

Research Question: How do emotionally intelligent leadership narratives reflect distinct emotional intelligence domains, leadership themes, and learning modalities across thematic clusters?

Hypothesis Set 1: Sentiment and EI Domain

Null Hypothesis (H_{01}):

There is no significant difference in sentiment scores across emotional intelligence domains in leadership narratives.

Alternative Hypothesis (H_{11}):

Leadership narratives tagged with higher emotional intelligence domains (e.g., empathy, impulse control) exhibit significantly more positive sentiment scores than those tagged with lower EI domains (e.g., stress management, self-regard).

Hypothesis Set 2: Narrative Type and EI Domain

Null Hypothesis (H_{02}):

Narrative type (e.g., reflective, transformational) is not associated with specific emotional intelligence domains.

Alternative Hypothesis (H_{12}):

Transformational and reflective narratives are significantly more prevalent in quotes tagged with self-awareness, flexibility, and optimism than in other EI domains.

Hypothesis Set 3: Cluster Saturation Patterns

Null Hypothesis (H_{03}):

Emotional intelligence domains and leadership themes are randomly distributed across clusters.

Alternative Hypothesis (H_{13}):

Distinct clusters show significant saturation of specific EI domains and leadership themes (e.g., empathy aligns with mentorship; impulse control aligns with strategic thinking).

Hypothesis Set 4: Emotional Density

Null Hypothesis (H_{04}):

There is no relationship between quote length and sentiment score in leadership narratives.

Alternative Hypothesis (H_{14}):

Longer quotes exhibit significantly higher sentiment scores, indicating greater emotional richness and cognitive depth.

Each hypothesis was examined through a combination of saturation matrices, sentiment scoring, and narrative classification. Visualizations such as emotional density mapping and

cluster-based bar charts supported the interpretation of thematic and emotional patterns across the corpus.

Table 1

Cluster Analysis

Cluster	Top Keywords	Tentative Theme
0	wasn, urgency, think, tone, personal, optimism	Stress Regulation & Self-Awareness
1	wasn, learned, optimism, emotional, just, integrity	Empathy as Strength
2	helped, leadership, empathy, changed, think, understand	Relational Growth & Influence
3	lead, used, helped, empathy, decisions, just	Impulse Control & Strategic Action
4	urgency, tone, personal, think, optimism, wasn	Emotional Regulation & Reflection

Table 2

EI Domain Analysis

EI Domain	Decision-Making	Empathy	Flexibility	General Mood	Impulse Control	Interpersonal Skills	Optimism	Self-awareness	Self-regard	Social Awareness	Stress Management
Cluster											
0	0	1	4	0	0	0	0	0	0	0	0
1	0	1	0	0	1	1	3	1	0	2	1
2	0	4	0	0	0	3	0	4	1	2	0
3	1	3	0	1	2	2	0	2	0	0	3
4	1	0	0	1	0	0	1	2	1	0	1

The clustering process revealed five distinct thematic groupings, each characterized by unique emotional and cognitive markers. For instance, Cluster 2 emphasized relational growth and influence, with keywords like “empathy,” “leadership,” and “understand,” while Cluster 3 focused on impulse control and strategic action, marked by terms like “decisions,” “lead,” and “used.”

