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Kyle Stich

Student, kds09744@sjfc.edu

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Abstract

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Kim, Trail, & Magnusen (2013) have previously correlated fan identity to attendance motivation, but not in hockey. Attendance figures were compiled for the 2005 through 2011 seasons including pre and post All-Star Break. Also compiled were wins, goals scored, goals allowed, and fighting majors to attempt to find predictors of attendance. A stratified sample was used, dividing the teams into the two previously discussed markets. An F Test for ANOVA was run to find a statistical difference in attendance capacities for traditional markets versus non-traditional markets. Additionally, an Independent T-Test was run to find post All-Star Break attendances were significantly higher than pre All-Star Break attendances. Finally, a multiple regression determined none of the above variables were good indicators of attendance. This study laid groundwork for quantitative analysis to compare NHL markets but further studies need to be done to integrate fan identity.

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Kyle Stich

St. John Fisher College

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This research looked at attendance capacity for traditional and non-traditional hockey markets. The aim was to attempt to determine the extent the attendance capacities differed between the two markets. Previously, there had not been any quantitative analyses done comparing traditional and non-traditional hockey markets so this study aimed to add new knowledge to that area. The National Hockey League (NHL) grapples with the validity of some of the current markets, with many observers calling for some teams to relocate to new markets. This research aimed to attempt to determine how justified those criticisms were.

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Introduction

Fan Identity has been a highly studied topic in Sport Management. Daniel Wann is one of the leading researchers and many other scholars have expanded on his initial research. Previous work had been done that looked at displaced individuals, or fans living in the market of a team that differs from their rooting interest (Andrijiv & Hyatt, 2009; Wann, Polk, & Franz, 2011). There also had been research done concerning basking in reflective glory and cutting off reflective failure (Campbell, Aiken, & Kent 2004; Ware & Kowalski, 2012). There had also been research into attendance motivating factors. Kim, Trail, & Magnusen (2013) correlated attendance with fan identity while Coates & Humphreys (2012), Leadley & Zygmunt (2006), Paul, Weinbach, & Robbins (2013), and Winfree & Fort (2008) all specifically looked at attendance motivation for hockey fans.

The National Hockey League (NHL) recently struggled to find owners to take control of the Phoenix Coyotes after they had been league-run from 2009 to 2013 (Cotsonika, 2013). If owners were not found to keep the team in Phoenix, the NHL would have been forced to find a relocation city, such as Seattle or Quebec City (Cotsonika, 2013). Many observers argued it was time to move the Coyotes arguing they were a liability to the NHL, much like the Atlanta Thrashers were. People have started to question whether the NHL was wise to continue to support some of these southern teams. Many felt the NHL could do better by moving these teams to more northern markets.

This research was intended to look at the extent attendance differs in traditional hockey markets versus non-traditional hockey markets. Relocation of southern teams has been discussed on multiple occasions due to the perceived failure of the teams compared to the rest of the

league. This research helped to answer whether or not this perception was accurate. The purpose of this research was to find the extent attendance differs in traditional hockey markets versus non-traditional hockey markets.

This research was beneficial to the academic community in that it conducted a quantitative study that had not been previously done before. For sport practitioners, particularly those involved with the NHL, this research attempted to provide some insight into the viability of non-traditional markets.

The purpose of this study was to determine the extent of attendance differences in hockey markets. The research question of this study was:

To what extent does attendance differ in traditional hockey markets versus non-traditional hockey markets?

The intention of this research was to help understand the validity of non-traditional markets in the NHL.

Literature Review

Fan Identity

There have been many studies done concerning fan identity and the relationship fans share with the sport team they root for. Many fans commonly made themselves part of the team by saying, "We won tonight" (Campbell, Aiken, & Kent 2004). This was a common characteristic of fans and this was known as basking in reflective glory (BIRGing). However, fans also distanced themselves from the team during times of failure, which was known as

cutting off reflective failure (CORFing). A fan was often drawn to successful teams, those who win. They wore the team's apparel and display the team's colors and logo (Campbell et al.). Conversely, fans tended to shy away from associating themselves with a less-successful team. The opposite occurred by fans that participated in CORFing. They tended to not wear team apparel after a loss (Campbell et al.).

