Business Education & Accreditation
Vol. 14, No. 1, 2022, pp. 17-31
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

A LEXICAL ANALYSIS OF MISSION STATEMENTS FROM AACSB ACCREDITED BUSINESS SCHOOLS

James Suleiman, University of Southern Maine

ABSTRACT

College of Business mission statements can be a means to differentiation or an exercise in conformity. This article uses n-gram analysis to show that there are some lexical patterns distinctive to specific types of institutions and then employs Latent Dirichlet Analytics, a specific form of unsupervised topic modeling, to examine mission statement characteristics by a variety of institutional characteristics for institutions accredited by the Association to Advance Collegiate Schools of Business. There are certain words that were more common to specific types of institutions based on characteristics including region, Carnegie classification, initial accreditation year, and institutional control. A variety of topic models are examined but due to potential conformity in mission writing information and process sharing, there wasn't sufficient variety in mission to differentiate adequate models based on the set of institutional characteristics used. Suggestions for further research are discussed.

JEL: M0, M1

KEYWORDS: AACSB Accreditation, LDA, Topic Modeling, Mission Statement

INTRODUCTION

A well-written mission statement describes why an organization exists, differentiates it from others of its type, guides future actions, and shows us what image the organization wishes to project. Forming the mission is an essential component of strategic planning and is often accompanied by the definition of a vision (Pearce, 1982). Companies create, implement, and revise mission statements because they are a cornerstone of strategic planning, and there is an expectation that the process will generate benefits.

Vision and mission statements should causally influence employee decision making and help achieve organizational goals. Mission statements have an internal focus, and the primary audience is leadership, team, and stakeholders. They have been shown to be important in achieving results (Taiwo et al., 2016). Employees need to know the mission exists and what it means. Employee awareness and buy-in are critical to a successful mission, and they shouldn't believe that the mission is solely owned by senior management (Darbi, 2012).

The rationale for developing a mission statement is essential. The first step in formulating a mission statement should be asking why you want to create a mission statement. A mission statement misaligned with organizational structure is of little value. Rationales for developing mission statements may lead to improved performance. Some of these are consistent across industry, while others may be firm-specific (Bart & Tabone, 1998). While there are no set standards for mission statements, it is simple to search the management literature for guidelines. In providing guidelines for developing mission, (Powers, 2012) suggests:

"A mission statement should simply identify the broad customer need(s) that an organization is going to satisfy. It indicates the organization's fundamental reason for existence. Using this guideline, examples of good mission statements are: Wal-Mart: To help people save money so they can live better; Harvard: To educate leaders who make a difference in the world; United Methodist Church: To make disciples of Jesus Christ for the transformation of the world."

The mission preparation process is more important than the actual mission statement. It needs to encompass a wide variety of stakeholders and have top management's commitment (Mullane, 2002). Much of the early management research examined mission statement formulation in for-profit, US-based firms. More current research has shown that mission statements are not static enduring proverbs. Environments shift, organizations merge, innovation disrupts entire business models, and organizations must continuously revise the mission. There are similarities and differences across countries (King et al., 2012) and comparing for-profits to non-profits (Bart & Tabone, 1998).

Periodically, researchers and executives question the alleged necessity of creating mission statements. Simply put, they ask "do mission statements matter?". While many authors extol the virtues of the mission statement, (Piercy & Morgan, 1994) argue that there is a lack of empirical evidence showing they improve firm performance even though they are de rigueur. Perhaps a more scathing critique of mission statements can be found in (Goett, 1997):

"Every last one of them (mission statements), extols Mom, apple pie, quality, and teamwork. Every last one of them is written in excruciatingly formal prose. And every last one of them, when reduced to essentials, simply states the obvious. What's really sad is that most of the newer mission statements are the products of the labors of some very smart executives...So a lot of firms packed their most senior people off to expensive retreats to prepare this vital document...And so they worked very hard and then came home from the very expensive retreat with a brief document suitable for calligraphy...And the document...got tacked up on the wall and promptly forgotten...The fact is, mission statements are rarely useful."

This paper is the first to attempt to categorize mission statements computationally. Human beings are wired to categorize data, however imperfectly the data might map to a specific category. Algorithms, on the other hand, make potentially far less subjective categorical assignments. This paper also provides a re-examination of mission statements as the AACSB accreditation process has placed more emphasis on linking mission to activities.

The remainder of this paper is organized as follows: The next section examines the literature in mission statement formation with a specific focus on changes in guidance and focus provided by AACSB over time. The data and methodology are then described followed by results then conclusions.

LITERATURE REVIEW

The formation of mission statements in higher education lagged the corporate trend by at least a decade. Now, nearly all universities have mission statements -- higher education accreditation agencies require them. While university missions are similar across Carnegie classifications, their emphasis tends to differ by institutional control. Private universities place more emphasis on liberal arts and diversity while public institutions emphasize serving the local area (Morphew & Hartley, 2006). The most common element in public university mission statements is providing services for a qualified workforce's education. Research is typically emphasized in the vision statement (Özdem, 2011). Mission statements from religious universities are more likely to explicitly express ethical values and moral character traits than those from secular universities. Graduates from religious universities are more likely to exhibit those attributes (Davis et al., 2007).

Possibly due to public pressure and growing diversity in board representation, some researchers have been more critical of these mission statements as being "amazingly vague, vapid, evasive, or rhetorical, lacking specificity or clear purpose…full of honorable verbiage signifying nothing" (Newsom & Hayes, 1991).

In the early 1990s, colleges and schools of business started formulating mission statements. The Association to Advance Collegiate Schools of Business (AACSB), an accrediting agency, moved to "mission-linked" standards in 1991, which were fully implemented in 1994 (Jantzen, 2000). The modification of standards was an attempt to increase the focus on strategic management and move away from prior ratio-based standards. AACSB added even more strategic emphasis to the 2003 and 2013 standards. There were additional revisions to the standards throughout, but 1991, 2003, and 2013 were the years that AACSB adopted a new set of standards. They had a phase-in period of three years for all but 2013.

