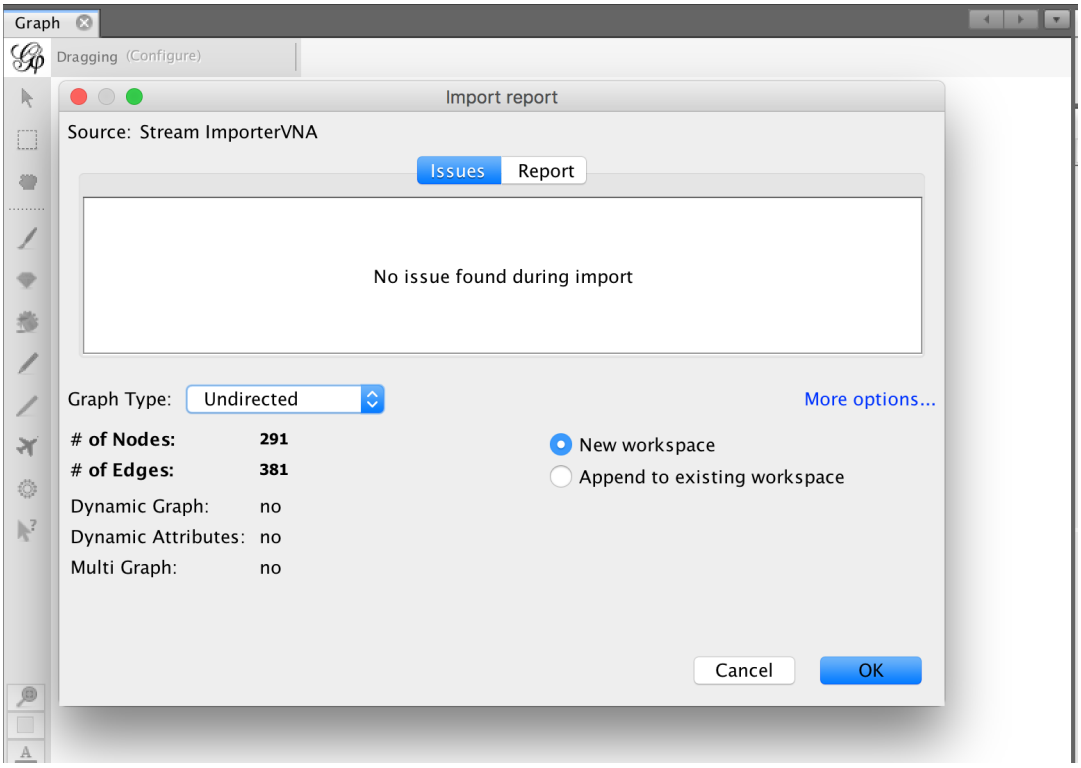

Figure 4: Successful Load of VNA file

On this screen we see the number of Nodes and the number of Edges being loaded into the visualization. Here once can choose the graph type. In this case Undirected is the best choice. This means that the relationships are mutual. That the TO's have a relationship with the FROM's and vice-versa. Click okay once the graph type "undirected" is selected.