The work of Campbell et al. (2004) extended the idea of BIRGing and CORFing into a matrix where there was team success versus team association. When fans maintained a positive association through team failure, Campbell et al. defined this as Basking in Reflected Failure (BIRFing). Conversely, when a team was successful but a fan maintained a negative association, they are said to be Cutting Off Reflected Success (CORSing) (Campbell et al.).

BIRFing occurred for two reasons one internal reason and one external reason. Internally, the notion of loyalty played a major role. Campbell et al. (2004) exerted that loyalty could be used to help boost self-esteem that was lost with the fan's team's failure. The idea of boasting and maintaining one's self-esteem and an external image management was the main reason a fan participated in BIRFing.

CORSing was when a fan disassociated him or her self with success. Campbell et al. (2004) again offered internal and external reasons as to why a fan chose to act in this manner. First, the fan may have disassociated themselves if the team engaged in some sort of activity, which goes against their values or moral beliefs (Campbell et al.). An example would be when animal right advocates, whom were previously Philadelphia Eagle, fans disassociated themselves when the team signed Michael Vick.

Campbell et al. (2004) also discussed how a fan might enjoy associating themselves with an underdog and when the team began winning that feeling no longer resonated. Externally, the

fan may have been someone who enjoyed being a rebel. They may also have resented the so-called bandwagon or fair weather fans (Campbell et al.). Campbell et al.'s developments needed to be extended in future research to discover the relationship between involvement and BIRFing and CORSing.

Ware & Kowalski (2012) predicted a fan's tendency to BIRG or CORF. They studied the relationship between sex, fan involvement, and BIRGing or CORFing. They conducted a study where participants at a Bowl Championship Series (BCS) university were asked a series of 500 questions via survey about their fan involvement (Ware & Kowalski, 2012). Their responses were translated into numbers to have a quantitative data outcome. They found highly involved fans (referred to as die-hards), regardless of sex or favorite team, were the most likely to engage in BIRGing or CORFing (Ware & Kowalski, 2012). In Ware & Kowalski's (2012) study, there were conflicting findings to previous research. In many previous studies, high-involvement fans were less likely to CORF than "fair-weather" fans, but Ware & Kowalski (2012) found highly involved fans to be more involved in both BIRGing and CORFing.

Wann, Polk, & Franz (2011) conducted a study to extend previous literature. This study sought to determine the effect of being in a group setting while watching a sporting event in temporary conditions had on a displaced fan. Wann et al. defined a displaced fan as one who does not reside in the local where the team is found. In the study, four groups were set up to determine how viewers responded to watching alone or in a group, and watching University of Kentucky highlights opposed to general highlights. These individuals were Kentucky basketball fans. The result was the individuals who watched the Kentucky highlights in a group setting were less lonely. They felt a greater sense of belonging (Wann et al.).

Wann et al.'s (2011) findings are just a step in an unexplored direction. Their study used a very small sample size with the "break-up groups" also being a controlled size. The video they showed was of a successful team's most exciting moments. The research needed to be extended to find how people react in small groups or groups larger than 15. The video highlights shown should also be something that would not generally elicit a positive response (Wann et al.). However, it was important to understand how displaced individuals will react to watching sports by themselves opposed to in a group setting.

Andrijew & Hyatt (2009) interviewed 20 NHL fans that lived in Ontario, Canada but did not support a local hockey team. They found there were two main reasons fans rooted for a non-local team. These were uniqueness and belonging. Their results included many qualitative responses, which outlined that surveyed hockey fans want to be different and not follow what everyone else does (Andrijew & Hyatt, 2009).

These fans also showed a desire to be a rebel. Andrijew & Hyatt (2009) stated being a fan of a non-local team could lead to loneliness and isolation. They found these fans attempted to counter this feeling by either reaffirming that being "a rebel" was in line with their values or by trying to connect with other fans. This was harder in times prior to the Internet, but Andrijew & Hyatt (2009) stated many fans started to try to connect via online message boards, chat rooms, or blogs.

A major take away from the research done by Andrijew & Hyatt (2009) was it attempted to develop an understanding as to why fans, particularly hockey fans, chose to root for a nonlocal team. It was also critical to know how they will react to being "outsiders" and their need to attempt to connect to other fans. Andrijew & Hyatt's (2009) study was something that supplemented Wann's (2011) study.