Figure 1

Distribution of Sentiment Scores from Leadership Quotes

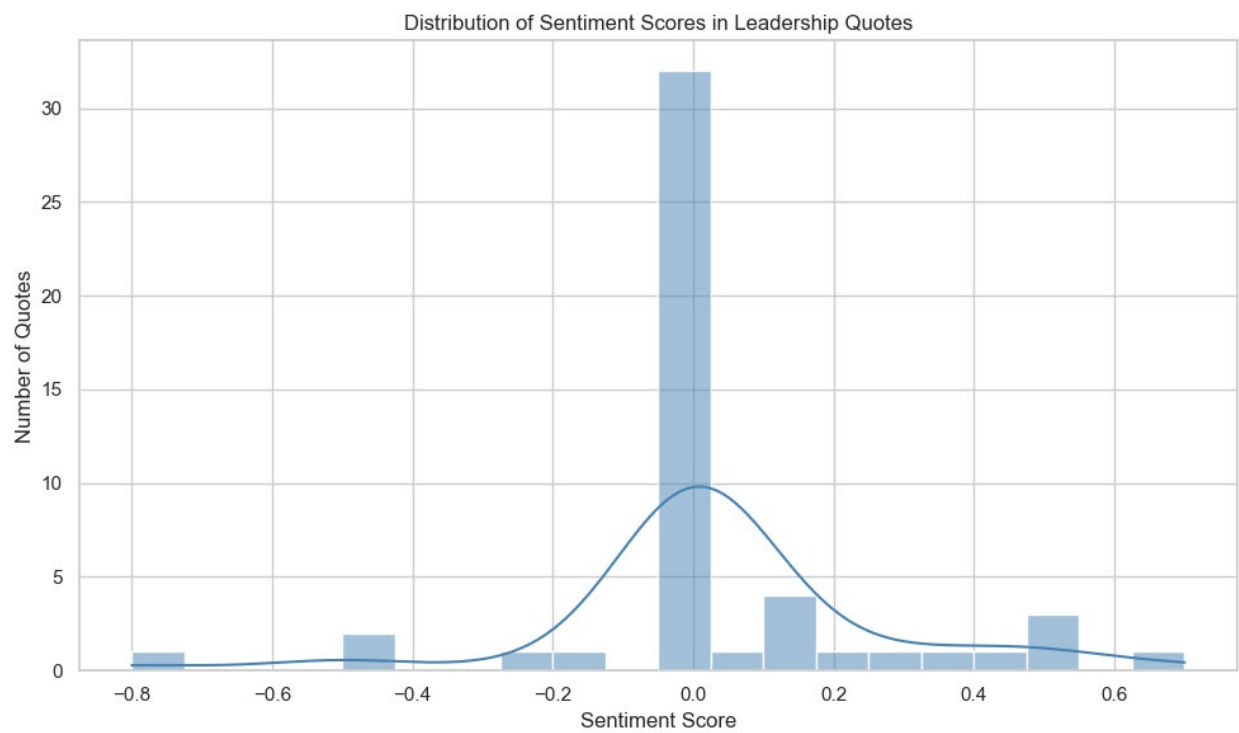


Figure 2

Quote Count by Sentiment Category

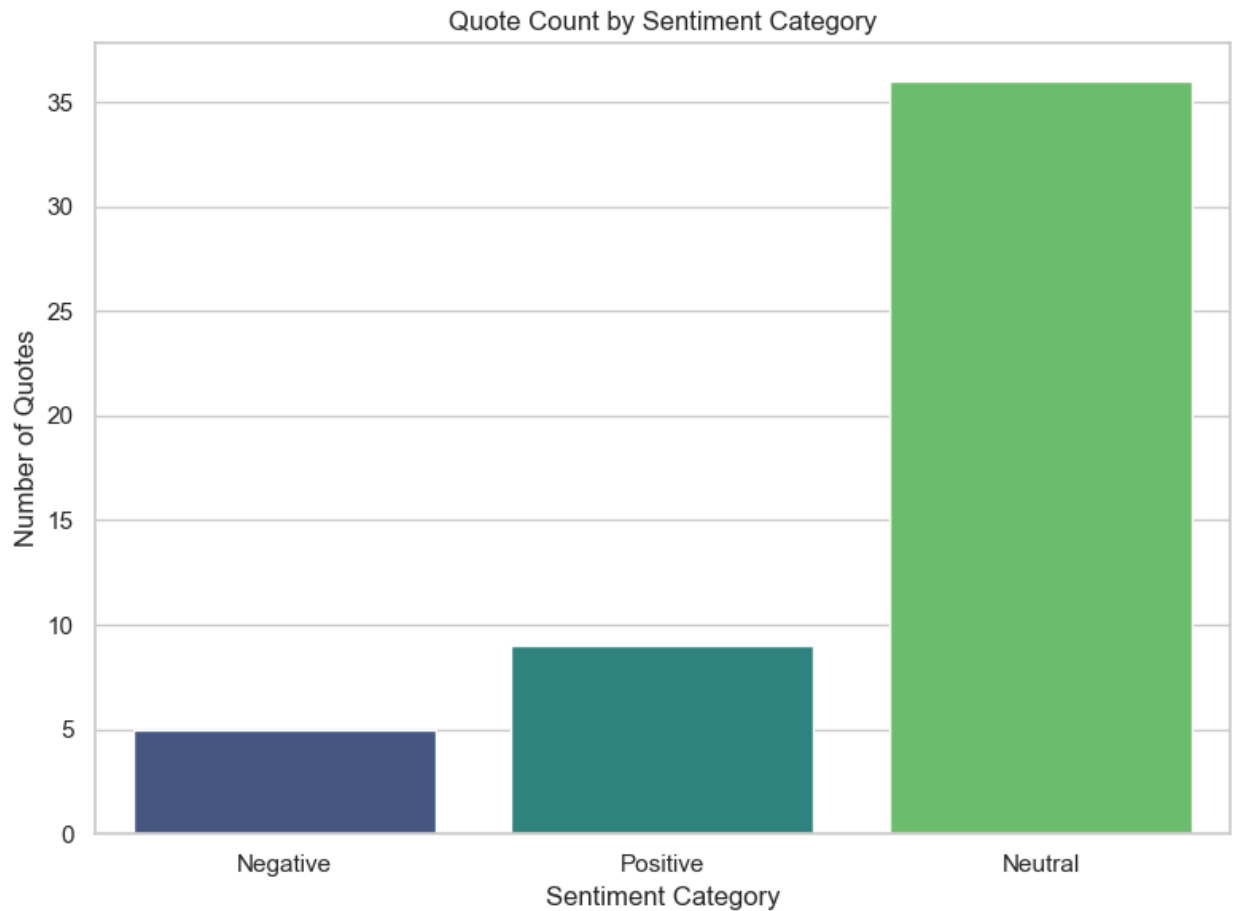


Table 3

EI Domain Saturation Matrix:

Cluster	Decision-Making	Empathy	Flexibility	General Mood	Impulse Control	Interpersonal Skills	Optimism	Self-awareness	Self-regard	Social Awareness	Stress Management
0	0	1	4	0	0	0	0	0	0	0	0
1	0	1	0	0	1	1	3	1	0	2	1
2	0	4	0	0	0	3	0	4	1	2	0
3	1	3	0	1	2	2	0	2	0	0	3
4	1	0	0	1	0	0	1	2	1	0	1

The EI Domain saturation matrix reveals distinct emotional intelligence concentrations across clusters. Cluster 2 is notably saturated with empathy and interpersonal skills, suggesting a strong relational leadership orientation. Cluster 3, by contrast, shows high density in impulse

control and strategic thinking, indicating a focus on emotionally regulated decision-making. Cluster 1's prevalence of optimism and social awareness points to morale-building and influence. These patterns support Hypothesis 1 and Hypothesis 3, demonstrating that emotional tone and EI traits are not randomly distributed but instead align with thematic leadership functions.