The 1991 standards added a section titled "MISSION AND OBJECTIVES" that explained the expectations for missions and mission statements -- mainly resource allocation decisions (e.g., faculty priorities, educational objectives, intellectual and service priorities) be consonant with the school's mission. The 2003 standards are well known for implementing assurance of learning standards (Miles et al., 2004), but there was also significant expansion with the introduction of "Standard 1 -- MISSION STATEMENT." The mission statement became even more central to the accreditation process and added a strategic management plan requirement. Finally, the 2013 standards expanded Standard 1 to "MISSION, IMPACT and INNOVATION." Missions are now a statement or set of statements that describe the school, including the mission statement, vision statement, and statement of values. Standard 2 was also modified to suggest that intellectual contributions impact theory, practice, or teaching, which is consistent with the school's mission. There was, however, decreased prescriptive language regarding the mission statement. This summary of changes from the 1991 standards, through the 2003 standards, and the 2013 standards is far from comprehensive. The emphasis is that since the introduction of mission-linked standards, AACSB has consistently strengthened the linkage of the mission to all of a school's activities.

While the linkage between mission and activities have strengthened, there is decreased prescriptive language regarding the mission statement (Jantzen, 2000). The term "mission statement" is mentioned 88 times in the 2003 standards, three times in the 2013 standards, and only once in the 2020 standards. The focus, clearly, is moving from mission formation to mission implementation. (Palmer & Short, 2008) conducted a comprehensive review of AACSB accredited Schools and Colleges of Business in the United States. Using a typology for analyzing the content of mission statements by manual encoding (Pearce & David, 1987), they categorized mission statement components, found variance between the statements for U.S. colleges of business, and linked them to performance-related attributes of schools. Since then, several analytic tools have made the analysis of text more robust, allowing us to further examine the differences and similarities in mission statement lexical patterns while attempting to link them to performance and resource-related attributes of their respective colleges.

DATA AND METHODOLOGY

Mission statements were collected from the web over the 2018 and 2019 academic years for AACSB accredited institutions. First, I examine patterns in mission statements by region of the country. Second, I see if recently accredited schools use more common phrases in their mission statements and whether they employ language that is peculiar to the AACSB standards. For example, if you Google the term "intellectual contribution," the first five hits will be AACSB accredited business schools. Finally, I use Latent Dirichlet Analysis (LDA) to create clusters of U.S. schools based on mission phrases and see if there are any correlations between these clusters and resource-based characteristics of the institutions.

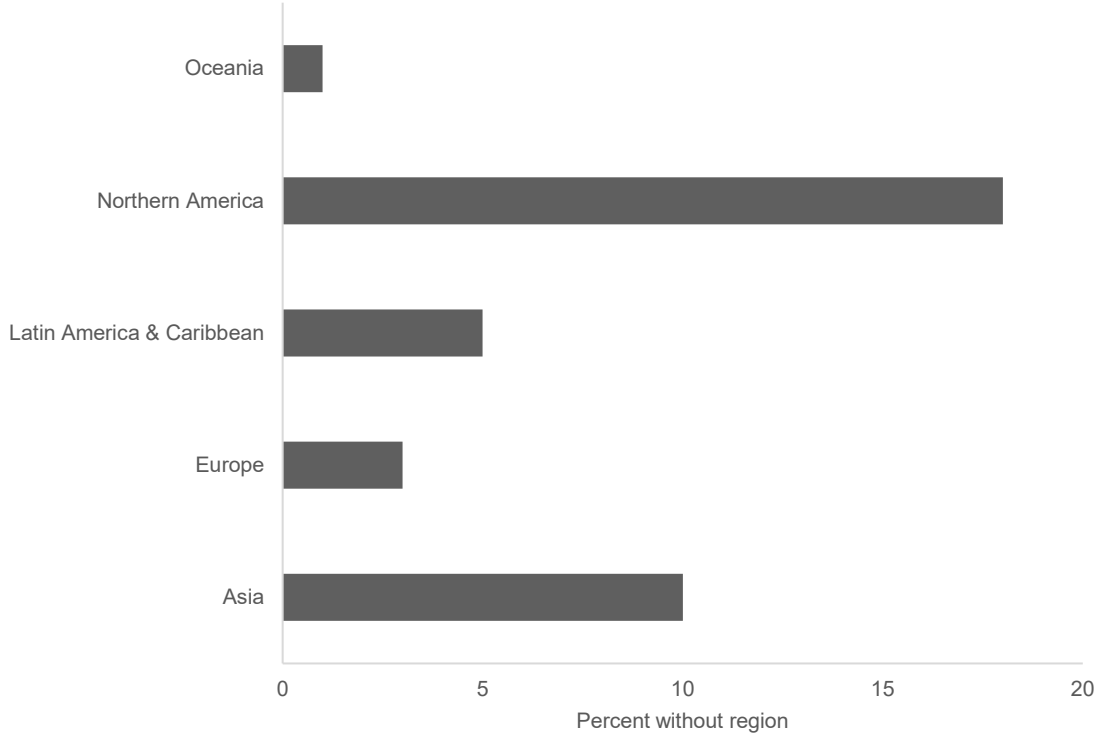
For each AACSB-accredited institution, an attempt was made to locate a mission statement by navigating the business college, school, or department website. The statement was often found in a section labeled

with a strategic title (e.g., mission/vision/values). If this was unsuccessful, a Google search specific to that site was conducted. If also unsuccessful, a non-site specific Google search was conducted along with examining the institution's graduate and undergraduate catalogs or bulletins. Mission statements were found for 752 out of 789 accredited institutions. This 95.3% sample of school mission statements is consistent with the 95.1% seen in (Palmer and Short 2008), although the prior study examined only accredited schools in the United States and used the AACSB website as the sole source of mission statements during a time when AACSB published school mission statements.