Grieve, Shoenfelt, Wann, & Zapalac (2009) studied the effect of the lockout and coping mechanisms of hockey fans when there was no hockey being played. They used the Sport Spectator Identification Scale (SSIS) to measure how closely identified the participants, who were selected from an online hockey forum and from a preseason National Hockey League (NHL) game, were. Participants were asked to provide qualitative answers to four opened-ended questions (Grieve et al.).

The findings of the study were hockey fans were mostly successful with coping with the loss of hockey (Grieve et al., 2009). Fans' main coping mechanisms were to pursue other activities, follow other hockey teams, or play hockey instead of watching; however, some turned to other sports such as basketball (Grieve et al.). Additionally, highly identified hockey fans struggled more emotionally to cope (Grieve et al.). It was important to understand the potential impact the relocation of a franchise could have on its fans.

Attendance Motives

Kim, Trail, & Magnusen (2013) studied the relationship between the previously discussed fan identification and attendance. In previous studies, the relationship between people who scored highly on scales measuring motives to attend games did not highly correlate to individuals actually attending (Kim et al.). To attempt to further these previous studies, Kim et al. added identification as another factor to attempt to better explain behavior.

Kim et al. (2013) conducted an empirical survey with a wide-ranging sample focusing on a Division I-A football team. The survey was based on a seven-point scale in order to quantify the data in eight categories. Those categories were achievement, the success experienced, aesthetic, the beauty of the way sport is played, drama, the positive stress that comes with the outcome uncertainty, escape, a way to put aside everyday life for a few hours, knowledge, the

desire to learn more about a team, player, or sport, social, a way to mingle with friends or even strangers, skill, the mastery of elite athletes, and added value, whatever makes a certain game stand out from any other game. They used these results to determine what or whom the fans identified with (Kim et al.).

Kim et al. (2013) found that of the eight motives achievement and aesthetics had the most statistically significant impact on attendance intention. Additionally, the hypothesis that identification was a link between motive and attendance intention was supported (Kim et al.). A major take away from this research was that it helped to predict who was more likely to attend a sporting event opposed to those less likely to attend. Kim et al. stated these are the individuals sport organizations should target when attempting to sell additional tickets.

One of the potential contributing factors to NHL attendance was discussed by Leadley & Zygmunt (2006) who looked at the validity of the honeymoon effect in the NHL. The honeymoon effect is when a team moved into a new arena or stadium they experience an increase in attendance for following years. Leadley & Zygmunt (2006) used a previous NHL attendance model to determine if the honeymoon effect exists in the NHL. However, one challenge, which was presented, was most other research only looked at the effect of a new stadium or arena not the effect of a new team (there were six expansion teams in the NHL during the years assessed in the study) (Leadley & Zygmunt, 2006). The study looked at two time frames, one from 1970 to 2003 and another from 1991 to 2003. From 1991 to 2003, 22 of the 30 NHL teams played in a new arena (Leadley & Zygmunt, 2006).

Leadley & Zygmunt (2006) used a large cross-section of data, looking at attendance in new NHL arenas in the time periods outlined above. The study ran a statistical analysis on the attendance numbers over the specified periods. They found the honeymoon effect does exist in

the NHL and lasted approximately five years. During these five years teams tended to see an increase in attendance of approximately 15-20% (Leadley & Zygmunt, 2006).

The research done by Leadley & Zygmunt (2006) extended previous literature to include the NHL. Teams need to look at their potential honeymoon effect when deciding whether or not to build a new arena. However, the new arena will cause fans to come to games in the first eight years. Leadley & Zygmunt (2006) noted their research was important in that it should caution teams and cities to not be overly optimistic with assessing their honeymoon effect.

Like Leadley & Zygmunt (2006), Coates & Humphreys (2012) attempted to understand why fans attended NHL games by assessing the validity of Rottenberg's Uncertainty of Outcome Hypothesis. The study conducted used NHL attendance from 2005 to 2010, excluding games in Europe, games with missing data, and Winter Classics (Coates & Humphreys, 2012). Coates & Humphreys' (2012) hypothesis suggested that attendance would increase if the home team won and scored more goals and that penalty minutes and a low number of goals allowed related positively with attendance (Coates & Humphreys, 2012). Essentially, they looked at whether a more competitive game will increase attendance.

Coates & Humphreys' (2012) quantitative analysis did not support the hypotheses that fans desired to attend more competitive hockey games. The results of the study were fans preferred to attend games where the home team was more likely to win. The study also discovered fans preferred high scoring games (Coates & Humphreys, 2012).