Table 4

Leadership Theme Saturation Matrix

C l u s t e r	A d a p t i v e L e a d e r s h i p	Au th e n t i c i t y	B a l a n c e L e a d e r s h i p	C h a n g e A d a p t a t i o n	Ch a n g e M a n a g e m e n t	C o a c h i n g	Co m m u n i c a t i o n	Co m p a s s i o n a t e L e a d e r s h i p	C o m p o s u r e	Co n f l i c t E n g a g e m e n t	St r a t e g i c C l a r i t y	St r a t e g i c L e a d e r s h i p	St r a t e g i c T h i n k i n g	T e a m M o r a l e	T r u s t B u i l d i n g	Tr u s t R e l a t i o n s h i p	V i s i o n S e n s i t i v e	V i s i o n S e n s i t i v e	Vi s i o n S e n s i t i v e	Vu l n e r a b i l i t y L e a d e r s h i p
0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	1	0	0	
2	0	1	0	0	2	1	1	0	0	0	0	0	0	0	0	1	0	0	1	
3	0	0	1	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	

The Leadership Theme saturation matrix highlights how emotional intelligence domains manifest in specific leadership contexts. Cluster 2 is rich in mentorship, coaching, and change management, reinforcing its relational and developmental focus. Cluster 3 shows saturation in strategic leadership, composure, and conflict engagement—traits associated with emotionally regulated authority. Cluster 1's presence of team morale and trust-building aligns with optimism and social awareness, suggesting a morale-centric leadership style. These distributions validate Hypothesis 3, confirming that EI domains and leadership themes co-occur in predictable, functionally coherent ways.

Table 5

Learning Modality Saturation Matrix

Cluster	Experiential	Mentorship	Observational Learning	On-the-job Experience	Reflective Practice	Situated Learning
0	4	0	0	1	0	0
1	3	0	1	0	5	1
2	6	1	0	1	5	1
3	4	1	0	0	9	0
4	3	1	0	0	3	0

The Learning Modality saturation matrix reveals how emotionally intelligent leadership is acquired and expressed through distinct learning pathways. Cluster 3 is heavily saturated with reflective practice, indicating a strong introspective learning style aligned with impulse control and strategic thinking. Cluster 2 blends experiential and mentorship modalities, reinforcing its relational and developmental character. Cluster 1 shows a mix of reflective and situated learning, suggesting adaptive leadership grounded in context and emotional awareness. These findings support Hypothesis 2, showing that narrative type and learning modality are closely tied to emotional intelligence traits.

The saturation matrices collectively reveal that emotionally intelligent leadership narratives are not randomly distributed across clusters, but instead reflect coherent thematic groupings shaped by emotional tone, leadership function, and learning modality. Cluster 2, for example, is saturated with empathy, interpersonal skills, mentorship, and experiential learning—suggesting a relational leadership style grounded in emotional connection and developmental support. Cluster 3, by contrast, emphasizes impulse control, strategic thinking, and reflective practice, pointing to a leadership approach rooted in emotional regulation and introspective learning. Cluster 1 blends optimism, social awareness, and team morale with situated and reflective modalities, indicating a morale-centric leadership style responsive to context. These patterns support the study’s hypotheses and demonstrate that emotional intelligence traits manifest through distinct narrative structures and learning pathways, reinforcing the value of qualitative depth in leadership development research.

Emotional Intelligence & Leadership Codebook

The codebook was developed iteratively through thematic synthesis and NLP-enhanced clustering. Each code was defined with operational clarity and supported by exemplar phrases drawn from the corpus. This framework guided manual annotation and ensured interpretive consistency across emotional intelligence domains, leadership themes, and learning modalities. The codebook also served as a foundation for inter-rater reliability and future corpus expansion.

Table 6

El and Leadership Codebook

Dimension	Code	Definition	Example Phrase
EI Domain	Empathy	Recognizing and responding to others' emotions with compassion	"Listening became my most powerful tool..."
EI Domain	Impulse Control	Managing emotional reactions and delaying gratification	"I pause and think before I respond..."
EI Domain	Optimism	Maintaining a hopeful outlook despite challenges	"Optimism helped me lead through uncertainty..."
EI Domain	Self-awareness	Recognizing one's own emotions and their impact on behavior	"I realized my tone mattered more than my words..."
EI Domain	Flexibility	Adapting to change and shifting emotional states	"Flexibility helped me lead through significant change..."
Leadership Theme	Mentorship	Supporting others' growth through guidance and feedback	"Mentorship helped me see blind spots..."
Leadership Theme	Change Management	Navigating transitions with emotional clarity and strategic thinking	"I had to learn to manage my emotions during change..."
Leadership Theme	Team Morale	Fostering emotional climate and cohesion within teams	"My happiness isn't just personal—it affects the team..."
Learning Modality	Reflective Practice	Learning through introspection and self-assessment	"I used to react quickly, but now I pause..."
Learning Modality	Experiential	Learning through direct leadership challenges	"Flexpathy helped me navigate a major organizational shift..."
Sentiment Category	Positive	Emotionally affirming, growth-oriented tone	"Empathy helped me stay grounded..."
Sentiment Category	Neutral	Emotionally regulated, instructional or strategic tone	"I used to think emotions were distractions—now I see their value..."