Many business schools have a section on their website dedicated to strategy, often listing a vision, mission, and core values. Sometimes those missions specifically delineate a mission statement while others are less clear. If a school has a multi-paragraph mission without a clear indication of mission statement definition vs. a discussion of how a school might accomplish its mission, a subjective determination was made to delineate the mission statement. Statements used to trace these mission components from the actual statement include self-referencing words like "in order to accomplish this mission."

Upon further examination, of the 37 schools where a mission statement could not be found, Figure 1 shows a higher proportion in Latin America and a somewhat higher proportion in Asia. I suspect that language may be a contributing factor as the search for mission statements was done in English, and there is additional complexity in managing multilingual websites.

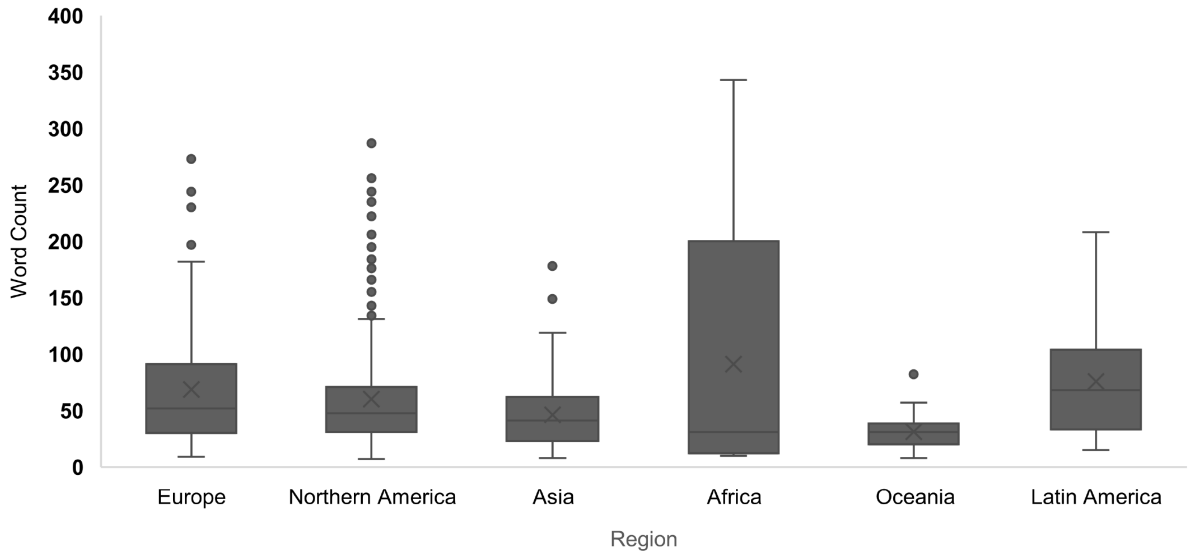
Figure 1: No Mission Statement Found by Region



We can observe lexical patterns in international mission statements, including the distribution of word counts, common and unique n-grams, and institutional clusters. Still, once we attempt to link them to performance and resources, we must limit the dataset to U.S. based business schools for comparative purposes. Since the dataset is nearly the entire population of AACSB schools, for proportional comparisons there is no need for statistical tests since we are examining differences in population groups. Figure 2 shows the distribution of word counts by region. The North America region has the most accredited institutions

and, subsequently, the widest distribution of word counts although we see a majority of all mission statements have fewer than one hundred words.

Figure 2: Mission Word Counts by Region



An n-gram is a contiguous sequence of words from a given corpus of text – in this case, mission statements. The Latin numerical prefix refers to the size of the n-gram, so a unigram is a single word, a bigram is two words in sequence followed by trigrams, tetragrams, etc. Stop words are words that are so common that they provide minimal value to any lexical analysis and are filtered out before any processing. Typically, these are standard articles and prepositions like "a," "the," "and," etc. For this analysis, common stop words were filtered out of the corpus along with a stop word custom lexicon containing the words mission, business, school, college, university.

The analysis ended with trigrams since groupings of tetragrams only applied to a small number of business schools (i.e., five or less). Table 1 shows the top 10 uni, bi, and tri-grams by count. Terms from the top 10 unigrams were further refined by creating a custom dictionary that combined multiple words that impart similar meanings. For example, “education” captures the words “educate,” “education,” “educating,” etc. In some cases, the combinations went beyond word stems (e.g., global and international). We can see that terms incorporating teaching, research, and, to a lesser extent, service are fairly popular since they are also prevalent in the AACSB standards.

Table 2 shows the top ten unigrams by region. We can see that most of these terms, except for “teaching,” are relatively common across regions. Students and community tend to be more prevalent in North American mission statements, management in African mission statements, and research in Oceanic and European mission statements. Unigrams that are somewhat common to regions (i.e., is in greater than 10% of a region’s mission statements) but rarely observed in other region’s mission statements include: “sustainable” in Europe and Latin America; “Christian” in Africa; “cultivate” in Asia, “service” in North America and Latin America.

Table 1: Top 10 N-grams in Business School Mission Statements

Unigram	Count	Bigram	Count	Trigram	Count
students	512	teaching research	52	teaching research service	21
research	390	undergraduate graduate	52	excellence teaching research	13
education	310	prepare students	52	diverse student body	13
global	306	global environment	44	undergraduate graduate education	13
knowledge	291	quality education	40	provide quality education	12
community	281	learning environment	39	undergraduate graduate programs	12
leaders	271	economic development	39	undergraduate graduate students	11
learning	246	experiential learning	38	students successful careers	10
management	211	theory practice	37	students diverse backgrounds	10
teaching	180	research service	31	diverse student population	9

Table 1 shows the count of unigrams, bigrams, and trigrams in business school mission statements.