The work by Coates & Humphreys (2012) was critical to NHL teams to understand why people attend hockey games. They could have used this information to attempt to build teams to attract fans to games. It was also some of the preliminary research done to attempt to explain

what made fans attend NHL games. However, the study failed to look at how competitiveness related to television viewership (Coates & Humphreys, 2012).

Like Leadley & Zygmunt (2006) and Coates & Humphreys (2012), Paul, Weinbach, & Robbins (2013) attempted to determine what caused fans to attend hockey games. They studied American Hockey League (AHL) attendance and how fighting, team performance, and promotions affected it. They looked at the 2010-2011 season. A regression model was run using attendance as the dependent variable and independent variables included day of the week, promotions, and on-ice performance (Paul et al.). The goal was to determine if fighting played a significant impact on attendance (Paul et al.).

Paul et al. (2013) determined fighting had a major impact on attendance. However, their results that related to competitiveness were the opposite of Coates & Humphreys (2012). Fans preferred to see more competitive opponents and preferred to see a high-scoring game. AHL fans were also responsive to giveaways (Paul et al.). Their findings were important in that they supported previous findings by Coates & Humphreys (2012) and helped determine that fans still enjoyed seeing fights when they attend games, so taking it out of hockey could impact attendance (Paul et al.).

Winfree & Fort (2008) looked at the effects of the NHL lockout as it related to attendance for minor league and junior hockey teams and whether NHL teams' attendance could be potentially harmed by the presence of an AHL or junior hockey league team. Winfree & Fort (2008) used Rottenberg's attendance demand model with independent variable of attendance price and closeness and availability of substitutes to test their hypotheses (p. 427).

Winfree & Fort (2008) conducted a quantitative study to determine important variables to assess the demand for minor league and junior hockey (p. 429). They then studied the effect of

hockey substitutes in NHL and NonNHL markets, looking at attendance while the NHL was playing hockey and during the NHL lockout (Winfree & Fort, 2008). Winfree & Fort (2008) found hockey fans enjoy consuming hockey but the effect of the lockout was different on minor league hockey and junior hockey. Overall, AHL teams saw an increase of attendance regardless of their location. However, junior league teams only saw an attendance increase if they were located in the same area as a locked-out NHL team (Winfree & Fort, 2008).

The research done by Winfree & Fort (2008) was important for two main reasons. First, Winfree & Fort (2008) outlined the research can be used by people developing habit and loyalty models of fan demand. Additionally, the information developed could be used to assess what would happen in a market, where there currently is a NHL team, were to potentially be relocated.

Non-Traditional Hockey Markets

The NHL has sought to grow the game to capture the attention of all of North America. This has included expanding into what have become known as non-traditional markets. A non-traditional market generally refers to teams that play in southern cities. However, it can also be thought of as a market where hockey does not have a well-established fan base and few numbers of participants. Non-traditional markets have been the subjects of much criticism by NHL followers due to the financial losses they absorb. However, the markets do have a role in the NHL.

Westhead (2004) detailed the struggle of many NHL teams during the NHL lockout of 2004. During the NHL lockout in 2004, there were five teams that were rumored to be in danger of moving or folding, including four teams from non-traditional markets. These teams were the Nashville Predators, the Carolina Hurricanes, the Atlanta Thrashers, and the Phoenix Coyotes.

The Pittsburgh Penguins were the only northern team to financially struggle. The amount of money teams were losing was very high.

The Hurricanes, the Washington Capitals, and Thrashers lost \$20 million, the Predators and Coyotes lost \$10 million, and the Penguins lost \$2 million with the lowest payroll. The Anaheim Mighty Ducks lost \$30 million and the New York Rangers topped the scale with a loss of \$50 million (Westhead, 2004). The significance of this article was in showing the financial difficulty many of the non-traditional market teams were in. One of the fears of observers of the NHL was these teams would bring the rest of the league down financially with them (Westhead, 2004).

Farber (2007) looked at some of the previously mentioned teams to show the improvement they have made in the hockey world, but also detailed some of the struggles they were still facing. Farber (2007) discussed the Southeast Division, comprised of Atlanta, Tampa Bay, Florida, Carolina, and Washington. This division was the only division to have every team score at least 145 goals but also every team had given up 150 goals, showing the up-tempo style of hockey they play.