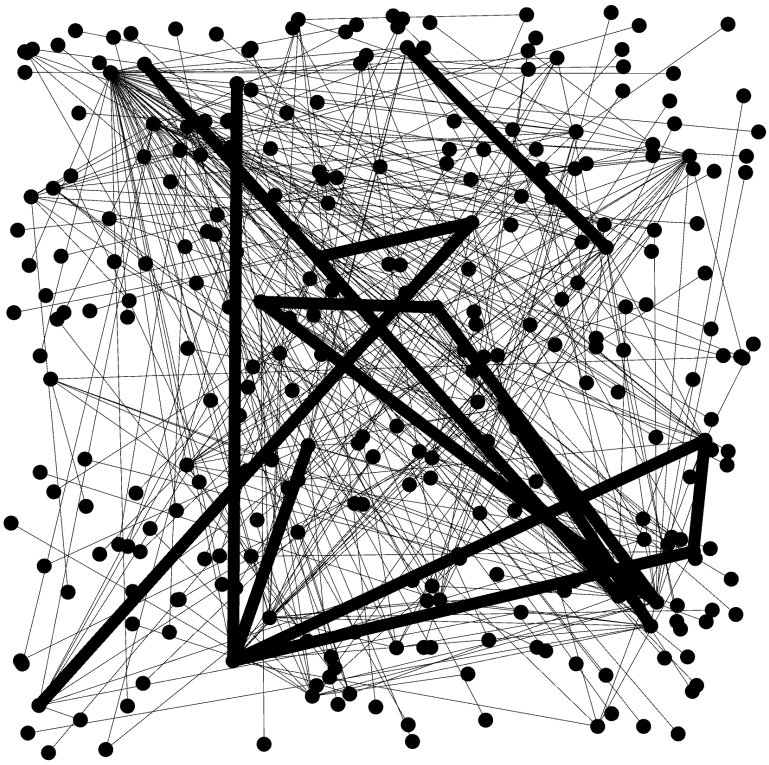

Figure 5: Initial load of network data

Once the VNA file is loaded, it should look something like this. A little like a hairball. This is okay, and it means you have something nice to work with and make look much better. The first thing to do is mess with the layout algorithms to find one that shows your data in a meaningful way.

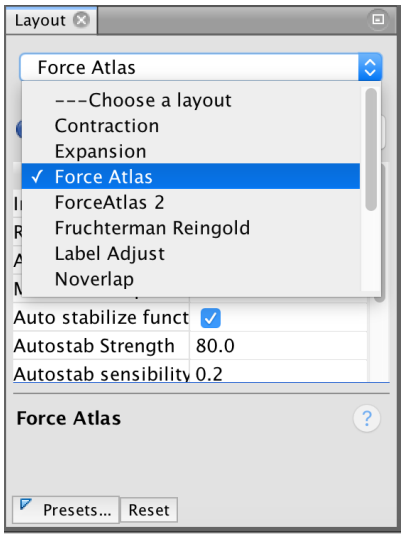

Figure 6: Layout tool

At the bottom left of Gephi is the layout algorithm tool. Here many layouts can be chosen from, and all will give you a different look at your data. Some tools are better for the amounts of data

while some are better for smaller. Most of the time it is interesting to play with these different layouts to see the best ways to display the data. For this example, the force atlas (and adjusting some of the settings) led to a decent layout.

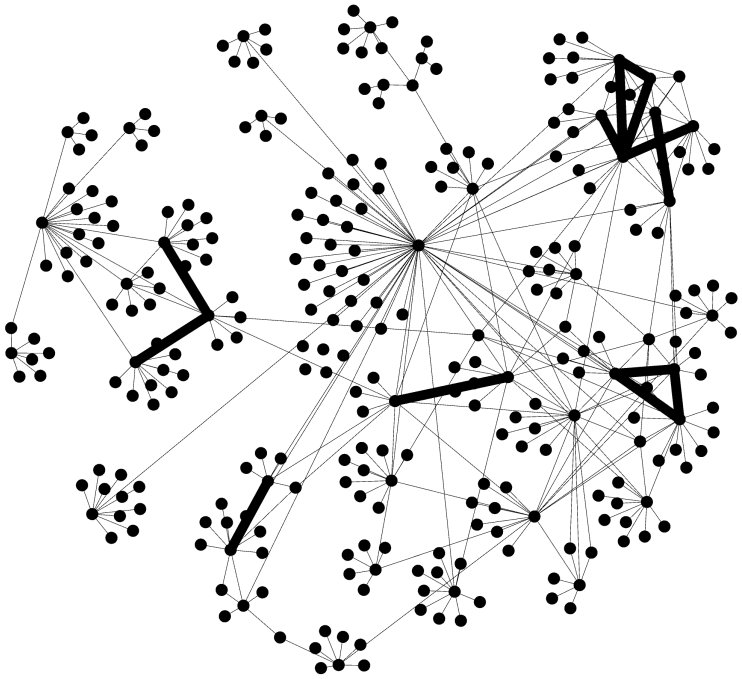

Figure 7: Visualization after force atlas layout was applied

After force atlas has been applied, we can see the formation of communities. So let's try to add some color to these communities.

To add color, in the top Left of the window it the "appearance" toolbar. This is where one can change the appearance of nodes and edges. Select nodes, and then select the painter's pallet icon.