Table 2: Proportion of Mission Statements Containing Common Unigrams by Region

Word	Africa	Asia	Europe	Latin America	Northern America	Oceania
community	20%	21%	16%	18%	42%	27%
education	60%	38%	44%	29%	53%	50%
global	40%	46%	52%	35%	46%	41%
knowledge	20%	42%	43%	35%	28%	14%
leaders	60%	52%	28%	53%	42%	27%
learning	20%	16%	22%	12%	36%	14%
management	60%	39%	42%	24%	16%	14%
research	40%	40%	56%	35%	35%	68%
students	20%	27%	35%	24%	59%	14%
teaching	*0%*	9%	27%	24%	23%	23%

Table 2 shows the common unigrams found in mission statements by the designated AACSB regions.

For the remainder of the unigram analyses, we will restrict the data to U.S.-based colleges for consistent demographic comparisons. Table 3 shows us that institutional control differences are somewhat more minor, with private schools emphasizing leaders more while public schools place more emphasis on research. Public colleges were much more likely to use the words “economic” and “region” than their private counterparts.

Table 3: Proportion of U.S. Mission Statements Containing Common Unigrams by Institutional Control

Term	Private	Public
community	0.36	0.46
education	0.54	0.53
global	0.46	0.45
knowledge	0.24	0.29
leaders	0.6	0.34
learning	0.36	0.36
management	0.21	0.13
research	0.18	0.41
students	0.52	0.65

Table 3 shows the common unigrams found in mission statements by institutional control for US accredited institutions.

There are ten distinct Carnegie Classifications given to universities. Table 4 shows counts for US colleges along with the abbreviations for classifications. There are very few (39) undergraduate-only accredited institutions.

Table 4: Count of U.S. Mission Statements Containing Common Unigrams by Carnegie Classification

Code	Carnegie Classification	Count
BCAS	Baccalaureate Colleges--Arts & Sciences	17
BCDF	Baccalaureate Colleges--Diverse Fields	20
BAC	Baccalaureate/Associate's Colleges	2
DRU	Doctoral/Research Universities	48
MCL	Master's Colleges and Universities (larger programs)	173
MCM	Master's Colleges and Universities (medium programs)	61
MCS	Master's Colleges and Universities (smaller programs)	18
RUH	Research Universities (high research activity)	93
RUVH	Research Universities (very high research activity)	88
SBM	Schools of business and management	4

Table 4 shows the abbreviated code for each Carnegie classification along with a count of accredited US institutions in that category. This table can also be used as a reference for tables 5 and 9.

Table 5 shows common unigrams by most of the Carnegie Classifications listed in Table 4. Baccalaureate/Associates colleges and Schools of business and management are not included as there are so few of them. We can see that research universities are less likely to have "students" in their mission statements and only somewhat more likely to have "research" in their mission statements. More prevalent words include "alumni" for research universities; "prepares" for non-baccalaureate institutions; "diversity" for smaller master's programs; "accessible," "communication," "curriculum," "professions," and "department" for Arts & Sciences; and "pedagogical" for diverse field baccalaureate colleges.

Table 5: Proportion of U.S. Mission Statements Containing Common Unigrams by Carnegie Classification

Term	BCAS	BCDF	DRU	MCL	MCM	MCS	RUH	RUVH
community	0.53	0.15	0.42	0.49	0.41	0.44	0.45	0.36
education	0.71	0.6	0.54	0.56	0.67	0.33	0.47	0.43
global	0.24	0.35	0.44	0.52	0.44	0.56	0.53	0.33
knowledge	0.29	0.1	0.19	0.25	0.21	0.11	0.41	0.36
leaders	0.35	0.35	0.38	0.41	0.41	0.39	0.37	0.58
learning	0.47	0.45	0.35	0.45	0.38	0.44	0.31	0.18
management	0.18	0.05	0.15	0.12	0.1	0.06	0.17	0.27
research	0.24	0.35	0.46	0.32	0.23	0.22	0.45	0.34
students	0.82	0.7	0.58	0.69	0.72	0.67	0.53	0.39
teaching	0.35	0.15	0.31	0.24	0.25	0.33	0.24	0.12

Table 5 shows common unigrams by Carnegie classification code (shown in Table 4). BCAS = Baccalaureate Colleges - Arts & Sciences, BCDF = Baccalaureate Colleges - Diverse Fields, DRU = Doctoral/Research Universities, MCL = Master's Colleges and Universities (larger programs), MCM = Master's Colleges and Universities (medium programs), MCS = Master's Colleges and Universities (smaller programs), RUH = Research Universities (high research activity), RUVH = Research Universities (very high research activity).

The AACSB accredited its first school outside of North America (ESSEC) in 1997 and started expanding internationally in earnest in 1998. Table 6 shows us common unigrams for pre and post expansion accredited US universities. We can see substantial differences in the proportions for the more common mission statement terms. Other terms that are more prevalent in pre-1998 schools include: academic; create; practice; world.

Table 6: Proportion of U.S. Mission Statements Containing Common Unigrams by Initial Accreditation Year

Term	Post 1998	Pre 1998
community	0.18	0.43
education	0.25	0.5
global	0.2	0.45
knowledge	0.1	0.29
leaders	0.19	0.42
learning	0.17	0.33
management	0.06	0.15
research	0.13	0.36
students	0.3	0.54
teaching	0.11	0.22

Table 6 shows common unigrams by initial accreditation year.

Analyzing bigrams is a bit more complicated since there are far fewer common bigrams. Table 7 shows us common bigrams by region. The only bigrams that are seen in more than 10% of a region's mission statements are: "economic development" in Africa and "teaching research" in Oceania. Since stopwords

and punctuation are removed, bigrams like "teaching research" may appear as "teaching, research," "teaching and research," etc.

Table 7: Proportion of Mission Statements Containing Common Bigrams by Region

Term	Africa	Asia	Europe	Latin America & Caribbean	Northern America	Oceania
economic development	0.2	0.04	0.03	0	0.05	0
global environment	0	0.05	0.04	0	0.06	0
learning environment	0	0.06	0.04	0	0.05	0
prepare students	0	0.02	0.04	0	0.08	0
quality education	0	0.06	0.03	0	0.07	0.05
socially responsible	0	0.05	0.07	0	0.04	0
teaching research	0	0.03	0.07	0.06	0.07	0.14
theory practice	0	0.06	0.02	0	0.05	0
undergraduate graduate	0	0.03	0.02	0.06	0.08	0
experiential learning	0	0	0	0	0.07	0

Table 7 shows the common bigrams found in mission statements by the designated AACSB regions.

