CLUSTERING PROFESSIONAL COMMUNICATION

EXPLORING THE METHODOLOGY OF CLUSTERING THE THEMATIC DIMENSION IN PROFESSIONAL COMMUNICATION (POLITICS)

IRINA BAGAEVA
THE UNIVERSITY OF GEORGIA, GEORGIA

ABSTRACT

This article examines the challenges associated with selecting appropriate methodologies and principles for organizing the intricate thematic dimension of professional communication. By employing suitable methods, fragmented knowledge can be synthesized, while the explanatory principle facilitates the identification of essential attributes within a given cluster. The rational application and integration of fundamental scientific principles, concepts, and methodological approaches establish specific criteria for objectively evaluating the construct of a cluster. Clustering is recognized as one of the most effective techniques for segmenting the diverse thematic dimensions of professional communication. The article analyzes the "Politics" cluster as an exemplar within the broader thematic dimensions of professional communication. The clustering process within the thematic dimension aims to encompass an expansive scope with a sense of comprehensive coherence. The model for clustering the thematic dimension provides a range of constraints and assumptions crucial in creating appropriate constructs.

Keywords: Professional communication, thematic dimension, clustering, clusters and sub-clusters, attributes

Introduction

The methodology employed in clustering the thematic dimension of professional communication (politics) encompasses creating relatively homogeneous groups, known as content-based clusters, along with their associated attributes. These attributes serve as indicators of similarity, determined through the factor of analogy. Homogeneous groups are formed based on shared criteria, while distinct groups consist of entities that exhibit differences.

Clusters establish a framework that serves as the foundation for conceptual analysis concerning knowledge representation structures within professional communication (politics). The relationship between the framework and its specific elements (clusters) is established through both "general" and "specific" types of relationships. Differentiating elements (clusters) within the framework involves distinguishing similar components (Fransella et al., 2004). Such differentiation implies a certain level of similarity and disparity between opposing elements.

The existence of alternative versions of the cluster framework suggests the potential for "reframing" the framework, thereby highlighting the dynamic nature of the overall structure (Jankowicz, 2004).

Constructing clusters emphasizes a depth of understanding rather than the mere objectivity of knowledge. Understanding is a multifaceted and ambiguous process that occurs within the depths of human cognition and requires the mobilization of various intellectual and emotional faculties. The primary objective of cluster construction is to establish a knowledge pyramid that facilitates enhanced comprehension. The cluster identifier, represented by the cluster's name, serves as the connective element encompassing all the individual components and the relationships that exist between them.

Methodology

The clustering methodology employed in this study is agglomerative. Agglomerative clustering begins by assigning each object to its cluster. These clusters are then gradually merged, forming larger clusters, until all objects are ultimately integrated into a single cluster.

The clustering process for the thematic dimension of professional communication (politics) involved the following requirements:

1. Development of a typology or classification system for the objects under consideration.

2. Identification of appropriate conceptual frameworks to categorize the objects.

3. Determination of the set of characteristics by which objects will be assessed.

4. Evaluation of the degree of similarity between objects.

5. Application of cluster analysis techniques to group objects based on their similarities.

The clustering process for the thematic dimension of professional communication (politics) was guided by the following approaches and principles:

I. STRUCTURAL-OBJECTIVE APPROACH

This approach involves decomposing and separating objects while treating each as part of a defined class. Essential postulates of this approach include:

1. Systematicity: Interconnections between elements within clusters and across different clusters.

2. Abstractness: Identification of cluster attributes by determining the essential features of elements integrated into the cluster.

3. Hierarchy: Ranking systems of abstraction (Etherington & Reiter, 1983).

4. Typification: Analyzing cluster elements to determine the partial inheritance of properties.

II. PRINCIPLE OF RELEVANCE

The principle of relevance holds a pivotal position in the clustering process as it governs the inclusion of an object within a cluster based on the discernment of conceptual correlations and thematic analogies between the element and the cluster. Notably, the relevance principle transcends the information processing domain, influencing the ultimate outcome.

Relevance assumes paramount importance as the foremost indicator for ranking data, encompassing linguistic and cognitive dimensions that form the bedrock of knowledge processing procedures. On the one hand, relevance serves as the fundamental basis for cognition, functioning as a criterion to gauge the efficacy or inefficacy of cognitive activity. On the other hand, relevance manifests as a prag-

matic phenomenon emerging as a consequence of the cognitive-practical activities undertaken by individuals.