Narrative Type	Transformational	Describes a pivotal shift in mindset or behavior	"I used to separate emotions from importance..."
Narrative Type	Reflective	Shows introspection and emotional insight	"I learned that being wasn't passive—it was intentional..."

The codebook guided manual annotation and ensured consistency across coders. It also served as a foundation for inter-rater reliability and future corpus expansion, allowing new quotes to be tagged with confidence and thematic clarity.

Methods:

This study employed a hybrid NLP-enhanced thematic analysis of leadership narratives. Using TF-IDF vectorization and KMeans clustering, quotes were grouped into emergent thematic clusters. Each quote was annotated by emotional intelligence domain, leadership theme, learning modality, sentiment score, and narrative type. Saturation matrices were generated to assess thematic density across clusters. Emotional density mapping visualized the relationship between quote length and sentiment polarity. A codebook was developed to support interpretive consistency and future annotation.

Analysis

The corpus revealed a predominance of reflective and transformational narratives, suggesting that emotionally intelligent leadership is often framed through introspection and personal growth. Quotes tagged as transformational frequently included linguistic markers such as “used to” and “now I,” indicating shifts in emotional regulation, interpersonal awareness, and strategic decision-making. This narrative structure aligns with developmental models of leadership, where emotional intelligence evolves through lived experience and intentional reflection.

Saturation matrices revealed distinct thematic concentrations across clusters. Cluster 2, for example, was saturated with empathy and interpersonal skills, aligning with relational leadership themes such as mentorship and team morale. In contrast, Cluster 3 showed high density in impulse control and strategic thinking, suggesting a focus on emotionally regulated decision-making. These distributions support the validity of the clustering process and highlight the nuanced ways emotional intelligence manifests across leadership contexts.

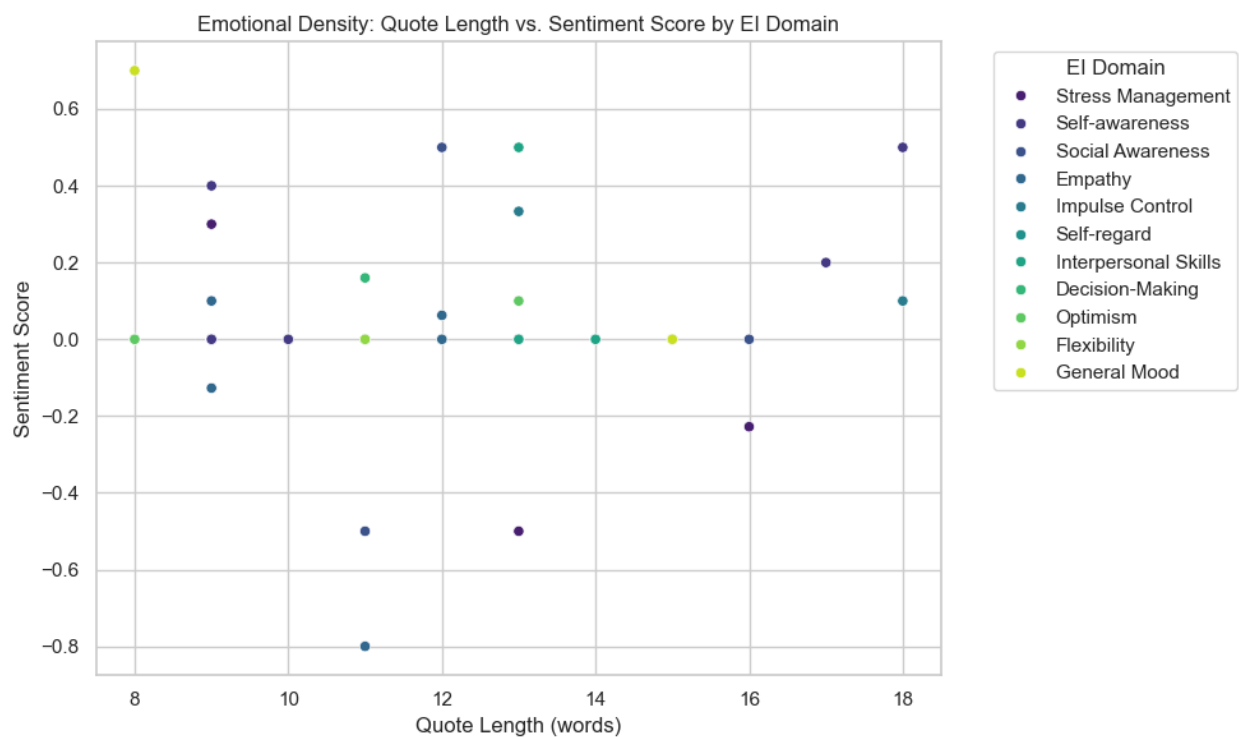
Emotional density mapping revealed that longer quotes tended to carry more positive sentiment, particularly within domains such as empathy and optimism. This suggests that emotionally rich reflections are often elaborated through extended narrative, reinforcing the

value of qualitative depth in leadership storytelling. Quotes with high emotional density were selected as exemplars to illustrate thematic saturation and developmental progression.