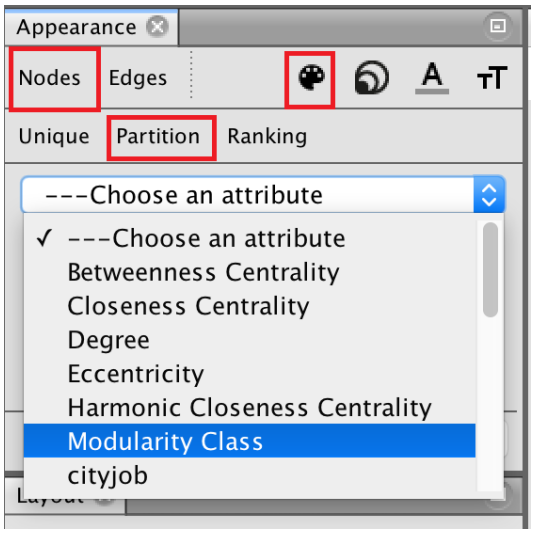

Figure 8: Appearance toolbar, changing the color

When changing the color scheme to “Modularity Class” you are changing the color of all the little communities that were formed, to be able to distinguish them. If you color based on degree, the nodes with the most connections will change color. You can also see from this screenshot “city job”. This is data stored about the nodes, defining a city where this nodes job is. So you can also color based on stored data.

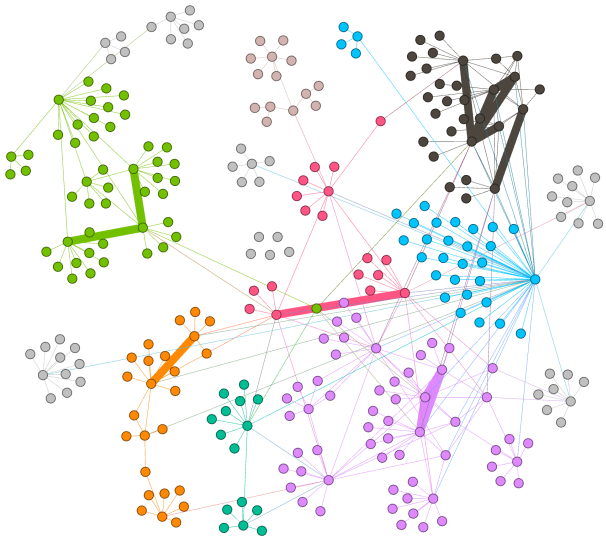

Figure 9: Visualization after application of “Modularity Class” color

In figure 9, we see that each community has been given its own color, making it more distinguishable and allowing for in-depth investigation as to the boundaries of the communities. Another feature of Gephi is to change the size of nodes.

Before we can change the size of the nodes based on their degree, we must run the degree statistic. On the right side of the Gephi window is the statistics toolbar, with a list of all the statistics that can be run on the data.

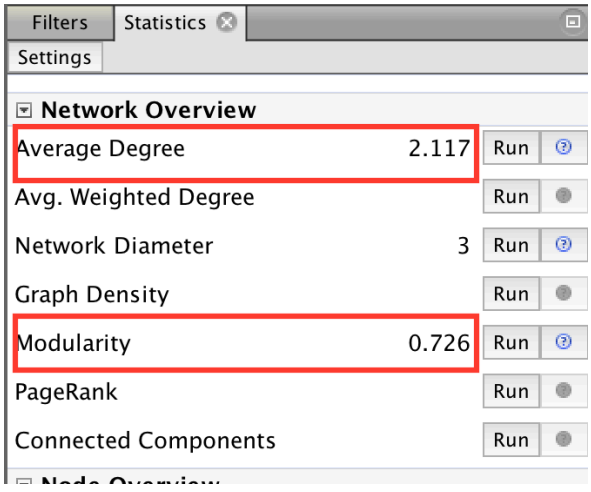

Figure 10: Statistics Toolbar

Once these statistics have been run, they can all be used to size and color the visualization. The network diameter statistic is needed to see betweenness and closeness.

Now that we have the degree, we can size the nodes based on it. Using the same appearance toolbar, select the icon with the multiple circles.

