St. John Fisher College

Fisher Digital Publications

Sport Management Undergraduate   Sport Management Department

Winter 12-7-2017

Media Impact on NFL Fans

Justin White
jpw09824@sjfc.edu

Follow this and additional works at: https://fisherpub.sjfc.edu/sport_undergrad

Part of the Sports Management Commons

How has open access to Fisher Digital Publications benefited you?

Media Impact on NFL Fans

Abstract

The purpose of the study was to examine the complex relationship between NFL fans and the media in reaction to a newly hired NFL coach. The conclusions and process were important to all three groups because each group is directly affected by the others and the results. Fans can change the way they consume media and the organizations can change the way they interact with the media in an attempt to change the way the media writes about the team. It was known that media framing exists but the extent to which it exists in NFL circles had not been examined.

Document Type

Undergraduate Project

Professor's Name

Katharine Burakowski

Subject Categories

Sports Management

Media Impact on NFL Fans

Justin White

St. John Fisher College

Media Impact on NFL Fans

Executive Summary

The purpose of the study was to examine the complex relationship between NFL fans and the media in reaction to a newly hired NFL coach. The conclusions and process were important to all three groups because each group is directly affected by the others and the results. Fans can change the way they consume media and the organizations can change the way they interact with the media in an attempt to change the way the media writes about the team. It was known that media framing exists but the extent to which it exists in NFL circles had not been examined.

In this study it was necessary to find articles that still had an active comment section. The comment section was the gateway to the fan reaction because it was the only way to gage what a fan was thinking while they were reading the article. In this study the data consisted of eight locally sourced articles and 8 nationally sourced articles, all of which had comment sections for fan feedback. Both local and national media were used because of the different audiences and styles of writing. If only one type of article was used, then a sizable portion of published media would have been ignored and the conclusions may not have been accurate.

The results were inconclusive. There was not a pattern of fan behavior based on what the media published about the hiring. With that being said some of the variables, like the mention of mentors in the article, lead to positive fan reaction. Mention of previous coaching experience tended to lead to more negative feedback, even if the tone of the article was positive. Using word count as a measure of thought lead to the conclusion that when fans responded positively they thought more about what they were writing.

These findings are important because it showed that the fans were thinking independently of the media and even the organizations. Organizations will have an idea how fans and the media will react

Media Impact on NFL Fans

to a firing and new hiring. This research concludes that while organizations may have those expectations

it will be very difficult to predict whether they will be correct.

Media Impact on NFL Fans

Introduction

Members or the media are important to both organizations and their fans. Fans identify with the team and members of the media who write about the team. Identification extends beyond being a general fan in that highly identified fans feel like the team is a representation of themselves and they are, in turn, a representative of the team (Potter & Keene, 2008). While it is understood that the fans feel as if they are part of a team, there has not been in depth analysis of what role the media, both local and national, play in that feeling. Fan passion has been examined to predict attendance, media consumption and social media behaviors. Level of passion is used by teams to analyze their fans and their behaviors. It is widely accepted that the most passionate fans are those who spend the most money on goods related to the team (Wakefield, 20016). Teams are aware that the relationship exist but need to further include the media and the impact they may have on their point of view.

The objective of this research was to observe and analyze fan behavior in response to media articles written about newly hired head coaches. The behavior of both the fans and members of the media is important to organizations throughout the National Football League. In this study fan behavior is not measured through ticket sales or merchandise purchases. Instead it was measured using tone, this allowed for an accurate representation of how the fanbase felt about the newly hired coach. Prior studies have drawn conclusions about how two of the three interact with each other, but research is lacking when it comes to examining all three. Through analysis of fan reaction to media articles enough information can be gathered to combine the three groups into one study to understand fan behavior and what it means to the NFL teams when they are hiring a new coach. This research attempted to determine how media influences fan behavior and, specifically, the response to newly hired coaches and what importance this could have to NFL teams.

Media Impact on NFL Fans

This research had a practical application because it provided organizations with advance insights into fan behavior. The research provided both media articles and fan responses that were used to draw conclusions. Organizations, fans and the media could change their approach to information gathering because of the conclusions made in this research.