Farber (2007) also looked at the recent success of the teams from the Southeast Division. Carolina and Tampa Bay had recently won Stanley Cups but the Atlanta Thrashers were the team leading the division. Farber (2007) also discussed that the play on the ice did not translate to the attendance in the stands. The teams in the Southeast division did not have high attendance numbers when facing other Southeastern Division teams. Instead, it took teams like Montreal, Toronto, New York Rangers, and Buffalo to draw fans because of the number of individuals who are natives of those areas but were living in the south during hockey season.

It's crucial to recognize that teams in the Southeast Division were competitive on the ice, despite being in non-traditional markets. However, despite their success and exciting style of play they still struggled to draw fans especially against teams in their division, who played an exciting style of hockey. The work of Farber (2007) combined with Westhead (2004) demonstrated why many NHL observers were concerned with the viability of non-traditional markets.

Hrudey (2006) helped to lay some groundwork for why the non-traditional markets are important to the NHL. Hrudey (2006) looked at hockey growth in the United States (US) compared to Canada. The US youth hockey programs have just started to rival the Canadians. Hockey was beginning to reach warm-weather locations such as Arizona, Hawaii, California, New Mexico, Texas, and Nevada, all of which are places some people never imagined hockey being played. Hrudey (2006) specifically looked at California. The growth of hockey in California was made possible by the trade of Wayne Gretzky to the Los Angeles Kings. This led to many new and quality hockey rinks to be built, allowing the quality of hockey to grow. Another barometer used by Hrudey (2006) was the placement of NHL prospects on Western Hockey League (WHL) teams. The Western Hockey League contained teams in “warm-weather” markets where hockey was not thought of as a traditional sport. A NHL prospect is a player whose rights were drafted by a NHL team for purposes of development.

Hrudey (2006) outlined how hockey grew and the previous perception of it being only a Canadian sport or a “niche sport” were shaken. It was critical to understand hockey must move into new markets where it has not been previously embraced to understand the importance of non-traditional hockey markets.

Paterson (2007) helped to expand on the discussion by Hrudey (2006) by specifically looking at the Dallas Stars' move from Minnesota to Dallas and the effect it had on the Dallas/Fort Worth area. The Stars moved to Dallas in 1993. At this time there was one ice rink and 250 youth hockey players in the area. In approximately 15 years, the Stars, with the help of sponsors, were able to build state-of-the-art ice rink facilities, which provided 20 sheets of ice. The youth participation grew to nearly 8,000. Like the Dallas Stars, the Carolina Hurricanes and Columbus Blue Jackets have followed similar steps to help grow the game of hockey in their cities (Paterson, 2007). It was critical to understand what NHL teams mean to the markets they play in and the work of Paterson (2007) helped to outline that. The impact the Dallas Stars had on the community of Dallas was well documented and showed the NHL relied on moving into these non-traditional hockey markets in order to spread the game of hockey.

Campbell (2009) furthered the discussion on the growth of hockey into non-traditional hockey markets. His main focus was on the NHL aged players from non-traditional markets. He outlined a number of players who recently made their NHL debut or were highly touted draft prospects. California had its first ever first-round draft pick and another player projected to be picked in the second round of the NHL draft. Texas also had a second round hopeful. Arizona was going to have its first native-born drafted in Luke Maffett, who was a first round hopeful. Jared Ross played ten games for the Philadelphia Flyers, becoming the first ever NHL player born in Alabama.

Campbell (2009) also expanded on the data presented by Hrudey (2006) and Paterson (2007). Campbell stated there were 21,000 people playing amateur hockey in California while Florida and Texas had 11,000 people each. He also stated there were more than 468,000 people registered with USA hockey. This article provided an important insight into not only the quality

of players that are being developed in the non-traditional market, but also the overall growth and participation in hockey. It expanded on previous discussions by Paterson (2007) and Hrudehy (2006).

Conceptual Framework

The three concepts that were looked at were fan identity, motivating factors for attendance, and the role of a non-traditional hockey market. Operationally defined, a fans' identity related to how closely a fan identified or associated with a particular team. It also took into account how easily their identity could be swayed. Fan identity also served as the first variable. It was important to understand that a displaced fan was a fan of a non-local team who lived in the market of another team.

