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The Impact of Social Media Sentiment on Market Share for Higher Education Institutions

Brandi Nicole Newkirk
Georgia State University

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The Impact of Social Media Sentiment on Market Share for Higher Education Institutions

by

Brandi Nicole Newkirk

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Executive Doctorate in Business

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY

ROBINSON COLLEGE OF BUSINESS

2023

ACCEPTANCE

This dissertation was prepared under the direction of the *BRANDI NICOLE NEWKIRK* Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the J. Mack Robinson College of Business of Georgia State University.

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ACKNOWLEDGEMENTS

As I write this acknowledgment page, my heart is filled with deep gratitude toward the individuals and communities who have played an essential role in my dissertation journey.

As I stand at the culmination of this journey, I am reminded of the profound truth that "it takes a village" to achieve great things. I am profoundly humbled and grateful for the countless individuals and communities who have been instrumental in my academic pursuits. The unwavering support, encouragement, and contributions from my village have been the solid foundation of my success. From FAMU, GSU, OES, DST, Bethel Tally, and MSM to my loving and supportive family and the inspiring network of friends and colleagues, each member of my village has provided invaluable guidance, mentorship and unwavering belief in my potential. Together, through shared experiences and collective efforts, I have grown as a researcher, learner, and individual. I am profoundly thankful for the villages that have surrounded me, uplifted me through challenges, and celebrated my achievements. This dissertation not only reflects my dedication but also stands as a testament to the strength and unity of the village that has supported me at every step.

The foundation of my village starts at home with my family, whose unwavering love, support, and sacrifices have been the bedrock of my success. A special thank you goes to my mother, Valarie Newkirk, who has always had my back, supported me, believed in me, and prayed for me regardless of the circumstances. Your unwavering faith in my abilities and constant encouragement has fueled my determination to overcome challenges and achieve my goals.

I sincerely thank my committee chair, Dr. Satish Nargundkar, for his invaluable support, guidance, and expertise throughout this research endeavor. His dedication and commitment have significantly shaped this dissertation and nurtured my growth as a researcher.

I also want to express my gratitude to my dissertation committee members, Dr. Denish Shah and Dr. Subhashish Samaddar. Their constructive feedback, thoughtful suggestions, and thorough examination have greatly enhanced the quality of this research.

The faculty members of Georgia State University in the J. Mack Robinson College of Business deserve my utmost appreciation. I am indebted to them, especially Dr. Lars Mathiassen, for their knowledge, expertise, and unwavering dedication that have greatly influenced my intellectual development and contributed to the success of this dissertation. Their commitment to academic excellence has been a constant source of inspiration.

My heartfelt thanks go to my Florida A&M University (FAMU) community, which has provided me with exceptional educational experiences, invaluable mentorship, and opportunities for intellectual exploration. The legacy of excellence and commitment to nurturing scholars at FAMU have profoundly impacted my academic and personal growth. I want to extend a special thank you to Beverly Barrington, whose belief in me pushed me to the next level in my personal and professional growth journey.

I would also like to acknowledge the influential roles played by the Order of the Eastern Star (OES) and Delta Sigma Theta Sorority, Inc. (DST) in shaping my character, resilience, and sense of community service. To the members of Divine Light #6, OES, PHA, I am sincerely grateful for your unwavering support and for providing me with a solid foundation and a shoulder to lean on during challenging and celebratory times. To the incredible 39 Enchanting Elements of Essence of the Tallahassee Alumnae Chapter of Delta Sigma Theta Sorority, Inc., I cannot express enough how much I appreciate the love and support you all have given me over the years. You all have continually challenged and inspired me to become a better version of

myself. The principles of sisterhood, empowerment, and service upheld by OES and DST have been a constant source of inspiration and strength throughout my academic journey.

Lastly, I would like to acknowledge the support and encouragement of my friends and colleagues, who have been integral parts of my academic journey. Your camaraderie, stimulating discussions, and shared experiences have created a network of support and inspiration.

To all those mentioned above and the countless others who have contributed in various ways, I offer my sincerest thanks. Your support, encouragement, and contributions have shaped me into the researcher and woman I am today. Being surrounded by such incredible individuals and communities is a true honor.

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ABSTRACT

The Impact of Social Media Sentiment on Market Share for Higher Education Institutions

by

Brandi Nicole Newkirk

August 2023

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Major Academic Unit: Doctor of Business Administration

In recent years, university enrollment and market share have been discussed among administrators. With declining populations and increased educational pathways for students, the need to capture the attention of prospective students is of increased interest. At the same time, social media has become a significant factor in the lives of current and potentially future generations. This factor influences not only trends but also decision-making. As a result, higher education institutions must ensure a requisite social media presence and manage their social media reputation to impact potential students' intent to enroll. This study explores these components and how one influences the other.

A quantitative exploratory study utilizing social media data was deployed for this research study. This allowed for the examination of the level of influence social media posts have on a student's decision to apply to an institution of higher education. Social media sentiment of various institutions was used to develop a net sentiment score. This score was then compared to the number of applications received yearly. It was posited that the two items would be positively correlated. Regression, correlation, and time series analyses were used to explore the relationship between the variables.

This study contributes to practice and theory by identifying tools to assist institutions in monitoring social media sentiment, forecasting applicant pool size, and highlighting social media reputation as a statistically significant element in students' college choices. The inclusion of social media sentiment as a factor in the information component of choice models adds a brick to the current literature around college choice. Therefore, this study provides a valuable contribution to understanding social media and its impact on higher education institutions' reputation and applicant pool size.

INDEX WORDS: College Choice, Higher Education Institutions, Market Share, Perspective Students, Reputation Management, Social Media Influence, Social Media Presence, University Application Trends.

I INTRODUCTION

The expected decline in potential market share has prompted universities to develop innovative ways to attract students to their respective institutions. Preliminary data released by the National Clearinghouse shows that fall 2021 enrollment declined by 3.2% on top of the 3.4% decline in undergraduate enrollment nationwide from fall 2020. This decline is expected to continue over the next decade. Figure 1 depicts the high school graduate projections through 2037. While Figure 2 illustrates the projected college enrollment.

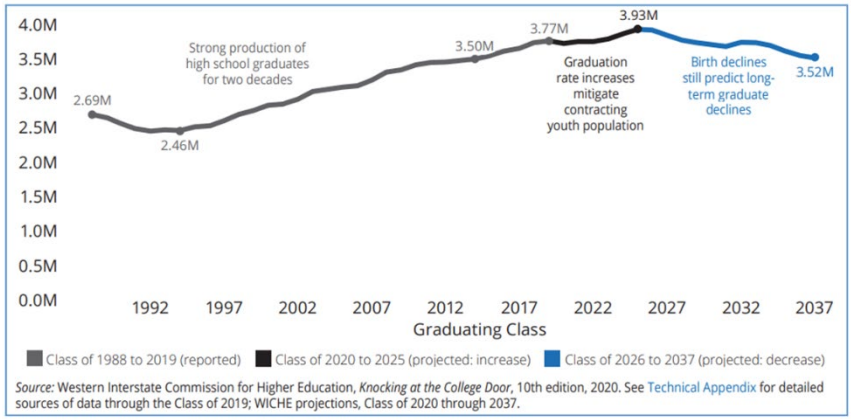


Figure 1: High School Graduation Predictions

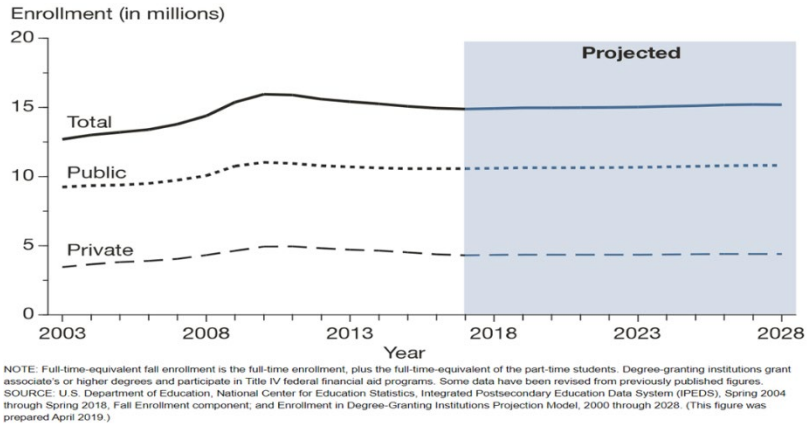


Figure 2: Projected College Enrollment

A dramatic increase in educational pathways as also been seen over the past decade. This was intentional to bring more efficiency and transparency to career pathways, starting from academic programs, non-credit bearing training, or other starting points to credentials for employment, as depicted in Figure 3. This increase provides valuable alternatives to students in their pursuits of career success.

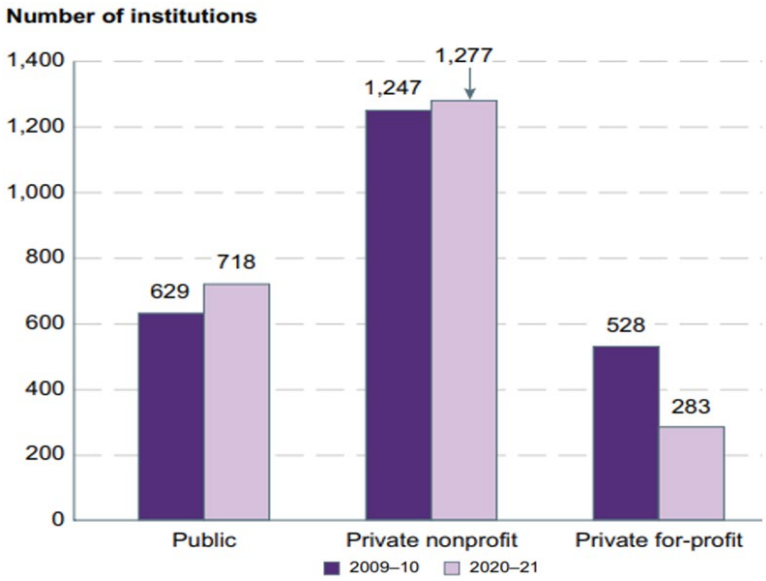


Figure 3: Count of Degree-Granting Institutions

With these external factors in play, universities consistently look for ways to ensure they remain relevant and maintain operations for future generations.

I.1 Issue & Background

In recent years, university enrollment and market share have been discussed among administrators. With declining populations and increased educational options for students, the need to capture the attention of prospective students is of increased interest. At the same time, social media has become a significant factor in the lives of current and potentially future generations. This factor influences not only trends but also decision-making. As a result, higher education institutions must ensure a requisite social media presence and manage their social

media reputation to impact potential students' intent to enroll. The dissertation topic explored these constructs and how one influences the other. It was anticipated that there is a statistical relationship between social media reputation and college choice. The study utilized social media sentiment to a net sentiment score for various institutions. This score was then compared to the number of applications the institution receives annually. It was posited that the two items are positively correlated.

Ideally, as the sentiment score increases, so would the applicant pool size. Increased applications could lead to increased enrollment (market share). For practitioners, the reputation score could enhance planning for future years to increase market share. Universities would be able to implement actions needed to manage their social media sentiment as a form of brand reputation management and better prepare for foreseen declines. A summary of the research design is provided in Appendix A: Research Design.

I.2 Research Purpose

This study aimed to quantify an institution's social media reputation through sentiment analysis, allowing a comparative analysis to determine its impact on students' intent to enroll (college choice), measured by the number of applications at a particular university.

The hypothesis is that a statistical relationship exists between social media net sentiment scores and the number of applications received at a higher education institution. Additionally, a positive directional relationship is posited.

I.3 Significance

This study identifies a method for institutions to determine their social media reputation, enhance brand awareness, and plan for improvement. Additionally, practitioners are able to prepare for expected increases or declines in potential student populations.

Additionally, this study promotes social media reputation as a critical element in students' college choices. This adds to the college choice models found in the literature and expands the factors currently included in reputation building in higher education institutions.

I.4 Glossary of Terms

Table 1 provides a glossary of terms to ensure clarity throughout the discussion within the paper.

Table 1: Terms for Clarification

Term	***Definition***
University	An institution of higher learning providing facilities for teaching, scholarship, and research, and are authorized to grant academic degrees. For this study, University and Higher Education institutions are used interchangeably.
Market Share	The percentage of the market a company supplies for a particular product or service that. For this study, market share was a reference for the applicant pool size at each university. Given the relatively consistent trends in high school graduates, universities have a constant number of students to attract.
Social Media	Electronic communication methods like social networking websites and microblogging platforms that enable users to establish digital communities where they can share a wide range of content including personalized messages, ideas, information, and videos.
Component	A constituent part or ingredient.
College Choice	Influences affecting prospective students' choice of which college to attend. For this study, college choice was a reference for the number of applications received by a university.
Reputation	The collective beliefs, opinions, and impressions that people have about an individual, organization, or brand, usually based on their actions, behavior, and overall image over time. This study measured reputation by the net sentiment score developed through social media sentiment analysis.
Reputation Management	The process of identifying, monitoring, and influencing an individual or organization's reputation. For this study, reputation management was a reference for using social media to monitor and control the narrative around a university's reputation.

I.5 Limitations & Assumptions

As with any research, there are limitations to this study. However, meticulous intent was taken to minimize the range and scope of limitations throughout the research process.

Additionally, general assumptions were made to move the research forward. The following limitation and assumptions were identified.

- The institutions selected for the study were based on the 2023 US World News and Report Ranking of Best Colleges. Future studies may deem it appropriate to expand the scope of institutions to replicate the findings.
- The years capsulated in the timeframe of the study include the pandemic years. Given the nature and impact of the pandemic, it was assumed that all universities included in the study were equally impacted. The utilization of long-range historical data should mitigate false results. However, short-range replications of this study may deem it appropriate to exclude the years related to the pandemic.
- Social media is embedded into our culture. This study assumes that all students intending to apply for college have and regularly use social media as a source of information.

I.6 Introduction Summary

The objective of this dissertation was to anticipate college enrollment tendencies by utilizing online social media information and forecasting patterns in college selection. The study undertakes a distinct path in analyzing how college applications, social media impact, and reputation play a role in decision-making. Despite its inadequacies, one's online persona may significantly influence application patterns following evaluations of personal, institutional, and environmental factors. Essentially, this study serves as a propitious stride in recognizing and enhancing this subject matter.

II CHAPTER II: LITERATURE REVIEW

The expected decline in potential market share (student pipeline) prompted universities to develop innovative ways to attract students to their respective institutions. Meanwhile, social media became a significant factor in the lives of current and potentially future generations. It is critical to identify factors, such as social media, which affect the potential market share from year to year.

The following constructs were explored to better understand social media's potential impact on market share. The literature review was focused around (1) college choice, (2) social media influence, and (3) reputation management in higher education. A scholastic, traditional review of the literature was conducted for the research study. The definitions in Table 1 provides a glossary of terms to ensure clarity throughout the discussions within the paper. These were used to define the scope of the research. Table 2 provides the construct definitions.

Table 2: Construct Definitions

Constructs	Definition
College Choice	Influences affecting prospective students' choice of which college to attend.
Social Media Influence	Impact of interactive technologies that facilitate the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks (Wikipedia contributors, 2023).
Reputation Management	Monitoring the reputation of an individual or a brand, primarily focusing on the various platforms addressing potentially harmful content and using customer feedback to solve problems before they damage the individual's or brand's reputation.

II.1 Description of Literature Search

A scholastic, traditional literature review was conducted for the research study. The literature focused on (1) college choice, (2) social media influence, and (3) reputation

management in higher education. Based on my initial interest in the topic and a general google scholar search, the following definitions were determined.

1. College Choice – influences affecting prospective students' choice of college.
2. Social Media Influence – the impact of interactive technologies that facilitate the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks. (Wikipedia contributors, 2023).
3. Reputation Management – monitoring the reputation of an individual or a brand, primarily focusing on the various platforms addressing potentially harmful content and using customer feedback to solve problems before they damage the individual's or brand's reputation.

A search was conducted using ABI/Inform Database collection to identify the articles relevant to the proposed research. The following keywords in Table 3 were used for the initial search of the literature.

Table 3: Identification of Key Search Terms

Constructs	***Key Terms Searched***
College Choice	• Choice of college • College choice model • College choice and higher education • College choice and decision-making
Social Media Influence/Marketing	• Online marketing • Social media marketing • Marketing and social media • social media influence on marketing • social media influence • social media advertising • higher education and marketing
Reputation Management	• reputation management • reputation management AND marketing • reputation management in higher education • image and reputation of higher education institutions • higher education and reputation

General search parameters were used in the ABI/Inform Database collection. Table 4 displays the steps and the number of articles identified within the search. The database search was set for full-text articles in scholarly journals within the United States. The titles of the top 100 articles were reviewed to determine relevance to the literature synthesis. The top 100 was determined based on sorting the search returns by relevance.

Table 4: Identification of Relevant Articles

Selection Step	**College Choice**	**Social Media Influence / Marketing**	**Reputation Management**	**Cross Relevance Search**
Step 1: Broad Search with keywords from Table 1	692,473	165,570	212,640	89,477
Step 2: Inclusion of general search parameters (Full Text within the US.)	28,797	19,380	17,634	2,279
Step 3: Search Articles in scholarly journals	15,137	2,842	1,758	267
Step 4: Identifying articles with the last ten years	9,005	2,132	918	151
Step 5: Selecting most relevant articles (Title Review)	(Sorted by relevance, review limited to top 200) 36	(Sorted by relevance, review limited to top 200) 45	(Sorted by relevance, review limited to top 200) 39	22
Step 6: Selecting most relevant articles (Abstract Review)	23	22	18	14
Number of reviewed articles: 77 (see Appendix B for a complete list)				

A total of 142 articles were selected after the initial title review (Step 5). The second-level review of abstracts (Step 6) yielded 77 articles based on relevance. A systematic review was conducted to synthesize the literature. NVivo 12 Plus was used to identify and categorize emerging themes. Additional supplemental materials were also used in the analysis, including chapters from published textbooks and recent dissertations.

The following (Figure 4) summarizes the content extracted from the abstract reviews.

Figure 4: Context Analysis

This selection process assisted in determining the constructs included in the research.

II.2 Conceptual Framework

Quantifying an institution's social media reputation allows a comparative analysis to determine its impact on students' intent to enroll (college choice), measured by the number of applications at a particular university.

According to Iloh (2018), the college decision-making model bears three crucial aspects: information, opportunity, and time. These aspects create a bidirectional picture in college selection, but they require a comparison of participants and their context. The three dimensions highlight the significance of the environment and context that surround participants. The information factor requires an analysis of the quality and quantity of data over a given time to shape the process of college selection.

Understanding the plethora of information points and the potential insights students could gain from social media enhances the importance of incorporating the management of this information medium. Figure 5 below represents the components of this dissertation and the connection between the constructs.

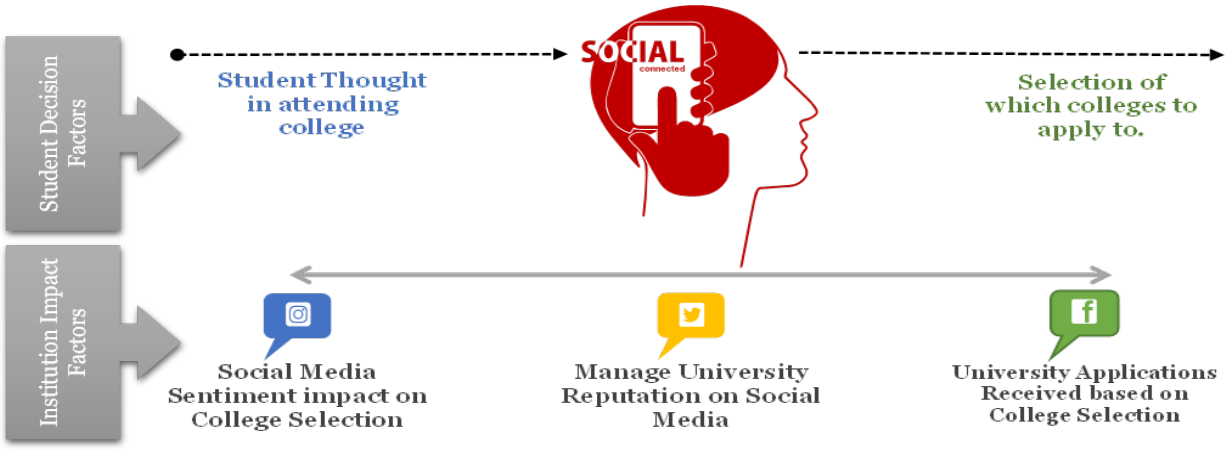


Figure 5: Conceptual Framework of Impact of Social Media Reputation on College Choice

The potential students of today demand the best of higher education possibilities. The decision to attend a particular college could have a lifelong impact. The role of higher education institutions is to ensure that sufficient information is available to shape and inform this decision. This could be accomplished in a manner that benefits the institution by managing the impact factors displayed in the framework above.

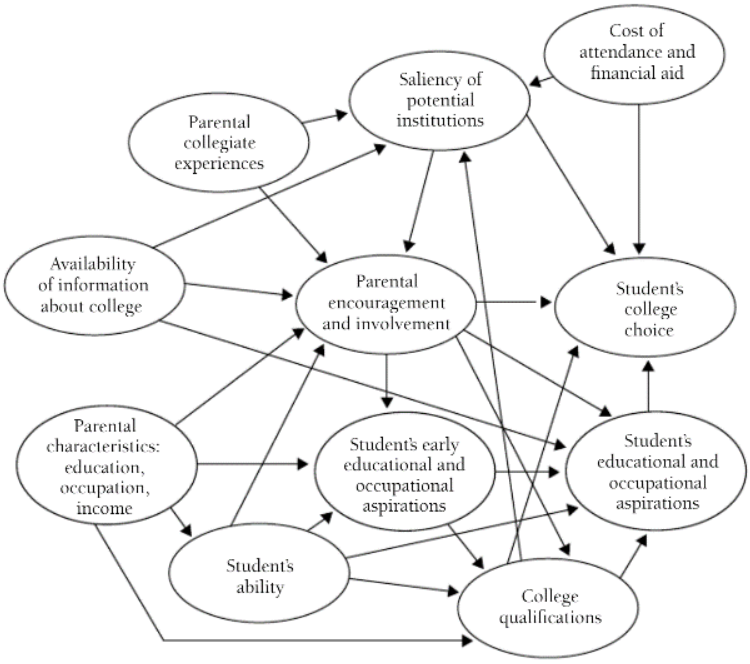
II.3 Review of Literature

II.3.1 The Impact (College Choice)

There is a wealth of theories in the literature surrounding college selection. According to earlier research, students begin considering college options as early as seventh grade and go through a three-stage process, as described by Hossler and Gallagher (1987). This includes a predisposition to attend college, gathering information, and ultimately selecting a college to attend.

However, these theories have primarily focused on behavioral and economic factors. More recent college choice theories seek to comprehensively understand the process, rather than only explain the decision-making aspect (Graff, 2011). These newer models incorporate both traditional economic and sociological theories. Economic elements include cost-benefit analyses and rational actions, while sociological factors consider family circumstances, socialization, and interactions with peers.

Figure 6 below represents the college choice process presented in Cabrera, A.F. and La Nasa, S.M. (2000), Understanding the College-Choice Process. New Directions for Institutional Research, 2000: 5-22. This depiction represents the modern college choice model previously mentioned.



Source: Based on Berkner and Chavez, 1997; Flint, 1993, 1997; Horn, 1997; Hossler and Vesper, 1993; Hossler, Schmit, and Vesper, 1999; Perna, 2000; Sewell and Hauser, 1975; Stage and Hossler, 1989; St. John, 1990; Terenzini, Cabrera, and Bernal, forthcoming.

Figure 6: College Choice Process

Iloh (2018) introduced a novel model referred to as the Iloh Model of College-Going Decisions and Trajectories. This model is a comprehensive framework designed to capture the

complexities related to pursuing higher education among a diverse population. Drawing from previous research, the model integrates various college-going experiences and institutional settings, utilizing anthropology and ecology as its foundation. As noted by Iloh (2018), the model features an ecological perspective that puts emphasis on all facets of a person's interaction with society. More specifically, the framework recognizes three critical dimensions that influence a person's college-related decisions: information, time, and opportunity.

Figure 7: The Iloh Model of College-Going Decisions and Trajectories

Unlike prior models that theorize a linear framework, the Iloh (2019) model positions the three components of the model in a cyclic, codependent, iterative framework. The model is designed to be used at various points in an individual's life to understand the rationale behind one's college decision.

As with many decisions, various stages in one's life can play a role in a decision. I'm sure we all have thought back to decisions we made 20 years ago and contemplated how we

would have responded or chosen differently given our current knowledge, experience, and new information that may be available.

An understated factor that plays a role in all these models is the impact of information consumed by the potential student from social media. The accessibility and relevance of information on social media can significantly shape decisions and choices. The Iloh model provides a relevant base for discussion. This model will be addressed further within the discussion section to identify how the flow of information from social media influences college choice. The focus of this dissertation will be situated on the information section of the model mentioned above.

Additionally, an underlying theory that impacts college choice, and decision making in general, is rational choice theory. In its simplest terms, rational choice theory states that people make decisions that benefit or align with their personal goals after logical analysis (Frahm, 2019). Whenever an individual is given choices, such as which college to attend, they are most likely to select a choice that will maximize their advantages (Wittek, 2013).

Some literature suggests rational choice theory as a general theoretical framework for explaining social inequality in educational attainment. This viewpoint is appropriately suited to be captured in the Iloh (2019) model for college choice. The approach distinguishes between primary and secondary effects (Muller, 2023). Primary effects consider many of the economic factors within the decision process. Secondary effects are conditional results from evaluating information and success probabilities.

Rational choice is reflected in the Iloh model and explains the need of an iterative cycle in the decision process. As information is obtained, rational choice would account for the

information process stage in which the consumed information is digested and accounted for to make the most advantageous choice.

II.3.2 The Influencer (Social Media)

The rise of social media began with the advances of the internet and enhanced interconnectivity between individuals (Hajli, 2014). This interconnectivity through social media enabled consumers to generate content and have social interactions online via numerous social platforms. Thus started a new mode to facilitate information sharing. According to DataReportal's new Digital July 2022 Global Statshot Report, the number of people using social media is over 4.7 billion worldwide. This is a 5.9% increase over the previous year. An interesting finding in the report was related to people's news channels. The report states that people are now 2½ times as likely to turn to social media for news as they are to turn to physical newspapers and magazines (Logan et al., 2018).

Social media is a technology that operates on computers for enhancing the sharing of ideas and concepts in virtual communities and networks. Stern (2010) notes that the age of social media provides a platform for participants to express their opinions and complaints to an ever-expanding connected society. A report by NM Incite (2012) revealed that 71% of social media users had favorable experiences and were inclined to recommend the brand to others based on the last interaction. Dolan et al., (2019) explain that social media has revolutionized how businesses and organizations interact with consumers and the market. As a result, customer preferences, marketing practices, and demand prediction have been impacted by the advent of social media.

Social media is one of the essential instruments for generating a brand image and higher revenues (Bradley, 2010). Nonetheless, not all organizations pay significant attention to social

media impact, as it remains a novelty. The primary goal of the literature focus for this component is to underline the importance of social media and emphasize the connection between social media, reputation, and an organization's brand equity.

Social media continues to change the way people think and interact with one another. Additionally, information consumers, or potential students, have shifted in identifying and digesting information. Social media has an intense influence on the development of an organization's reputation and ability to gain market share. With technology development, more approaches have become available to enhance customer communication (Kotler & Keller, 2012).