For the remainder of our bigram analysis, we will, once again, restrict our data to the US. Table 8 shows common bigrams by institutional control. We see that "socially responsible" is much more common in private institutions, while "undergraduate, graduate" is more common in public schools.

Table 8: Proportion of U.S. Mission Statements Containing Common Bigrams by Institutional Control

Term	Private	Public
experiential learning	0.04	0.09
global environment	0.05	0.07
learning environment	0.05	0.06
prepare students	0.06	0.09
quality education	0.04	0.09
socially responsible	0.09	0.01
teaching research	0.04	0.08
theory practice	0.06	0.05
undergraduate graduate	0.04	0.11
economic development	0	0.08

Table 8 shows the common bigrams found in mission statements by institutional control for US accredited institutions.

Table 9 shows us bigrams by Carnegie classification. "Experiential learning" is more common in non-research universities, while "undergraduate, graduate" is nonexistent at very high research universities.

Table 9: Proportion of U.S. Mission Statements Containing Common Bigrams by Carnegie Classification

Term	BCAS	BCDF	DRU	MCL	MCM	MCS	RUH	RUVH
experiential learning	0.12	0.05	0.06	0.09	0.08	0.17	0.05	0.03
learning environment	0.12	0	0.15	0.05	0.07	0.17	0.03	0.01
prepare students	0.06	0.05	0.1	0.1	0.03	0.11	0.1	0.05
quality education	0.06	0	0.08	0.08	0.11	0	0.08	0.06
undergraduate graduate	0.12	0.15	0.1	0.11	0.11	0.11	0.09	0
economic development	0	0.05	0.06	0.06	0.03	0.06	0.08	0.06
teaching research	0	0.1	0.08	0.06	0.07	0.11	0.1	0.05
global environment	0	0	0.04	0.09	0.05	0.17	0.09	0.03
socially responsible	0	0	0.06	0.06	0.03	0.06	0.01	0.01
theory practice	0	0	0.04	0.06	0.08	0.17	0.06	0.01

Table 9 shows common bigrams by Carnegie classification code (shown in Table 4). BCAS = Baccalaureate Colleges - Arts & Sciences, BCDF = Baccalaureate Colleges - Diverse Fields, DRU = Doctoral/Research Universities, MCL = Master's Colleges and Universities (larger programs), MCM = Master's Colleges and Universities (medium programs), MCS = Master's Colleges and Universities (smaller programs), RUH = Research Universities (high research activity), RUVH = Research Universities (very high research activity)

Table 10 shows us common bigrams for pre and post 1998 initially accredited US universities. Bigram proportions are all somewhat low when categorizing U.S. schools by initial accreditation year. We do see all of the top bigrams more prevalent in schools accredited before 1998.

Table 10: Proportion of U.S. Mission Statements Containing Common Bigrams by Initial Accreditation Year

Term	Post 1998	Pre 1998
economic development	0.02	0.07
experiential learning	0.04	0.06
global environment	0.03	0.06
learning environment	0.02	0.06
prepare students	0.04	0.07
quality education	0.03	0.08
socially responsible	0.01	0.04
teaching research	0.02	0.08
theory practice	0.02	0.06
undergraduate graduate	0.05	0.07

Table 10 shows common bigrams by initial accreditation year.