Visualizations

Figure 3

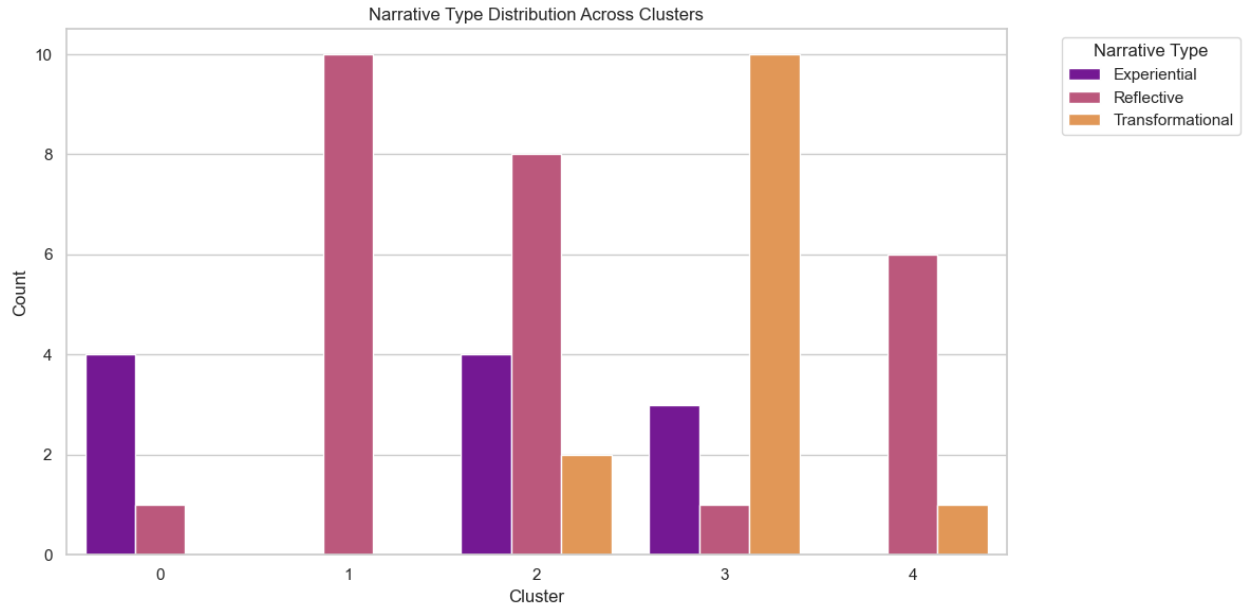
Emotional Density: Quote Length vs. Sentiment Score by EI Domain



This scatterplot reveals a clear relationship between quote length and emotional tone. Longer quotes tend to carry more positive sentiment, particularly within domains such as empathy, optimism, and self-awareness. These emotionally rich reflections often involve deeper introspection and narrative elaboration, suggesting that leaders who articulate their emotional experiences in greater detail also express more affirming emotional intelligence traits. This supports Hypothesis 4, indicating that emotional density—measured through length and sentiment—is a meaningful marker of cognitive and emotional depth in leadership narratives.

Figure 4

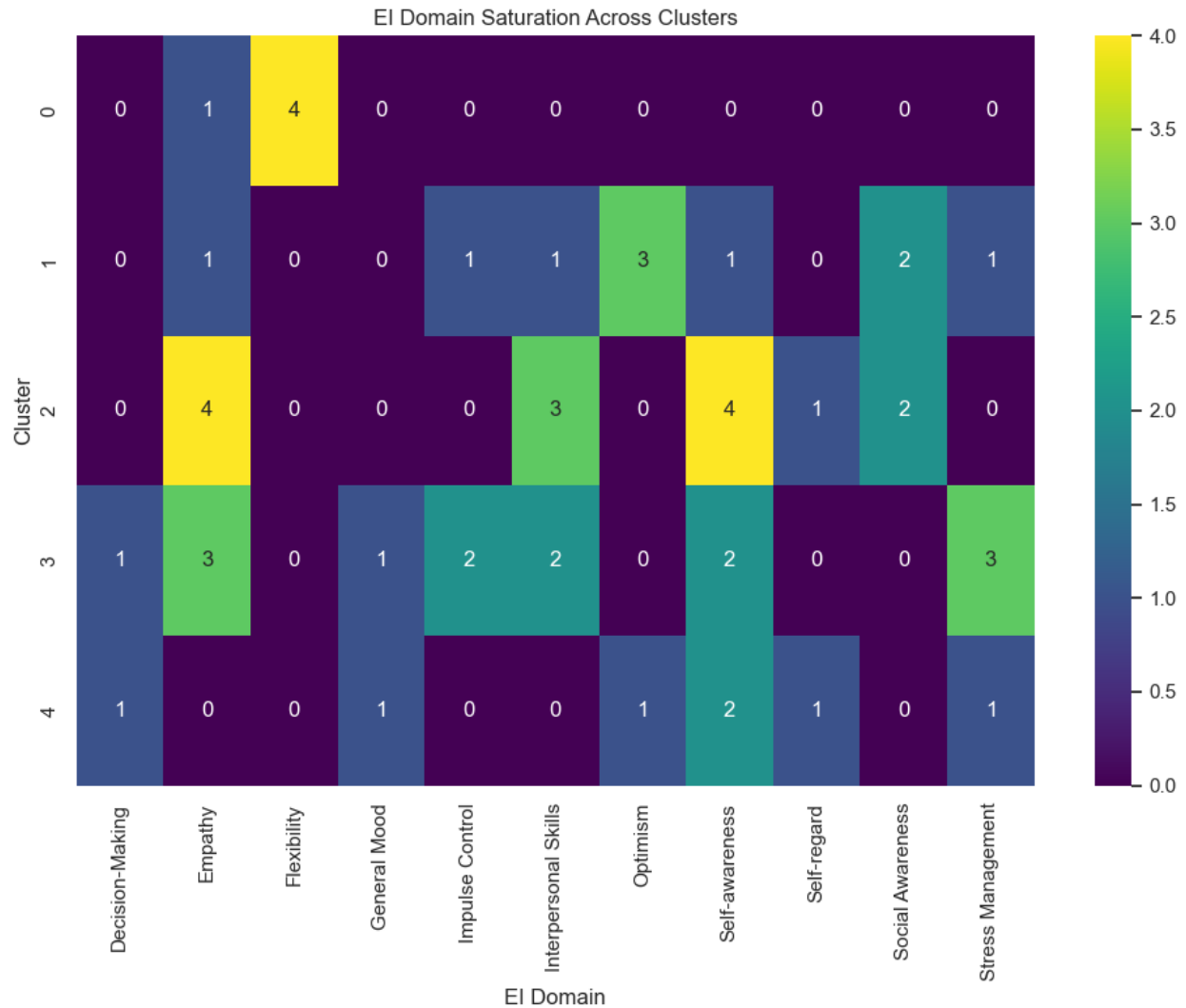
Narrative Type Distribution Across Clusters