Social media as a phenomenon has developed significantly. However, a consensus on the impact has not yet been reached (Dijkmans et al., 2015). This aspect is rapidly gaining popularity. The primary misunderstanding associated with social media is customers' availability and unlimited access to information (Pencarelli, 2018). The reactions to the information posted may or may not be under the organization's control and cause a sense of unpredictability in the impact.

As the business community has begun to embrace social media and the implications of one's presence on various platforms, higher education has not been moved as swiftly in the movement to utilize and manage this new mode of information to its full potential. Social media is considered a disruptive technology. Mainly due to the opportunity to directly reach a large audience and build a brand is available through it. In higher education, the benefit of social media has been utilized to promote collaborative learning (Sanjeev, 2021). Yet, the business side of education has not fully embraced this leverage. Research indicates that every university should, as a priority in today's higher education, develop a strategy for incorporating information technology, including the use of social media (Papademetriou et al., 2022).

II.3.3 The Involvement (Reputation Management)

Reputation is a valuable intangible asset for organizations, yet it is increasingly challenging to manage in an era with hard-to-control online conversations (Dijkmans et al., 2015. The main reason an organization participates in online activities is the assumption that they are beneficial for its reputation. Corporate reputation is presented in much of the current literature. It is "a collective representation of a firm's past behavior and outcomes that depicts its ability to render valued results to multiple stakeholders" (Fombrun et al., 2000).

The literature presents several factors to support the importance of reputation (Dijkmans et al., 2015).

- Reputation is a key parameter in the selection process.
- A positive reputation can create market entry barriers for competitors and foster customer loyalty and retention.
- Reputation can increase willingness to invest.

In our digital world, it is necessary to monitor social media activity over time to improve the actions taken and the impact of various components.

According to the State of the Higher Education Social Media Marketing Profession survey conducted by Brandwatch in 2021, some higher education professionals view social media management as lacking substance. However, literature suggests two aspects of social media as a reputation management instrument: positive and negative. Sands et al. (2019) disclose that social media can pose risks for individuals, communities, and organizations in terms of privacy infringements and excessive information disclosure. On the other hand, Ibrahim et al. (2022) reveal that social media can also provide benefits such as sharing, conversation, relationships, groups, reputation, and personal promotion, among others.

One approach for higher education institutions to participate in reputation management activities is through social customer relationship management (SCRM). According to Ibrahim et al. (2022), the life cycle of a university constituent is as significant as that of a product consumer. Moreover, Ibrahim et al. (2022) state that SCRM emphasizes finding and keeping research funders, students, faculty, and other constituents, which is similar to the goals of corporations in maintaining and attracting customers.

Managing reputation can enable universities to engage with student satisfaction feedback immediately, which could boost student retention in higher education- a critical factor for financial sustainability (Daradoumis, 2010). As a result, effective use and adoption of social media as a reputation management tool are becoming increasingly essential to university operations.

II.3.4 The Three I's

One factor that was unclear in the literature is the impact of social media on the decision process. Within the literature, the role of social media is considered from the institution's perspective and utilized as a recruitment tool. The impact of college choice, factoring in social media influence, was underrepresented, and warranted exploration.

Some aspects of research focus on the utilization of social customer relationship management. This has become more of a practice in various industry sectors. However, there is little research on its use in higher education. Ibrahim et al. (2022) proposes that utilizing effective social media platforms, such as Instagram, Facebook, WhatsApp, and YouTube, integrated and connected as an information search center could be an essential communication tool for the academic community.

II.4 Literature Review Summary

This research study determines the impact of social media on college choice as indicated by students' intent to enroll. The literature revealed social media as a prominent, influential factor to be considered. However, there was limited research on the impact of this influence—specifically, the impact on the decision-making process related to choosing a college. Within the Iloh model, the information component of the model was explored. Social media should be situated as a secondary factor within this component of the model. This aligned with the position of rational choice theory as a secondary effect on the overall college choice process.

This study took a unique approach to exploring the intersection between college applications and social media influence. After considering personal, organizational, and environmental factors, I propose that online social media reputation significantly affects application trends. Additionally, higher education institutions are able to utilize quantifiable data to determine future application trends. This study also prompted the need for institutions to better monitor their online presence.

III CHAPTER III: METHODOLOGY

The study applied the traditional gap-spotting approach to determine the research area. As discussed in the literature review, the gap identified was the inclusion of social media as a factor in the college choice model. Additionally, higher education institutions' utilization of social media to influence perceived reputation and increase the applicant pool size received was explored. A qualitative approach was taken to analyze and explore this gap.

This chapter covers the determinations made to explore the research gap further. This includes the research design, research question, instrumentation, description of variables, and analysis strategy.

III.1 Research Design

A quantitative exploratory study was deployed for this research study. An exploratory research design was deemed appropriate to explore the variables of this study. Exploratory research aims to examine causal relationships (Rahi, 2017). Additionally, a better understanding of factors could help researchers design interventions to prevent falls.

The goal of the research design for this study was to:

- Develop a comprehensive query that accurately collects relevant data on higher education institutions.
- Utilize a social listening platform to train models to segment unstructured text data into nuanced categories, providing a lens to view the data and compare results.
- Propose comprehensive dashboards to organize core insights in a way organizations could easily interpret.

This study explored the level of influence sentiment of social media posts have on a student's decision to apply to an institution of higher education. Unstructured data was used to gather insights into individuals' perceptions of various universities. Unstructured data refers to data that isn't easily searched and requires more processing time. Sources that are likely to give unstructured data might be:

- Social media posts
- Photographs
- Call logs from customer service conversations
- Open-ended questionnaires

Social media posts, or social data, were in the form of unstructured data for this research. Finding value in social data means understanding the variables between people, content, and time (Babbie, 2020). Analyzing people includes analyzing the voices taking part in the form of individuals, groups, and communities. The content analysis looks at the expression of an idea, attitude, or opinion in posts, tweets, pictures, or comments. The time analysis looks at moments, periods, or durations in the form of lengths of campaigns, crises, launches, or general periods. Connecting these variables allows researchers to build ideas and thoughts for research.

The Brandwatch Consumer Research platform was used to understand unstructured social data. This social listening platform provides the ability to bring structure and meaning to vast amounts of social data through natural language processing, machine learning, and advanced image analysis.

Brandwatch was used to analyze mentions and posts of universities (public and private) to derive consumer sentiment related to the universities. Using the topics over time component in

Brandwatch, online conversations mentioning the universities were analyzed to determine the reputation based on sentiment.

III.2 Research Question

This study sought to quantify an institution's social media reputation based on sentiment analysis of posts, which allows for exploration in determining its impact on students' intent to enroll (college choice), measured by the number of applications at a particular university.

The initial assumption was that there is a positive correlation between these variables. The following hypotheses were explored.

Hypothesis 0:

- There is no association between the variables under study.

Hypothesis 1:

- There is a statistical relationship between an institution's social media net sentiment scores and the number of applications received at an institution of higher education.

Hypothesis 2:

- There is a positive relationship between an institution's social media net sentiment scores and the number of applications received at an institution of higher education.

III.3 Instrumentation

The Brandwatch Consumer Research platform was utilized to collect and analyze social data. The following information was extracted from www.brandwatch.com to provide context to the reasoning for using the platform.

Brandwatch was launched in August 2007 and is a tool used for monitoring social media. It focuses on collecting, sorting, and presenting data. The platform allows for customization by letting users select filters such as country, source, type, credibility, and sentiment to analyze data and focus on relevant insights.

The process for monitoring social media involves four stages. The first stage is data gathering where Brandwatch's crawler collects data from social networks, micro-blogging sites, news services, video sites, image sites, discussion forums, and corporate sites based on the user's search query. In the second stage, the data is filtered to remove irrelevant and outdated posts, advertising, and spam. A Natural Language Processing algorithm is used to filter by language. The third stage involves analyzing the remaining data with a five-point analysis process consisting of language detection, title and content extraction, query matching, sentiment analysis, and recurring phrase identifications. In the final stage, clients can create custom reports through online dashboards and download reports in excel workbook or CSV format.

The platform's limitations are with sentiment classification and spam filtering, which can be improved through human intervention, as stated by Brandwatch.

The following data sources were collected from the platform.

- As a Twitter Official Partner, Brandwatch has been granted unparalleled access to every historical and real-time Twitter data.
- Ongoing Facebook data is collected using channels that include 400 days of historical data for owned and non-owned posts.
- Mentions are collected within owned and non-owned Instagram channels or by authenticating and searching for Instagram hashtags.

- Collection from LinkedIn channels allows users to monitor mentions on their owned business pages on LinkedIn. These channels bring in owned posts and comments and anonymized audience comments.
- YouTube videos and comments are collected via third-party data providers. Mentions collected using this method include Comment text beneath YouTube videos, Video descriptions text, and Metadata.
- Brandwatch has access to complete Reddit data for all active sub-Reddits. This ongoing data is retrieved in near real-time.
- Coverage of many popular news sites, along with many smaller local news sites covered, including CNN, ABC, BuzzFeed, Guardian, Google News, Washington Post, MSN, Independent, The Times, BBC, Forbes, Daily Mail, ESPN, Metro, USA Today, Stuff.NZ, India Times, Stock Observer, Yahoo News, Fox News, NBC, and more. Most “news aggregation” sites which are low-quality pages that tend to copy and paste articles from the original sources, are filtered out.
- Thousands of forums are covered, with data going back to 2010, including Mumsnet, MyFitnessPal, Psychology Today, AVforums, Stack Overflow, Goodreads, Investopedia, GameSpot, FlyerTalk, Tianya, Naver, MacRumors, MoneySaving Expert, Market Watch, Glassdoor, The Student Room, Steam Community, and more.
- Data from millions of blogs is collected, with data going back to 2010, including WordPress, Medium, Blogger, Typepad, TMZ, IGN, Engaged, Business Wire, Mashable, Techcrunch, Kottke, Business Insider, Gizmodo, IMDB, LifeHacker, The Verge, Hardwarezone, TechRadar, and more.

Brandwatch is the world's leading social intelligence company. The platform fuels more thoughtful decision-making around the world. Millions of online conversations are gathered daily, providing users with the tools to analyze them and make insightful, data-driven decisions.

III.4 Variable Setting

The following variables in Table 5 came into play in this research study.

Table 5: Variables Considered in the Research Study

Variables	Definition
Social Media Posts	Social data extracted from various social media medians. A count was included for the number of posts collected.
Sentiment Analysis	Sentiment analysis is a natural language processing technique used to determine whether data is positive, negative, or neutral. The percentage of how many posts contained in each category was provided.
Reputation Score	The reputation score is based on the sentiment analysis ratio. The ratio is the combined percentage of negative comments compared to the combined percentage of positive comments which produces the net sentiment score
College Choice	College choice is based on the number of college applications a university receives annually.
Control Variables	The following variables were included in the model to control for other factors that may determine the applicant pool size at an institution. • Annual Enrollment Number • Number of Full-time Faculty • Endowment Value

Social Media Posts

A social media post is a message, usually in the form of a text or photo, published online by a user through a message board, comment section, or social network. Some deem it a micro-blog site in which end users can post their comments in various forms of slag, symbols, idioms, misspelled words, and sarcastic sentences (Singh et al., 2020). A post represents a visual or written piece of content that can easily be published across various social networks.

Sentiment Analysis

Sentiment analysis is the computational look at people's opinions, appraisals, attitudes, and emotions toward entities, individuals, issues, events, topics, and attributes (Liu and Zhang, 2012). It is usually used to understand the emotion behind social media posts. Sentiments are commonly categorized as either positive, negative, or neutral based on the post's tone. This is a quantifiable way to provide insight into individuals' feelings or needs towards an organization, product, or service. It is also a valuable technique to gauge brand reputation.

Reputation Score

The reputation score is based on the sentiment analysis ratio. The ratio in sentiment analysis is a score that looks at how negative and positive comments are represented. The ratio is the combined percentage of negative comments compared to the combined percentage of positive comments daily. This daily ratio will be aggregated to determine an annual score. The yearly net sentiment score will be utilized as a representation of each university's reputation.

College Choice

College choice is represented by the number of completed applications a university receives annually. Data on the applicant pool size received will be collected from admissions statistics publicly posted by institutions. Previous years data will be pulled from the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS).

Control Variables

The following control variables were utilized for this study to control for other factors that may impact the applicant pool size. Including control variables allowed for improved causal

interpretability of the estimated coefficient and improved the estimated coefficients' precision (Klarmann and Feurer, 2018).

- Annual Enrollment Number – Enrollment speaks to the size of the institution.
- Number of Full-time Faculty – Faculty size speaks to the class size and faculty involvement.
- Endowment Value – Endowment amounts can be a byproduct of the university's reputation and alumni's dedication.

The idea was that by adding control variables to the model, hypothesized effects were estimated at constant levels of the control variables. If hypothesized relationships remain after adding the controls, alternative causal explanations involving the control variables could be ruled out. If explanations are not accounted for in the model, the analysis suffers from omitted variable bias or endogeneity (Ebbes et al. 2009).

III.5 Data Collection

Sentiment analysis, extracted from the Brandwatch Consumer Research platform, was used to determine the reputation score of universities in the United States. Historical social media data, back to 2011, was used. The search over the past years provided access to a large sample of data, in which to explore trends.

The universities were selected based on the scope in which they span and provide a representative sample of universities across the United States. Below in Table 6 are sample demographics to show the breadth of the institutions included in the sample and validate the sample.

Table 6: Demographics of Institutions used in Sample.

University Name	Fall 2021 Total Enrollment	Spring 2021 Instructional FTE	Fiscal Year Endowment Assets
Arkansas State University-Beebe	2,776	116	$425,000
Florida Agricultural and Mechanical University	9,000	634	$10,378,000
Georgia State University	36,973	1,462	$6,869,000
James Madison University	22,166	1,178	$7,217,000
Sam Houston State University	21,612	906	$8,608,000
University of North Carolina at Chapel Hill	31,641	2,081	$ 178,383,000
University of Oklahoma-Health Sciences Center	3,235	1,071	$ 13,130,000
Wake Forest University	8,947	2,036	$ 204,986,000
West Virginia University at Parkersburg	2,346	107	$8,017,000
Western Michigan University-Thomas M. Cooley Law School	691	60	$ 43,117,000
Xavier University	6,632	533	$37,617,000
Yale University	14,567	2,989	$ 2,854,828,000

(IPEDS https://nces.ed.gov/ipeds/datacenter/Data.aspx*, 2022)*

These factors were extracted from IPEDS Data Center. Ten years of data were collected for the study. The selection of universities was based on the following criteria selected within the data center. The full listing of institutions is included in Appendix C: Institutions Included In The Study.

- Within the United States of America.
- Public/Private 4-year or above institutions
- Degree-granting, primarily baccalaureate or above
- Has full-time first-time undergraduates

To look at sentiment, the automatic sentiment categorization was utilized to analyze how it changed over the years. Queries were set up for each university. The query allows the

construction of complex Boolean searches. Once that data was collected, Boolean rules and machine learning classifiers were used to segment the data.

The platform analyzed the volume over 30-day increments, and if in more than 5 of those day the number of mentions in a day exceeds 5,000 mentions, then the query is sampled. The sample rate is calculated by looking at the percentage overage on the 5th highest day, then applying that as an ongoing sample rate for the query (e.g., if on the 5th highest day, the query returned 10,000 mentions, the sample rate would be set at 50%.)

III.6 Data Analysis

The exploratory design of this study allowed for multiple points of analysis to be conducted to explore patterns and relationships. The data was analyzed in a manner to look at patterns in public versus private universities and the combined pool as well. A regression analysis, controlling for size, was utilized to determine the interaction between the variables previously mentioned. Analysis over time was also conducted to identify patterns and relationships over time.

According to Techfunnel.Com, regression analysis is a statistical technique that removes any association between an independent variable and a dependent variable. It is a useful tool to measure the strength of the relationship between variables (Smith, 2017). There are several types of regression analysis, including linear, non-linear, and multiple linear. The study examined the regression coefficients and the p-values to determine the strength of the relationship. If the p-value was less than 0.05, the independent variable was considered statistically significant. The p-value also helped to check whether the relationship observed in the sample was applicable to a larger population (Smith, 2017). Moreover, the patterns in the data were examined with the help of regression analysis.

A review of the correlations provided in the regression analysis allowed for additional exploration. Just as its name suggests, correlation enables the researcher to establish a relation between two closely related topics or variables. Correlation is a bivariate analysis that measures the strength of association between two variables and the direction of the relationship (Hassan, 2022). This means that when one variable goes up, the other will respond by increasing or decreasing, establishing a positive or negative correlation, respectively (StatisticSolutions.Com).

Additionally, time series analysis was conducted to study the data over the course of ten years from various universities. Time series analysis evaluates a sequence of data points collected over time. Time is a critical factor since it indicates how data changes over the period of time (Ghavami, 2019). It provides further information and an ordered set of dependencies between the data.

III.7 Data Collection and Refinement

The list of institutions included in this study originated from the 2023 US News & World Report's Best Colleges rankings. The complete list of institutions is provided Appendix C: Institutions Included In The Study. This provided a relevant sample representative of US institutions in size and geographical location. The included list was based on institutions that received a ranked score. Institutions that were in group rankings, 331 to 440, were not included. A total of 329 institutions were included in the study. The ranks were also utilized in the analysis. The ranks encapsulate data on 17 indicators of academic quality. Schools were ranked by total weighted score, and some were tied. Ranks ranged from 1 to 317. Metrics extracted from the full report include the following.

- US World News Rankings Overall Score 2023
- US World News Rankings Peer Assessment Score (5.0=highest)

- US World News Rankings Acceptance Rate 2021
- US World News Rankings Average Alumni Giving Rate 2023

To ensure a robust study, the following data points were extracted from the Integrated Postsecondary Education Data System (IPEDS). Data was downloaded for the academic years 2011 to 2021. These variables were classified as the institutional characteristics for the data set.

- IPEDS Unit-ID
- Institution Name
- City location of institution
- State abbreviation
- Name of chief administrator
- Carnegie Classification: Enrollment Profile
- Control of Institution (Public vs. Private)
- Historically Black College or University
- Level of Institution
- Institutional Category
- Admissions Total
- Applicants Total
- Total enrollment
- Endowment assets (year-end) per FTE enrollment (GASB)
- Endowment assets (year-end) per FTE enrollment (FASB)
- Full-Time Retention Rate
- Instructional FTE
- Faculty All

- Student-to-Faculty Ratio

The ‘compare institutions’ data tool, depicted in Figure 8 below, was used in the IPEDS data center to download the above-mentioned variables. This data tool allows access to raw data for a selected group of institutions for one or more IPEDS variables. (“The Integrated Postsecondary Education Data System”) It allows the user to download IPEDS data files for more than 7,000 institutions and up to 250 variables. “Data files are provided in comma separated value (*.csv) format.” (“The Integrated Postsecondary Education Data System”)

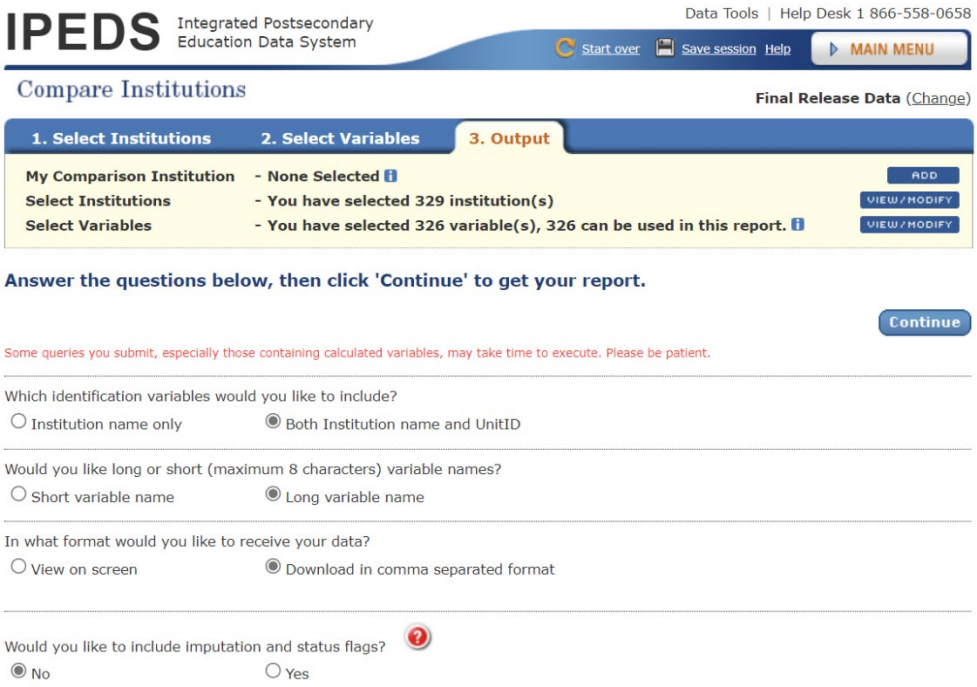


Figure 8: IPEDS Compare Institutions Data Tool Download Screen

The reputation of each institution was measured based on variables extracted from the BrandWatch platform. The following metrics were extracted through queries ran in the platform utilized in the data set.

- Social Media Mentions
- Social Media Reach

- Social Media Impressions
- Social Media Posts
- Net Sentiment
- Positive Sentiment
- Neutral Sentiment
- Negative Sentiment

An initial sample of 50 queries were written and ran in the platform to test the validity of the data. The initial run was deemed inappropriate and was riddled with noise. The queries were then rewritten, and additional exclusions were incorporated to remove unnecessary social media posts and mentions. Additional key words and defining variables were included as well. To further define the queries, the Facebook page, Instagram page, and Institutions Webpage were included in the query. Figure 9 shows the query builder within the platform. A query from one institution is included, along with the filter options available in the query builder. This builder was used to build the query for each of the 329 institutions individually.

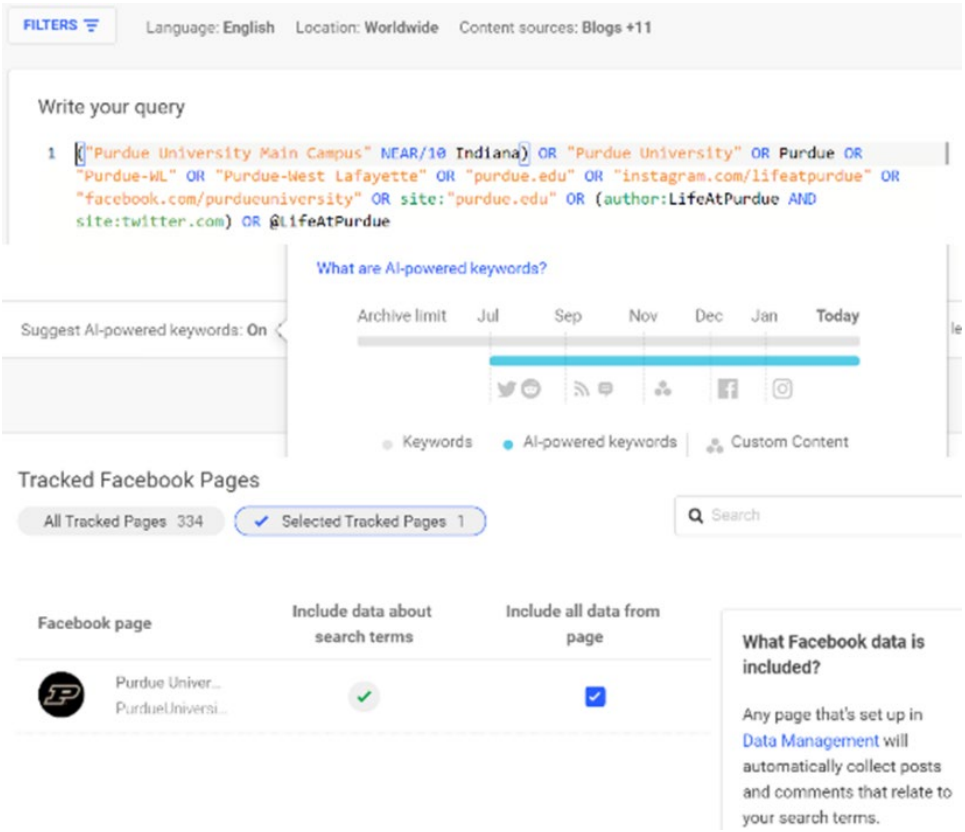


Figure 9: BrandWatch Query Builder and Filter Options

Queries were written and ran for 329 institutions. The query results were reviewed for inaccuracies and to weed out irrelevant posts. The queries were then rerun to ensure relevant social media data was included in the query results. Additional training of queries was done to accurately reflect sentiment.

III.8 Data Preparation

The collection of data being complete, the preparation of the data for analysis began. The social media metrics were explored within the platform to ensure appropriate categorization of sentiment. Samples were reviewed and sentiment of posts were reclassified as needed. These adjustments added to the validity of the sentiment scores produced in the platform.

Brandwatch has an average accuracy of around 60-75% but this will always vary with the type of data being looked at. Sentiment is inherently subjective, and people interpret this task's

definition differently. It has been shown, for example, that two humans only agree on the sentiment of something around 80% of the time. Review of posts ensures higher accuracy in the evaluation.

Rules were set up in the explore function of the platform that amended the sentiment of mentions as they come in, according to those words that are typically misclassified for context. Again, this enhanced the degree of sentiment accuracy within the results.

Figure 10 provides a sample of one post that was reviewed. The sample shows a post related to students making the dean's list. As indicated by the platform, this was a positive post. Once confirmed the post is marked as checked and saved.

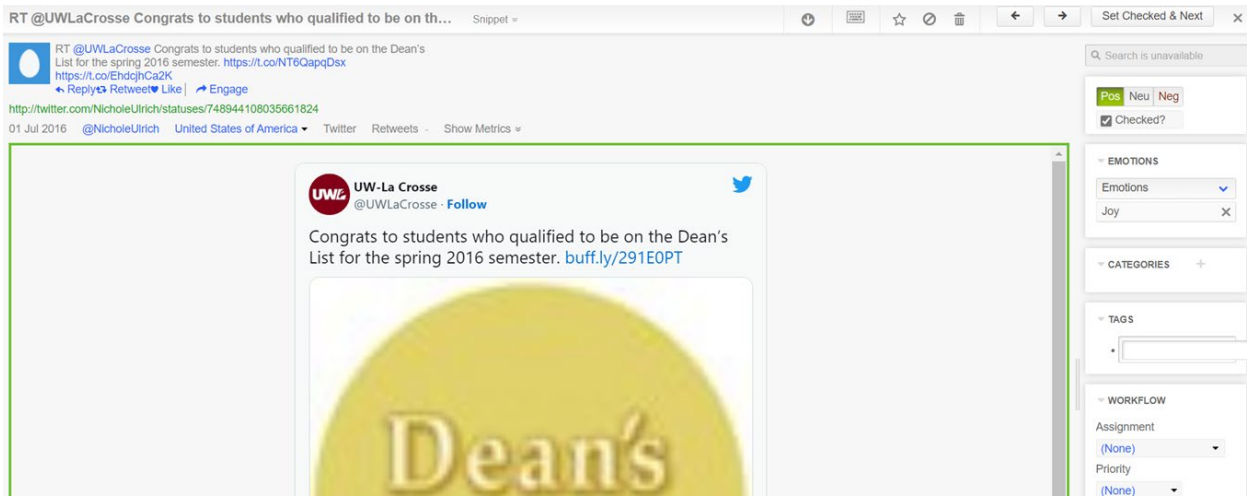


Figure 10: BrandWatch Sentiment Review and Re-Classification

This process of review and checking was done for each institution. Approximately 200 posts were reviewed for each of the 329 queries. Overall, approximately 65,800 posts were reviewed and checked to add to the query's accuracy, increasing the sentiment analysis's validity.

Figure 11 depicts the overall review screen from which the posts that were reviewed were selected.