The purpose of this study was to determine what relationship exists between fans, the media and NFL teams when a new coach is hired. The research question of this study was:

What relationship exists between media portrayal and fan reaction to a newly hired NFL coach in the modern-day NFL?

The aim of this research was to understand how NFL teams could use the media to their advantage when dealing with fan reaction after hiring a new coach.

Background

The relationship between fans, the media and NFL coaches and organizations is complicated and deeply rooted. Fan identification is a key component that organizations make every effort to understand. The most important fans to organizations are the fans that are highly identified (Potter & Keene, 2012). These are the fans who are extremely passionate and willing to spend money on tickets and merchandise. Fans who are highly identified feel as if they are a member or representative for the team. Potter and Keene (2012) conducted a study where football fans were asked to watch a press conference by two different coaches. One coach was leaving the organization on bad terms while the second coach was his replacement. Bodily reactions were used to measure valence (likelihood to interact), arousal and resource identification. The research concluded that the negative reactions outweighed the positive. Highly identified fans responded stronger in each direction compared to fans who were not highly identified. As is the case for almost any business, more was learned about this topic by following the money trail. Organizations examined their financial information and realized what Potter and Keene concluded in 2012. Highly identified fans are the driving force behind organizations and teams throughout the NFL are aware of this fact.

Fan Reaction

Reactions to sporting events are different than reactions to anything else, especially for those highly identified fans. Cottingham (2012) developed a theory that could further this point, the interaction ritual theory is used to demonstrate this concept. It "conceptualizes emotion as a socially emergent positive energy." Sport is a driver behind the emotion and there are elements of sport that bring out these positive reactions from people. Cottingham went to Steelers games and observed fan behavior around the stadium during the game. It was clear that the people watching the game were impacted by the events that took place on the field. Whether it was high fiving or removing shirts, the fans were communicating with strangers after positive plays. The fans who were sitting outside tailgating in the wintry weather made sure Cottingham knew that they were highly identified. Highly

identified fans are those who participate in ritualistic behaviors to show group togetherness. While fans

who are outside the stadium are highly identified, there is a limit to what rituals they can participate in.

Being in the stadium exposes the fans to more of a ritualistic setting, which is a key component of the

interaction ritual theory. Another key component is the symbols, the Steelers symbol is the iconic

terrible towel. (Cottingham, 2012). Sport teams each attempt to create their own symbol to drive fan

behavior. These conclusions are not limited to the Steelers, there are many reasons to believe that other

fans behave similarly. The Buffalo Bills and New England Patriots have fan bases that are known to

behave in a similar fashion.

Fan Passion

The fan passion can be used in several ways, the teams can use the knowledge to their benefit.

Fan passion is integral to any team's financial success. Teams with a passionate fan base are able to be

financially stable, even if the on-field product is lacking. Passion is a key component to any fanbase, but

it is a very difficult behavior to track and measure. Psychological measures have been used in an

experimental setting to determine whether fan passion is important. Vallerand et al. (2003) describe

passion in two different ways. Harmonious passion is when a fan knows they have a relationship with

the team, but it comes at no cost to them, they are not obligated. On the other hand, obsessives feel

compelled to engage in activities that feel will enhance their day to day relationship with the team.

These fans are the people who cannot live without following their favorite teams' day in and day out.

Wakefield (2016) conducted a study that used the measurements of passion to conclude that

passion was a statistically significant indicator of both attendance and media consumption. It may be

necessary for media researchers and members to further examine the concept of fan passion to

determine the best ways to reach the largest audience. There is an overlap between social media usage

and fan interaction. This does not come as a surprise because fans who are active on social media are

likely the most passionate fans. It would not be reasonable to expect a fan who isn't passionate to

interact on a blog or social media comment section. Measurables such as distance from the stadium are easy to measure when determining attendance, but the advancements in passion measurement could allow for the variable to become even more important.

Media Framing

Teams are not the only group that should be concerned with fan behavior. The media has developed ways of framing and presenting the desired message in a way that will impact fan behavior. Bell & Sanderson attempted to address the emotional valence in the reader comments on articles posted online. They were able to determine that the comment to the posted article was dependent on what the overall tone of the article was. In forums where conversation was possible the reader comments were different than those in forums where it was simply a place to get thoughts in the public spotlight. "The content produced by the reader comments in this study is an example of the synergy between ordinary people to produce deeper meaning in journalistic content and generate public awareness regardless of source credibility" (Kim, 2015). Reader comments are a new section of media that is important to media members and teams. Sport provides a unique platform of highly engaged individuals who are easily manipulated by media and team press releases.