The second concept, the motivating factor for attendance was operationalized as an attempt to provide an explanation as to why fans attend sporting events, specifically National Hockey League (NHL) games. As a variable, the honeymoon effect needed to be understood. This was the initial bump in attendance when a team moved into a new arena or new market. Fan identity and attendance had been correlated in previous research (Kim et al., 2013). Generally, the higher a fans' identity was, the higher the motivation to attend a sporting event.

The final concept to be understood was the role of hockey in non-traditional markets. These markets tried to bring awareness and participation to places where people have looked at hockey as a foreign sport. For the purposes of this study a non-traditional market was defined as a location where the average temperature is 65 degrees Fahrenheit or where hockey has not become entrenched as part of local culture. There has been no previous research done to attempt to integrate fan identity or fan motivation with non-traditional hockey markets. Therefore, there

were no previously established relationships or correlation between the variable of the role of non-traditional markets in the NHL to

Summary

The previous literature done on fan identity, attendance motivation, and non-traditional hockey markets laid groundwork for this study. This study looked at the extent to which attendance in traditional hockey markets differed from attendance in non-traditional hockey markets. The rationale behind this study was to attempt to determine if many of the non-traditional hockey markets were viable for the NHL or if they would be better off to relocate some of their teams. However, as previously discussed the NHL hoped to use non-traditional markets in an attempt to grow the game of hockey. This study was important in that it looked at a topic not previously researched.

Methods

The purpose of this study was to determine the extent of attendance differences in hockey markets. The research question of this study was:

To what extent does attendance differ in traditional hockey markets versus non-traditional hockey markets?

This research was intended to determine the validity of non-traditional hockey markets in the NHL.

This research used a cross-sectional design of quantitative secondary data. Attendance numbers were collected once from NHL.com for 29 NHL teams for the regular seasons from

2005 through 2011. For each season attendance figures were divided into pre-all-star break (or Olympics when applicable) and post-all-star break (or Olympics when applicable).

Procedure

Prior to data collection, stratified sampling was used to divide teams into two groups based on whether they were a traditional market or non-traditional market. For the purposes of this study a non-traditional market was defined as a location where the average temperature is 65 degrees Fahrenheit or where hockey has not become entrenched as part of local culture. Additionally, the Atlanta Thrashers and Winnipeg Jets were excluded from these groups due to the relocation of the team. Once the teams were divided into two groups by markets they were ordered based capacity percentage, which was the total attendance divided by the arena capacity. The middle five teams were then chosen to run statistical analyses on. This study also removed any games that were not played in a team's home arena.

NHL.com was used to collect the attendance for every team in the study for every game. Additionally, the wins, goals scored, goals allowed, and fighting majors for each team for each season were recorded. The data was entered into a Microsoft Excel workbook. Each game's attendance for each team was individually recorded and the last game before the all-star break (or Olympics when applicable) was highlighted to be able to sum the total attendance prior to the all-star break (or Olympics when applicable) and post-all-star break (or Olympics when applicable). Once the attendance numbers were compiled they were converted to an arena capacity percentage in order to properly order the teams. A pilot study was conducted to be certain the data collection could be duplicated.

Multiple F tests for ANOVA were run to determine the extent to which traditional teams differed in attendance from non-traditional teams as well as to determine if teams' attendance

differed significantly prior to the all-star break compared to post-all-star break. In order to compare traditional and non-traditional teams, the total attendance for the middle five teams from each group were aggregated and compared, using an ANOVA test. Additionally, the first teams in the middle five, second teams in the middle five and so on were compared, using an ANOVA test, against each other to determine the extent they differed.

Once the F tests for ANOVA were run, a post hoc analysis was run on context variables to determine how they correlated to attendance. A multiple regression was run on wins, goals scored, goals allowed, and fighting majors to determine which context variable was the biggest contributing factor for attendance. The works of Leadley & Zygmunt (2006), Coates & Humphreys (2012), and Paul et al. (2013) previously established these variables as potential motivating factors for hockey fans to attend games.

Results

The sample used for this study was 29 out of the 30 NHL teams. The lone exclusion was the Winnipeg Jets, formally the Atlanta Thrashers. Their exclusion was due to the team relocating during the time period picked for this study, which was from 2005-2011, the time between the two most recent NHL lockouts. They were divided into traditional and non-traditional markets by criteria previously outlined.