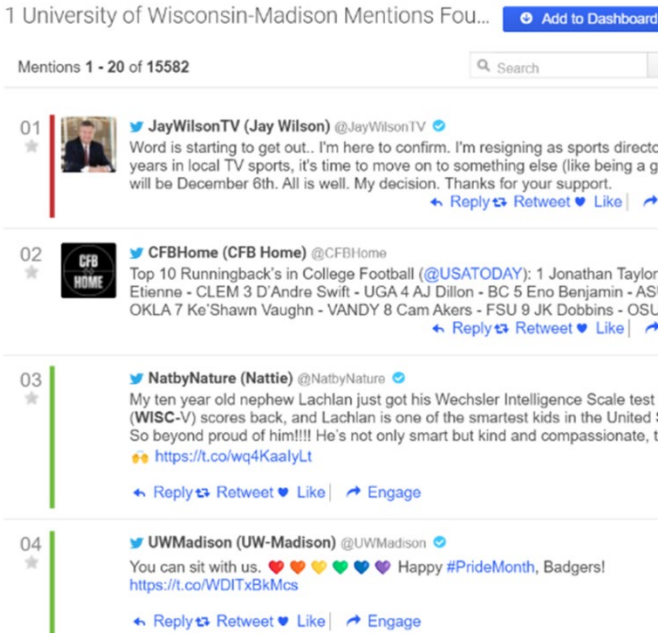


Figure 11: BrandWatch Social Post Review Screen

Data sets were produced for each institution to include metrics related to posts, mentions, reach, impressions, and sentiment. Sentiment was dispersed by positive, neutral, and negative post sentiments. Additional data was produced from each dashboard explorer that was not utilized in this analysis, however, may be deemed appropriate for future research. This metrics include content source over time by reach and mention type (original post, comment, share), content source over time by net sentiment and page type (YouTube, twitter, reddit, etc.), demographics, topic cluster, and trending keywords/phrases. A full sample of the download for one institution is provided in Appendix D: Social Explorer Dashboard. A screen shot for one institution is provided in Figure 12.

The information produced, displayed in Figure 12, was per month over 12 years. The monthly records allowed for additional evaluation in the calculation of the annual net sentiment score. The monthly records included social metrics from January 2010 to January 2023. This information was annualized to be able to compare with the annual institutional characteristics

downloaded from IPEDS. Social media posts, reach, mentions, and impressions were summed to calculate the annual value. The same was done for the number of positive, neutral, and negative. The net sentiment was annualized by averaging the monthly records for the year. Academic years, July through June, were used to code the monthly records for the summation and averaging of metrics. The additional charts from the social explorer dashboard are provided in Appendix D: Social Explorer Dashboard.

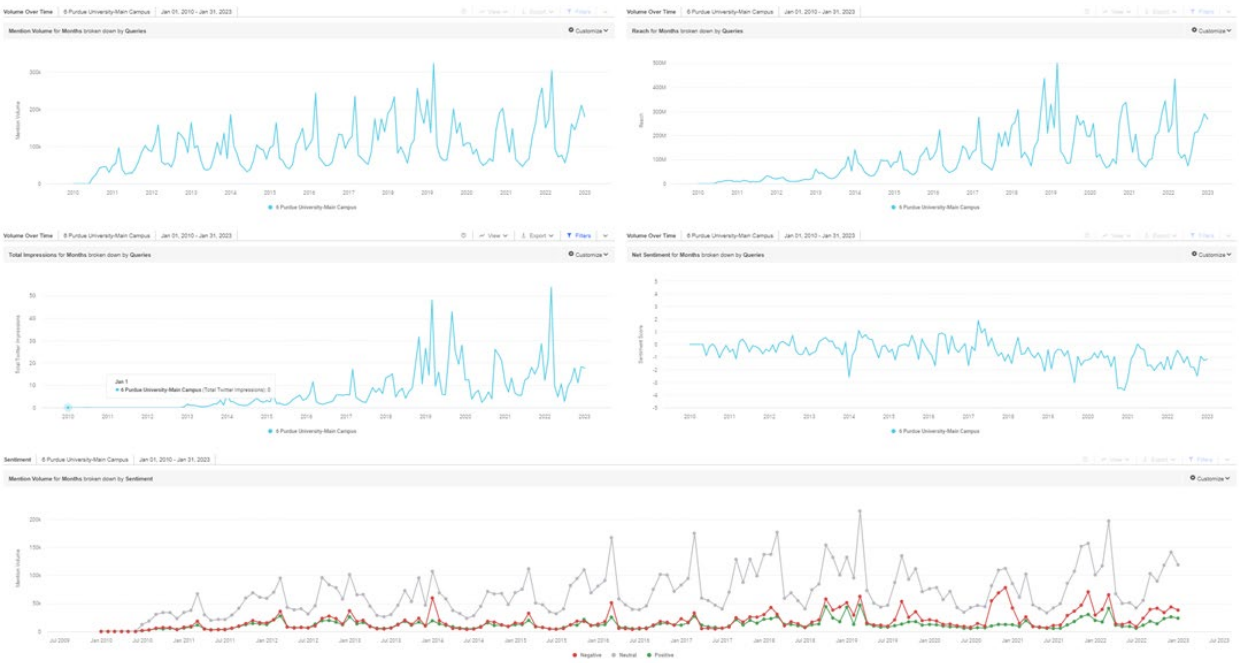


Figure 12: BrandWatch Social Explorer Dashboard

Weights were added to the monthly net sentiment metrics before averaging to reflect the period in which social media may have an increased impact. Table 7 provides a sample for one institution with the weights and annualized value. One academic year includes twelve months, starting with June and ending with July. The total weight for each academic year is equal to 100%. There is no distinctive research on setting weights per month based on application totals. However, some research suggests recency theory is a relevant concept to consider when applying weights based on information timeframes. Recency Theory suggests that “more recent

impressions are more likely to be activated and retrieved from memory" (Diermeier, 2023). The weights developed in this study are based on the premise that attitudes and opinions about an institution are not stored in a mental database but are constructed in each instance when prompted by the need to make a decision.

Given this premise of understanding, weights were assigned based on the timeframe in which college applications are typically due. There are two types of college admissions deadlines, early decision and regular decision. Early decisions usually have a November deadline, with some applications due as early as mid-October. Regular decision applications are generally due in January or February. Information seeking is perceived to be increased during these periods. For this reason, higher weights were added to the months of October through March to account for the trends in application submission deadlines.

Table 7: Net Sentiment Weights and Calculations

Academic Year	Month	Original Net Sentiment	Weights	Weighted Net Sentiment
2020-2021	Jul 2020	-3.348286513	6%	0.029837048
2020-2021	Aug 2020	-0.205459561	7%	-0.171723438
2020-2021	Sep 2020	-0.924533195	7%	-0.1144644
2020-2021	Oct 2020	-0.097151205	12%	-0.05239217
2020-2021	Nov 2020	-0.95603484	12%	0.075288092
2020-2021	Dec 2020	-1.048197137	12%	-0.01050265
2020-2021	Jan 2021	-1.131960439	9%	0.128910724
2020-2021	Feb 2021	-0.75770134	9%	0.275465389
2020-2021	Mar 2021	0.823754789	9%	0.064872
2020-2021	Apr 2021	3.483723587	6%	0.064827341
2020-2021	May 2021	1.18237742	6%	0.067521781
2020-2021	Jun 2021	1.592091571	5%	0.016854813
2021-2022 Total Average Weighted Net Sentiment Score				*-0.268523656*

Data from the IPEDS download and the Social Explorer download were then combined and prepped for analysis. Two institutions were excluded due to lack of social metrics available. This left 327 institutions in the sample for the data set.

One year lag time was incorporated into the social metrics to adequately compare the effects of social media data on the institutional characteristics. The incorporation of this lag is demonstrated in Table 8. Twelve months of records were not available for the social media metric years 2009-2010 and 2022-2023. At the time of this study, Fall 2022 or 2022-2023 IPEDS data was not available for the institutional characteristics. Accordingly, these years of data were not included in the analysis. The years excluded are crossed out in Table 8 below.

Table 8: Coordinating Year Variable Lag Time

Social Media Metrics Academic Year	Coordinating Year Used in Data Set	Institutional Characteristics Academic Year
~~2009-2010~~	~~2010~~	~~Fall 2010 or 2010-2011~~
2010-2011	2011	Fall 2011 or 2011-2012
2011-2012	2012	Fall 2012 or 2012-2013
2012-2013	2013	Fall 2013 or 2013-2014
2013-2014	2014	Fall 2014 or 2014-2015
2014-2015	2015	Fall 2015 or 2015-2016
2015-2016	2016	Fall 2016 or 2016-2017
2016-2017	2017	Fall 2017 or 2017-2018
2017-2018	2018	Fall 2018 or 2018-2019
2018-2019	2019	Fall 2019 or 2019-2020
2019-2020	2020	Fall 2020 or 2020-2021
2020-2021	2021	Fall 2021 or 2021-2022
~~2021-2022~~	~~2022~~	~~Fall 2022 or 2022-2023~~
~~2022-2023~~	~~2023~~	~~Fall 2023 or 2023-2024~~

The combined data set for analysis yielded data for 327 institutions with 39 columns and 3,587 rows of data. Missing values analysis, shown in Figure 13, was run on the combined data set to further prepare for analysis. Pattern analysis was conducted in SPSS to analyze missing values patterns and frequency. The missing percentage threshold was held at 3%. The overall summary of missing values reflected that 99.19% of values were complete.

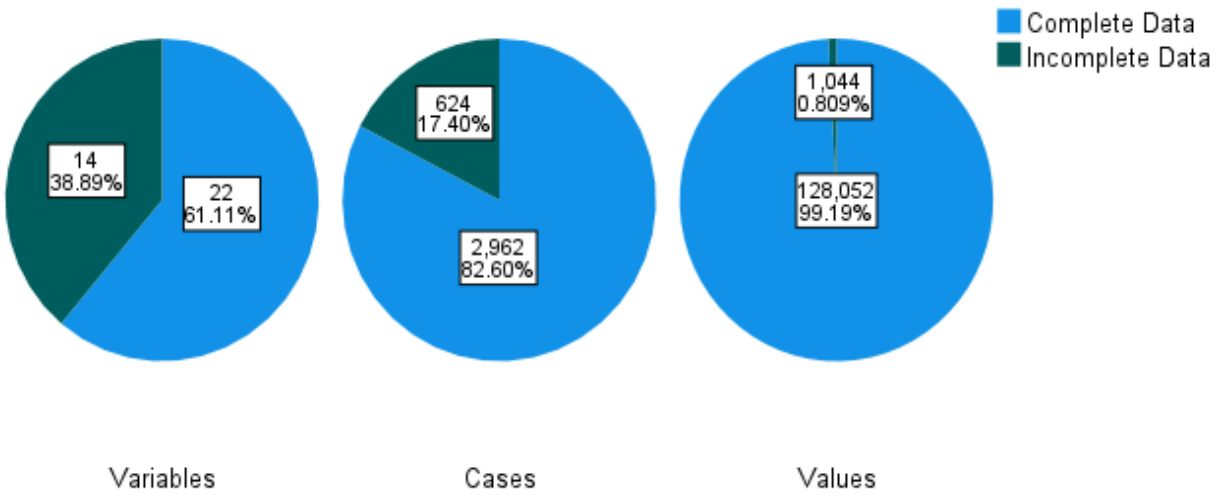


Figure 13: Overall Summary of Missing Values

Additionally, four variables shown in Table 9 were above the 3% threshold for missing data. The social media impressions, admissions total, and US World News Rankings Average Alumni Giving Rate 2023 were not included in the analysis. Applicant total represents the dependent variable in this study. To ensure a valid data model, the 149 rows with missing applicant data were excluded from the data set. This returned a final data set of 3,437 rows utilized for analysis.

Table 9: Missing Values Variable Summary

Variable Summary[a,b]	Missing N	Percent	Valid N	Mean	Std. Deviation
Social Media Impressions	349	9.7%	3237	11085372707.43	47554790065.601
Admissions Total	149	4.2%	3437	8650.34	7313.244
Applicants Total	149	4.2%	3437	17142.02	16511.660
US World News Rankings Average Alumni Giving Rate 2023	132	3.7%	3454	0.08563	0.069893
a. Maximum number of variables shown 45					
b. Minimum percentage of missing values for variable to be included: 3.0%					

III.9 Methodology Summary

A quantitative exploratory study utilizing social data was deployed for this research study. This research design allows for the examination of the level of influence social media posts have on a student's decision to apply to an institution of higher education. Social data was the form of unstructured data for this research through sentiment analysis. Sentiment analysis is one of the difficult tasks in natural language processing because even humans struggle to analyze sentiments accurately. To mitigate this issue, Brandwatch Consumer Research platform was utilized to collect and analyze this data. Preprocessing of data and queries used within the platform added an additional layer of confidence in the data. Regression analysis and time series analysis were identified as valid methods to explore the relationship between the variables. This research design and methodology was well posited to contribute added knowledge to the research gap identified in the literature and identify relevant actions for practitioners to implement.

IV CHAPTER IV: FINDINGS

This study sought to quantify an institution's social media reputation based on sentiment analysis of posts, which allows for exploration in determining its impact on students' intent to enroll (college choice), measured by the number of applications at a particular university. Ideally, the study explored whether there is a statistical relationship between social media reputation scores and the number of applications received at an institution of higher education.

The compilation of results and findings included several steps which concluded with the information being uploaded in SPSS to produce a multiple regression. The following subsections explain the exploration of findings.

IV.1 Results and Findings

The findings for this study are presented in three viewpoints to build to the regression. The following shares findings in a univariate, bivariate, and multiple regression view.

IV.1.1 Univariate Results

The analysis of univariate data is simplest form of analysis as the information deals with only one quantity or variable that changes. The main purpose of the analysis is to describe the data and find patterns that exist within it. Table 10 presents descriptive statistics for various variables related to higher education institutions within this study, including public/private institution, number of applicants, enrollment, endowment, faculty, and social media engagement.

For each variable, Table 10 provides the number of observations (n), range, mean, standard deviation, variance, skewness, and kurtosis. The table also includes standard errors for the mean, variance, skewness, and kurtosis. Skewness measures the symmetry of the distribution, and in this dataset, most variables had moderate skewness values. Kurtosis measures the

peakedness of the distribution, and again, most variables were moderately peaked, except for Endowment Asset and Social Media Reach which had larger positive kurtosis values.

Table 10: Descriptive Statistics

	(n) Statistic	Range	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
						Stat	Std. Error	Stat	Std. Error
Public/Private Institution	3437	1	1.501	0.500	0.250	-0.003	0.041	-2.001	0.082
Applicants Total	3437	139264	17142.016	16511.660	2.73E+08	2.006	0.042	5.901	0.084
Year	3437	10	2016.000	3.163	10.003	0.000	0.041	-1.220	0.082
US World News Rankings	3437	316	160.819	93.217	8689.412	0.004	0.041	-1.210	0.082
Enrollment Total	3437	77628	16521.166	13215.435	1.75E+08	1.066	0.041	0.652	0.082
Endowment Asset	3392	4701166	83798.865	263104.131	6.92E+10	7.336	0.041	71.061	0.083
Full-Time Retention Rate	3436	60	83.944	8.836	78.081	-0.719	0.041	1.071	0.082
Faculty All	3437	6774	944.108	934.713	8.74E+05	2.077	0.041	5.947	0.082
Student-to-Faculty Ratio	3437	44	14.820	4.641	21.542	0.550	0.041	1.620	0.082
Social Media Mentions	3437	2.78E+08	2.85E+06	1.14E+07	1.30E+14	10.526	0.041	164.041	0.082
Social Media Reach	3435	5.15E+11	2.31E+09	1.54E+10	2.38E+20	23.591	0.041	682.284	0.082
Social Media Impressions	3104	1.14E+12	1.11E+10	4.76E+10	2.26E+21	12.556	0.043	223.889	0.086
Social Media Posts	3425	6.67E+10	1.28E+09	4.49E+09	2.01E+19	7.637	0.041	72.338	0.082
Net Sentiment-Weighted	3436	8.783	0.423	1.506	2.267	0.398	0.041	-0.234	0.082
Positive Sentiment	3435	6.62E+07	3.86E+05	1.99E+06	3.96E+12	17.885	0.041	464.275	0.082
Neutral Sentiment	3426	1.14E+08	1.82E+06	6.20E+06	3.84E+13	7.691	0.041	80.292	0.082
Negative Sentiment	3436	9.80E+07	6.53E+05	3.79E+06	1.43E+13	13.664	0.041	237.113	0.082
Valid N (listwise)	3044								

The data includes information on 3,437 observations, with valid data available for 3,044 observations. The mean of applicants' total was 17,142 with a standard deviation of 16,511, suggesting a large variation in the number of applicants across institutions. Enrollment total has a mean of 16,521 and a standard deviation of 13,215, indicating a large variation in the number of students enrolled across institutions. Endowment asset had a mean of 83,798 with a standard deviation of 263,104, indicating that the endowment asset varies significantly across institutions. Full-time retention rate had a mean of 83.9 with a standard deviation of 8.8, suggesting that most institutions have a high retention rate. Student-to-faculty ratio had a mean of 14.8 with a standard

deviation of 4.6, suggesting that the ratio of students to faculty was generally low. Net sentiment-weighted had a mean of 0.423 with a standard deviation of 1.506, indicating that the net sentiment was generally positive across institutions.

Skewness measures the asymmetry of a distribution, and kurtosis measures the degree of peakedness in a distribution. Table 10 reflects that most variables have relatively low skewness and kurtosis values, suggesting that their distributions are somewhat symmetric and have moderate levels of peakedness.

Most of the variables have a skewness value close to zero, indicating that the distribution is approximately symmetric. However, a few variables have skewness values that are larger in magnitude, indicating a more skewed distribution. The “Social Media Impressions” variable has a skewness of 12.556, indicating a highly skewed distribution with a long tail to the right. Additionally, the variables for social media mentions, social media reach, and negative sentiment all have skewness values greater than 10, indicating that these variables are highly skewed to the right.

Kurtosis is a measure of the concentration of scores around the mean. A normal distribution has a kurtosis value of 3, while values greater than 3 indicate a more peaked distribution, and values less than 3 indicate a flatter distribution. In Table 10, most of the variables have a kurtosis value close to 3, indicating a roughly normal distribution. However, a few variables have kurtosis values that are larger or smaller than 3. Mainly, the variables for social media reach, social media impressions, and negative sentiment all have kurtosis values greater than 500, indicating a very peaked distribution. The “Social Media Reach” variable stands out with a very high kurtosis of 682.284, indicating a very peaked distribution with a

heavy tail to the right. On the other hand, the variable for control of institution has a kurtosis value less than 0, indicating a very flat distribution.

The skewness and kurtosis values in the table suggest that most of the variables have reasonably normal-looking distributions. Still, a few variables have more extreme properties that should be taken into account when interpreting their values. The variables with the higher values of skewness and kurtosis are still deemed acceptable given the nature of the social media data and the range and variability of the institutional characteristics of the institutions included in the study.

Overall, this provided a comprehensive overview of each variable's distribution, clarifying the underlying data and making informed decisions based on the descriptive statistics. The dataset includes 3586 observations with missing values in some variables. It is important to note that the missing observations were not considered in the calculation of the summary statistics. The valid n for analysis after listwise deletion of missing observations was 3,044.

Positioning the variables over time provides a longitudinal view of the data and allows for analysis of patterns over time. Figure 14 provides a view of select variables over the timeframe of the data set. The variables are broken down to display the comparison of public versus private institutions. The median of the variables is lower for public institutions for each variable. Most of the variables followed any upward trend over time.

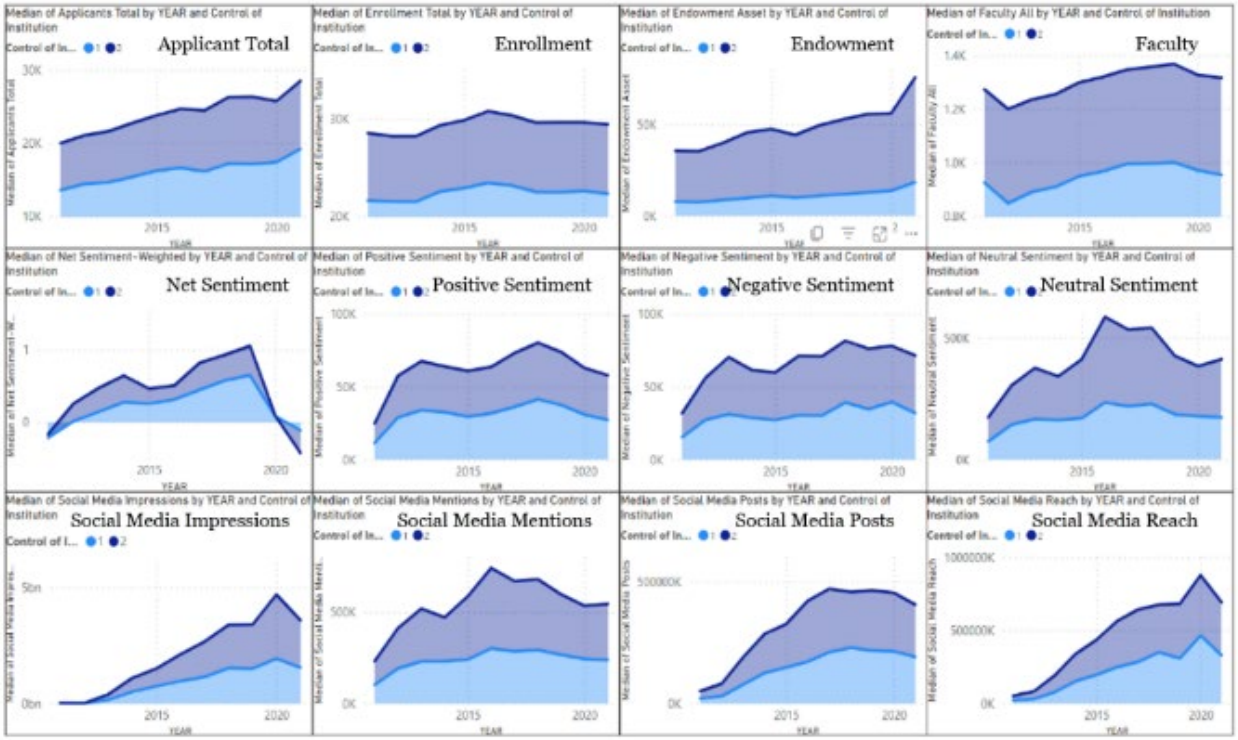


Figure 14: Univariate View of Variables by Public vs. Private Institutions Over Time

There is a slight dip in the time trend for most of the variables around the 2019-2020 years. This may be attributed to the pandemic as a significant event. Yet, the applicant total and endowment asset continued the upward trend throughout the timespan. The largest drop was in the net sentiment weighted, reflected in the first graph in row two. There was a drastic shift in the median around 2019 forward. This can be also seen in the volatility over time in the positive, negative, and neutral sentiment that are shown in the second row of the graphs above.

IV.1.2 Bivariate Results

Bivariate analysis involves two variables. This analysis deals with causes and relationships and is done to find out the relationship among the two variables. This study focused on the correlations between the variables. One form of analysis is to review the correlation tables to identify relationships and the strength of those relationships. Table 11 provides the relationship of the variables within this study to the dependent variable or applicant pool. The

table shows the correlation coefficients for the number of applicants, control of the institution, US News & World Report rankings for 2023, enrollment, endowment assets, full-time retention rate, faculty count, student-to-faculty ratio, and social media metrics. The correlations that were found to be statistically significant are in bold.

Table 11: SPSS Output of Pearson Correlation

Pearson Correlation	Applicants Total	Public/Private Institution	Year	US World News Rankings	Enrollment Total	Endowment Asset	Full-Time Retention Rate	Faculty All	Student-to-Faculty Ratio	Social Media Mentions	Social Media Reach	Social Media Impressions	Social Media Posts	Net Sentiment-Weighted	Positive Sentiment	Neutral Sentiment	Negative Sentiment
Applicants Total	--																
Public/Private Institution	-.245*	--															
Year	.148*	-0.002	--														
US World News Rankings	-.595*	-.073*	0.000	--													
Enrollment Total	.678*	-.534*	.035*	-.336*	--												
Endowment Asset	.182*	.236*	.059*	-.383*	-.040*	--											
Full-Time Retention Rate	.559*	.182*	.034*	-.731*	.349*	.344*	--										
Faculty All	.657*	-.257*	0.016	-.534*	.741*	.225*	.477*	--									
Student-to-Faculty Ratio	.138*	-.658*	-.060*	.285*	.472*	-.404*	-.230*	0.015	--								
Social Media Mentions	0.028	.086*	-.037*	-.072*	-0.032	0.031	.054*	0.020	-.080*	--							
Social Media Reach	.036*	.049*	.097*	-.051*	-0.014	.050*	.058*	0.008	-.052*	.358*	--						
Social Media Impressions	0.035	0.025	.139*	-0.020	-0.014	.045*	.057*	0.012	-0.031	.514*	.487*	--					
Social Media Posts	.043*	.059*	.104*	-.046*	-0.027	.050*	.078*	0.007	-.057*	.672*	.537*	.847*	--				
Net Sentiment-Weighted	-.262*	.047*	.073*	.238*	-.200*	-.134*	-.181*	-.252*	-0.008	-.248*	-.166*	-.242*	-.277*	--			
Positive Sentiment	0.023	.075*	-.064*	-.066*	-0.030	0.020	0.031	0.027	-.074*	.938*	.240*	.330*	.468*	-.177*	--		
Neutral Sentiment	0.019	.088*	-0.024	-.063*	-.036*	.036*	.062*	0.016	-.087*	.963*	.379*	.604*	.761*	-.272*	.840*	--	
Negative Sentiment	.040*	.076*	-.038*	-.079*	-0.022	0.025	.044*	0.020	-.059*	.939*	.329*	.372*	.533*	-.208*	.921*	.820*	--

*Note: *. Correlation is significant at the 0.05 level (2-tailed).*

The Pearson correlation coefficient values range from -1.000 to 1.000 and indicate the strength and direction of the linear relationship between pairs of variables. Some notable findings

include a negative correlation between US News & World Report rankings and the total number of applicants, suggesting that higher ranked colleges receive more applications. There is also a positive correlation between enrollment and the total number of applicants, indicating that larger schools tend to attract more applicants. Additionally, there are significant positive correlations between social media metrics (mentions, reach, impressions, and posts) and the level of positive sentiment expressed about an institution, suggesting that positive social media buzz may influence people's perceptions of a school. It is worth noting that the correlations do not necessarily imply causation, and there may be other factors at play that influence applicant outcomes.

To take a closer look at the relevance of the variables for this study, Table 12 provides a narrowed view of the correlations and their significance to applicant total. The correlations in red were not statistically significant.

Table 12: Pearson Correlation to Dependent Variable

Correlations to Applicants Total	Pearson Correlation	Sig. (1-tailed)
Applicants Total	1.000	
Public/Private Institution	-.245	0.000
Year	.148	0.000
US World News Rankings 2023	-.595	0.000
Enrollment Total	.678	0.000
Endowment Asset	.182	0.000
Full-Time Retention Rate	.559	0.000
Faculty All	.657	0.000
Student-to-Faculty Ratio	.138	0.000
Social Media Mentions	0.028	0.098
Social Media Reach	.036	0.033
Social Media Impressions	0.035	0.050
Social Media Posts	.043	0.013
Net Sentiment-Weighted	-.262	0.000
Positive Sentiment	0.023	0.183
Neutral Sentiment	0.019	0.257
Negative Sentiment	.040	0.019

Each entry in Table 12 represents a Pearson correlation coefficient and associated statistical significance, conveyed as p-values, as well as the sample size of the data being analyzed. Positive correlations indicate that higher values of that variable are associated with more applicants, while negative correlations indicate that higher values of that variable are associated with fewer applicants. Variables with higher positive correlations include enrollment total, full-time retention rate, and faculty all. Variables with higher negative correlations include US World News Rankings 2023 and net sentiment weighted. Social media mentions, reach, impressions, and posts also have some positive correlations, though these are relatively weak.