Seltzer and Dittmore examined how the NFL framed an issue against TV providers in regard to the NFL Network. In this case the information source played a key role in the framing. The NFL was able to control the narrative because the narrative was coming from the most powerful league in America. The majority of the news articles examined showed support to the NFL, perhaps the networks feared what might happen if they were to take a stand against the league. The authors also examined the difference between the national and local media coverage. The large nationwide papers almost exclusively sided with the NFL on the issue. Assigning blame was a popular strategy used by the media outlets because people are responsive to situations where someone or something is perceived to be at fault. The events that took place outside of the dispute also were used to change the narrative and the

Media Impact on NFL Fans

frame. The media and NFL were able to use current events, such as games, that were upcoming to shift

even more blame on the NFL Network. The use of current events is an important aspect of media

framing.

Coaching Trees

Current events surrounding a team will impact whether a coach is fired and who the

replacement is. Replacing a coach is one of the most challenging and important aspects of running an

NFL organization. The new coaches' qualifications could have an impact on the tone of both the media

and fan reaction. Coaching trees are a way to connect coaches to their counterparts. Research has been

conducted by Fast and Jensen to determine whether the coaching tree is important. The goal of the

research was to compare coaching success of the studied coach to the success or lack thereof of the

coaches who he worked for prior to becoming a head coach. The authors wanted to understand which

relationships are most important to coaching success. They were able to conclude that championship

coaches work with fewer mentors than non-championship coaches. This is an indicator that the

championship level coaches learn from other successful coaches because there is less turnover among

successful coaching staffs. Another conclusion that was drawn was that years of experience is not

important if the team consistently has a losing record. However, it is difficult to measure coaching

success until after the fact. Now it is known the Bill Belichick is a great coach but there was no way of

knowing that when he was fired by the Cleveland Browns. There are numerous ways to analyze a

coaching tree, which is a shortcoming in the research.

The purpose of this research was to further examine how fans react to coaching hiring's and

how the media can influence said reactions. This information would be valuable to all three parties

because it could influence behavior.

Methods

Media Impact on NFL Fans

The purpose of this research was to further understand the relationship that exists between fans, the media and NFL teams after a coach is hired. NFL teams and the media control the narrative and it is important to understand how that occurs. Media framing is an issue that is not exclusive to sport but fans of sport who are highly identified are more likely to consume media. The data collected was qualitative secondary data with the word could of comments being quantitative. Understanding the relationship further would benefit all three parties involved.

Desired Sample

For this research the desired sample was every coach who was fired by a team from the National Football League in the 2015-2016 and 2016-2017 seasons. Once the coaches were organized it was necessary to find the leading newspaper or a leading online blog/website that was read by fans in each of the cities. The method of sampling used was stratified random sampling using proffotballreference.com. However, any newspaper would not be sufficient because the articles had to be retrievable online with access to a comment section to gage reader reaction. In the case of the local teams the search had to be expanded to include the local blogs due to the lack of comments made available on many of the newspaper websites. One paper and writer were found for each of the teams and cities. A total of 8 coaches and cities were selected. A national perspective was also sought out. A national website that writes about football with access to older articles and a comment section was found and used as a national perspective on each of the hiring's. For a national writer to be selected the writer had to post on a mainstream website that did not only focus on one local team (such as SBNation) more than once per month.

Procedure

When sampling for the coaches the records were found using profootballreference.com. The website also allowed for data to be collected about the win loss records of the coaches and teams that

the coach under study worked for prior to becoming a head coach. Win loss record in both the regular

and postseason were used along with the coaching tree concept to evaluate the coaches in the study.

Variables

Variables that were used were the tone of both national and local articles written about the

hiring. The fan reaction was measured by grading the tone and length of fan responses on online media

posts. Finding a media source from each city was a more tedious process because of the importance of

the comment section. Once a source was found the tone of the article was grouped into sections

numbered 1, 2 and 3. The number one represented an article with an overwhelmingly positive tone, two

represented a neutral tone while there was an article with a negative tone. The comment section was

graded on the same scale. Comments were randomly selected using a random number generator.