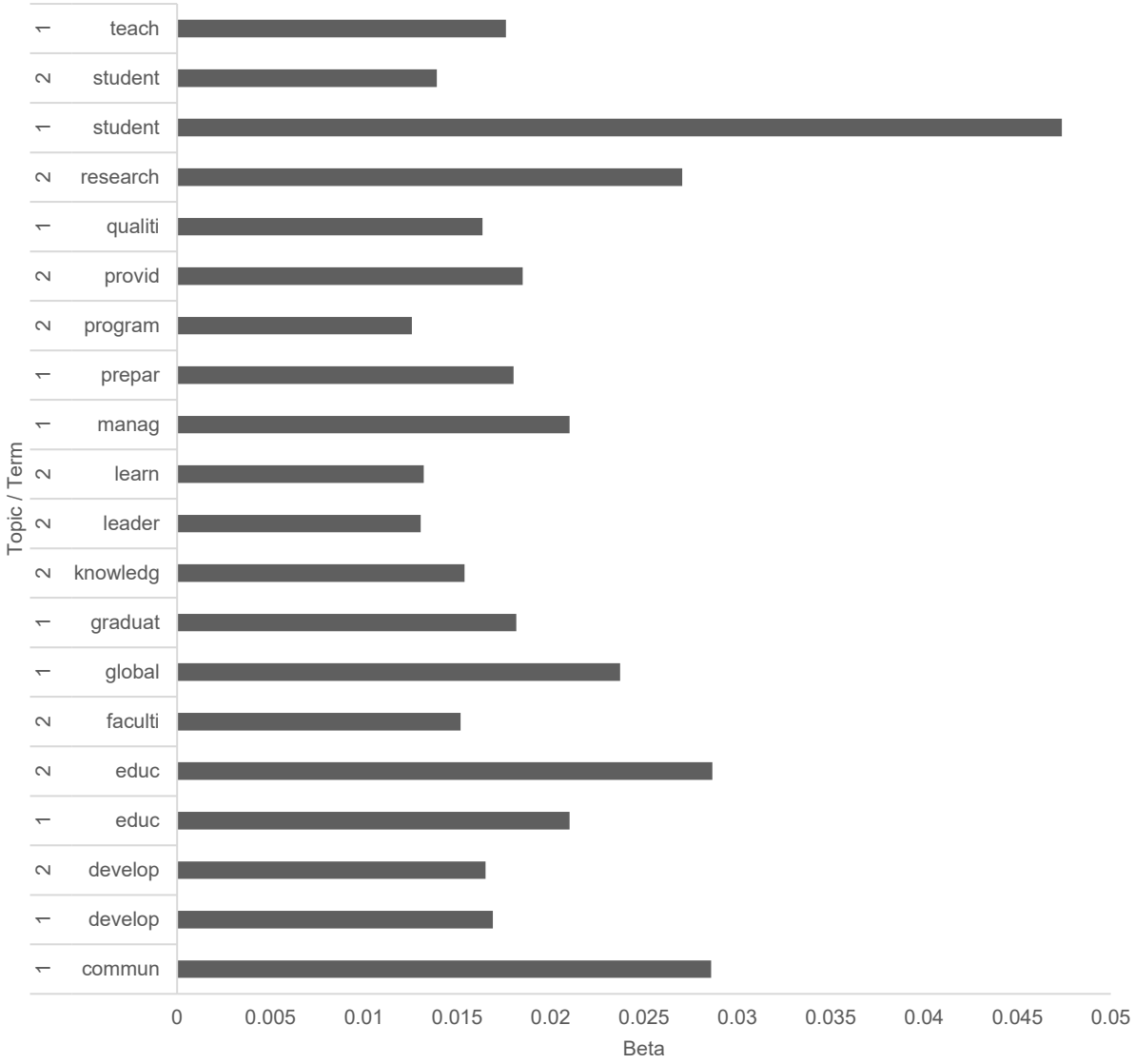
RESULTS

Latent Dirichlet allocation (LDA) is a popular machine learning algorithm used in topic modeling. In this case, we consider every mission a potential combination of topics, and every topic a combination of words. Topics are defined by a probability distribution of words and the same word can be used in multiple topics. A document, or in this case, a mission statement can be defined by a probability distribution of topics. For

a particular topic, the per-word probability is called β("beta"), and the per-document topic probability is called γ ("gamma"). The number of topics that LDA attempts to fit must be defined in advance. I will cover a simple two-topic model and then discuss n-topic models.

Figure 3 shows the ten largest β values for a two-topic model. These are the most common or densest words, or word stems, for each of the two topics. In LDA, we often see words common to multiple topics. For example, the word "student" is prevalent in both topics but more so in topic one ($\beta_1 = 0.047$, $\beta_2 = 0.014$). The word "teach" appears in the top ten words for topic 1 ($\beta_1 = 0.018$). While "teach" is not in the top ten list for topic two, it does exist at a significantly lower density ($\beta_2 = 0.001$)

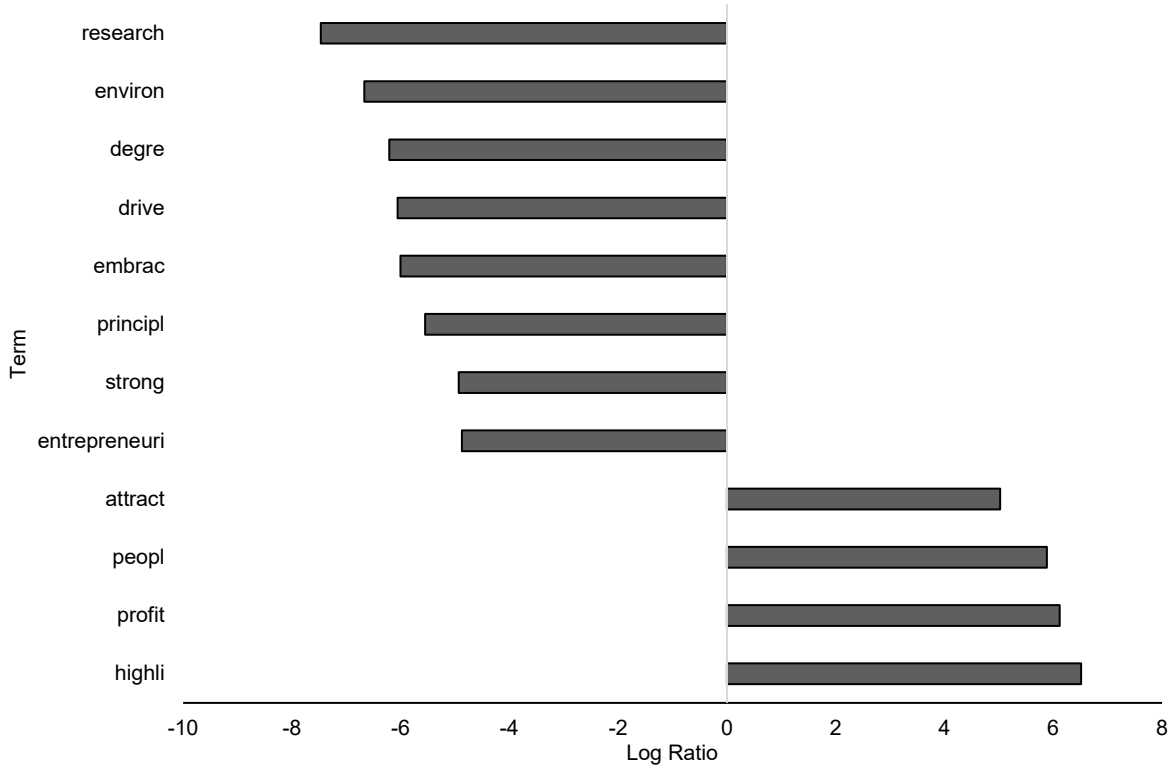
Figure 3: Top Ten Betas – Two Topic Model



It is often helpful to look at the largest differences in beta between topics. Figure 4 shows us a beta spread chart, which contains the log ratio $log_2\left(\frac{\beta_2}{\beta_1}\right)$. Reporting these differences as log ratios is valuable as it makes the difference symmetrical. A log ratio of 1 means β_2 is twice as large as β_1 while a log ratio of -1 means β_1 is twice as large as β_2 (Silge & Robinson, 2017). In this two-topic model, one might look at the

words comprising the topic and say that topic 1, which places more emphasis on words like student and teach might be more applicable to institutions that have a teaching focus or private institutions while the more prevalent words in topic 2, including research and "knowledg" might be more applicable to research institutions.