The focused variables for this study include enrollment, endowment, faculty, and net sentiment. The total enrollment had a positive correlation of 0.678 with the number of applicants, which was statistically significant at the 0.000 level. This suggests that institutions with a larger enrollment may have more applicants. The endowment asset had a positive correlation of 0.182, which is also statistically significant at the 0.000 level. The faculty all had a positive correlation of 0.657 with the number of applicants, which is statistically significant at the 0.000 level. Institutions with more faculty members may have more applicants. Net sentiment weighted had a negative correlation of -0.263, which is significantly related to the number of applicants at the 0.000 level.

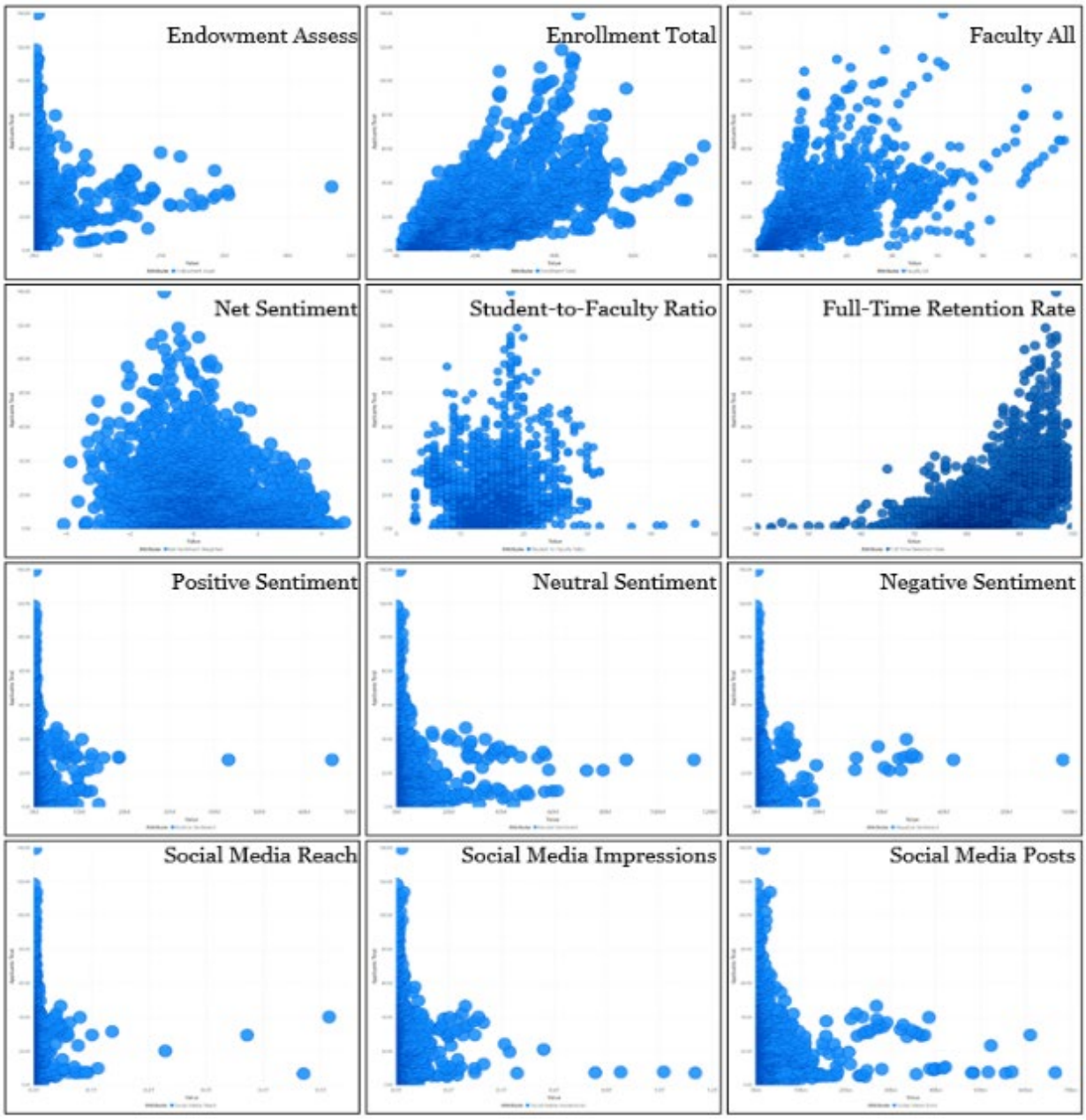


Figure 15: Bivariate View of Variables Compared to Applicant Totals

Figure 15 provides graphs of each variable compared to applicant totals. This allows for a better view as to the directional relationship of each variable. A consistent trend among the graphs was the clustering of compared variables around the lower levels of applicants. Additional analysis reflects more of this correlation. The second and third graph on the first row of the graphs shows a positive correlation with enrollment and faculty. Net sentiment weighted,

shown on the second row of graphs, reflects a significant negative correlation. These graphs were consistent with the findings presented in the Pearson correlation table.

IV.1.3 Multiple Regression Results

When three or more variables are involved, the analysis of those variables is categorized as multiple regression. The main purpose is to study the relationship among them. The ways to perform analysis on this data depends on the goals to be achieved. As stated in the methodology, this study utilized regression to analyze the relationship among the variables.

The regression was run with and without the control variables to determine the significance of the main independent variable. First, a simple regression was run in SPSS to analyze the relationship between applicant total and net sentiment weighted.

Table 13: Regression Analysis of Applicant Total and Net Sentiment Weighted

Coefficients	**Model Summary**	
Constant (Applicant Total)	18298.439	***
Net Sentiment-Weighted	-2888.935	***
R	0.262	
R Square	0.069	
Adjusted R Square	0.069	
Std. Error of the Estimate	15937.285	
F Change	253.759	
df1	1	
df2	3434	
Sig. F Change	0.000	
*Note: *** represents p-value less than 0.001*		

The model and the coefficients were statistically significant. In this instance of the regression, net sentiment weighted explains 6.9% of the variability in application totals.

Three iterations of the regression were run in SPSS with the control variables to establish a significant model reflective of the purpose of the study. A summary of the three iterations is provided in Table 14. The full SPSS output is provided in Appendix E: SPSS Output Of Regression Models.

Table 14: Three Iterations of Regression Model Summary

Coefficients	Iteration One Model Summary		Iteration Two Model Summary		Iteration Three Model Summary		Iteration Three VIF
Constant (Applicant Total)	-1434955.470	***	-1444570.714	***	-1416523.273	***	
Public/Private Institution	1981.409	***	2062.800	***	2107.066	***	2.317
Year	704.069	***	708.625	***	695.121	***	1.030
US World News Rankings	-50.686	***	-50.717	***	-49.105	***	3.102
Enrollment Total	0.526	***	0.525	***	0.521	***	5.008
Endowment Asset	0.002		0.001		0.002	*	1.369
Full-Time Retention Rate	254.423	***	256.396	***	247.847	***	2.810
Faculty All	2.625	***	2.653	***	2.581	***	3.725
Student-to-Faculty Ratio	330.294	***	335.881	***	321.492	***	3.048
Social Media Reach	0.000		0.000				
Social Media Impressions	0.000		0.000				
Social Media Posts	0.000		0.000				
Positive Sentiment	0.000						
Neutral Sentiment	0.000						
Negative Sentiment	0.000						
Net Sentiment-Weighted	-648.940	***	-653.408	***	-674.610	***	1.098
R	0.805		0.806		0.806		
R Square	0.6488		0.6489		0.6496		
Adjusted R Square	0.6470		0.6474		0.6486		
Std. Error of the Estimate	10066.593		10058.310		9812.088		
Change in R Square Due to Net Sentiment	0.0027		0.0028		0.0034		
F Change	23.276		23.925		32.776		
df1	15		13		9		
df2	3028		3040		3381		
Sig. F Change	0.000		0.000		0.000		

Note:
**** represents p-value less than 0.001*
*** represents p-value less than 0.01*
** represents p-value less than 0.05*

The iteration one model summary includes multiple independent variables to predict the number of total applicants. The adjusted R square value of 0.6470 indicates that approximately 65% of the variability in total applicants can be explained by the independent variables included in the model. The ANOVA table shows that the regression model is statistically significant in predicting total applicants ($p < .001$). The coefficients show the beta coefficients of each independent variable and their statistical significance. The variables with significant beta coefficients are Public/Private Institution, Year, US World News Rankings, enrollment total, full-time retention rate, faculty all, student-to-faculty ratio, and net sentiment weighted. The other independent variables are not significant predictors of the number of total applicants.

The iteration two model summary excluded the positive, neutral, and negative sentiments. Net sentiment was a product of these variables. Since they were deemed not significant with a p-value > 0.05, they were excluded from the iteration two model summary. The regression analysis was run in blocks to view the effect of net sentiment as a separate observation. The Change in R Square Due to Net Sentiment is included in Table 14.

The iteration two model summary had a high degree of explanatory power, with R-squared value of 0.649. The ANOVA results indicated that the model was statistically significant, with p-values less than 0.001. The coefficients analysis showed that predictors such as Enrollment Total, Year, and US World News Rankings 2023 had a positive impact on the number of applicants, while Public/Private Institution and Endowment Asset had a smaller positive impact. Full-Time Retention Rate, Faculty All, and Student-to-Faculty Ratio also had a positive impact on applicants but to a lesser extent. The effect of social media metrics such as Social Media Mentions, Social Media Reach, Social Media Impressions, and Social Media Posts on the number of applicants was insignificant. Net Sentiment-Weighted had a negative impact on

the number of applicants. The negative coefficient was an interesting finding and is explored more in the discussion section.

The iteration three model summary excluded the additional variables that were deemed insignificant. This iteration had an R-squared value of 0.6496, indicating that the model explains about 65% of the variance in the number of applicants. The adjusted R-squared value was close to the R-squared values, suggesting that adding more predictors would not significantly improve the model's fit. The ANOVA table shows that the model was a significant predictor of the number of applicants, with a low p-value (less than 0.001). The F-value of the third model is slightly higher, indicating that the model fits slightly better than the first model.

All predictor variables in the iteration three model summary had a significant effect on the number of applicants, as indicated by the low p-values. The coefficient of determination (beta) for each predictor variable was also provided, allowing for comparison of the relative strengths of each predictor. The model suggests that factors such as US News Rankings, Enrollment Total, and Year have the largest positive impact on the number of applicants, while Net Sentiment-Weighted has a negative impact. Factors such as Public/Private Institution, Full-Time Retention Rate, Endowment Asset, Faculty All, and Student-to-Faculty Ratio have weaker positive effects. The intercept, which represents the predicted number of applicants when all predictor variables are zero, was negative, indicating that the model does not fit well when all predictor variables are at their minimum levels.

The last column in Table 14 provides the variance inflation factor (VIF) for iteration three model summary. The VIF is available for the nine independent variables included in the third iteration. This is also displayed in the last column of Table 15. VIF is a measure used to quantify the severity of multicollinearity in regression analysis. It provides an indication of the

degree to which independent variables are correlated with each other in a regression model. VIF values range from 1 to infinity, with a value of 1 indicating no multicollinearity and a value greater than 1 indicating increasing levels of multicollinearity. VIF values greater than 10 are considered to be indicative of severe multicollinearity. In Table 15, all the independent variables have tolerance values greater than 0.2 and VIF values less than 5, indicating that there is a low to moderate degree of multicollinearity between the independent variables. Therefore, all the independent variables can be included in the regression model.

Table 15: Iteration Three Regression Coefficients with VIF

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	-1416523.273	108991.032		-12.997	0.000		
Public/Private Institution	2107.066	513.338	0.064	4.105	0.000	0.432	2.317
Year	695.121	54.082	0.133	12.853	0.000	0.971	1.030
US World News Rankings	-49.105	3.163	-0.278	-15.527	0.000	0.322	3.102
Enrollment Total	0.521	0.028	0.416	18.271	0.000	0.200	5.008
Endowment Asset	0.002	0.001	0.026	2.211	0.027	0.730	1.369
Full-Time Retention Rate	247.847	35.191	0.120	7.043	0.000	0.356	2.810
Faculty All	2.581	0.350	0.145	7.366	0.000	0.268	3.725
Student-to-Faculty Ratio	321.492	63.131	0.091	5.093	0.000	0.328	3.048
Net Sentiment-Weighted	-674.610	117.835	-0.061	-5.725	0.000	0.911	1.098

Additional iterations of the model were run to find additional explanatory factors that affect applicant pool. Dummy variables were developed for the variable Year. This iteration did not show any significant increase in the fit of the model. “Year” as a combined variable had a better correlation than the individual years as dummy variables. The remaining iterations were run to examine the differences in relationships when filtered for public/private institution and institution size by quartile.

IV.1.4 Group Comparative Results

A comparison was done to look at the regression results based on control of institution (public versus Private) and institutional size (enrollment totals). Control of institution filters the results to display public versus private institutions. Additionally, the list of institutions was split into quartiles.

- Q1 = Enrollment < 5,825 = Small
- Q2 = Enrollment between 5,826 – 12,126 = Medium
- Q3 = Enrollment between 12,127 – 24,932 = Large
- Q4 = Enrollment > 24,933 = XLarge

Table 16 shows the comparison of Pearson Correlations and their significance. Items in red were found to be insignificant.

Table 16: Group Comparisons Pearson Correlations

Pearson Correlation	ALL	Public	Private	Q1	Q2	Q3	Q4
N	*3435*	*1666*	*1769*	*769*	*881*	*888*	*897*
Applicants Total	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Public/Private Institution	-0.245	--	--	0.060	0.273	0.506	0.133
US World News Rankings	-0.595	-0.586	-0.713	-0.355	-0.627	-0.737	-0.565
Enrollment Total	0.678	0.622	0.810	0.470	0.251	0.150	0.358
Full-Time Retention Rate	0.559	0.624	0.619	0.294	0.521	0.703	0.586
Faculty All	0.657	0.536	0.770	0.572	0.456	0.340	0.398
Student-to-Faculty Ratio	0.138	0.164	-0.289	0.001	-0.431	-0.421	-0.148
Year	0.147	0.182	0.118	0.055	0.109	0.179	0.288
Net Sentiment-Weighted	-0.262	-0.130	-0.407	-0.091	-0.161	-0.268	-0.145

This correlation matrix (Table 16) shows the relationship between various variables within various categories of institutions (public, private, Q1-Q4). The Pearson correlation coefficients range from -1 to 1, where -1 indicates a perfect negative correlation, zero indicates no correlation, and 1 indicates a perfect positive correlation. The p-values (Sig. 1-tailed) indicate the level of statistical significance of the correlations.

The findings reflect a positive correlation between applicants' total across all grouping types for enrollment total, full-time retention rate, and faculty all. On the other hand, there is a negative correlation across all groups for US World News Rankings 2023. This is expected as the rankings present an inverse relationship, as a ranking of #1 holds a higher weight than a ranking of #240.

Additionally, the public/private institution has a negative correlation without grouping for size and a positive correlation within the groups of institutional size. The student-to-faculty ratio has a weak positive correlation with public institutions and a negative correlation with Q2 and Q3 institutions.

The largest negative correlation is found between "US World News Rankings" and applicants total (-0.595), indicating that as rankings decrease, the number of applicants tends to increase. This correlation is largest in Q3 institutions. There is a positive correlation between "enrollment total" and the number of applicants (0.678), with the largest correlation found in private institutions. Similarly, "full-time retention rate" has a positive correlation with the number of applicants (0.559), with the largest correlation found in Q2 institutions. "Faculty all" has a positive correlation with the number of applicants (0.657), with the largest correlation found in private institutions. The correlation between "student-to-faculty ratio" and number of applicants is weak (0.138) and negative for private institutions, suggesting that as the ratio increases, the number of applicants tends to decrease. There is a weak positive correlation between "year" (of data) and number of applicants (0.147), with the largest correlation found in Q4 institutions. Finally, "net sentiment-weighted" has a negative correlation with the number of applicants (-0.262), with the largest correlation found in private institutions.

Table 17: Group Comparison Model Summary

Model	ALL	Public	Private	Q1	Q2	Q3	Q4
R	.805	.759	.883	.665	.714	.789	.673
R Square	0.649	0.576	0.779	0.443	0.509	0.622	0.452
Adjusted R Square	0.648	0.574	0.779	0.437	0.505	0.619	0.447
Std. Error of the Estimate	9797.6	11926.9	6371.1	2172.4	5070.9	7701.7	14934.8
Change in R Square Due to Net Sentiment	0.004	0.002	0.004	0.005	0.031	0.001	0.004
F Change	35.898	7.326	34.911	6.376	55.086	1.491	6.048
df1	1	1	1	1	1	1	1
df2	3426	1658	1761	760	872	879	888
Sig. F Change	0.000	0.007	0.000	0.012	0.000	0.222	0.014

Table 17 presents the results of the model summaries for the study comparing groups (Public, Private, Q1, Q2, Q3, Q4) based on the dependent variable (R). The R coefficient values for each group show the strength of the relationship between the dependent variable and each independent variable. The coefficient values range from 0.665 to 0.883, with higher values indicating a stronger relationship between the variables. The strongest relationship is for Private institutions.

The R Square values indicate the amount of variation in the dependent variable that can be explained by the independent variables. The R Square values range from 0.443 to 0.779, with higher values indicating a better fit of the model to the data. The Adjusted R Square values control for the number of independent variables and are similar to the R Square values. For private institutions, the model explains 78% of the variation of the dependent variable. Q1, which represents smaller institutions has the smallest R Square.

The Change Statistics show the increase in the R Square and F values when Net sentiment is added to the model. The F Change values indicate whether the increase in R Square is significant. Net Sentiment plays the largest role when reporting on Q2, or medium sized institutions.

The df1 and df2 values indicate the degrees of freedom for the F statistic, which is used to test for significant differences between the groups. The Sig. F Change values show the significance level of the F statistic. The significance level of the F Change statistic indicates that the increase in the proportion of variance explained is statistically significant for all groups except for Q3, or large institutions.

Table 18: Group Comparison Coefficient's Beta

Coefficients Beta	ALL	Public	Private	Q1	Q2	Q3	Q4
Public/Private Institution	0.063	--	--	0.142	0.119	0.079	0.047
US World News Rankings	-0.285	-0.305	-0.247	-0.384	-0.485	-0.573	-0.326
Enrollment Total	0.433	0.264	0.487	0.299	0.229	0.174	0.038
Full-Time Retention Rate	0.132	0.206	0.046	-0.055	-0.001	0.208	0.238
Faculty All	0.123	0.088	0.162	0.283	0.071	-0.075	0.162
Student-to-Faculty Ratio	0.075	0.126	-0.047	0.095	-0.093	0.061	0.245
Year	0.135	0.169	0.106	0.096	0.136	0.173	0.248
Net Sentiment-Weighted	-0.063	-0.045	-0.073	-0.072	-0.177	-0.028	-0.066

Table 18 shows the standardized coefficients beta for the linear regression model with ALL, Public, and Private universities as well as Q1, Q2, Q3, and Q4 quartiles. The coefficients represent the change in the response variable for a one-unit change in the predictor variable, while holding all other variables constant. The coefficients highlighted in red were deemed insignificant.

The US World News Rankings predictor variable has a negative coefficient for all universities and each quartile, indicating that higher rankings are associated with lower values of the applicant pool. The largest effect is on large institutions (Q3). The Enrollment Total predictor variable has a positive coefficient for all groups, with the largest on private institutions. The Full-Time Retention Rate predictor variable has a positive coefficient for most groups, indicating that higher retention rates are associated with higher values of the response variable. However, the coefficient for small and medium sized institutions is negative, with minimal effect.

The Net Sentiment-Weighted predictor variable has a negative coefficient for all groups. The greatest impact reflected in the data is on medium-sized institutions. It is also worth noting that net sentiment becomes an insignificant variable in relation to Q3, large institutions.

Regression charts in Power BI were used to visualize the relationship between the variables and to identify any patterns or trends in the data across groups. Figure 16 further reflects the relationships of the variables among the established groups. The visualizations represent the applicant totals and net sentiment values broken out by public versus private institutions and by institutional size for the group comparisons.

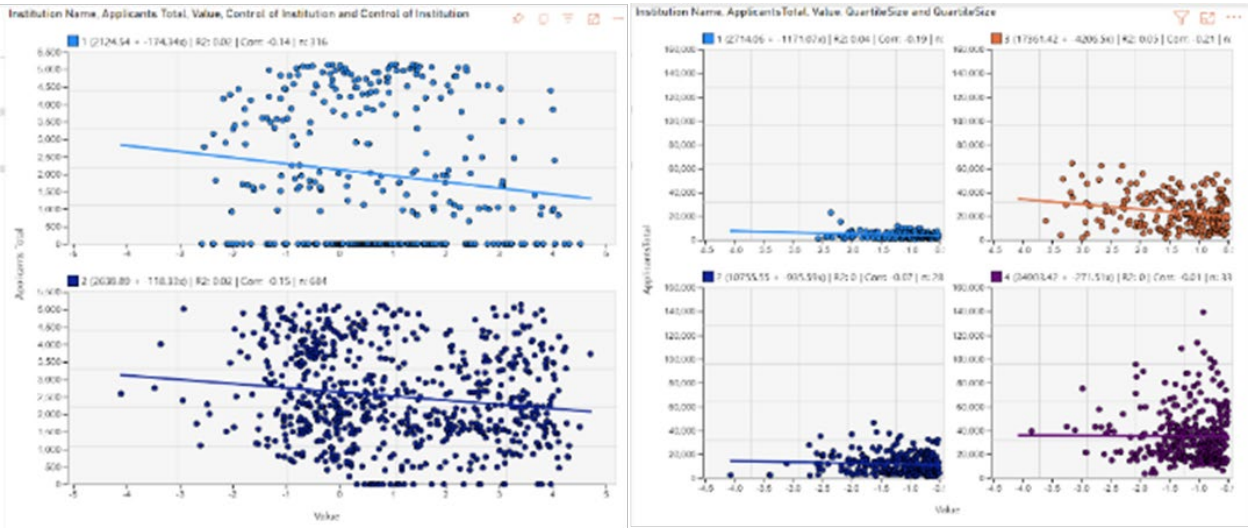


Figure 16: Craydec Regression Chart by Public/Private Institution and Institutional Size Quartile

IV.2 Findings Summary

With $p<0.001$, the regression model statistically significantly predicts the outcome variable and is a good fit for the data. The residual SS is quite high, indicating that there is still a considerable amount of unexplained variation in the data even after accounting for predictors. Overall, the ANOVA provides evidence that the predictors included in the model has a significant effect on the dependent variable. However, further analysis may be necessary to fully

understand the relationship between the predictors and the outcome variable, as there may be additional factors that were not included in the model.

The regression equation for the coefficients in this study would be as follows. The coefficients used in the below equation represent iteration three model summary found in Table 14.

> Applicants Total = -1416523.273 + 2107.066(Control of Institution) + 695.121(YEAR) - 49.105(US World News Rankings 2023) + 0.521(Enrollment Total) + 0.002(Endowment Asset) + 247.847(Full-Time Retention Rate) + 2.581(Faculty All) + 321.492(Student-to-Faculty Ratio) - 674.610(Net Sentiment-Weighted)

When looking at applicant totals and net sentiment specifically, net sentiment accounts for 6% of the variance in application totals. With the control variables, the R-Square Change is at 0.003, yet still statistically significant with $p<0.001$. There is a statistically significant correlation between the variables. An unexpected output is the negative correlation of -0.262 ($p<0.001$).

The findings of this study have proven to be fruitful. Results are presented in multiple facets to ensure a comprehensive view to analyze and discuss the research question initially imposed.

V CHAPTER V: DISCUSSION

In this study, I aimed to address an institution's social media reputation through net sentiment score analysis, allowing a comparative analysis to determine its impact on students' intent to enroll (college choice), measured by the applicant pool size at a particular university. The results have provided insights into the involvement of net sentiment and an institutions reputation, which have implications for the number of applications received and institutional planning for cohort size. This discussion will expand upon the contribution of these findings and their significance.

V.1 Analysis of Findings

The hypothesis for this study was that there is a statistical relationship between social media net sentiment scores and the number of applications received at a higher education institution. The findings of this study support this hypothesis, thus rejecting the null hypothesis. An additional hypothesis was posited that the relationship would be positive. This hypothesis was not supported, as there was a negative correlation between applicant total and net sentiment.

Overall, the model suggests that factors such as the size and quality of the student body, the resources available to the institution, and the institution's reputation can have a significant impact on the number of total applicants. The analysis provides insights for universities to improve their applicant numbers by focusing on such areas. Increased consideration and research should be directed to incorporating qualitative methods to better understand the context and gradations surrounding social media sentiment and its impact on college choice.

There is an interesting nuance in the negative coefficient for net sentiment. Qualitative research could answer questions as to how the negative sentiment scores could potentially lead to an increase in applications, due to the double negative found in the regression equation. The

phrase “there is no such thing as bad press” comes into mind with this finding. The impact of negative sentiment could bring additional attention to the institutions, regardless of sentiment, which could lead to additional intentions of students to apply to the institution.

These finding align with assumptions of the factors that influence a student’s choice in college. The addition of social media metrics in the information component of the Iloh Model of College-Going Decisions and Trajectories (Iloh, 2019) adds to the nuances captured in the current model. The findings suggest that the flow of information from social media influences college choice. More specifically, the Iloh model (2019) refers to information deserts in which current and relevant information related to colleges may not be readily available. The inclusion of social media as an informational source can assist in relieving that drought. The sentiment or strength of the information received can impact the preferences and choices of the student intentions to apply to a particular institution.

In continuation, an institutions’ social media reputation or net sentiment adds to the information needed to make a rational choice. Specifically, a rational choice reflects not only an individual’s preferences but also the weighted value attached to those preferences in terms of the anticipated outcomes (Spier, 2017). Within college choice, rational choice results from the evaluation of benefits associated with each preference (Logan et al., 2018). While the alternatives facing an individual are mutually exclusive, motivating reasons may change according to better or alternative information found in social media platforms. Therefore, each choice is made within a specific context. Changes in beliefs based on information are reflected in changed preference to apply to a particular institution. Again, these preferences can be impacted based on the sentiment of the institution on social media.

V.2 Discussion of Contributions

The finding from this study provides contributions to practice and theory. From a practical view, tools are identified to assist institutions in monitoring social media sentiment and to forecast applicant pool size. From a theoretical viewpoint, an additional factor that can impact students' choice in college has been identified. The inclusion of which can provide additional strength to current college choice models.

This study identifies a method for institutions to determine their social media reputation and control for brand awareness to plan for improvement. The utilization of social listening tools to monitor social media sentiment is considered a useful step in advancing institutions knowledge and awareness of their reputation in a practical sense. With the information found in this study, practitioners will be able to better prepare for increases or declines in potential student populations. Practitioners will also be able to strategically plan to impact their net sentiment scores.

For practical purposes, the metrics and data could be better visualized in a platform for easy consumption. The data from this study was imported into PowerBI to easily view the impact of the variables on each other. Figure 17 provides an example of visualizations that institutions can use to make the information consumable and easier to use for planning purposes. Additional screenshots of the other pages from the PowerBI report are included in Appendix F: Power Bi Dissertation Data Visualizations.