Originality was also measured in the process of collecting data. This was coded on a 0 or 1 scale. Articles

that were press releases or regurgitation of facts were coded as zero. If the article was a column or

opinion based piece, it received a one. Specific content related variables were also measured. These

variables included whether the article mentioned local ties to the area, previous athletic experience,

previous coaching experience and any mentors or special relationships the coaches may have had.

Lastly, the content of the article was described by the researcher. The separation of articles was done by

placing articles with similar comments together. Articles with a similar variable distribution and reader

comments were grouped together on the data collection instrument which made the analysis easier to

do.

Analysis

Analysis was done after the completion of the information gathering. First the articles were

grouped by tone. Once grouped by tone the articles were then divided again based on the originality

variable. The articles were compared by what was and was not included in the article and comments.

The process of coding for whether or not specific variables were present allowed for the examination of

statistical significance in regard to predicting the fan reaction. The trends and relationships between the

tone of the media and the tone of the comment section were recorded and analyzed. Following the

initial groupings, the articles were then grouped by how similar they were based on the researcher

notes. This resulted in the most precise classifications of the articles, the tone and length of the

comments were also analyzed (compare means) again here. These findings were used to determine the

weight of the media influence on the fan reaction. The coaching history and coach qualifications were

compared to the tone of the media and fan reaction. These findings were important to organizations, it

will help teams know what narratives to push when hiring a new coach. Media will use the findings to

help structure their articles to get the largest fan reaction while pushing information. Fan reaction is

important to both fans and the organizations.

Media Impact on NFL Fans

Results

The sample was divided into two groups, local (8, 50%) and national (8, 50%) articles. Of the

eight local articles one (12.5%) of them was written with a negative tone, five neutral (62.5%) and two

(25%) positive. Six (75%) were a summary of events and two (25%) were columns. Two (25%) articles

mentioned local ties, one (12.5%) mentioned previous athletic experience, six (75%) mentioned previous

coaching experiences and four (50%) of the six mentioned who the coach worked for or who their

mentor was. Twenty-one comments were collected, 52% (11) of them were positive in tone, and 24% (5)

of them were neutral and negative. The word count ranged from eight words all the way up to two

hundred and fifty-seven words. Negative responses averaged forty-three words, neutral averaged forty-

nine and positive responses averaged seventy-one. The one negative tone article had a positive

comment. Fourteen comments were left on the neutrally written articles, half (7) of them were

negatively responded to while six (42%) had positive responses and there was one (7%) neutral

response. The chart below illustrates the relationship between the specific variables and the responses.

Variable	Negative	Neutral	Positive
Local Ties	3	0	3
Athletic Experiences	0	0	2
Coaching Experience	5	4	8
Mentors	2	3	6

Only one (12.5%) of the national articles was written with a positive tone, two (25%) were

negative and five (62.5%) were written neutrally. Half (4) were columns and half (4) were summaries of

events. The chart below measures the variable mentioned and in what tone the article was written.

Variable	Negative	Neutral	Positive
Local Ties	1	1	0
Athletic Experiences	0	1	0
Coaching Experiences	2	5	1
Mentors	0	4	1

Media Impact on NFL Fans

  There were fifteen comments collected, 66% (10) were negative, 20% (3) were neutral and only 14% (2) were positive. In this case the negative comments averaged thirty-three words, neutral averaged seventy and positive averaged fifty-two and a half. One (6.6%) negative comment was left on the positively written article, four (26.6%) negative, one (6.6%) neutral, and two (13.3%) positive comments were left on neutrally written articles and three (20%) negative and two (13.3%) neutral comments were left on negatively written articles.

Media Impact on NFL Fans

Discussion

Understanding the relationship between the media and the fans was a very complicated task. The national and local media often had differing opinions on the same situation, both of which could have influenced the fan reaction. Coach qualifications and experience were mentioned in a sizable percentage of the articles but measuring the impact on the fan reaction was challenging. The research question asked for something that is not measurable with a one number answer. However, it may be possible to understand the results even if the result is that there is not a measurable relationship.