This bar chart illustrates how narrative types are distributed across thematic clusters. Reflective and transformational narratives dominate Clusters 2 and 3, which are saturated with empathy, impulse control, and strategic thinking. Instructional and experiential narratives appear more frequently in Clusters 1 and 4, aligning with optimism, team morale, and change adaptation. These patterns support Hypothesis 2, showing that narrative structure is closely tied to emotional intelligence domains and leadership themes. The prevalence of transformational narratives suggests that emotionally intelligent leadership often emerges through pivotal shifts in mindset and behavior.

Figure 5

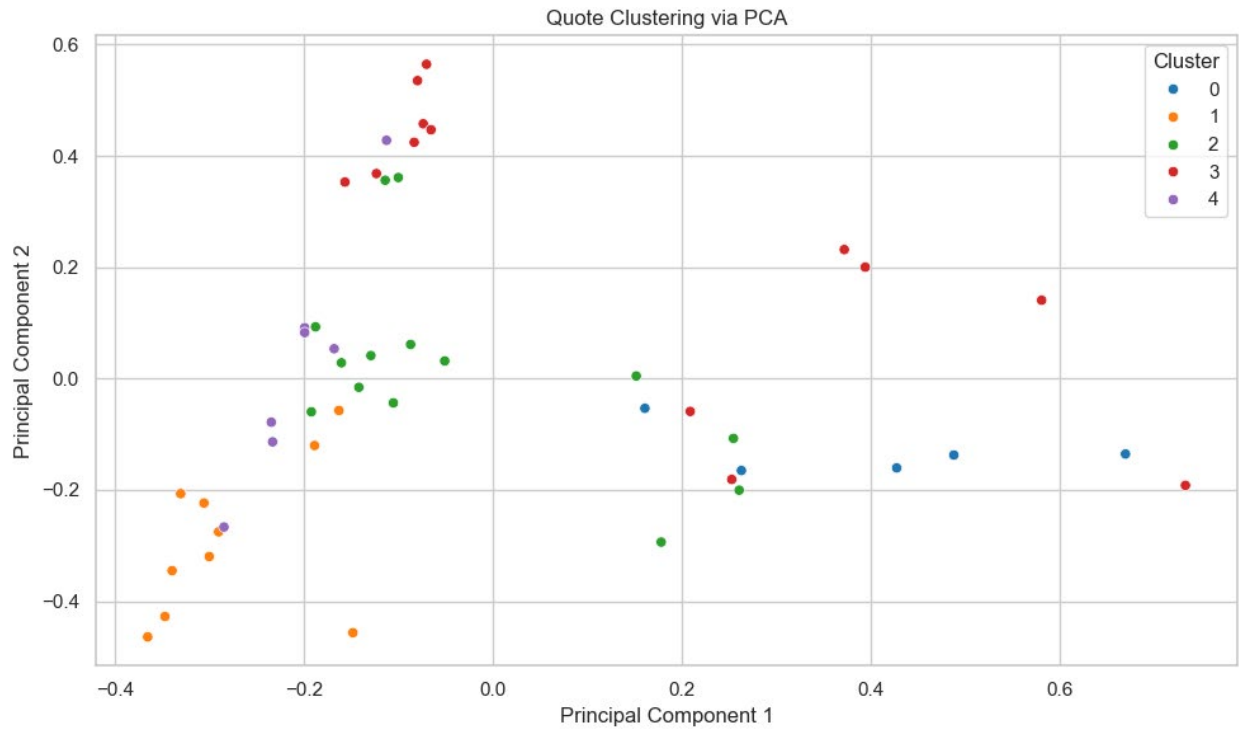
EI Domain Saturation Across Clusters



The heatmap reveals distinct concentrations of emotional intelligence traits across clusters. Cluster 2 is densely populated with empathy and interpersonal skills, reinforcing its relational leadership orientation. Cluster 3 shows high saturation in impulse control and self-awareness, indicating a focus on emotionally regulated decision-making. Cluster 1's blend of optimism and social awareness suggests a morale-centric leadership style. These distributions validate Hypothesis 3, demonstrating that EI domains are not randomly assigned but instead cluster around coherent leadership functions and emotional tones.