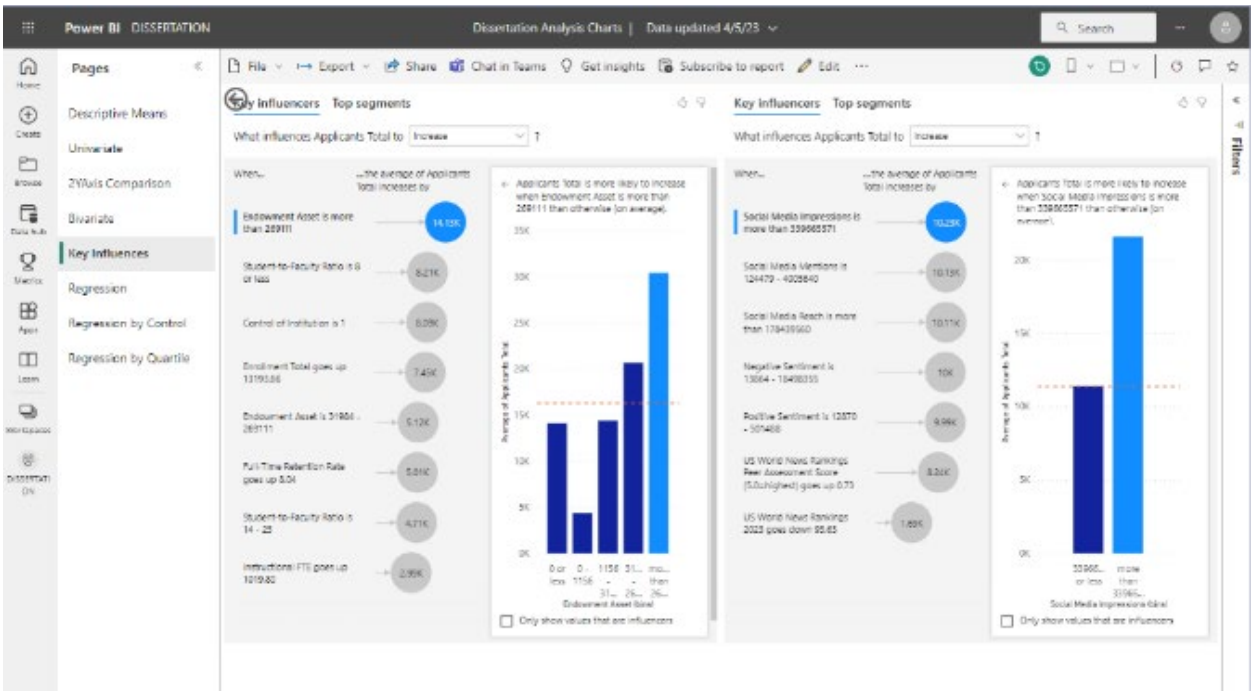


Figure 17: PowerBI Data Visualization

For contributions to literature, this study promoted social media reputation as a statistically significant element in students' college choices. This finding will add to the college choice models found in the literature and expands the factors currently included in reputation building in higher education institutions. The inclusion of social media sentiment as a factor to consider in the information stage/component adds a brick in the current literature in understanding the nuances of college choice.

VI CHAPTER VI: CONCLUSION

In conclusion, this study aimed to establish the relationship between social media net sentiment and the number of applications received at a higher education institution, and the findings support the hypothesis. The regression model statistically significantly predicts the outcome variable and is a good fit for the data. The analysis provides insights for universities to improve their applicant numbers by focusing on areas such as the size and quality of the student body, the resources available to the institution, and the institution's reputation.

Furthermore, this study contributes to both practice and theory by identifying tools to assist institutions in monitoring social media sentiment and forecasting applicant pool size and highlighting social media reputation as a statistically significant element in students' college choices. The inclusion of social media sentiment in the information stage adds a brick in the current literature around college choice. Therefore, this study provides a valuable contribution to the understanding of social media and its impact on higher education institution's reputation and applicant pool size.

VI.1 Suggestions for Further Investigation

This research is exploratory and as such there are several avenues for further development. An addition to this study would be a topic analysis of the social media data to further explore the factors that impact college choice. A few considerations for future research are as follows.

- Examining the impact of social media sentiment on other aspects of higher education experience such as student retention and graduation rates.
- Investigating the relationship between social media sentiment and specific institutional attributes, such as academic programs, campus life, and diversity.

- Conducting a longitudinal study to determine if institutions can improve their social media sentiment scores and how that relates to changes in enrollment patterns over time.
- Analyzing the impact of social media sentiment on different subgroups of students, such as first-generation, international, or non-traditional students.
- Exploring the impact of social media sentiment on other stakeholders such as faculty, staff, and alumni.

VI.2 Final Thoughts

While this study has shed light on the impact of social media on higher education, there are still many unanswered questions that require further investigation. Nonetheless, this dissertation has paved the way for future research in this area and highlights the need for continued attention to college choice models. As such, this work represents an important contribution to the field and serves as a foundation for future research endeavors.

The importance of social media reputation cannot be overstated in today's higher education landscape. The findings of this study indicate a significant correlation between social media sentiment and college choice, which can ultimately impact market share. By developing a strong social media presence and actively managing their reputation, universities can increase their likelihood of attracting a greater number of applicants and ultimately enhance their enrollment. As such, it is imperative for higher education institutions to prioritize their social media strategies and utilize the insights gleaned from this study to effectively drive enrollment growth.

APPENDICES

Appendix A: Research Design

The following table represents the research design for the study.

Component	Research Design
P	The expected decline in potential market share (student pipeline) has prompted universities to develop innovative ways to attract students to their respective institutions. At the same time, social media has become a significant factor in the lives of current and potentially future generations. It is critical to identify factors, such as social media, which affect the potential market share from year to year.
A	The literature will focus on (1) college choice, (2) social media influence, and (3) reputation management in higher education. 1. College Choice – influences affecting prospective students' choice of which college to attend. 2. Social Media Influence – impact of interactive technologies that facilitate the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks. 3. Reputation Management – monitoring the reputation of an individual or a brand, primarily focusing on the various platforms addressing potentially harmful content and using customer feedback to solve problems before they damage the individual's or brand's reputation.
F	Quantifying an institution's social media reputation will allow exploration into the impact on students' intent to enroll (college choice), measured by the number of applications at a particular university.
M	A quantitative study will be conducted to determine the relationship between social media reputation scores and applications completed for institutions of higher learning. A regression analysis will be done to determine the strength and polarity of the relationship.
R.Q.	Hypothesis: There is a statistical *(positive*) relationship between social media reputation scores and the number of applications received at an institution of higher education.
C	C_P: This study will identify a tool for institutions to determine their social media reputation and enhance brand awareness and plan for improvement. Additionally, practitioners will be able to prepare for expected increases or declines in potential student populations. C_A: This study will promote social media reputation as a critical element in students' college choices. This will add to the college choice models found in the literature and expand the factors currently included in reputation building in institutions of higher learning.

Appendix B: Literature Synthesis Articles

The following table lists the articles identified during the literature selection process, however, are not necessarily cited in the paper. Relevant Literature not Cited.

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Appendix C: Institutions Included In The Study

List of Higher Education Institutions

IPEDS unit ID	Institution Name	FIPS state code	IPEDS unit ID	Institution Name	FIPS state code
222178	Abilene Christian University	Texas	122931	Santa Clara University	California
188429	Adelphi University	New York	236577	Seattle Pacific University	Washington
210775	Alvernia University	Pennsylvania	236595	Seattle University	Washington
131159	American University	District of Columbia	186584	Seton Hall University	New Jersey
168740	Andrews University	Michigan	233541	Shenandoah University	Virginia
104151	Arizona State University*	Arizona	167783	Simmons University	Massachusetts
106449	Arkansas State University*	Arkansas	219356	South Dakota State University*	South Dakota
100858	Auburn University	Alabama	149222	Southern Illinois University-Carbondale	Illinois
109785	Azusa Pacific University	California	228246	Southern Methodist University	Texas
154688	Baker University	Kansas	167899	Springfield College	Massachusetts
150136	Ball State University	Indiana	175005	St Catherine University	Minnesota
223232	Baylor University	Texas	243744	Stanford University	California
156286	Bellarmine University	Kentucky	186867	Stevens Institute of Technology	New Jersey
219709	Belmont University	Tennessee	186876	Stockton University	New Jersey
150145	Bethel University	Indiana	196097	Stony Brook University	New York
196079	Binghamton University	New York	168005	Suffolk University	Massachusetts
110097	Biola University	California	196060	SUNY at Albany	New York
164924	Boston College	Massachusetts	196103	SUNY College of Environmental Science and Forestry	New York
164988	Boston University	Massachusetts	196413	Syracuse University	New York
201441	Bowling Green State University-Main Campus	Ohio	216339	Temple University	Pennsylvania
143358	Bradley University	Illinois	221847	Tennessee Technological University	Tennessee
165015	Brandeis University	Massachusetts	224545	Texas A&M University*	Texas
230038	Brigham Young University	Utah	228875	Texas Christian University	Texas
217156	Brown University	Rhode Island	229115	Texas Tech University*	Texas
110404	California Institute of Technology	California	131283	The Catholic University of America	District of Columbia
110556	California State University-Fresno	California	174899	The College of Saint Scholastica	Minnesota
110565	California State University-Fullerton	California	117751	The Master's University and Seminary	California
110583	California State University-Long Beach	California	193654	The New School	New York
110510	California State University-San Bernardino	California	495767	The Pennsylvania State University*	Pennsylvania
198136	Campbell University	North Carolina	100751	The University of Alabama	Alabama

IPEDS unit ID	Institution Name	FIPS state code	IPEDS unit ID	Institution Name	FIPS state code
211440	Carnegie Mellon University	Pennsylvania	202763	The University of Findlay	Ohio
201645	Case Western Reserve University	Ohio	180489	The University of Montana	Montana
169248	Central Michigan University*	Michigan	221759	The University of Tennessee-Knoxville	Tennessee
111948	Chapman University	California	228769	The University of Texas at Arlington*	Texas
211556	Chatham University	Pennsylvania	228778	The University of Texas at Austin	Texas
165334	Clark University	Massachusetts	228787	The University of Texas at Dallas*	Texas
153126	Clarke University	Iowa	227368	The University of Texas Rio Grande Valley	Texas
190044	Clarkson University	New York	216366	Thomas Jefferson University	Pennsylvania
217882	Clemson University	South Carolina	196592	Touro College	New York
126775	Colorado School of Mines*	Colorado	168148	Tufts University	Massachusetts
126818	Colorado State University*	Colorado	160755	Tulane University of Louisiana	Louisiana
190150	Columbia University in the City of New York	New York	221971	Union University	Tennessee
112075	Concordia University-Irvine	California	196088	University at Buffalo	New York
238616	Concordia University-Wisconsin	Wisconsin	100663	University of Alabama at Birmingham	Alabama
190415	Cornell University	New York	100706	University of Alabama in Huntsville	Alabama
181002	Creighton University	Nebraska	104179	University of Arizona*	Arizona
190567	CUNY City College	New York	106245	University of Arkansas*	Arkansas
182670	Dartmouth College	New Hampshire	110635	University of California-Berkeley	California
144740	DePaul University	Illinois	110644	University of California-Davis	California
210739	DeSales University	Pennsylvania	110653	University of California-Irvine	California
153269	Drake University	Iowa	110662	University of California-Los Angeles	California
212054	Drexel University	Pennsylvania	445188	University of California-Merced	California
198419	Duke University	North Carolina	110671	University of California-Riverside	California
212106	Duquesne University	Pennsylvania	110680	University of California-San Diego	California
190716	D'Youville College	New York	110705	University of California-Santa Barbara	California
198464	East Carolina University	North Carolina	110714	University of California-Santa Cruz	California

IPEDS unit ID	Institution Name	FIPS state code	IPEDS unit ID	Institution Name	FIPS state code
220075	East Tennessee State University*	Tennessee	132903	University of Central Florida*	Florida
198516	Elon University	North Carolina	144050	University of Chicago	Illinois
139658	Emory University	Georgia	201885	University of Cincinnati*	Ohio
129242	Fairfield University	Connecticut	126614	University of Colorado Boulder*	Colorado
133650	Florida Agricultural and Mechanical University	Florida	126562	University of Colorado Denver*	Colorado
133669	Florida Atlantic University*	Florida	129020	University of Connecticut*	Connecticut
133881	Florida Institute of Technology	Florida	202480	University of Dayton	Ohio
133951	Florida International University*	Florida	130943	University of Delaware*	Delaware
134097	Florida State University*	Florida	127060	University of Denver	Colorado
191241	Fordham University	New York	169716	University of Detroit Mercy	Michigan
131450	Gallaudet University	District of Columbia	134130	University of Florida*	Florida
212601	Gannon University	Pennsylvania	139959	University of Georgia*	Georgia
208822	George Fox University	Oregon	129525	University of Hartford	Connecticut
232186	George Mason University	Virginia	141565	University of Hawaii at Hilo*	Hawaii
131469	George Washington University	District of Columbia	141574	University of Hawaii at Manoa*	Hawaii
131496	Georgetown University	District of Columbia	225414	University of Houston*	Texas
139755	Georgia Institute of Technology*	Georgia	142285	University of Idaho*	Idaho
139940	Georgia State University*	Georgia	145600	University of Illinois Chicago	Illinois
235316	Gonzaga University	Washington	145637	University of Illinois Urbana-Champaign*	Illinois
170082	Grand Valley State University	Michigan	151263	University of Indianapolis	Indiana
232265	Hampton University	Virginia	153658	University of Iowa*	Iowa
107044	Harding University	Arkansas	155317	University of Kansas*	Kansas
166027	Harvard University	Massachusetts	157085	University of Kentucky*	Kentucky
191649	Hofstra University	New York	117140	University of La Verne	California
131520	Howard University	District of Columbia	157289	University of Louisville	Kentucky
145725	Illinois Institute of Technology	Illinois	232609	University of Lynchburg	Virginia
145813	Illinois State University*	Illinois	161217	University of Maine*	Maine
213011	Immaculata University	Pennsylvania	163268	University of Maryland-Baltimore County	Maryland
151351	Indiana University-Bloomington	Indiana	163286	University of Maryland-College Park	Maryland
151111	Indiana University-Purdue University-Indianapolis	Indiana	166629	University of Massachusetts-Amherst	Massachusetts

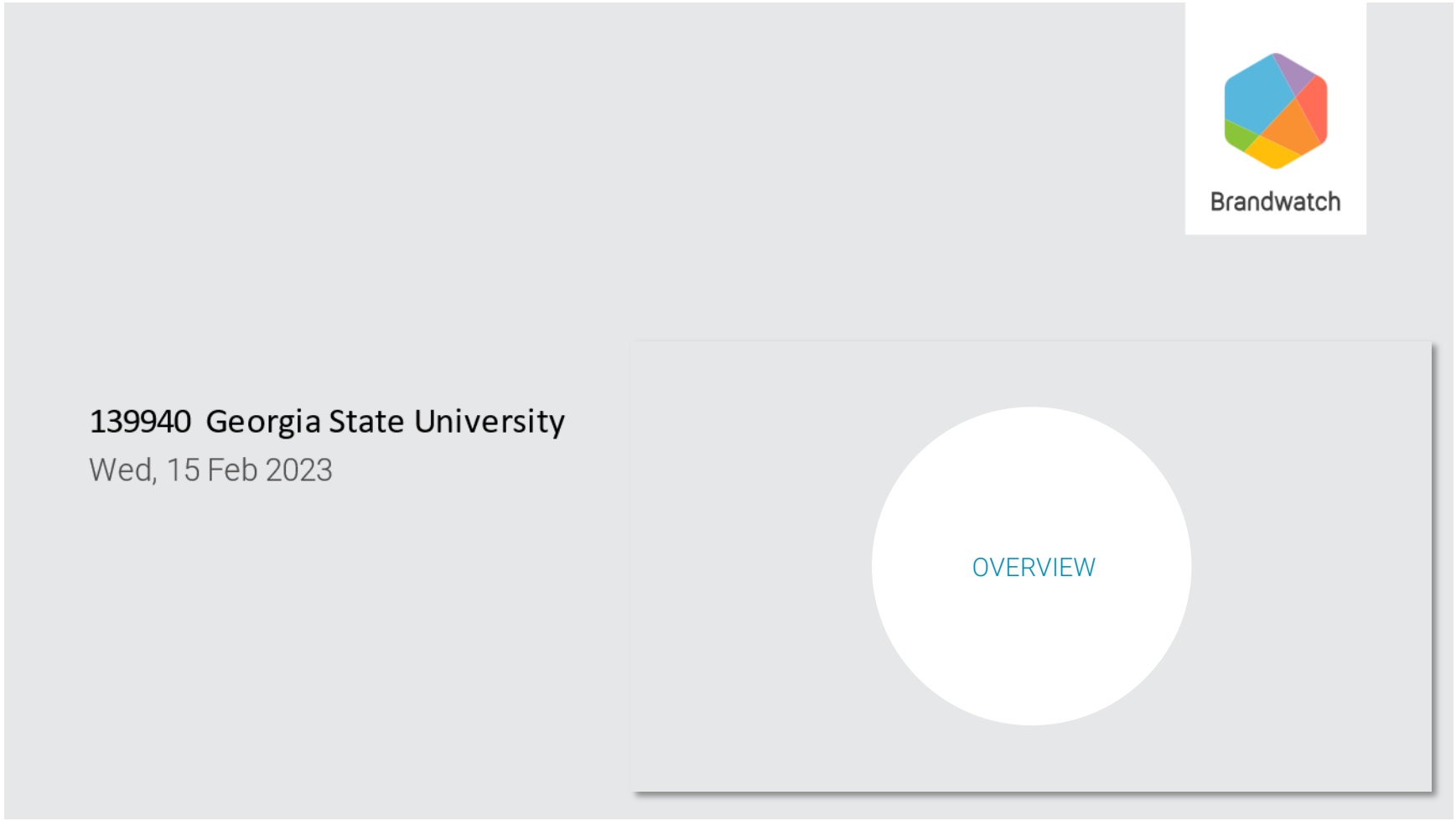
IPEDS unit ID	Institution Name	FIPS state code	IPEDS unit ID	Institution Name	FIPS state code
153603	Iowa State University	Iowa	166638	University of Massachusetts-Boston	Massachusetts
232423	James Madison University	Virginia	167987	University of Massachusetts-Dartmouth	Massachusetts
162928	Johns Hopkins University	Maryland	166513	University of Massachusetts-Lowell	Massachusetts
155399	Kansas State University*	Kansas	220862	University of Memphis*	Tennessee
135081	Keiser University-Ft Lauderdale	Florida	135726	University of Miami	Florida
203517	Kent State University at Kent	Ohio	170976	University of Michigan*	Michigan
213367	La Salle University	Pennsylvania	174066	University of Minnesota-Twin Cities	Minnesota
213543	Lehigh University	Pennsylvania	176017	University of Mississippi*	Mississippi
220631	Lincoln Memorial University	Tennessee	178396	University of Missouri-Columbia	Missouri
219976	Lipscomb University	Tennessee	178402	University of Missouri-Kansas City	Missouri
159647	Louisiana Tech University*	Louisiana	178420	University of Missouri-St Louis	Missouri
117946	Loyola Marymount University	California	181394	University of Nebraska at Omaha	Nebraska
146719	Loyola University Chicago	Illinois	181464	University of Nebraska-Lincoln	Nebraska
159656	Loyola University New Orleans	Louisiana	182281	University of Nevada-Las Vegas	Nevada
151786	Marian University	Indiana	182290	University of Nevada-Reno	Nevada
239105	Marquette University	Wisconsin	161457	University of New England	Maine
237525	Marshall University	West Virginia	182829	University of New Hampshire*	New Hampshire
232706	Marymount University	Virginia	187958	University of New Mexico*	New Mexico
178059	Maryville University of Saint Louis	Missouri	199120	University of North Carolina at Chapel Hill*	North Carolina
166683	Massachusetts Institute of Technology	Massachusetts	199139	University of North Carolina at Charlotte	North Carolina
140447	Mercer University	Georgia	199148	University of North Carolina at Greensboro	North Carolina
204024	Miami University-Oxford	Ohio	199218	University of North Carolina Wilmington	North Carolina
171100	Michigan State University*	Michigan	200280	University of North Dakota*	North Dakota
171128	Michigan Technological University*	Michigan	136172	University of North Florida*	Florida
220978	Middle Tennessee State University	Tennessee	227216	University of North Texas*	Texas
214069	Misericordia University	Pennsylvania	152080	University of Notre Dame	Indiana
176053	Mississippi College	Mississippi	207342	University of Oklahoma*	Oklahoma
176080	Mississippi State University*	Mississippi	209551	University of Oregon*	Oregon

IPEDS unit ID	Institution Name	FIPS state code	IPEDS unit ID	Institution Name	FIPS state code
178411	Missouri University of Science and Technology	Missouri	215062	University of Pennsylvania	Pennsylvania
180179	Montana State University*	Montana	215266	University of Pittsburgh*	Pennsylvania
185590	Montclair State University	New Jersey	243221	University of Puerto Rico-Rio Piedras	Puerto Rico
163453	Morgan State University	Maryland	217484	University of Rhode Island*	Rhode Island
185828	New Jersey Institute of Technology	New Jersey	195030	University of Rochester	New York
187620	New Mexico State University*	New Mexico	122436	University of San Diego	California
193900	New York University	New York	122612	University of San Francisco	California
199102	North Carolina A & T State University	North Carolina	218663	University of South Carolina-Columbia	South Carolina
199193	North Carolina State University at Raleigh	North Carolina	219471	University of South Dakota*	South Dakota
200332	North Dakota State University*	North Dakota	137351	University of South Florida*	Florida
167358	Northeastern University	Massachusetts	123961	University of Southern California	California
105330	Northern Arizona University*	Arizona	148584	University of St Francis	Illinois
147767	Northwestern University	Illinois	174914	University of St Thomas	Minnesota
136215	Nova Southeastern University	Florida	227863	University of St Thomas	Minnesota
152099	Oakland City University	Indiana	225627	University of the Incarnate Word	Texas
204662	Ohio State University*	Ohio	120883	University of the Pacific	California
204802	Ohio University*	Ohio	206084	University of Toledo	Ohio
207458	Oklahoma City University	Oklahoma	207971	University of Tulsa	Oklahoma
207315	Oklahoma State University*	Oklahoma	230764	University of Utah*	Utah
232982	Old Dominion University	Virginia	231174	University of Vermont*	Vermont
209542	Oregon State University*	Oregon	233897	University of Virginia*	Virginia
194310	Pace University	New York	236948	University of Washington*	Washington
209612	Pacific University	Oregon	240329	University of Wisconsin-La Crosse	Wisconsin
121150	Pepperdine University	California	240444	University of Wisconsin-Madison	Wisconsin
215442	Point Park University	Pennsylvania	240727	University of Wyoming*	Wyoming
241410	Pontifical Catholic University of Puerto Rico-Ponce	Puerto Rico	230728	Utah State University*	Utah
209807	Portland State University	Oregon	152600	Valparaiso University	Indiana
186131	Princeton University	New Jersey	221999	Vanderbilt University	Tennessee
243780	Purdue University-Main Campus	Indiana	216597	Villanova University	Pennsylvania
130226	Quinnipiac University	Connecticut	234030	Virginia Commonwealth University*	Virginia

IPEDS unit ID	Institution Name	FIPS state code
231651	Regent University	Virginia
127918	Regis University	Colorado
194824	Rensselaer Polytechnic Institute	New York
227757	Rice University	Texas
215655	Robert Morris University	Pennsylvania
195003	Rochester Institute of Technology	New York
184782	Rowan University	New Jersey
195128	Russell Sage College	New York
186371	Rutgers University-Camden	New Jersey
186380	Rutgers University-New Brunswick	New Jersey
186399	Rutgers University-Newark	New Jersey
130253	Sacred Heart University	Connecticut
154235	Saint Ambrose University	Iowa
195720	Saint John Fisher College	New York
174792	Saint John's University	Minnesota
179159	Saint Louis University	Missouri
174817	Saint Mary's University of Minnesota	Minnesota
227881	Sam Houston State University	Texas
102049	Samford University	Alabama
122409	San Diego State University*	California
122597	San Francisco State University	California
233921	Virginia Polytechnic Institute and State University	Virginia
199847	Wake Forest University	North Carolina
206437	Walsh University	Ohio
236939	Washington State University*	Washington
179867	Washington University in St Louis	Missouri
172644	Wayne State University	Michigan
216764	West Chester University of Pennsylvania	Pennsylvania
237686	West Virginia University*	West Virginia
200004	Western Carolina University	North Carolina
172477	Western Michigan University*	Michigan
168254	Western New England University	Massachusetts
216852	Widener University	Pennsylvania
216931	Wilkes University	Pennsylvania
231624	William & Mary	Virginia
176479	William Carey University	Mississippi
199999	Winston-Salem State University	North Carolina
168421	Worcester Polytechnic Institute	Massachusetts
206622	Xavier University	Ohio
130794	Yale University	Connecticut
197708	Yeshiva University	New York

Appendix D: Social Explorer Dashboard

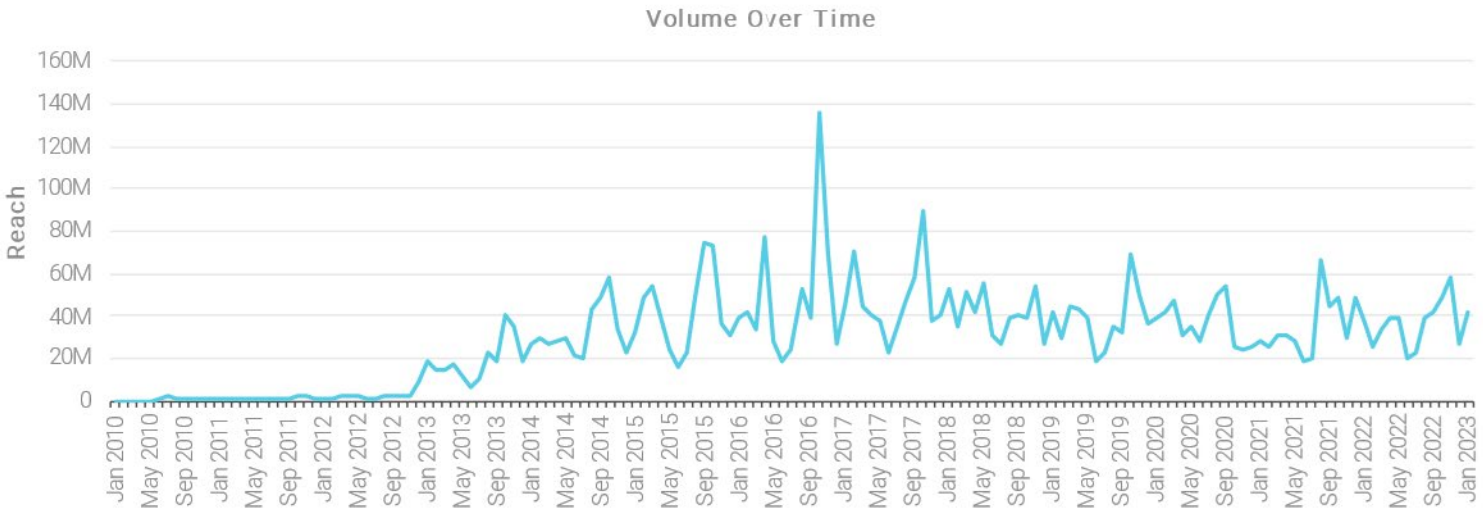
BrandWatch Consumer Research Social Explorer Dashboard Download