Variable Examination

First and foremost, the difference between the tone of the local and national articles needed to be examined. The national media not being as opinionated as the local media did not come as a surprise considering the audience each of the two groups of writers were writing for. The national media wrote articles that were delivering news while the local media was tasked more with delivering their opinions to the fans. It was also important to note which type of fan each type of media was writing for. The local media is read by more highly identified fans. Identification extends beyond being a general fan in that highly identified fans feel like the team is a representation of themselves and they are, in turn, a representative of the team (Potter, 2012). This explains why the responses were so different.

The local readers took a more positive approach while the national responses were not as positive. There was an element of being an internet commentator here that needed to be considered. Fans that commented on a national article could be fans of a rival team looking to incite a reaction from the fans of the team that was mentioned in the article. The length of the comment responses was examined with the hopes of drawing a conclusion about how much thought was put into the comment. For both local and national articles the positive comments had larger word counts. The fans who responded positively must have thought about their responses more than the fans who were negative. If

the team was in a position to hire a new coach, they probably were not very good. This would make it

easier for a fan to be negative, so it was worth noting that the positive responses were longer and better

thought out.

Coach Specific Measures

A careful examination of the coach specific variables also yielded interesting results. Articles that

mentioned the coaches' previous athletic experiences did not have a negative tone or comment. This

does not come as a surprise. It is known that sport drives emotional responses from people and in many

cases the highly identified fans are simply looking for a reason to be excited. This has been highlighted in

previous works, specifically the work by Potter and Keene (2012). Their research concluded that some

coaches are placed in difficult situations that are difficult for a team and the fan reaction may represent

the displeasure that some fans have with the team. These responses fit the narrative that those who

have experience playing the game know much more than those who have never played professionally.

Another aspect that was worth mentioning was the emphasis placed on the mentors the coach had prior

to being hired. Both the national and local focused on this with the articles being written with a mainly

positive tone. The current trend in the NFL is to hire a coach who has experience with a winning coach,

so this trend should not come as a surprise. Fast and Jensen concluded that the mentors are an

important measure for predicting the future success of a newly hired coach (2006). Other variables that

were accounted for did not have the expected impact on the results. The tone of the article and the

comments on the articles that met specific variable (local ties, athletic/coaching experience, mentors)

criteria did not have a meaningful relationship. There is not a predictive quality that teams, or media

members would be interested in learning about. For example, if a media member were to write an

overwhelmingly positive article about the previous coaching experience of a new coach there is no way

of knowing what the fan reaction will be. Attempting to measure the fan reaction on a scale without any

direct communication with the fans being used in the research was a challenging task.

Media Impact on NFL Fans

Media Framing

Media framing has been addressed by many studies in the past. The form of new media and blogs, many of which were used in this study, allow for a new line of communication to open for fans and teams alike (Jewell). The conclusions drawn in those studies were different than the conclusions drawn from this one. There was not a clear example of media framing. It appeared that the fans came to their own conclusions and did not simply regurgitate whatever the tone of the article was. In future research it would be wise to know what the fans thought before reading the article and whether reading the article changed the perceptions of the fans. Without knowing what the fan thought before commenting on the article makes it difficult to draw and solid conclusions about how much of an impact the media had on the response. In this study the media did not have an overwhelming amount of influence on the fan reaction.

Limitations and Delimitations

There were limitations to the research that was conducted. Finding websites that had comment sections that still were available for hiring's that took place nearly two years ago was difficult. SBNation was used more than once to represent a national media source. SBNation was a large provider of internet content, however the way it was used in this research does not represent the size and scale of it on the national media landscape. There was also a lack of representation of printed media on the local landscape. Print media may be dying in many cities, but it is not dead yet and NFL columnist are still very popular. Unfortunately, the websites of many of these newspapers did not have an archive that extended back long enough to be used in this research. The selection process for this study was the most important limitation because of the lack of comments being available online. The researcher did have a say on what years of hiring's were used and the most recent hiring's were selected to combat this issue. Another researcher controlled delimitation was the sole focus on the NFL. If future research

were to be done it would be interesting to compare reactions across sports, especially with in cities with teams in different leagues. The researcher also decided not to control for the win loss history of the teams that hired the coaches. If the New England Patriots were to hire a new coach the fan reaction would likely be different than the reaction to a coach hired by the Buffalo Bills. The history of winning and losing could have played a very important role in the fan reaction.