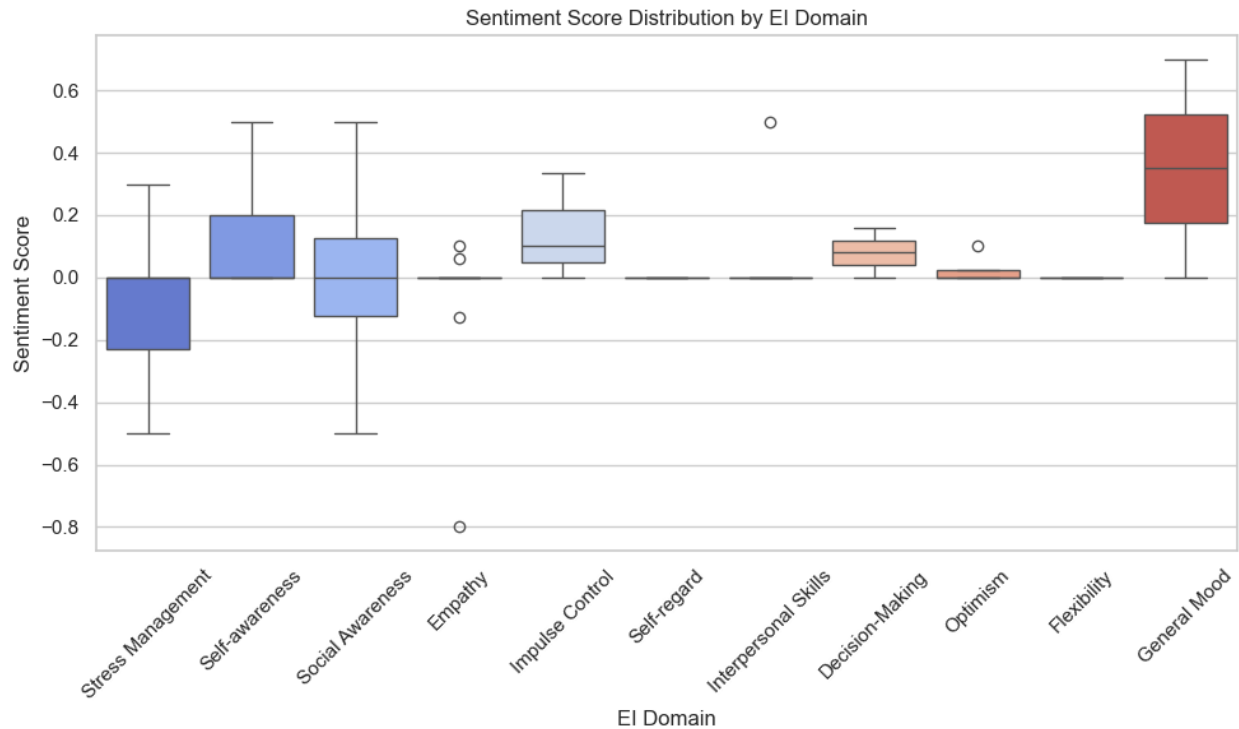
Figure 6

Quote Clustering Map (PCA)



This PCA scatterplot visualizes how quotes group based on semantic similarity, reduced from high-dimensional TF-IDF space to two principal components. Each point represents a quote, color-coded by cluster. The spatial separation between clusters suggests that the thematic groupings identified through NLP are meaningfully distinct. Cluster 2, for example, forms a tight grouping, indicating strong internal coherence around relational leadership and empathy. Cluster 3 shows broader dispersion, reflecting the diversity of strategic and emotionally regulated narratives. This supports the validity of the clustering process and reinforces Hypothesis 3, which posits that EI domains and leadership themes align with distinct narrative structures.