Volume Over Time

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

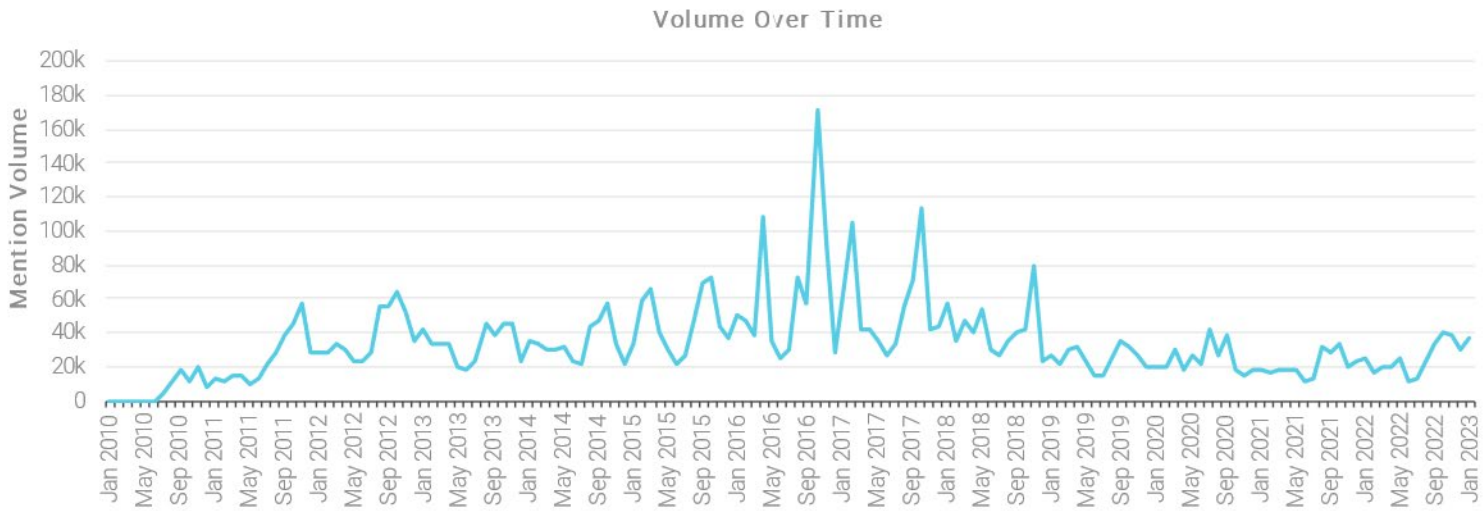
Reach for **Months** broken down by **Queries**



Volume Over Time

8 Georgia State University | Jan 01, 2010 - Jan 31, 2023

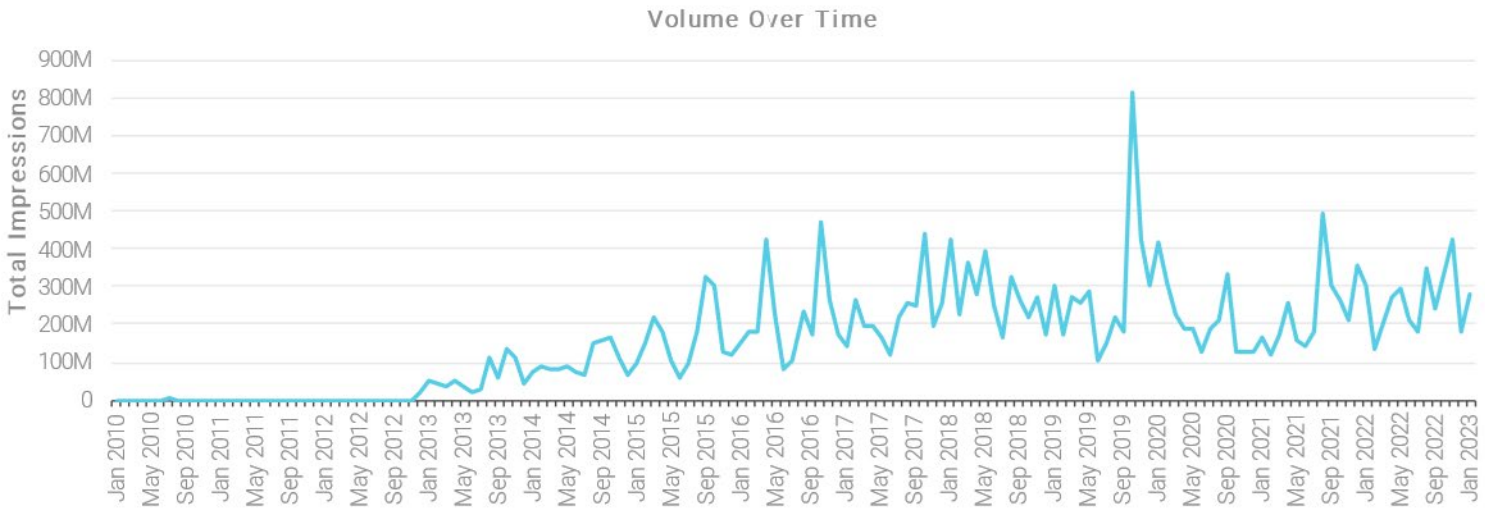
Mention Volume for **Months** broken down by **Queries**



Volume Over Time

8 Georgia State University | Jan 01, 2010 - Jan 31, 2023

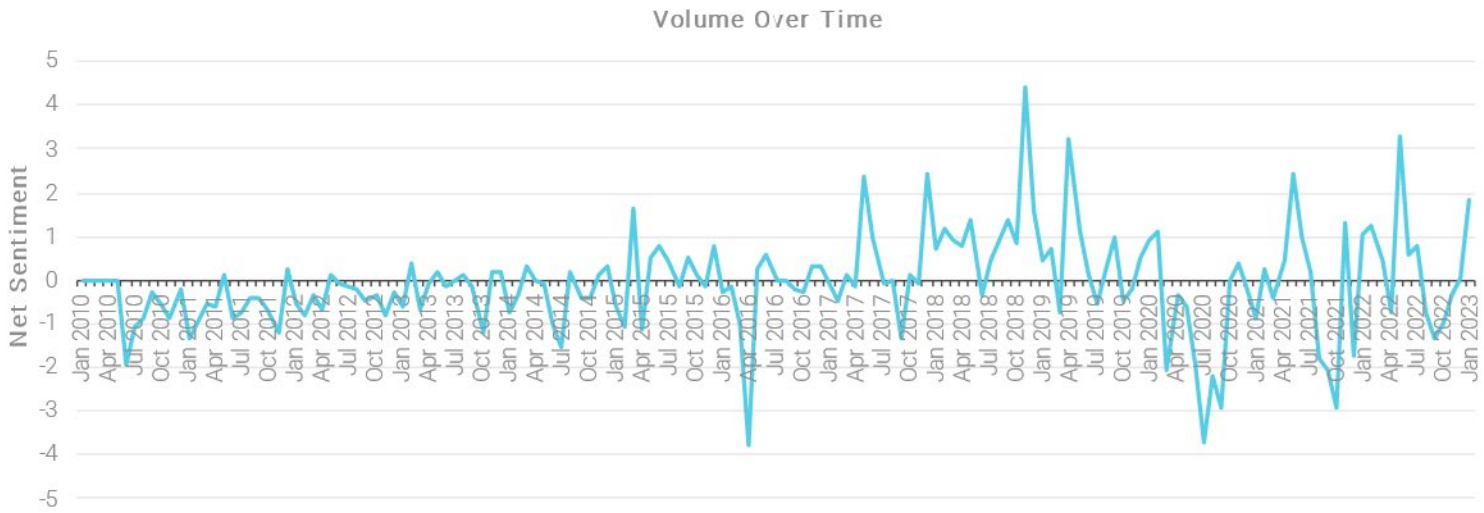
Total Impressions for **Months** broken down by **Queries**



Volume Over Time

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

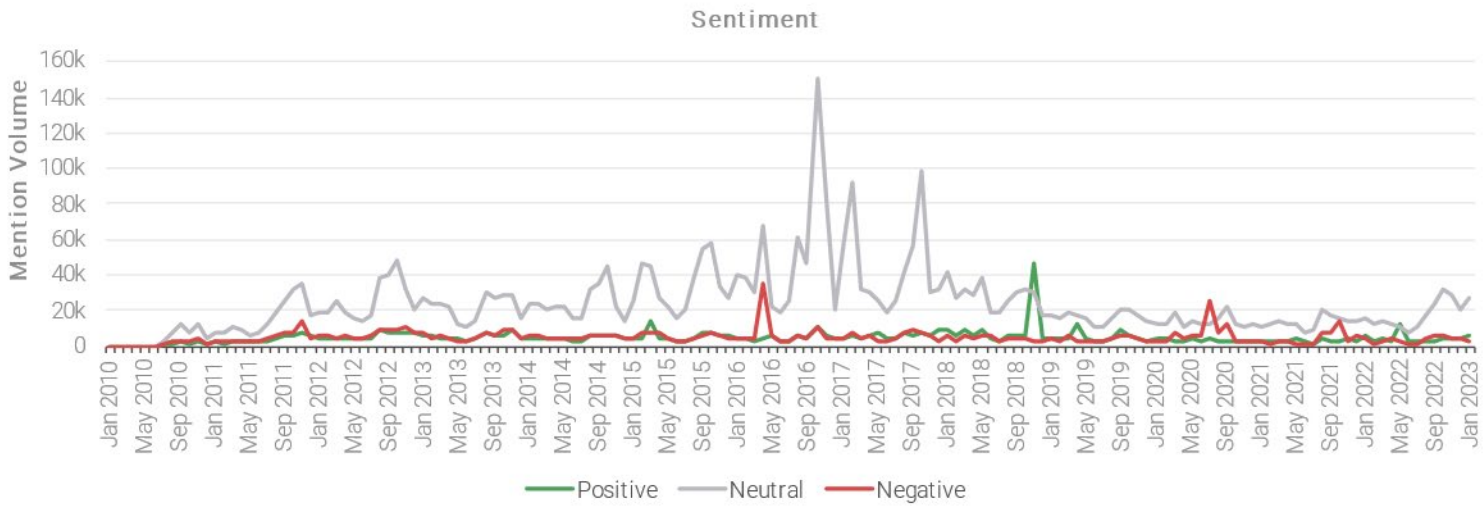
Net Sentiment for **Months** broken down by **Queries**



Sentiment

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

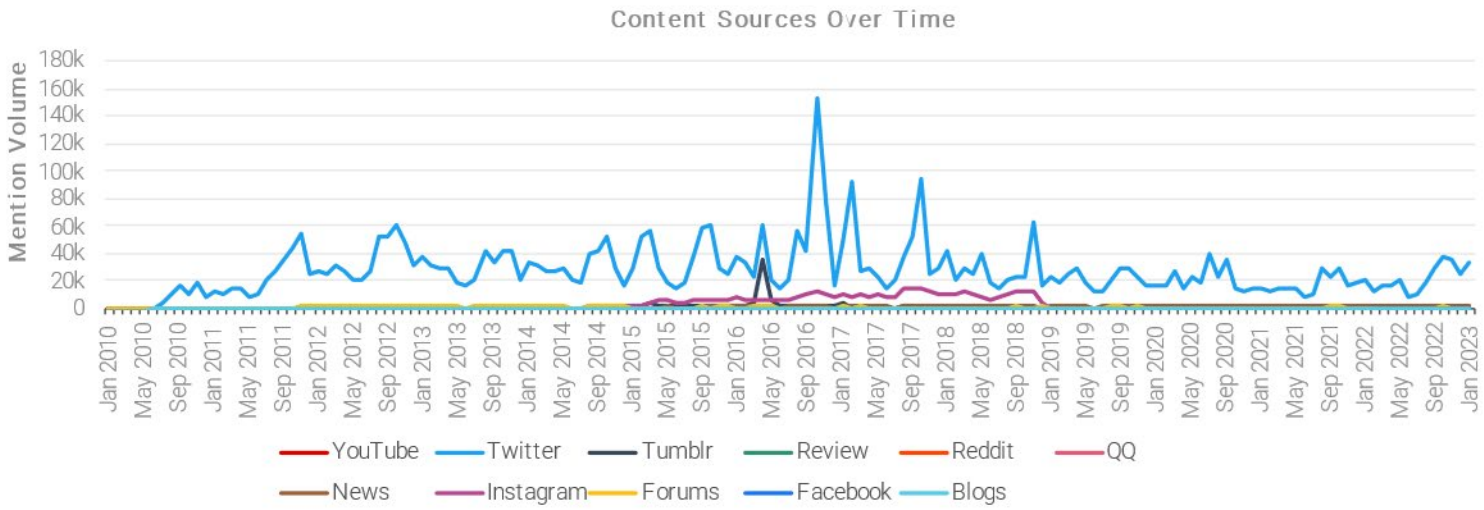
Mention Volume for **Months** broken down by **Sentiment**



Content Sources Over Time

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

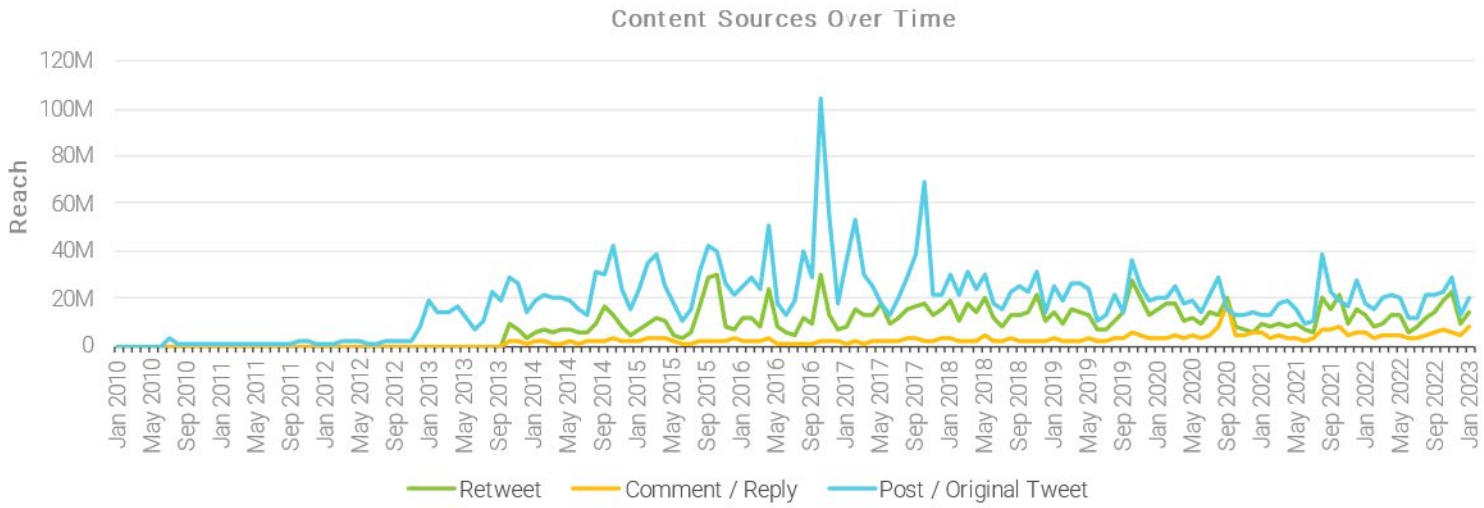
Mention Volume for **Months** broken down by **Page Types**



Content Sources Over Time

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

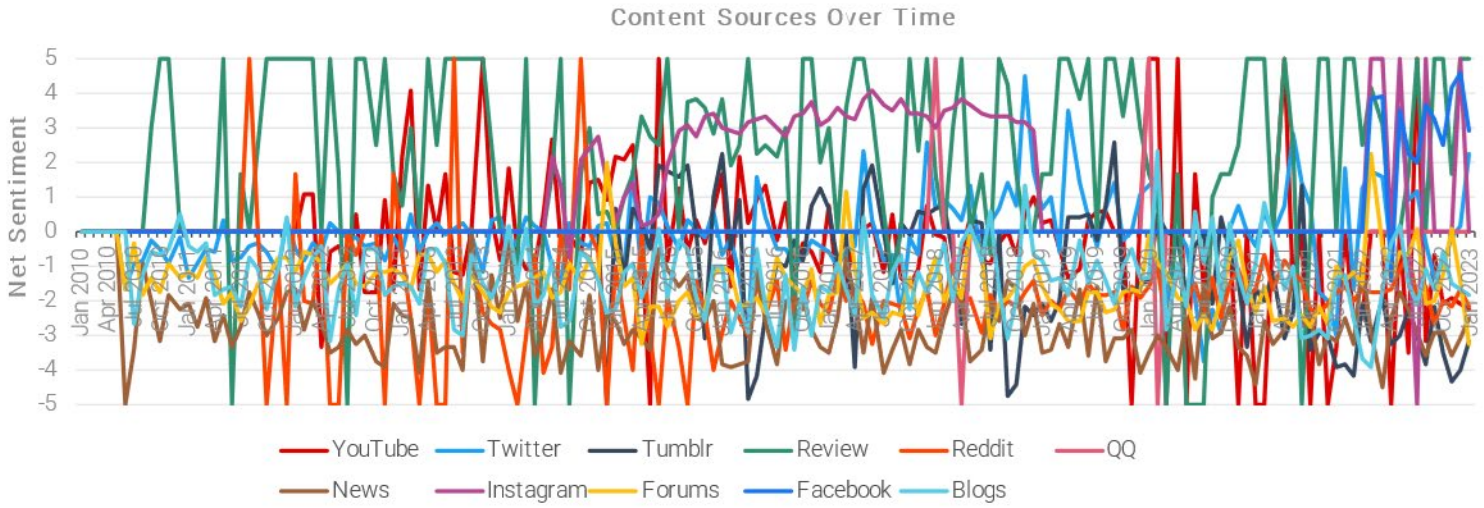
Reach for **Months** broken down by **Mention Type**



Content Sources Over Time

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

Net Sentiment for **Months** broken down by **Page Types**



Demographics

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

Gender split

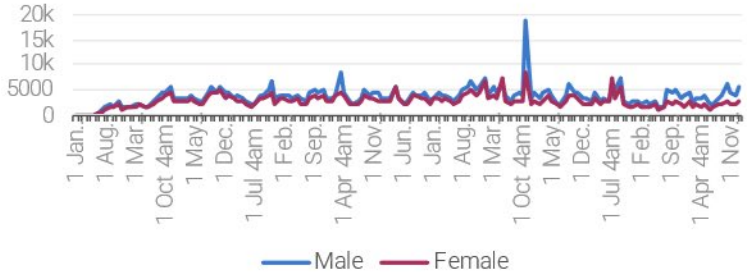
41%

212981 authors

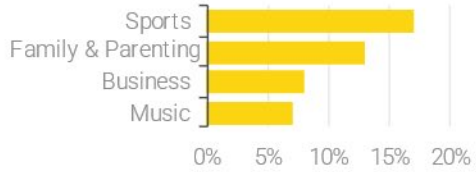
59%

302615 authors

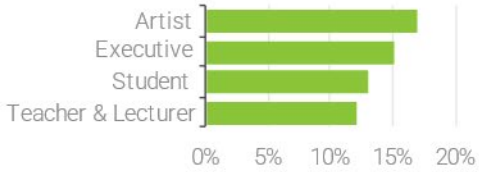
Gender split trend



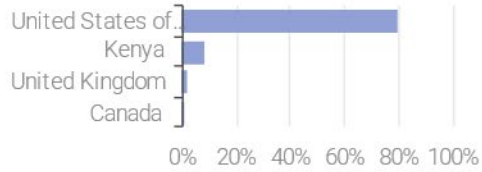
Top Interests



Top Professions



Top Countries



Word Cloud

8 Georgia State University | Jan 01, 2010 Jan 31, 2023

Appendix E: SPSS Output Of Regression Models

The following are the output models produced by SPSS for each of the iterations ran for the study.

Descriptive Statistics

Descriptive Statistics

	N	Range	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Control of Institution	3586	1	1.50	.008	.500	.250	-.003	.041	-2.001	.082
Applicants Total	3437	139264	17142.02	281.644	16511.660	272634915.00	2.006	.042	5.901	.084
YEAR	3586	10	2016.00	.053	3.163	10.003	.000	.041	-1.220	.082
US World News Rankings 2023	3586	316	160.82	1.557	93.217	8689.412	.004	.041	-1.210	.082
Enrollment Total	3586	77628	16521.17	220.687	13215.435	174647714.86	1.066	.041	.652	.082
Endowment Asset	3500	4701166	83798.87	4447.272	263104.131	69223783674	7.336	.041	71.061	.083
Full-Time Retention Rate	3524	60	83.94	.149	8.836	78.081	-.719	.041	1.071	.082
Faculty All	3586	6774	944.11	15.609	934.713	873688.481	2.077	.041	5.947	.082
Student-to-Faculty Ratio	3553	44	14.82	.078	4.641	21.542	.550	.041	1.620	.082
Social Media Mentions	3586	278236353	2848817.03	190061.724	11381507.998	1.295E+14	10.526	.041	164.041	.082
Social Media Reach	3584	514531954025	2311773143.5	257721580.97	15428893715	2.381E+20	23.591	.041	682.284	.082
Social Media Impressions	3237	1.E+12	11085372707	835839553.81	47554790066	2.261E+21	12.556	.043	223.889	.086
Social Media Posts	3574	66688452452	1283081951.4	75070893.201	4487958757.3	2.014E+19	7.637	.041	72.338	.082
Net Sentiment-Weighted	3585	8.78312	.4227002	.02514844	1.50575969	2.267	.398	.041	-.234	.082
Positive Sentiment	3584	66223879	386456.27	33238.976	1989901.768	3.960E+12	17.885	.041	464.275	.082
Neutral Sentiment	3575	113966294	1815742.65	103617.115	6195402.377	3.838E+13	7.691	.041	80.292	.082
Negative Sentiment	3585	98046166	652518.24	63264.698	3787965.565	1.435E+13	13.664	.041	237.113	.082
HBCU	3586	1	1.98	.002	.134	.018	-7.169	.041	49.423	.082
Carnegie Classification	3586	10	4.37	.016	.972	.945	-1.083	.041	6.455	.082
Level of Institution	3586	1	1.01	.002	.110	.012	8.864	.041	76.621	.082
Valid N (listwise)	3044									

Correlations

Correlations

		Applicants Total	Control of Institution	YEAR	US World News Rankings 2023	Enrollment Total	Endowment Asset	Full-Time Retention Rate	Faculty All	Student-to-Faculty Ratio	Social Media Mentions	Social Media Reach	Social Media Impressions	Social Media Posts	Net Sentiment-Weighted	Positive Sentiment	Neutral Sentiment	Negative Sentiment
Applicants Total	Pearson Correlation	--																
	N	3437																
Control of Institution	Pearson Correlation	-.245**	--															
	Sig. (2-tailed)	<.001																
	N	3437	3586															
YEAR	Pearson Correlation	.148**	-.002	--														
	Sig. (2-tailed)	<.001	.899															
	N	3437	3586	3586														
US World News Rankings 2023	Pearson Correlation	-.595**	-.073**	.000	--													
	Sig. (2-tailed)	.000	<.001	1.000														
	N	3437	3586	3586	3586													
Enrollment Total	Pearson Correlation	.678**	-.534**	.035*	-.336**	--												
	Sig. (2-tailed)	.000	<.001	.038	<.001													
	N	3437	3586	3586	3586	3586												
Endowment Asset	Pearson Correlation	.182**	.236**	.059**	-.383**	-.040*	--											
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.018												
	N	3392	3500	3500	3500	3500	3500											
Full-Time Retention Rate	Pearson Correlation	.559**	.182**	.034*	-.731**	.349**	.344**	--										
	Sig. (2-tailed)	<.001	<.001	.041	.000	<.001	<.001											
	N	3436	3524	3524	3524	3524	3446	3524										
Faculty All	Pearson Correlation	.657**	-.257**	.016	-.534**	.741**	.225**	.477**	--									
	Sig. (2-tailed)	.000	<.001	.329	<.001	.000	<.001	<.001										
	N	3437	3586	3586	3586	3586	3500	3524	3586									
Student-to-Faculty Ratio	Pearson Correlation	.138**	-.658**	-.060**	.285**	.472**	-.404**	-.230**	.015	--								
	Sig. (2-tailed)	<.001	.000	<.001	<.001	<.001	<.001	<.001	.378									
	N	3437	3553	3553	3553	3553	3475	3524	3553	3553								
Social Media Mentions	Pearson Correlation	.028	.086**	-.037*	-.072**	-.032	.031	.054**	.020	-.080**	--							
	Sig. (2-tailed)	.098	<.001	.027	<.001	.055	.065	.001	.220	<.001								
	N	3437	3586	3586	3586	3586	3500	3524	3586	3553	3586							
Social Media Reach	Pearson Correlation	.036*	.049**	.097**	-.051**	-.014	.050**	.058**	.008	-.052**	.358**	--						
	Sig. (2-tailed)	.033	.004	<.001	.002	.393	.003	<.001	.651	.002	<.001							
	N	3435	3584	3584	3584	3584	3499	3522	3584	3551	3584	3584						
Social Media Impressions	Pearson Correlation	.035	.025	.139**	-.020	-.014	.045*	.057**	.012	-.031	.514**	.487**	--					
	Sig. (2-tailed)	.050	.147	<.001	.256	.420	.011	.001	.500	.077	<.001	<.001						
	N	3104	3237	3237	3237	3237	3159	3182	3237	3208	3237	3237	3237					
Social Media Posts	Pearson Correlation	.043*	.059**	.104**	-.046**	-.027	.050**	.078**	.007	-.057**	.672**	.537**	.847**	--				
	Sig. (2-tailed)	.013	<.001	<.001	.006	.106	.003	<.001	.688	<.001	.000	<.001	.000					
	N	3425	3574	3574	3574	3574	3489	3512	3574	3541	3574	3573	3227	3574				
Net Sentiment-Weighted	Pearson Correlation	-.262**	.047**	.073**	.238**	-.200**	-.134**	-.181**	-.252**	-.008	-.248**	-.166**	-.242**	-.277**	--			
	Sig. (2-tailed)	<.001	.005	<.001	<.001	<.001	<.001	<.001	<.001	.620	<.001	<.001	<.001	<.001				
	N	3436	3585	3585	3585	3585	3500	3523	3585	3552	3585	3584	3237	3574	3585			
Positive Sentiment	Pearson Correlation	.023	.075**	-.064**	-.066**	-.030	.020	.031	.027	-.074**	.938**	.240**	.330**	.468**	-.177**	--		
	Sig. (2-tailed)	.183	<.001	<.001	<.001	.071	.232	.069	.106	<.001	.000	<.001	<.001	<.001	<.001			
	N	3435	3584	3584	3584	3584	3499	3522	3584	3551	3584	3583	3237	3573	3584	3584		
Neutral Sentiment	Pearson Correlation	.019	.088**	-.024	-.063**	-.036*	.036*	.062**	.016	-.087**	.963**	.379**	.604**	.761**	-.272**	.840**	--	
	Sig. (2-tailed)	.257	<.001	.145	<.001	.031	.036	<.001	.333	<.001	.000	<.001	.000	.000	<.001	.000		
	N	3426	3575	3575	3575	3575	3489	3513	3575	3542	3575	3573	3227	3563	3574	3573	3575	
Negative Sentiment	Pearson Correlation	.040*	.076**	-.038*	-.079**	-.022	.025	.044**	.020	-.059**	.939**	.329**	.372**	.533**	-.208**	.921**	.820**	--
	Sig. (2-tailed)	.019	<.001	.024	<.001	.197	.146	.008	.230	<.001	.000	<.001	<.001	<.001	<.001	.000	.000	
	N	3436	3585	3585	3585	3585	3500	3523	3585	3552	3585	3584	3237	3574	3585	3584	3574	3585