Future research could be more expansive and perhaps it could focus on fewer teams with more variables. It could be done following this current NFL season where the researcher could run a similar study but only using two teams. They could then reach out to the authors of the articles and the commenters to be able to understand ever more about what they were thinking when they were writing. Being more specific on what the content of the article is would also improve the study. Rather than simply measuring whether the variable was mentioned a scale could be developed to gage the emphasis that was placed on each of the variables. Focusing one a smaller amount of coaches could make it easier to get down to what drives fan reactions, because this research was not able to arrive at many solid conclusions.

Summary

In conclusion, this research was able to disqualify what might have been the traditional way of thinking. Fans in this study acted independently of the media and appeared to draw their own conclusions on the issue, regardless of which side of the fence the fan was standing on. The relationship between fans and the media was unclear or it did not exist in this specific study.

References

Cottingham, Marci D. (2012). Interaction Ritual Theory and Sports Fans: Emotion, Symbols and
      Solidarity. *Sociology of Sport Journal, (29).* 168-185. Retrieved from
      http://web.a.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=7fa06747-dfe7-
      4c53-ad95-d5267c853514%40sessionmgr4007&vid=14&hid=4201

Orbach, Iris. & Blumenstein, Boris. (2016). Professional Coach: The Link between Science and Media.
      Sport Science Review (XXV). (73-84). DOI: 10.1515/ssr2016-0004

Wakefield, Kirk. (2016). Using Fan Passion to Predict Attendance, Media Consumption, and Social Media
      Behaviors. *Journal of Sport Management (30).* 229-247. Retrieved from:
      http://web.b.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=68e0c67a-91bc-
      48d9-9c42-0337cbbe72f3%40sessionmgr102&vid=10&hid=116

Bell, Travis R. & Sanderson, Jimmy. (2016). A Hit on American Football: A Case Study of Bottom-up
      Framing Through Op-Ed Readers' Comments. *International Journal of Sport Communication (9).*
499-518. Retrieved
      from:http://web.b.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=e80be31d-
      ad05-43ea-bd4f-3b21691e1ee2%40sessionmgr104&vid=7&hid=116

Seltzer, Trent. & Dittmore, Stephen D. (2009). Down, Set, Frame: Second-Level Agenda Building and the
      NFL Network Carriage Dispute. *Internation Journal of Sport Communication (2).* 340-359.
      Retrieved from:
      http://web.a.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=d33fe800-147d-
      4397-87e6-340f10007470%40sessionmgr4006&vid=4&hid=4201

McCullick, Bryan A., & Elliot, Jeremy., & Schempp, Paul G. (2016). An analysis of National Football
      League coaching trees and the network they comprise. *International Journal of Sports Science &*
      Coaching, 11(1) 4-15*.* DOI: 10.1177/1747954115624814

Potter, Robert F. & Keene, Justin R. (2012). The Effect of Sports Fan Identification on the Cognitive
      Processing of Sports News. *International Journal of Sport Communication, (5)* 348-367. Retrieved
      from http://web.a.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=92828093-
      45b5-4c4a-abd0-8ae097b5eb28%40sessionmgr4010&vid=4&hid=4207

Jewell, Amanda W. (2015). Interacting With Players and Coaches: The Impact New Media Has on the Fan
      Experience. *KAHPERD Journal, (52)* 2. Retrieved from:
      http://web.a.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=14593d35-2314-
      4bfb-a6e3-f2374eb42f93%40sessionmgr4007&vid=4&hid=4207

Roach, Michael (2016). Does Prior NFL Head Coaching Experience Improve Team Performance? *Journal*
      of Sport Management, (30). 298-311. Retrieved from:
      http://web.a.ebscohost.com.pluma.sjfc.edu/ehost/pdfviewer/pdfviewer?sid=a588a062-8c93-
      48d2-   b900-5f5e23baf5f2%40sessionmgr4006&vid=4&hid=4207

Media Impact on NFL Fans

Fast, Andrew. & Jensen, David. (2006). *The NFL Coaching Network: Analysis of the Social Network Among Professional Football Coaches.* Retrieved from: https://kdl.cs.umass.edu/papers/fast-jensen-aaai2006.pdf