The following tables show a comparison for the arena capacity average for the entire NHL versus the average capacity for just non-traditional markets.

Table 1

*Average Capacity for 2005-2011
Seasons League Average vs. Non
Traditional Markets*

| <u>Year</u> | <u>League Average Capacities</u> | <u>Non- Traditional Markets Capacities</u> |
|-------------|--|--|
| 2005 | 92% | 90% |
| 2006 | 93% | 90% |
| 2007 | 96% | 91% |
| 2008 | 95% | 91% |
| 2009 | 94% | 88% |
| 2010 | 93% | 88% |
| 2011 | 95% | 90% |

The majority of this study focused on running statistical analyses to determine if there was a statistically significant difference between traditional market team attendance and non-traditional market team attendance and if there was a difference in attendance prior to an all-star break and after an All-Star break. An alpha of .05 was used to test statistical significance for all tests.

The first test run was an F test for ANOVA between the traditional and non-traditional markets, comparing the attendance capacities for traditional and non-traditional markets. The results are summarized in table 2 below. For each season, the middle five capacity percentages were chosen for each market. In the case of non-traditional markets, the teams ranked fourth through eighth were chosen; due to there being a middle six teams. The results were there was statistical significance for this test, indicating a significant difference in attendance in traditional markets versus non-traditional markets.

Table 2

Traditional Versus Non-Traditional Markets

| <u>Year</u> | <u>DF</u> | <u>F</u> | <u>Sigma*</u> |
|-------------|-----------|----------|---------------|
| 2005 | (1,8) | 23.775 | 0.001 |
| 2006 | (1,8) | 29.665 | <.001 |
| 2007 | (1,8) | 24.156 | 0.001 |
| 2008 | (1,8) | 18.022 | 0.003 |
| 2009 | (1,8) | 2083.085 | <.001 |
| 2010 | (1,8) | 12.266 | <.001 |
| 2011 | (1,8) | 6.788 | 0.031 |

*Alpha of .05 was used

An independent t-test was run to attempt to analyze the difference in attendance pre-all-star break versus post all-star break. The grand means for all seven seasons were used for pre-all-star break and post-all-star break. On average, there was a greater average capacity post All-Star break (M= .96, SD= .02) than pre All-Star break (M= .93, SD= .01). The difference was significant ($t(12) = -3.649$, $p = .003$).

Finally, a multiple regression was run using wins, goals scored, goals allowed, and fighting majors to attempt to find if any of those variables were predictors of attendance. The middle five teams from 2005 in both traditional and non-traditional were used to have a total sample of 10. These teams' grand means for attendance, wins, goals scored, goals allowed, and fighting majors were computed from the seven seasons. The result was there was not statistical significance ($p = .55$) using the previously listed variables. This indicated that none of the above variables were good predictors of attendance.

There were three different statistical tests run on different variables to attempt to make various determinations about NHL attendance from 2005 to 2011, all using an alpha= .05 to determine significance. An F test for ANOVA was used to find traditional markets had significantly higher attendances than non-traditional markets. Next, an independent t-test was run

to determine attendances post All-Star (or Olympic) breaks were significantly higher than those attendances prior to All-Star (or Olympic) breaks. Finally, an attempt was made to determine if any of wins, goals scored, goals allowed, and fighting majors were good predictors of attendance. It was determined that none of them were.

Conclusion

Discussion

This study sought to determine the extent non-traditional market attendance differed from traditional hockey markets. A total of seven years were assessed in an attempt to make an assessment. The time period between the two lockouts, 2005-2011 was used. It was concluded that attendance capacity in traditional markets was significantly greater than those capacities in non-traditional markets. Also found was that the league average capacity for games played post All-Star (Olympic) breaks were significantly higher. However, it was not determined specifically where the variances lied.

The review of the literature discussed the role of non-traditional hockey markets. The purpose of non-traditional markets was to grow the game of hockey. However, non-traditional markets have been the subjects of much criticism by NHL followers due to the financial losses they have absorbed. Westhead (2004) detailed the financial struggle of many NHL teams during the NHL lockout of 2004. During the NHL lockout in 2004, there were five teams that were rumored to be in danger of moving or folding, including four non-traditional teams. These teams were the Nashville Predators, the Carolina Hurricanes, the Atlanta Thrashers, and the Phoenix Coyotes. One of the fears of observers of the NHL was these teams would bring the rest of the league down financially with them (Westhead, 2004).