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Direct Variable to Indirect Variable Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.262[a]	.069	.069	15937.285	.069	253.759	1	3434	<.001

a. Predictors: (Constant), Net Sentiment-Weighted

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64454132742	1	64454132742	253.759	<.001[b]
	Residual	8.722E+11	3434	253997047.19		
	Total	9.367E+11	3435			

a. Dependent Variable: Applicants Total

b. Predictors: (Constant), Net Sentiment-Weighted

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	18298.439	281.366		65.034	.000					
	Net Sentiment-Weighted	-2888.935	181.354	-.262	-15.930	<.001	-.262	-.262	-.262	1.000	1.000

a. Dependent Variable: Applicants Total

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Net Sentiment-Weighted
1	1	1.257	1.000	.37	.37
	2	.743	1.301	.63	.63

a. Dependent Variable: Applicants Total

Iteration One Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.804[a]	.646	.644	10103.542	.646	394.941	14	3029	.000
2	.805[b]	.649	.647	10066.593	.003	23.276	1	3028	<.001

a. Predictors: (Constant), Negative Sentiment, YEAR, Faculty All, Student-to-Faculty Ratio, Social Media Reach, Endowment Asset, Social Media Impressions, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Neutral Sentiment , Enrollment Total, Positive Sentiment, Social Media Posts

b. Predictors: (Constant), Negative Sentiment, YEAR, Faculty All, Student-to-Faculty Ratio, Social Media Reach, Endowment Asset, Social Media Impressions, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Neutral Sentiment , Enrollment Total, Positive Sentiment, Social Media Posts, Net Sentiment-Weighted

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.644E+11	14	40316202393	394.941	.000[b]
	Residual	3.092E+11	3029	102081553.83		
	Total	8.736E+11	3043			
2	Regression	5.668E+11	15	37785705791	372.874	.000[c]
	Residual	3.068E+11	3028	101336285.72		
	Total	8.736E+11	3043			

a. Dependent Variable: Applicants Total

b. Predictors: (Constant), Negative Sentiment, YEAR, Faculty All, Student-to-Faculty Ratio, Social Media Reach, Endowment Asset, Social Media Impressions, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Neutral Sentiment , Enrollment Total, Positive Sentiment, Social Media Posts

c. Predictors: (Constant), Negative Sentiment, YEAR, Faculty All, Student-to-Faculty Ratio, Social Media Reach, Endowment Asset, Social Media Impressions, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Neutral Sentiment , Enrollment Total, Positive Sentiment, Social Media Posts, Net Sentiment-Weighted

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-1390973.767	125773.198		-11.059	<.001		
	Control of Institution	2053.505	556.927	.061	3.687	<.001	.433	2.310
	YEAR	681.984	62.366	.122	10.935	<.001	.936	1.068
	US World News Rankings 2023	-52.182	3.426	-.289	-15.230	<.001	.324	3.085
	Enrollment Total	.529	.031	.416	17.206	<.001	.200	5.007
	Endowment Asset	.002	.001	.029	2.280	.023	.730	1.369
	Full-Time Retention Rate	252.629	38.381	.119	6.582	<.001	.356	2.808
	Faculty All	2.778	.373	.155	7.445	<.001	.270	3.703
	Student-to-Faculty Ratio	346.868	68.768	.096	5.044	<.001	.326	3.069
	Social Media Reach	-4.007E-9	.000	-.004	-.302	.763	.680	1.470
	Social Media Impressions	-7.616E-9	.000	-.022	-1.008	.314	.245	4.079
	Social Media Posts	2.173E-7	.000	.062	1.828	.068	.102	9.803
	Positive Sentiment	-4.361E-5	.000	-.004	-.132	.895	.103	9.726
	Neutral Sentiment	-7.754E-5	.000	-.027	-.811	.417	.102	9.813
	Negative Sentiment	5.856E-5	.000	.012	.433	.665	.150	6.682
2	(Constant)	-1434955.470	125644.391		-11.421	<.001		
	Control of Institution	1981.409	555.091	.058	3.570	<.001	.433	2.312
	YEAR	704.069	62.307	.126	11.300	<.001	.931	1.074
	US World News Rankings 2023	-50.686	3.428	-.281	-14.787	<.001	.322	3.110
	Enrollment Total	.526	.031	.414	17.163	<.001	.200	5.009
	Endowment Asset	.002	.001	.024	1.935	.053	.727	1.376
	Full-Time Retention Rate	254.423	38.242	.120	6.653	<.001	.356	2.808
	Faculty All	2.625	.373	.146	7.034	<.001	.268	3.730
	Student-to-Faculty Ratio	330.294	68.603	.091	4.815	<.001	.325	3.076
	Social Media Reach	-5.243E-9	.000	-.005	-.396	.692	.680	1.470
	Social Media Impressions	-8.674E-9	.000	-.025	-1.151	.250	.245	4.082
	Social Media Posts	2.045E-7	.000	.058	1.726	.084	.102	9.808
	Positive Sentiment	8.929E-5	.000	.009	.270	.787	.102	9.793
	Neutral Sentiment	.000	.000	-.043	-1.269	.205	.101	9.903
	Negative Sentiment	2.133E-5	.000	.004	.158	.874	.149	6.704
	Net Sentiment-Weighted	-648.940	134.507	-.058	-4.825	<.001	.813	1.230

a. Dependent Variable: Applicants Total

Iteration Two Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.804[a]	.646	.645	10096.153	.646	462.759	12	3041	.000
2	.806[b]	.649	.647	10058.310	.003	23.925	1	3040	<.001

a. Predictors: (Constant), Social Media Posts, Faculty All, Student-to-Faculty Ratio, YEAR, Endowment Asset, Social Media Reach, Full-Time Retention Rate, Control of Institution, Social Media Mentions, US World News Rankings 2023, Social Media Impressions, Enrollment Total

b. Predictors: (Constant), Social Media Posts, Faculty All, Student-to-Faculty Ratio, YEAR, Endowment Asset, Social Media Reach, Full-Time Retention Rate, Control of Institution, Social Media Mentions, US World News Rankings 2023, Social Media Impressions, Enrollment Total, Net Sentiment-Weighted

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.660E+11	12	47170068806	462.759	.000[b]
	Residual	3.100E+11	3041	101932295.61		
	Total	8.760E+11	3053			
2	Regression	5.685E+11	13	43727794750	432.223	.000[c]
	Residual	3.076E+11	3040	101169606.87		
	Total	8.760E+11	3053			

a. Dependent Variable: Applicants Total

b. Predictors: (Constant), Social Media Posts, Faculty All, Student-to-Faculty Ratio, YEAR, Endowment Asset, Social Media Reach, Full-Time Retention Rate, Control of Institution, Social Media Mentions, US World News Rankings 2023, Social Media Impressions, Enrollment Total

c. Predictors: (Constant), Social Media Posts, Faculty All, Student-to-Faculty Ratio, YEAR, Endowment Asset, Social Media Reach, Full-Time Retention Rate, Control of Institution, Social Media Mentions, US World News Rankings 2023, Social Media Impressions, Enrollment Total, Net Sentiment-Weighted

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-1396833.013	125117.947		-11.164	<.001		
	Control of Institution	2143.504	555.339	.063	3.860	<.001	.433	2.308
	YEAR	684.654	62.042	.123	11.035	<.001	.941	1.062
	US World News Rankings 2023	-52.206	3.417	-.289	-15.276	<.001	.325	3.077
	Enrollment Total	.529	.031	.416	17.236	<.001	.200	4.996
	Endowment Asset	.002	.001	.028	2.257	.024	.731	1.369
	Full-Time Retention Rate	254.963	38.315	.120	6.654	<.001	.356	2.812
	Faculty All	2.800	.372	.156	7.525	<.001	.271	3.690
	Student-to-Faculty Ratio	352.036	68.541	.097	5.136	<.001	.327	3.057
	Social Media Mentions	-2.178E-5	.000	-.014	-.756	.449	.359	2.788
	Social Media Reach	-1.951E-9	.000	-.002	-.150	.881	.707	1.415
	Social Media Impressions	-7.663E-9	.000	-.022	-1.021	.307	.248	4.028
	Social Media Posts	1.884E-7	.000	.054	1.864	.062	.141	7.096
2	(Constant)	-1444570.714	125030.474		-11.554	<.001		
	Control of Institution	2062.800	553.504	.061	3.727	<.001	.433	2.310
	YEAR	708.625	62.004	.127	11.429	<.001	.935	1.069
	US World News Rankings 2023	-50.717	3.418	-.281	-14.838	<.001	.322	3.101
	Enrollment Total	.525	.031	.413	17.173	<.001	.200	4.999
	Endowment Asset	.001	.001	.024	1.908	.056	.727	1.376
	Full-Time Retention Rate	256.396	38.172	.121	6.717	<.001	.356	2.812
	Faculty All	2.653	.372	.148	7.135	<.001	.269	3.714
	Student-to-Faculty Ratio	335.881	68.364	.092	4.913	<.001	.326	3.064
	Social Media Mentions	-2.793E-5	.000	-.017	-.973	.331	.358	2.794
	Social Media Reach	-3.391E-9	.000	-.003	-.261	.794	.706	1.416
	Social Media Impressions	-8.375E-9	.000	-.024	-1.120	.263	.248	4.030
	Social Media Posts	1.476E-7	.000	.042	1.462	.144	.140	7.144
	Net Sentiment-Weighted	-653.408	133.585	-.058	-4.891	<.001	.820	1.220

a. Dependent Variable: Applicants Total

Iteration Three Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.804[a]	.646	.645	9858.075	.646	772.046	8	3382	.000
2	.806[b]	.650	.649	9812.088	.003	32.776	1	3381	<.001

a. Predictors: (Constant), Student-to-Faculty Ratio, Faculty All, YEAR, Endowment Asset, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Enrollment Total

b. Predictors: (Constant), Student-to-Faculty Ratio, Faculty All, YEAR, Endowment Asset, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Enrollment Total, Net Sentiment-Weighted

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.002E+11	8	75028670827	772.046	.000[b]
	Residual	3.287E+11	3382	97181639.889		
	Total	9.289E+11	3390			
2	Regression	6.034E+11	9	67042769711	696.352	.000[c]
	Residual	3.255E+11	3381	96277061.614		
	Total	9.289E+11	3390			

a. Dependent Variable: Applicants Total

b. Predictors: (Constant), Student-to-Faculty Ratio, Faculty All, YEAR, Endowment Asset, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Enrollment Total

c. Predictors: (Constant), Student-to-Faculty Ratio, Faculty All, YEAR, Endowment Asset, Full-Time Retention Rate, Control of Institution, US World News Rankings 2023, Enrollment Total, Net Sentiment-Weighted

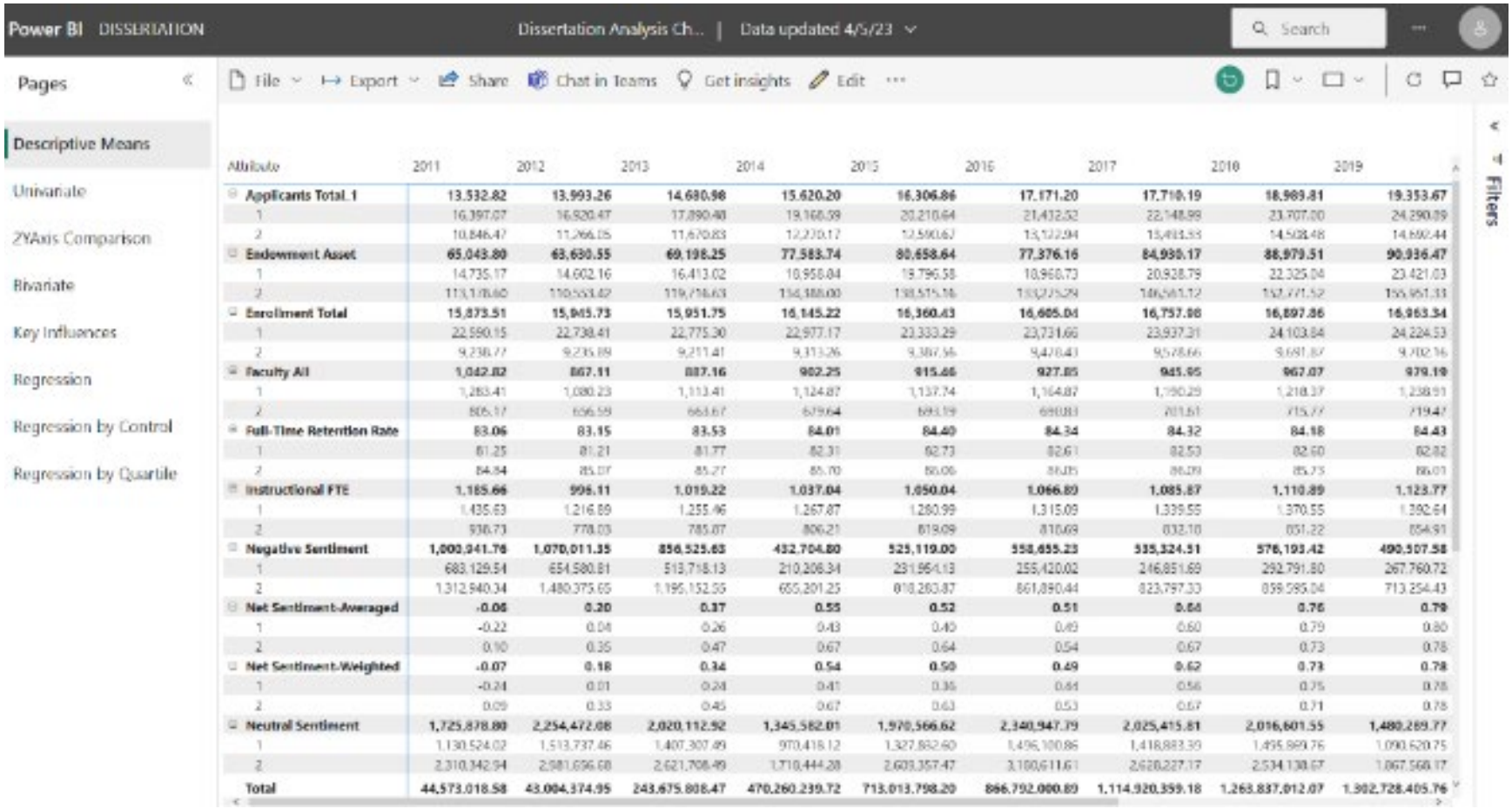
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1374769.420	109256.417		-12.583	<.001		
	Control of Institution	2180.969	515.581	.066	4.230	<.001	.432	2.315
	YEAR	674.100	54.211	.129	12.435	<.001	.975	1.025
	US World News Rankings 2023	-50.546	3.167	-.287	-15.958	<.001	.324	3.082
	Enrollment Total	.523	.029	.418	18.259	<.001	.200	5.007
	Endowment Asset	.002	.001	.031	2.587	.010	.734	1.363
	Full-Time Retention Rate	248.045	35.356	.120	7.016	<.001	.356	2.810
	Faculty All	2.748	.351	.154	7.834	<.001	.270	3.699
	Student-to-Faculty Ratio	337.064	63.368	.095	5.319	<.001	.329	3.043
2	(Constant)	-1416523.273	108991.032		-12.997	<.001		
	Control of Institution	2107.066	513.338	.064	4.105	<.001	.432	2.317
	YEAR	695.121	54.082	.133	12.853	<.001	.971	1.030
	US World News Rankings 2023	-49.105	3.163	-.278	-15.527	<.001	.322	3.102
	Enrollment Total	.521	.028	.416	18.271	<.001	.200	5.008
	Endowment Asset	.002	.001	.026	2.211	.027	.730	1.369
	Full-Time Retention Rate	247.847	35.191	.120	7.043	<.001	.356	2.810
	Faculty All	2.581	.350	.145	7.366	<.001	.268	3.725
	Student-to-Faculty Ratio	321.492	63.131	.091	5.093	<.001	.328	3.048
	Net Sentiment-Weighted	-674.610	117.835	-.061	-5.725	<.001	.911	1.098

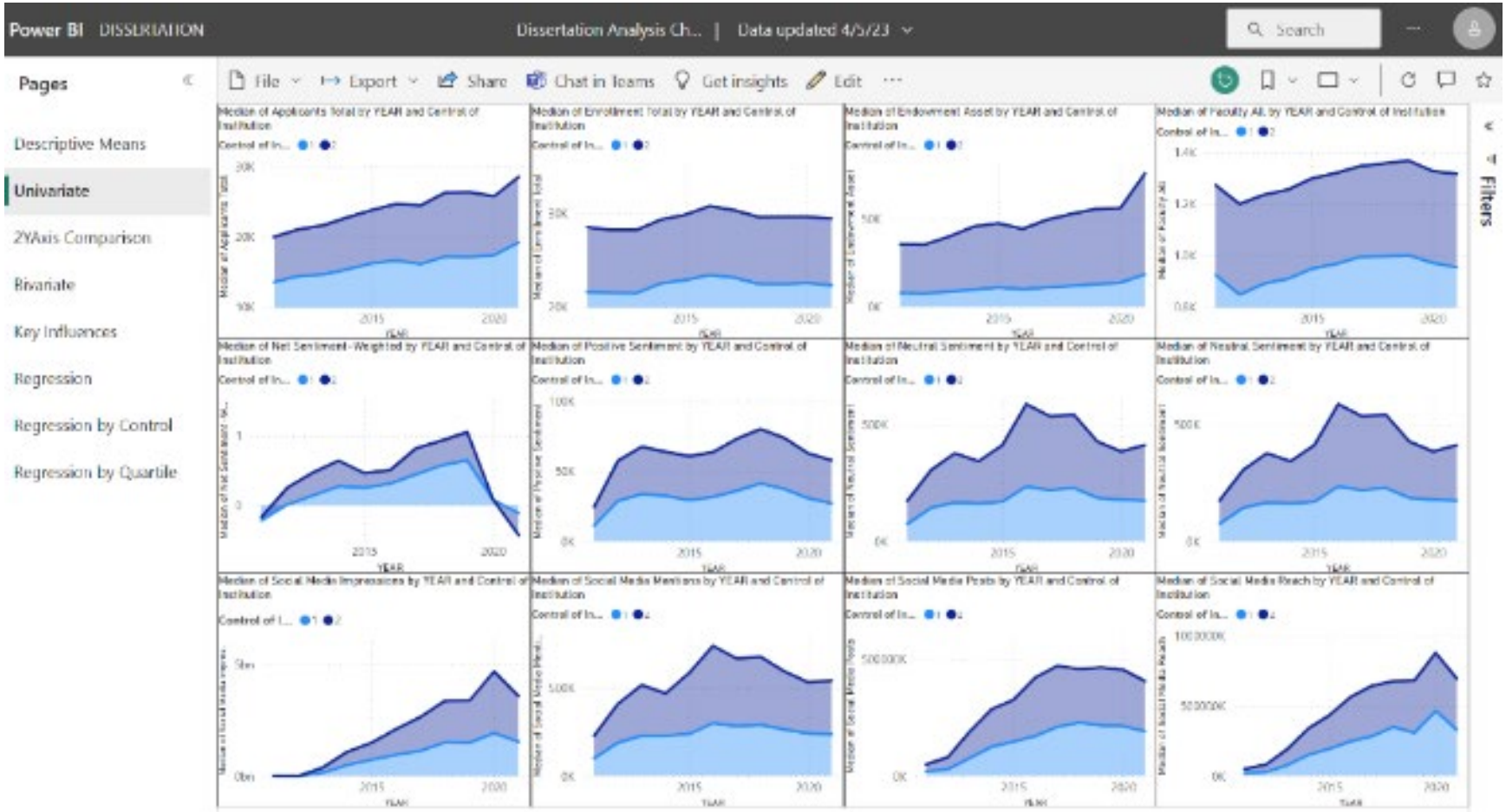
a. Dependent Variable: Applicants Total

Appendix F: Power Bi Dissertation Data Visualizations

The pages from the power bi report that was developed are provided in this appendix.