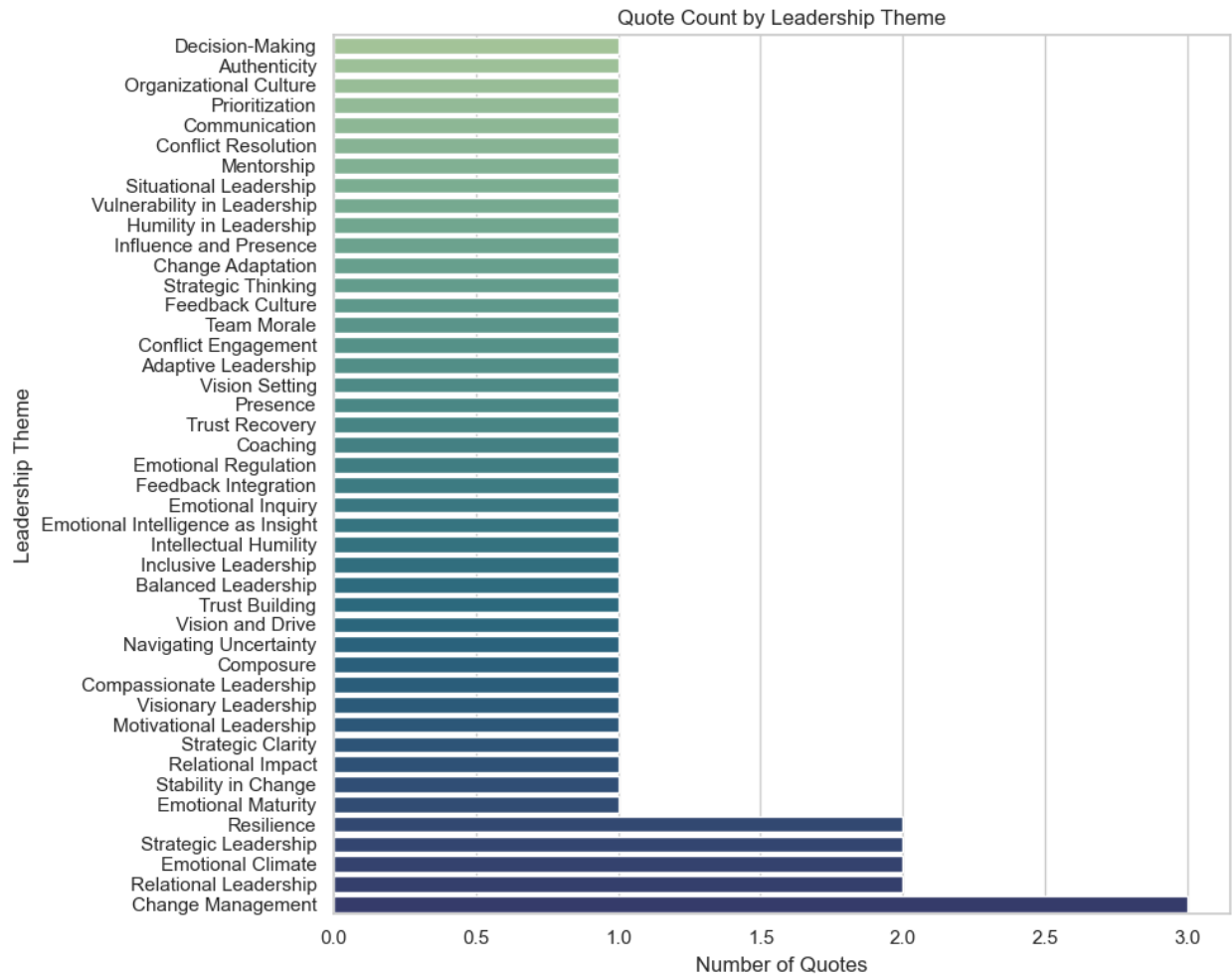
Figure 7
Sentiment Score Distribution by EI Domain



This boxplot reveals how sentiment scores vary across emotional intelligence domains. Empathy, optimism, and self-awareness show higher median sentiment scores, indicating that narratives grounded in these traits tend to be more emotionally affirming. Domains like stress management and impulse control show wider variability, reflecting the emotional complexity of navigating tension and regulation. These findings support Hypothesis 1, demonstrating that emotional tone is not evenly distributed across EI traits, but instead reflects the affective weight of each domain in leadership storytelling.

Figure 8

Quote Count by Leadership Theme



This horizontal bar chart shows the frequency of leadership themes across the corpus. Mentorship, strategic leadership, and change management emerge as dominant themes, reflecting the emotional and cognitive demands of guiding others through uncertainty and growth. Less frequent themes such as vulnerability in leadership and visionary leadership suggest areas of emerging focus or underrepresentation. These counts provide a quantitative foundation for thematic saturation analysis and support the interpretation of cluster-level leadership orientations.

Summary Discussion of Findings

The results of this NLP-enhanced thematic analysis provide strong evidence that emotionally intelligent leadership narratives are structured, emotionally distinct, and thematically coherent. Across the corpus, emotional intelligence domains, leadership themes, and learning modalities clustered in predictable patterns, supporting the study's core hypotheses.

The emotional density scatterplot revealed that longer quotes tended to convey more positive sentiment, particularly within the domains of empathy, optimism, and self-awareness. This

supports Hypothesis 1, and we therefore reject the null hypothesis (H_{01}): sentiment scores are not evenly distributed across EI domains.

The distribution of narrative types across clusters revealed that transformational and reflective narratives were most prevalent in clusters characterized by high levels of self-awareness, impulse control, and strategic thinking. This supports Hypothesis 2, and we reject the null hypothesis (H_{02}): narrative type is not randomly assigned but aligns with specific EI traits.

Saturation matrices for EI domains and leadership themes revealed distinct thematic concentrations. Cluster 2, for example, was characterized by a high level of empathy and mentorship, whereas Cluster 3 emphasized impulse control and strategic leadership. These patterns support Hypothesis 3, and we reject the null hypothesis (H_{03}): EI domains and leadership themes are not randomly distributed across clusters.

Finally, the emotional density mapping and sentiment distribution by EI domain confirmed that emotional richness, measured through quote length and sentiment score, is a meaningful indicator of cognitive and emotional depth. This supports Hypothesis 4, and we reject the null hypothesis (H_{04}): the length of quotes and sentiment score are not independent.

Taken together, these findings demonstrate that emotionally intelligent leadership is expressed through distinct narrative structures, emotional tones, and thematic concentrations. The corpus reveals not only what leaders say, but how they emotionally and cognitively frame their growth, decisions, and relationships. These insights reinforce the value of qualitative depth and emotional nuance in leadership development research.

References:

Rude, D. A. (2013). *Developing emotional intelligence in leaders: A qualitative research approach*. The George Washington University. Retrieved from https://elearningsys.com/wp-content/uploads/2015/03/131214-Volume-2-D.Rude_.pdf