Data and Methods Statement

Research Question

Do Virginia Tech men's basketball team players **Virginia Tech athletes** demonstrate better or worse behavior during the national anthem than their peers?

Hypotheses

Virginia Tech men's basketball players demonstrated better behavior than their peers during the pre-game rendition of the national anthem.

Data

Two main data sources were utilized in preparing the policy memo and presentation, photographs and internet content. Photographic data consisted of photographs taken during various National Collegiate Athletic Association (NCAA) men's basketball contests during the 2015-2016 season, focusing on player behavior during the rendition of the national anthem. Internet content consisted of news articles focused on a special practice session Virginia Tech Coach Buzz Williams held on November 11, 2015.

Photographic data sought by the research team centered on uniformed basketball players from Virginia Tech and the university's peer institutions. The request made to Virginia Tech's Athletics Department was specific, seeking photographs taken prior to the game while the national anthem was being played and honors rendered to the United States Flag. A sample of 100 photographs were obtained from Virginia Tech Athletics sources. An additional 19 photographs were obtained directly from the National Collegiate Athletic Association (NCAA) commercial photograph web site at the suggestion of Virginia Tech Athletics. Photographs were received in a variety of formats, placed on the research team's shared site, and converted to

Tagged Image File Format (TIFF) using GIMP 2.0, an image processing tool. Photographs used in the study were renamed as outlined in the code book.

Internet content sought targeted a specific, Virginia Tech – produced video segment which was released on November 11, 2015. A specific Google search for "Virginia Tech Basketball Anthem" was performed using two specific search filters covering the ten-day periods of November 11-21, 2015 and March 5-15, 2016. These date ranges were selected based upon two distinct events. Coach Buzz Williams conducted a training session for the Virginia Tech players on November 11, 2015 which was the impetus for the release of the video. The video experienced a rapid increase in views went viral on or about March 7, 2016. The research team worked backwards from that date to identify the date internet content began reappearing with the video or national anthem storyline. Of particular interest to the research team was the use of negative language and the presence of factual errors in internet content in the March 5-15 time frame.

Sampling Strategy

Photographic Data: The photographs were selected as part of a homogenous, purposive sampling strategy. The sample being investigated is quite small, and the individual sample units (uniformed basketball players) are similar in gender, age and interest. (Lund Research Limited, 2012). The sample cannot be used to make generalizations about the larger population. The population associated with the research would consist of all 11,464 NCAA Division I men's basketball games played in the 2015-2016 season. (National Collegiate Athletic Association, 2012). The sample size consists of 466 subjects representing 14 teams in the 35 games from which photographs were obtained. There is an expected bias in the sample, as the researches are

aware that at least 307 subjects were exposed to training on etiquette during the national anthem in November 2015.

Method of Analysis

Photographic Data: A spreadsheet consisting of two data sheets was created in Microsoft Excel™. Sheet 1 was renamed "Code Book" and used to document the schema used for cataloguing photograph metadata, variables, and operational definitions. Using the video and images from the training session conducted on November 11, 2015 by Coach Buzz Williams, a visual reference was created for the coding of the individual subjects based on three specific dimensions: demeanor, posture, and conformity. Subjects were coded simply as compliant (0) or compliant (1) based on the operational definition found within the code book. All photographs received were included on the actual coding sheet as part of the research record. Some photographs were excluded from analysis based on specific criteria:

- The photograph appeared to be taken in rapid succession to a previously coded photograph, and would be duplicitous;
- The photograph was taken in a manner such that the angle did not provide sufficient information for coding, i.e. taken from behind the team; or
- There were no men's basketball team players visible in the photo; or
- The photograph was not taken during competition, i.e. photographs taken during the team's November training session.

A subject was coded if face, hands, torso, and feet were visible in the photo. Players that could not be seen clearly, where obstructed by other players, out of focus, or otherwise presented

visual difficulty were not coded. After coding, subjects were categorized as Virginia Tech and for all other combined teams and a frequency distribution created.

Internet Content: A spreadsheet was created in Microsoft Excel™. Sheet 1 was renamed "Code Book" and used to document the schema used in coding the internet content. As with the photographs, purposive sampling was used although in this case samples were heterogeneous and researchers made a deliberate attempt to capture a range of sentiment and perspectives. The first four pages of Google search results were evaluated for each time period. Internet content was excluded from further analysis if:

- The content consisted only of the original video as released in November 2015, with fewer than 50 words of textual content; or
- The content was duplicitous with another previously coded article, or simply repeated content from a news aggregator or service; or
- The content directs to social media, without editorial content; or
- The content was not relevant to the primary research purpose, i.e. "Virginia Tech football player smacks referee..."

Once the articles were coded, the raw text from each was extracted using the web site *Textaliser* (http://www.textaliser.com). The raw text extraction was opened in the simple text editor *Notepad++* and reviewed against the original content. Each article was assigned to a separate sheet in the spreadsheet using the taxonomy outlined in the code book. The headline for each analyzed article was placed in cell A1 of the relevant sheet. Content of each article was placed in subsequent cells in column A in increments approaching 2048 characters, ending each cell's content with a completed sentence. This was necessary due to limitations in Microsoft Excel and the research team's sentiment analysis software, *Semantria* by Lexalytics

(http://www.lexalytics.com). A trial version of the software was used to conduct a sentiment analysis on each sheet of internet content. The sentiment score for each document (sheet) was separated into two discrete elements:

- A sentiment score for the headline; and
- An average sentiment score for the internet content.