Attribute	2011	2012	2013	2014	2015	2016	2017	2018	2019
Applicants Total.1	**13,532.82**	**13,993.26**	**14,680.98**	**15,620.20**	**16,306.86**	**17,171.20**	**17,710.19**	**18,989.81**	**19,353.67**
1	16,397.07	16,920.47	17,890.48	19,168.39	20,210.64	21,432.52	22,148.99	23,707.00	24,290.09
2	10,846.47	11,266.05	11,670.83	12,270.17	12,590.67	13,122.94	13,493.53	14,508.48	14,692.44
Endowment Asset	**65,043.80**	**63,630.55**	**69,198.25**	**77,583.74**	**80,658.64**	**77,376.16**	**84,930.17**	**88,979.51**	**90,936.47**
1	14,735.17	14,602.16	16,413.02	18,958.84	19,796.58	18,960.73	20,928.79	22,325.04	23,421.03
2	113,178.60	110,553.42	119,716.63	134,388.00	138,515.16	133,225.29	146,561.12	152,771.52	155,951.33
Enrollment Total	**15,873.51**	**15,945.73**	**15,951.75**	**16,145.22**	**16,360.63**	**16,605.04**	**16,757.88**	**16,897.86**	**16,963.34**
1	22,590.15	22,738.41	22,775.30	22,977.17	23,333.29	23,731.66	23,937.21	24,103.84	24,224.53
2	9,236.77	9,235.89	9,211.41	9,313.26	9,387.56	9,478.43	9,578.66	9,691.87	9,702.16
Faculty All	**1,042.82**	**867.11**	**887.16**	**902.25**	**915.66**	**927.85**	**945.95**	**967.07**	**979.19**
1	1,283.41	1,080.23	1,113.41	1,124.87	1,137.74	1,164.87	1,190.29	1,218.37	1,238.91
2	805.17	656.59	663.67	679.64	693.19	690.83	701.61	715.77	719.47
Full-Time Retention Rate	**83.06**	**83.15**	**83.53**	**84.01**	**84.40**	**84.34**	**84.32**	**84.18**	**84.43**
1	81.25	81.21	81.77	82.31	82.73	82.61	82.53	82.60	82.82
2	84.84	85.07	85.27	85.70	86.06	86.05	86.09	85.73	86.01
Instructional FTE	**1,185.66**	**996.11**	**1,019.22**	**1,037.04**	**1,050.04**	**1,066.80**	**1,085.87**	**1,110.89**	**1,123.77**
1	1,435.63	1,216.89	1,255.46	1,267.87	1,280.99	1,315.09	1,339.55	1,370.55	1,382.64
2	936.73	778.03	785.07	806.21	819.09	818.69	832.18	851.22	864.91
Negative Sentiment	**1,000,941.76**	**1,070,011.35**	**856,525.63**	**432,704.80**	**525,119.00**	**558,655.23**	**535,324.51**	**576,193.42**	**490,507.58**
1	683,129.54	654,580.81	513,718.13	210,206.34	231,954.13	255,420.02	246,851.69	292,791.80	267,760.72
2	1,312,940.34	1,480,375.65	1,195,152.59	655,201.25	818,283.87	861,890.44	823,797.33	859,595.04	713,254.43
Net Sentiment-Averaged	**-0.06**	**0.20**	**0.37**	**0.55**	**0.52**	**0.51**	**0.64**	**0.76**	**0.79**
1	-0.22	0.04	0.26	0.43	0.40	0.49	0.60	0.79	0.80
2	0.10	0.35	0.47	0.67	0.64	0.54	0.67	0.73	0.78
Net Sentiment-Weighted	**-0.07**	**0.18**	**0.34**	**0.54**	**0.50**	**0.49**	**0.62**	**0.73**	**0.78**
1	-0.24	0.01	0.24	0.41	0.36	0.44	0.56	0.75	0.78
2	0.09	0.33	0.45	0.67	0.63	0.53	0.67	0.71	0.78
Neutral Sentiment	**1,725,878.80**	**2,254,472.08**	**2,020,112.92**	**1,345,582.01**	**1,970,566.62**	**2,340,947.79**	**2,025,415.81**	**2,016,601.55**	**1,480,269.77**
1	1,130,524.02	1,513,737.46	1,407,307.49	970,418.12	1,327,892.60	1,496,100.86	1,418,883.39	1,495,889.76	1,090,620.75
2	2,310,342.94	2,981,696.68	2,621,708.49	1,710,444.28	2,603,357.47	3,180,611.61	2,626,227.17	2,534,138.67	1,867,568.17
Total	**44,573,018.58**	**43,004,374.95**	**243,675,808.47**	**470,260,239.72**	**713,013,798.20**	**866,792,000.89**	**1,114,920,359.18**	**1,263,837,012.07**	**1,302,728,405.76**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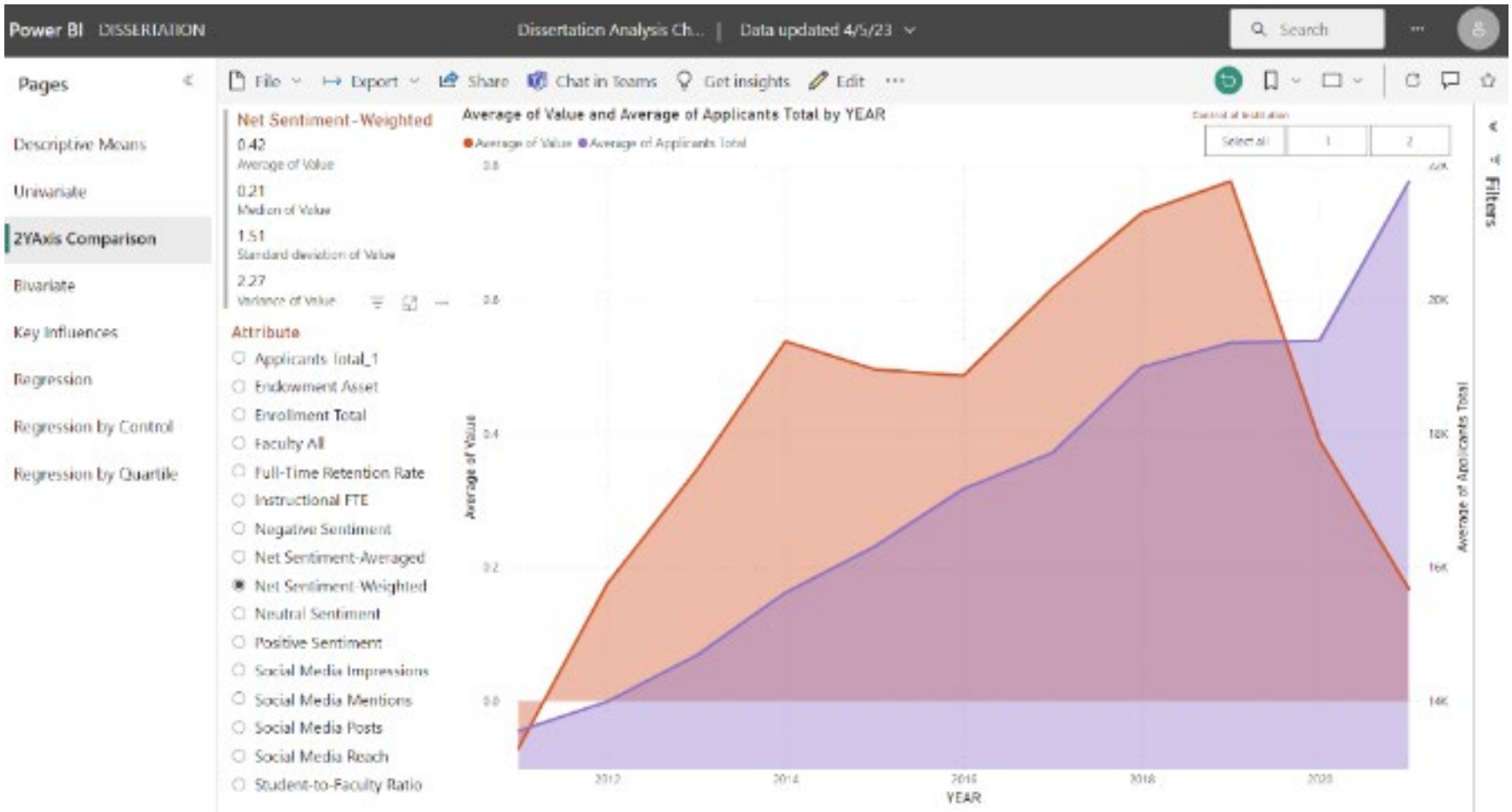
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Social Media Mentions
Social Media Posts
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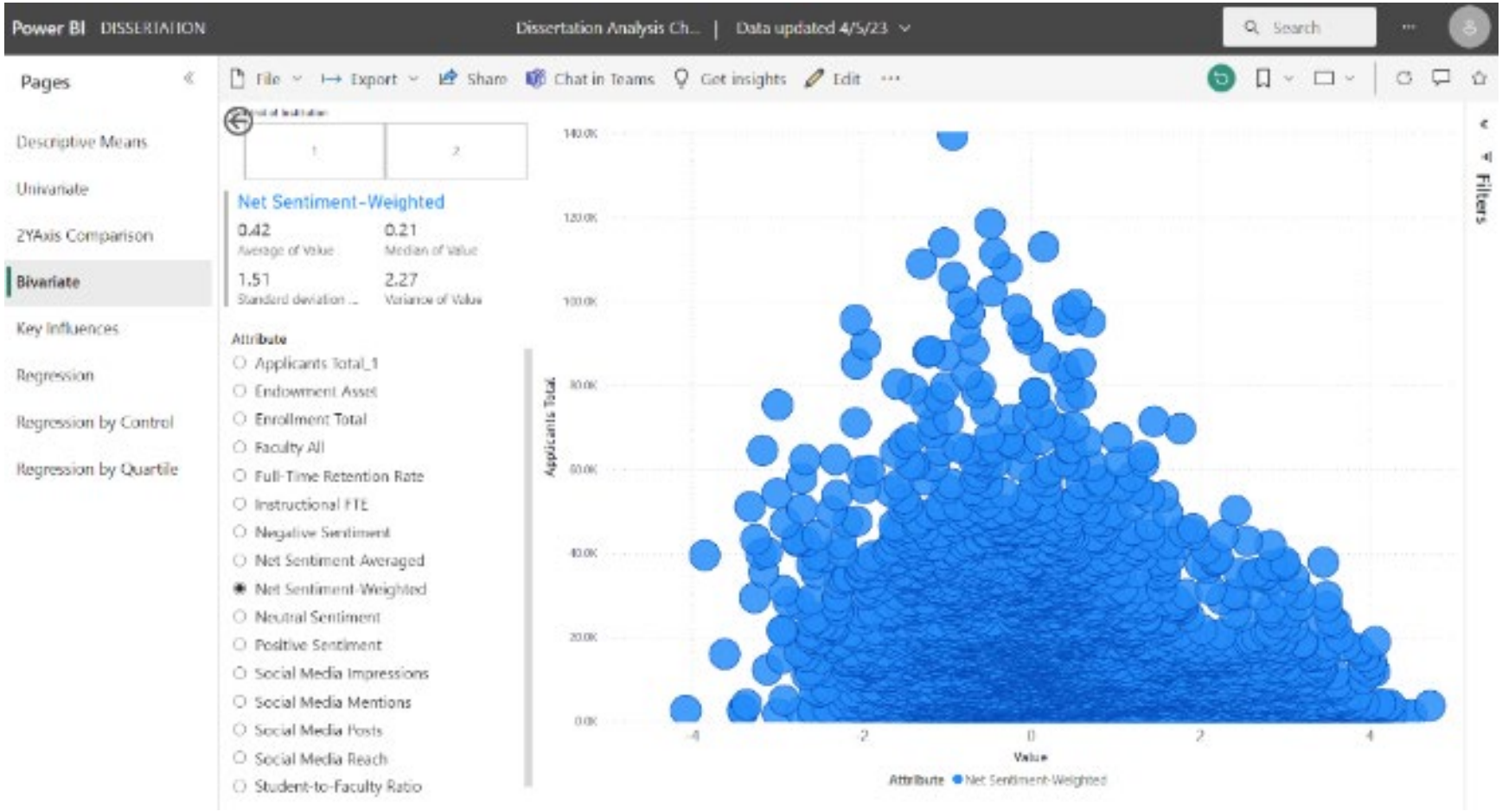
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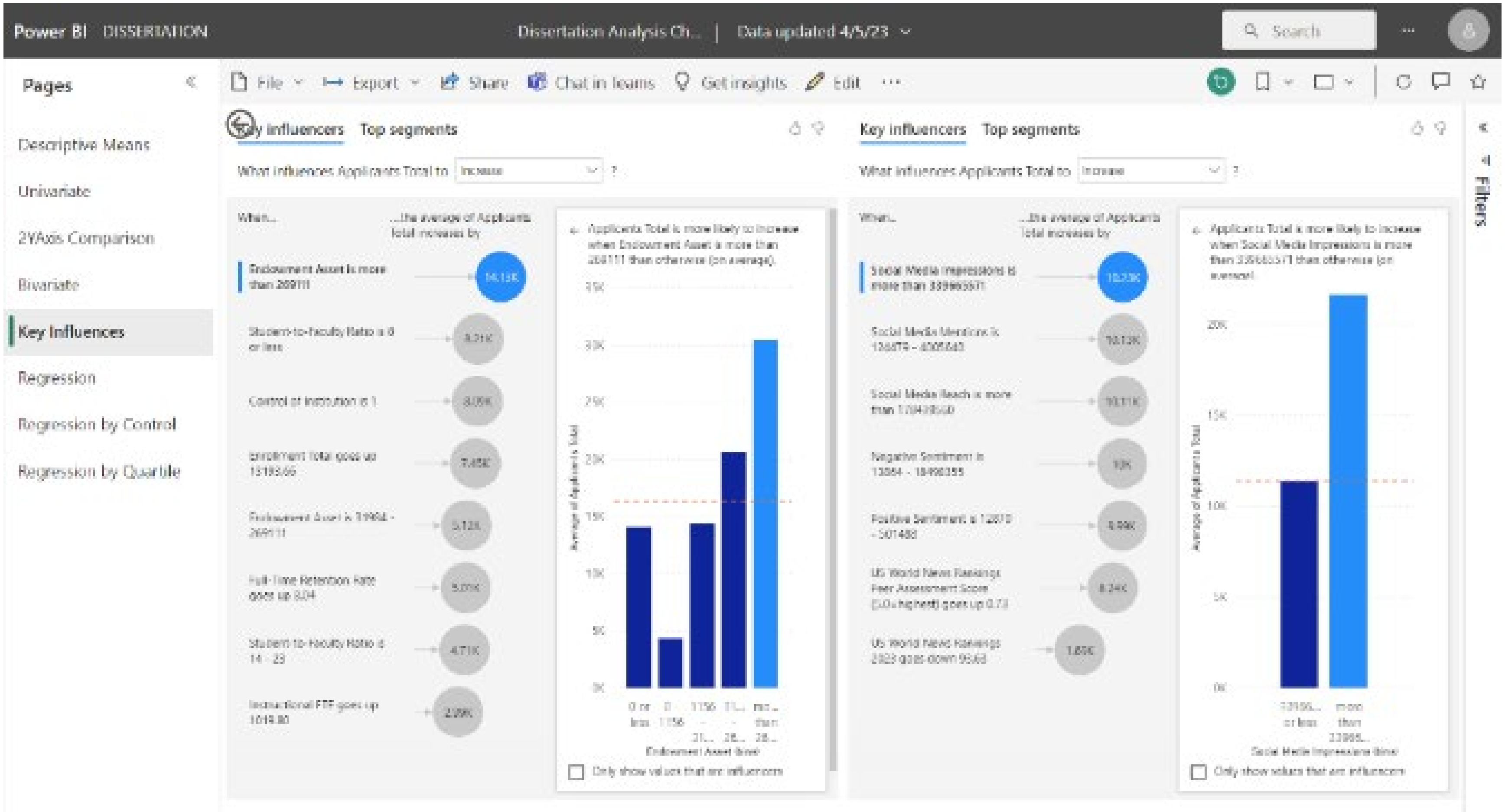
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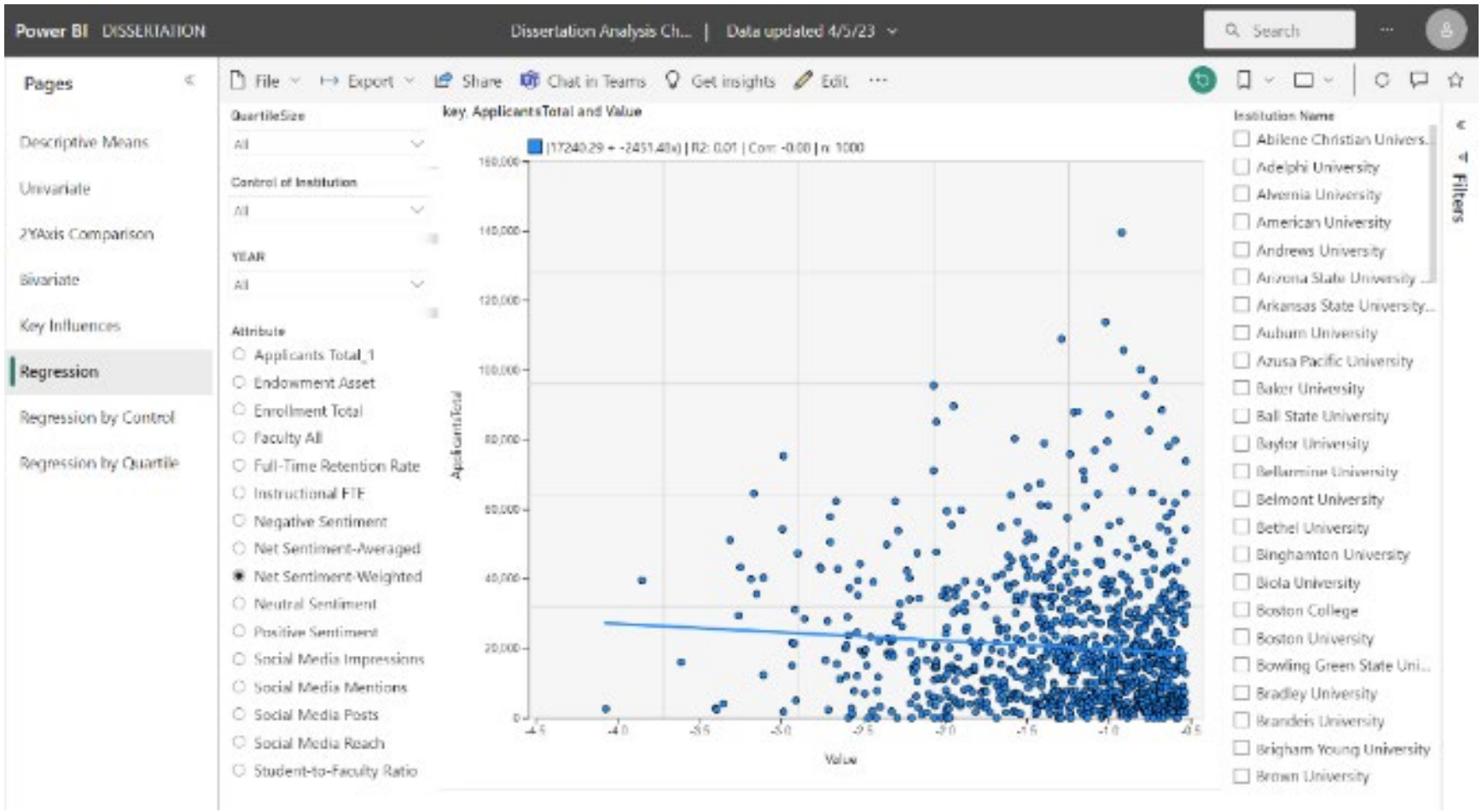
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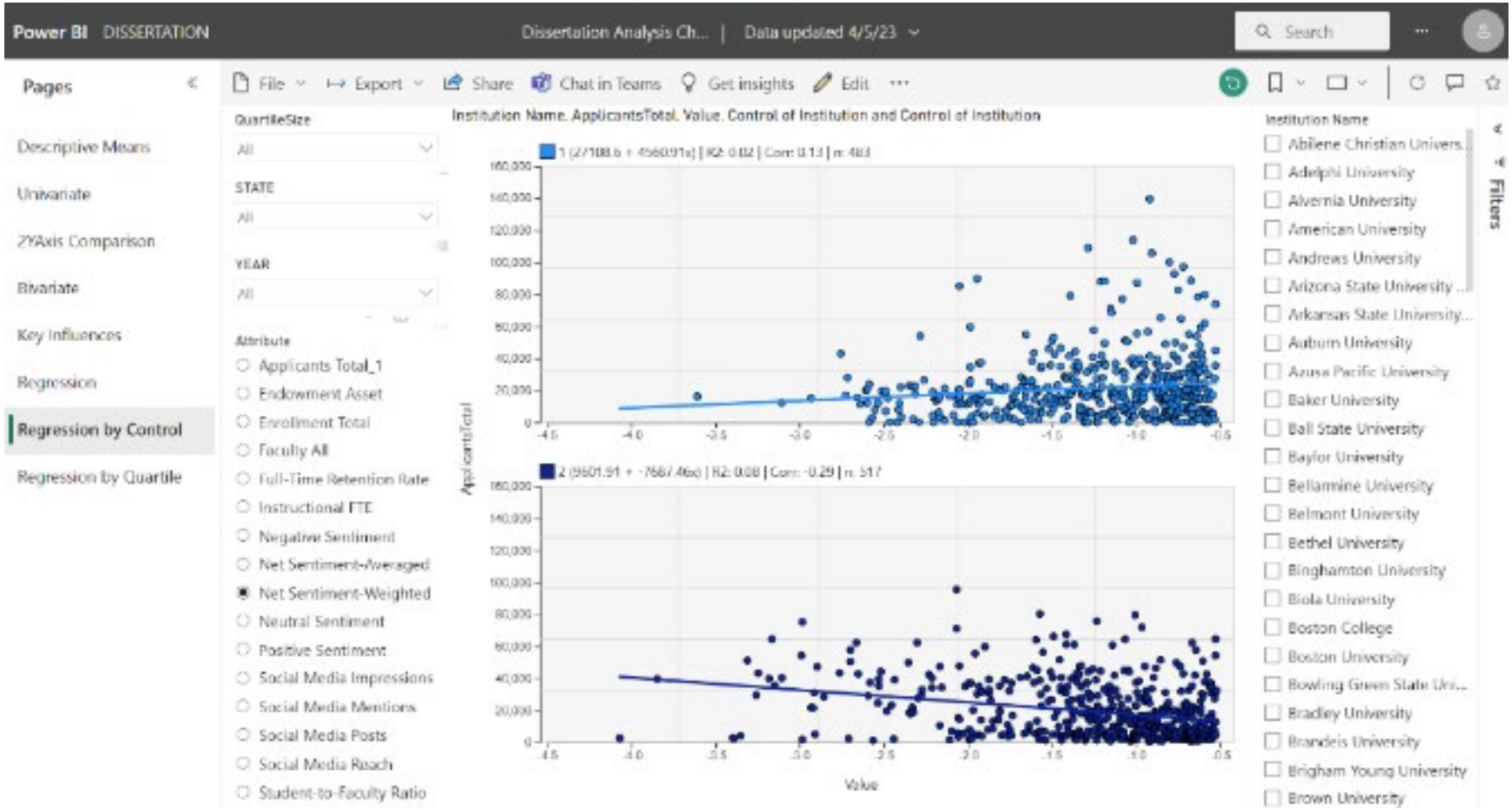
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Neutral Sentiment
Positive Sentiment
Social Media Impressions
Social Media Mentions
Social Media Posts
Social Media Reach
Student-to-Faculty Ratio
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Adelphi University
Alvernia University
American University
Andrews University
Arizona State University ...
Arkansas State University...
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Azusa Pacific University
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Baylor University
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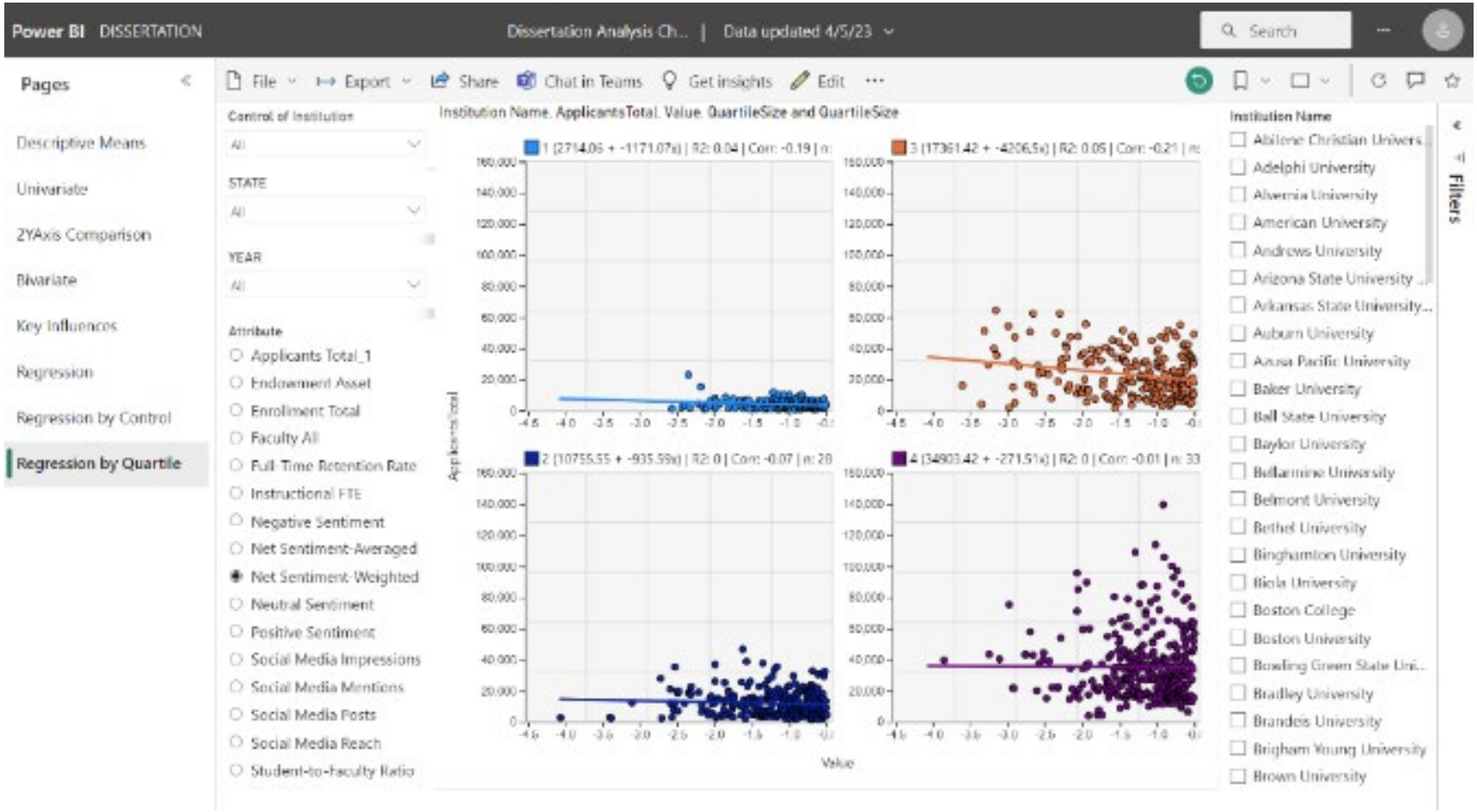
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Endowment Asset
Enrollment Total
Faculty All
Full-Time Retention Rate
Instructional FTE
Negative Sentiment
Net Sentiment-Averaged
Net Sentiment-Weighted
Neutral Sentiment
Positive Sentiment
Social Media Impressions
Social Media Mentions
Social Media Posts
Social Media Reach
Student-to-Faculty Ratio
Institution Name, ApplicantsTotal, Value, QuartileSize and QuartileSize
1 (2714.06 + -1171.07x) | R2: 0.04 | Corr: -0.19 | n:
3 (17361.42 + -4206.5x) | R2: 0.05 | Corr: -0.21 | n:
2 (10755.55 + -935.59x) | R2: 0 | Corr: -0.07 | n: 28
4 (34903.42 + -271.51x) | R2: 0 | Corr: -0.01 | n: 33
ApplicantsTotal
Value
Institution Name
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Adelphi University
Alvernia University
American University
Andrews University
Arizona State University ...
Arkansas State University...
Auburn University
Azusa Pacific University
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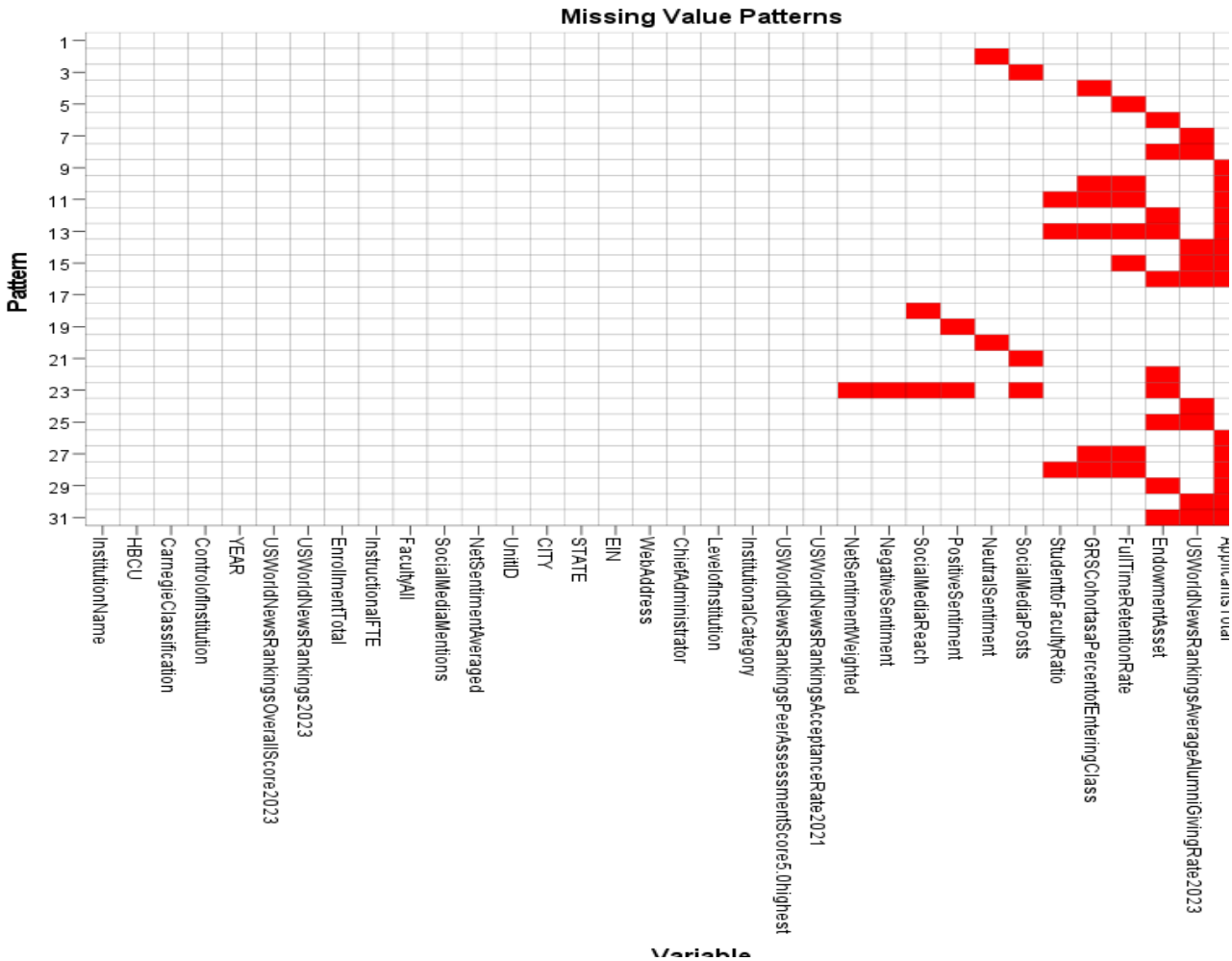
Biola University
Boston College
Boston University
Bowling Green State Uni...
Bradley University
Brandeis University
Brigham Young University
Brown University
Filters

Appendix G: Additional Figures And Tables

Additional tables and figures from this study are included in this appendix.

Missing Values Pattern Graph



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Education

- 2023: Doctorate in Business Administration, J. Mack Robinson College of Business, Georgia State University
- 2006: Master of Business Administration (MBA) with a concentration in finance and business management, Florida A&M University
- 2006: Bachelor of Science (BS) in Business Management, Florida A&M University

Professional Profile Overview

Brandi Nicole Newkirk has a proven track record of success in progressively advancing institutional effectiveness. Through her unwavering commitment and continuous skill development, she has established herself as a servant leader and a valuable team player, embodying qualities such as compassion, dedication, honesty, cross-functionality, and hard work. In the realm of her professional life, she seamlessly integrates engagement and compassion by applying emotional intelligence and prioritizing service excellence.

Her journey began in 2007 when she joined Florida A&M University (FAMU) as the Coordinator of Academic Support Services in the Office of University Assessment. During this time, she acquired a comprehensive understanding of the requirements for an institution to attain continuous improvement, including the formulation of outcome and objective statements, identification of student competencies, and the implementation of effective measures to drive program development and growth. Subsequently, she assumed the role of Assistant Director, where she leveraged her expertise in evaluation and research methodologies to support assessment and decision-making processes. Her responsibilities encompassed strategic planning, data collection, rigorous analysis, and insightful report dissemination. In 2018, Brandi Newkirk assumed the position of Director of Accreditation and Planning, where she continued to apply her knowledge and skills to enhance institutional accountability. Her efforts were focused on promoting strategic priorities and increasing the efficacy of accreditation initiatives.

Recognizing her exceptional competence and dedication, in 2022, she was appointed to the position of Assistant Vice President of Assessment and Accreditation Services at Morehouse School Medicine. In this capacity, she remains committed to positioning the institution as a beacon of excellence in various aspects, including institution-wide planning, outcomes assessment, and comprehensive institutional reporting. Notably, her expertise ensures the institution is consistently prepared and compliant with all regional and specialized accreditation

standards. Through her unwavering commitment to excellence, she continues to contribute significantly to the advancement of institutional goals and achievement of student success metrics.

Conference Presentations

- November 30, 2022: Organizational Resilience in Higher Education - Preparation for, Reactions to, and Lessons Learned from Unexpected Events. Brandi N. Newkirk, Darren Franklin, and Dr. Satish Nargundkar, Georgia State University. Presented at the Decision Science Institute.
- October 25, 2021: Unified Vision: Merging Assessment and Strategic Planning Data, Developments, and Distribution. Brandi N. Newkirk, Melanie Wicinski, Florida A&M University; and Bailey Watson, Nuventive. Presented at the 2021 Assessment Institute hosted by IUPUI.
- February 9, 2021: Breaking Silos: Fusing Assessment and Strategic Planning. Melanie Wicinski, Ph.D., Director, Office of University Assessment, FAMU, Brandi Newkirk, M.B.A., Director of Accreditation and Planning, FAMU, and Bailey Watson, Professional Services Consultant at Nuventive. Webinar hosted by Nuventive Solutions.
- November 6, 2020: Enhancing Your Strategic Planning Process, Brandi Newkirk. The strategic planning process is about getting from Point A to Point B more effectively and efficiently, enjoying the journey, and learning from it. Processes impacting decision-making and process enhancements on the road to meeting set goals. Presented at the FAMU Assessment Day.