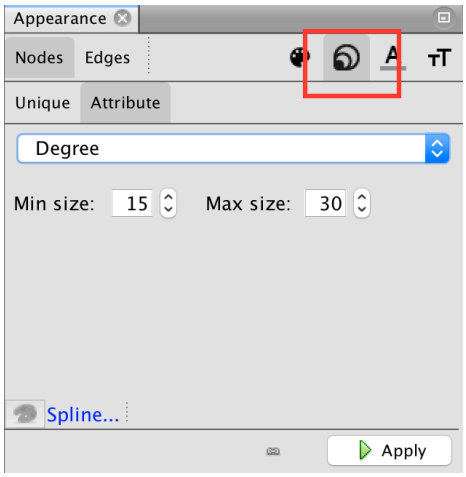

Figure 11: Sizing the visualization

With degree selected, it is possible to change the size of the smallest node, the largest node and everything in between proportionately to these.

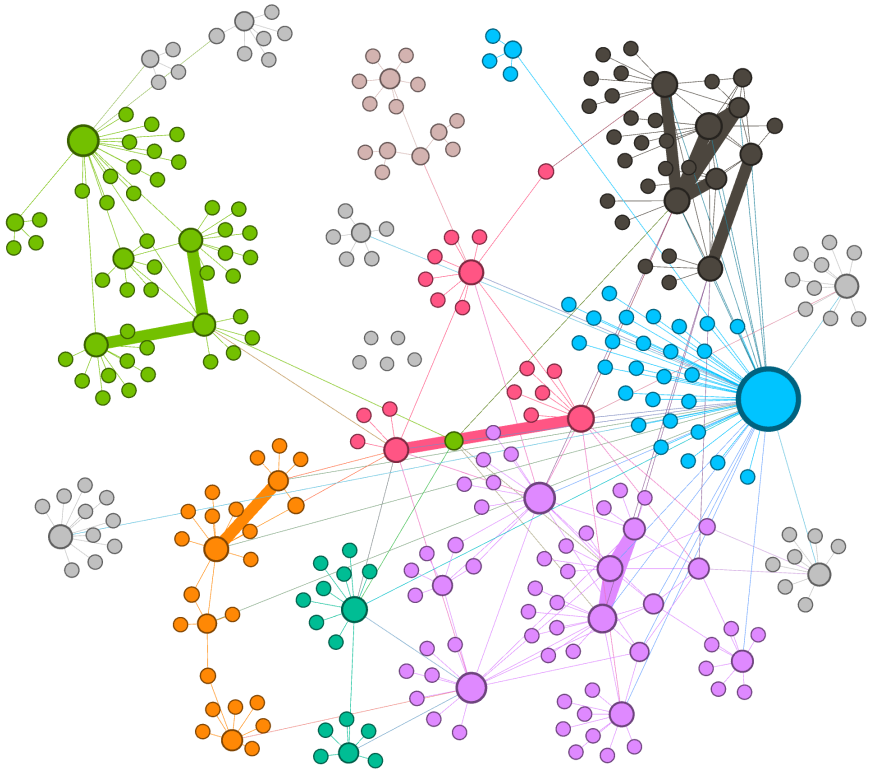

Figure 12: Visualization after node sizing

After application of the sizing, our nodes with higher degree (more edges) are bigger, while the nodes with lower degree are smaller.

The next logical step is to add some labels, so that the nodes can be identified and an analysis on the visualization can be simpler.

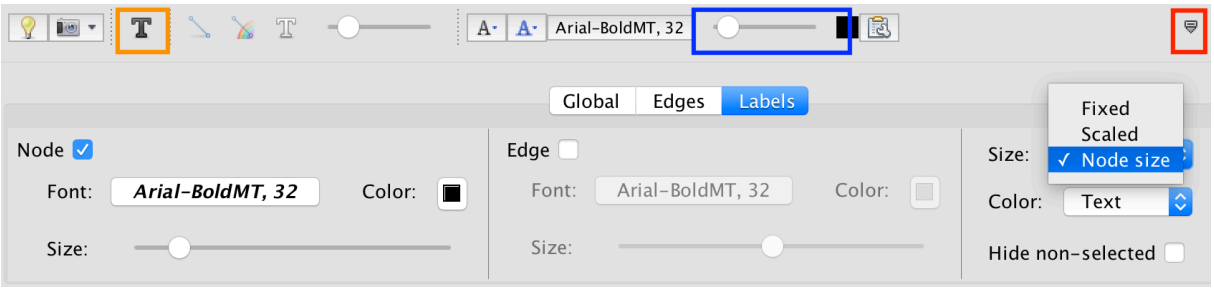

Figure 13: Label editor

At the bottom of the Gephi window, select the T in the orange box above. This will allow your labels to appear (this is your first column of the Node data in the VNA file). To adjust their size, use the slider show in the blue box figure 13. If you click the arrow symbol shown in the red box, a more advanced menu will appear. If you click the size selector and choose “Node size”, the labels will change size according to how big the nodes are. Here is an example:

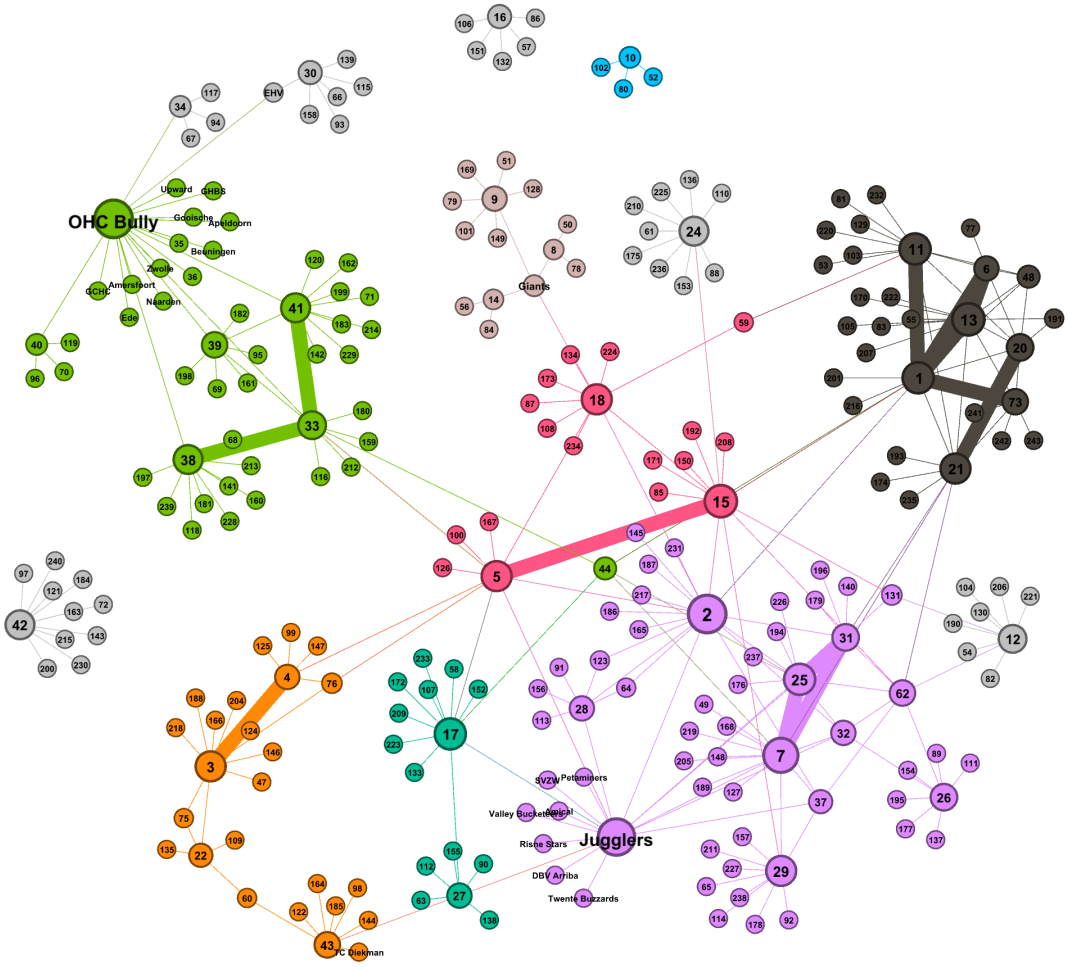

Figure 14: Visualization with labels added

In figure 14, it is easy to see that the labels have been added, with the larger nodes having larger labels then the smaller nodes.

Conclusion

This guide showed you the basics of how to create a VNA file with some network data, and then load and edit your visualization in the Social Network Analysis software Gephi. I hope it was helpful. As mentioned in the report, Gephi does not have right or wrong ways to visualize and analyze data; the purpose of Gephi is to write a story about your data. Using different layouts, color schemes or sizing schemes can change the way you look at your network data and help you to come to different in-depth conclusions about the networks you choose to analyze. I strongly recommend playing around with the settings and finding a layout that works best for the data you would like to visualize.