Figure 4: Top Beta Spreads – Two Topic Model



Examining the words and their corresponding probabilities allows us to attribute descriptive names to topics and potentially test for correlations between topics and other variables. If we were performing LDA on a book with multiple chapters, we would call the book a "corpus" and each chapter a "document" and examine the probability that a topic belongs to a chapter by discussing the per-document topic probability, or γ. In this study, our corpus is a collection of mission statements and our documents can conceivably be any attribute that groups institutions, including those examined earlier (i.e., region, institutional control, Carnegie classification, and initial accreditation year). γ that are similar to the inverse of the number of categories of the comparison variable are indicative of a poor mapping. In two topic model, a γ near 0.5 would be considered a poor mapping.

To see if our two-topic model potentially mapped to institution control, we could examine a simple boxplot of the γ values for each topic by institutional control, as shown in Figure 5. We conclude that our two topics aren't indicative of institutional control. In this case, the number of topics, two, matches the number of categories in the institution control variable (i.e., public/private). This need not be the case and, there is no requirement that the number of topics match the number of variables.

Figure 5: Gamma Values by Institutional Control – Two Topic Model

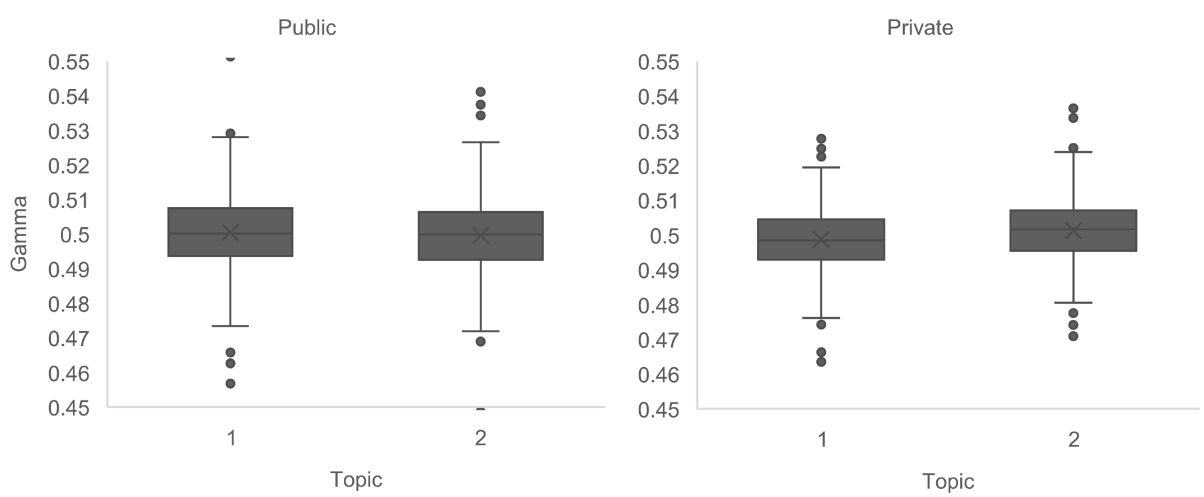
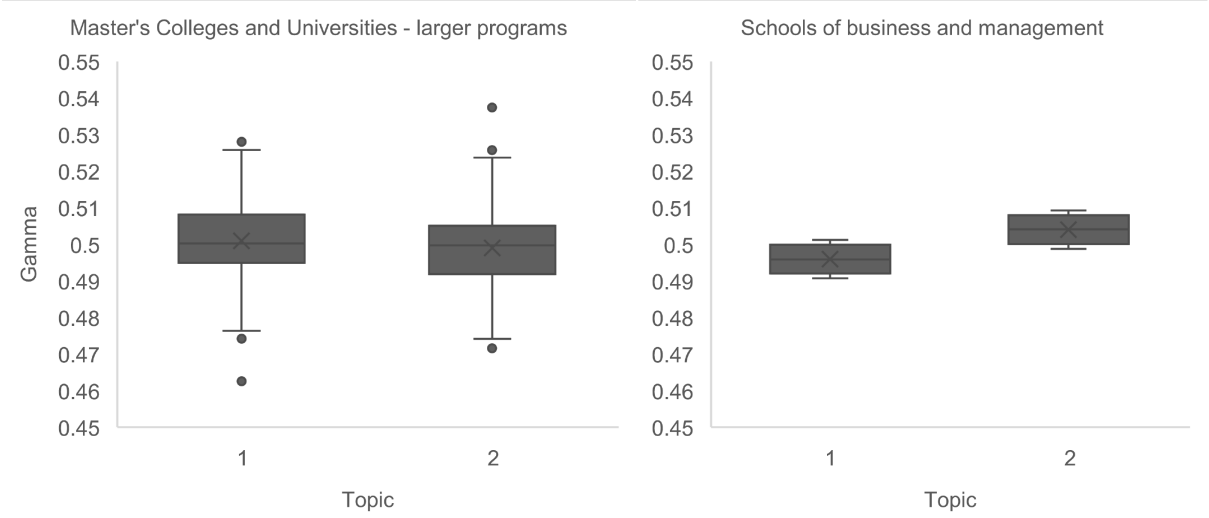


Figure 6 shows our two-topic model by select Carnegie Classification. While this mapping is slightly better for less represented schools, it is still poor. We only see slight differentiation in categories with very few observations. There are 173 AACSB accredited "Master's Colleges and Universities – larger programs," while there are only four with the Carnegie Classification "Schools of business and management."