Since the work of Westhead (2004), only one of those teams, the Atlanta Thrashers have moved (to Winnipeg). However, the fears of NHL observers about these teams still exist. This study substantiated that these fears are a legitimate concern. From purely an attendance standpoint, this study showed non-traditional markets do in fact lag behind traditional markets. It added another quantitative analysis to support the fears that non-traditional markets negatively affect the NHL.

Farber (2007) also discussed that the play on the ice did not translate to the attendance in the stands. The teams in the Southeast division did not have high attendance numbers when facing other Southeastern Division teams. Instead, it took teams like Montreal, Toronto, New York Rangers, and Buffalo Sabres to draw fans because of the number of individuals who are natives of those areas, but were living in the south during hockey season. The notion presented by Farber tied back to the displaced individual study done by Wann et al. (2011). Wann et al. found that displaced fans that watched their favorite teams in a group setting felt a greater sense of belonging. The delimitations placed on this study did not allow this possible connection to be substantiated.

Hrudey (2006), Paterson (2007), and Campbell (2009) all looked at how hockey has grown in non-traditional markets. They looked at hockey rinks in non-traditional markets as well as NHL players from those markets to attempt to determine if the sport of hockey was growing in the non-traditional markets. As shown in Table 1 in the results section above, the non-traditional market attendance capacities have been lower than the league average for the entire length of the study.

Paul et al. (2013), Coates & Humphreys (2012), and Leadley & Zygmunt (2006) all attempted to determine what was the biggest motivating factor for individuals to attend games.

They looked at goals, the competitiveness of a game, and fighting majors. By running a multiple regression, this study determined that the goals scored, goals allowed, wins, and fights were not statistically significant predictors of attendance, therefore the only conclusion that could be drawn was those variables cannot solely predict attendance.

Limitations

This study was very limited in taking into consideration of possible factors that could impact attendance. First, there was no attempt to measure fan identity for any of the teams. This study also did not take into consideration the day of the week games were played. Additionally, not taken into consideration was the opponent. The only games not included in this study were games not played in the team's home arena. No consideration was given to games that potentially had weather conditions (or other situations) adversely effect attendance. Furthermore, no consideration was given to the economic spending power in any market.

Delimitations

In addition to the limitations in the scope of this study, intentional delimitations were also placed on the data collected. First, the effect of success on attendance was attempted to be minimalized in picking the middle five teams for traditional and non-traditional markets. Additionally, this study did not look at ticket prices or assess the economic conditions of any of the markets that were used in this study. This study used quantitative secondary data, which prevented it from exploring fan identity on a quantitative level. The notion of fan identity was previously discussed in the review of the literature. The key to determining what truly serves as an attendance motivator for NHL games appeared to lie there.

Future Implications

This study just scratched the surface of what can be done to better understand NHL attendance. As previously discussed, there were many limitations purposefully placed on this study that could be better addressed. First, there could be a study done to look at the effect certain visiting teams, such as those discussed by Farber (2007), have an effect on attendance. There could be a similar study run looking at attendance for games played on weeknights versus games played on weekends. There is also room for expansion on the years studied. The years studied in this study were a time period when the NHL, with the exception of the relocation of Atlanta to Winnipeg, was stable in franchise locations and addition. A study could be conducted to look at time periods when non-traditional markets were first introduced into the league. The biggest future study that needs to be conducted is a study on fan identity with respect to NHL teams. The link could lie in the fact that fans in traditional markets identify much stronger with their team than those in non-traditional markets.

In the future, the role of non-traditional markets could be expanded on. This study has laid some groundwork for potential future studies in this area. As previously discussed, non-traditional hockey markets do not provide as much attendance for the league as traditional markets. With many hockey observers believing there are many, what would be considered traditional markets, untapped, there should be future studies conducted to attempt to quantify what type of role non-traditional hockey markets play in the grand scheme of hockey.

Summary

The literature review looked at fan identity, motivation for attendance, and the role of non-traditional markets in the NHL. This study was unable to expand on anything concerning fan identity, as attendance numbers were strictly looked at, with no underlying

context. Because of this, the study was not conclusive in its findings. Even though the results were mostly inclusive due to the number of limitations placed on the study, groundwork to build upon was established with some possible connections that need further exploration.

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