Figure 6: Gamma Values by Select Carnegie Classification – Two Topic Model



CONCLUDING COMMENTS

This paper is the first to attempt to categorize mission statements computationally using n-gram analysis and Latent Dirichlet Allocation (LDA) on the corpus of known mission statements for AACSB accredited institutions. While we have shown certain words and phrases are prevalent in specific types of institutions, after iterating through topic models ranging from two to ten topics two the institutional variables region, institutional control, Carnegie classification, and initial accreditation year, there were no cases where topics mapped well to the variables. This leads me to conclude that while there are some distinctive lexical patterns in mission statements, topic modeling – specifically LDA, does not allow us to group topics to variables in a way that differentiates institutional characteristics.

Prior studies that have had success grouping mission statements by institutional categories had processes that were not automated and perhaps somewhat subjective. The only subjective component to LDA, and other unsupervised learning models, is choosing the number of topics. There are no human-driven judgment calls that are common in more subjective forms of classification.

The process of writing mission, vision, and values statements at AACSB accredited schools is informed by other accredited schools, peer institutions, and AACSB-run seminars and conferences. Some level of conformity in mission statements is only natural. Evidence exists that some institutions felt compelled to emphasize research even if they were teaching-focused (Stepanovich et al., 2014). One can assume that as an institution emphasizes something, even if due to external pressures, it is more likely to eventually be incorporated as a part of its mission. In a more pessimistic light, perhaps the Newsome and Hayes quote from earlier in this paper is applicable, and these mission statements might be "amazingly vague, vapid, evasive, or rhetorical, lacking specificity or clear purpose…full of honorable verbiage signifying nothing." Institutions and other interested parties can use this information to develop processes that mitigate the pull towards conformity in mission statements if they so desire. Accrediting agencies can also be of service here in developing methods that lead towards more diversity in mission statements.

Finally, a third possible explanation, and call for further research, is that LDA and other forms of topic modeling can yield good mappings between topics and institutional variables, just not for the variables examined. A limitation to this study is that characteristics like religious affiliation, third-party institutional rankings, specific location-based characteristics, and others were not examined and it is entirely possible that LDA or other topic modeling algorithms may provide better models using other institutional characteristics.

REFERENCES

Bart, C. K., & Tabone, J. C. (1998). Mission Statement Rationales and Organizational Alignment in the Not-for-Profit Health Care Sector. *Health Care Management Review*, *23*(4), 54–69.

Darbi, W. P. K. (2012). *Of mission and vision statements and their potential impact on employee behaviour and attitudes: The case of a public but profit-oriented tertiary institution*. *3*(14), 15.

Davis, J. H., Ruhe, J. A., Lee, M., & Rajadhyaksha, U. (2007). Mission Possible: Do School Mission Statements Work? *Journal of Business Ethics*, *70*(1), 99–110.

Goett, P. (1997). Mission impossible. *The Journal of Business Strategy*, *18*(1), 2. http://dx.doi.org.wv-o-ursus-proxy02.ursus.maine.edu/10.1108/eb039820

Jantzen, R. H. (2000). AACSB Mission-Linked Standards: Effects on the Accreditation Process. *Journal of Education for Business*, *75*(6), 343–347. https://doi.org/10.1080/08832320009599038

King, D. L., Case, C. J., & Premo, K. M. (2012). An International Mission Statement Comparsion: United States, France, Germany, Japan, and China. *Academy of Strategic Management Journal*, *11*(2), 93–119.

Miles, M. P., Hazeldine, M. F., & Munilla, L. S. (2004). The 2003 AACSB Accreditation Standards and Implications for Business Faculty: A Short Note. *Journal of Education for Business*, *80*(1), 29–34. https://doi.org/10.3200/JOEB.80.1.29-34

Morphew, C. C., & Hartley, M. (2006). Mission Statements: A Thematic Analysis of Rhetoric across Institutional Type. *The Journal of Higher Education*, *77*(3), 456–471. https://doi.org/10.1080/00221546.2006.11778934

Mullane, J. V. (2002). The mission statement is a strategic tool: When used properly. *Management Decision*, *40*(5), 448–455. https://doi.org/10.1108/00251740210430461

Newsom, W., & Hayes, C. R. (1991). Are Mission Statements Worthwhile? *Planning for Higher Education*, *19*(2), 28–30.

Özdem, G. (2011). An Analysis of the Mission and Vision Statements on the Strategic Plans of Higher Education Institutions. *Educational Sciences: Theory & Practice*, *11*(4), 1887–1894.

Palmer, T. B., & Short, J. C. (2008). Mission statements in US colleges of business: An empirical examination of their content with linkages to configurations and performance. *Academy of Management Learning & Education*, *7*(4), 454–470.

Pearce, J. A. (1982). The Company Mission As a Strategic Tool: What Is a Company Mission? *Sloan Management Review (Pre-1986)*, *23*(3), 15.

Pearce, J. A., & David, F. (1987). Corporate Mission Statements: The Bottom Line. *The Academy of Management Executive (1987-1989)*, *1*(2), 109–115.

Piercy, N. F., & Morgan, N. A. (1994). Mission Analysis: An Operational Approach. *Journal of General Management*, *19*(3), 1–19. https://doi.org/10.1177/030630709401900301

Powers, E. L. (2012). Organizational Mission Statement Guidelines Revisited. *International Journal of Management & Information Systems (Online)*, *16*(4), 281.

Silge, J., & Robinson, D. (2017). *Text Mining with R: A Tidy Approach*. O'Reilly Media, Inc.

Stepanovich, P., Mueller, J., & Benson, D. (2014). AACSB Accreditation and Possible Unintended Consequences: A Deming View. *Journal of Education for Business*, *89*(2), 103–109. https://doi.org/10.1080/08832323.2013.763754

Taiwo, A. A., Lawal, F. A., & Agwu, P. E. (2016). Vision and Mission in Organization: Myth or Heuristic Device? *The International Journal of Business & Management*, *4*(3), 127–134.

BIOGRAPHY

Dr. James Suleiman is an Associate Professor of Business Analytics and Information Systems at University of Southern Maine. He can be contacted at School of Business, Portland, ME 04104.