III. PRINCIPLE OF GRADUALITY

The principle of gradualism aligns with the incremental stages and rhythm of shaping professional competence (Brachman & Levesque, 1982). It entails segmenting the teaching system into several complexes encompassing methods, forms, and techniques, which aim to provide learners with information of varying volumes and complexity at different stages of instruction. With each subsequent stage of training, the volume and complexity of information steadily increase.

The realization of the didactic principles of continuity and inheritance in the teaching and learning process hinges upon considering the principle of gradualism. Embracing this principle ensures precise information dosing and selecting the most effective teaching methods.

When defining the components of the methodological system, due regard must be given to the principle of gradualism. This principle facilitates the determination of the requisite and adequate amount of information for different stages of instruction, the identification of the most pertinent methods suited for diverse instructional phases, and the development of an optimal system of teaching materials characterized by escalating complexity to cater to the varying stages of instruction.

The principle of gradualism extends to the selection of didactic material, including introducing new vocabulary during different stages of instruction. In the realm of vocabulary instruction, the principle of gradualism becomes evident through the alignment of the difficulty of interpreting the meaning of a new word with the target linguistic competence.

The principle of gradualism necessitates a meticulous approach to the selection of the fundamental components of the methodological system. Specifically, content selection should eschew overwhelming language learners, ensuring that the information and the methods and techniques employed remain congruent with the goals and objectives of fostering target language competency (Goldstein & Papert, 1977).

Hence, the gradual progression of linguistic competence embodies a methodological category that aptly suits the contemporary stage of advancing linguistics.

IV. PRINCIPLE OF HYPONYMY

The principle of hyponymy elucidates that an element endowed with a more specific meaning inevitably encompasses the meaning of a more general element, thereby forging a unifying bond within a class. The narrower the extension of an element, the greater the likelihood of its consistent inclusion within specific general classes. An element possessing broader connotations within a comprehensive entity always remains subservient to an element imbued with a more precise signification.

The concepts of extensional and intensional intricately intertwine with the principle of hyponymy. In our perspective, the extensional aspect of an element denotes the class of objects to which the element pertains. At the same time, the intensional unit encompasses the set of properties that characterize an object about the given element. Consequently, extensional and intensional units display an inverse proportionality: as the extensional scope of an element expands, its intensional delineation diminishes, and vice versa. Consequently, as an abstract cluster assimilates various elements, its extensional scope widens while the intensional dimension contracts.

In the realm of hyponymy, we encounter a unidirectional implication. A member implies the meaning characteristic of a class, thereby justifying their inclusion within the given class. However, the class itself does not imply the meaning of its constituent members. The transition from members to the class adheres to the principle of hyponymy, engendering hierarchical systems wherein elements of greater generality subordinate themselves to those of particular significance, establishing a subordinating relationship between the class and its members.

V. INTEGRATIVE APPROACH

The integrative approach directs its focus towards discerning the attributes inherent in engendering new unity from disparate elements.

At the core of the integrative methodology lies the principle of wholeness, which perceives phenomena as intricate, open, multileveled, and multidimensional entities. By amalgamating diverse components, each subsequent level of integration brings forth qualitatively novel aspects that arise independent of the properties inherent in the individual parts.

The epistemological foundation of the integrative approach rests upon an orientation towards agreement as the criterion of truth.

The essence of the integrative methodology resides in the inherent ability of the complete unit to self-regulate and evolve. The entirety of the unit possesses a hierarchical structure wherein each element assumes the role of a "whole" concerning its constituent parts while simultaneously functioning as a "part" of the larger whole. Interactions between the parts of the whole encompass not only cumulative aspects but also horizontal, vertical, structural, functional, and causal relationships. Integrity transcends a mere amalgamation of discrete objects, instead encompassing an indivisible network of phenomena, events, and relations. The significance of individual parts emerges solely through their reference to the whole.

Results and Discussion

The establishment of clusters draws upon Gestalt psychology principles, which serve as the foundational framework for comprehending processes and events (Helson, 1987). The Gestalt theory aligns closely with the structural-objective approach to clusters and emphasizes generating profound knowledge. As the "constructor" of the cluster identifies distinct units of knowledge, it is crucial not to overlook the essence of the Gestalt within each fragment, as it influences the other components and facilitates their integration into a cohesive structural unit. Thus, the primary objective of the cluster "constructor" is to unveil the underlying Gestalt.

The level of aggregation within the clusters is relatively low, resulting in a high degree of similarity among the cluster elements. Conversely, the level of aggregation between clusters is relatively high, leading to a comparatively lower level of similarity between clusters.

The interpretation of clusters is conducted within the context of the variables employed in their construction. The validity of the clustering outcome is contingent upon the variables' relevance.

Identifying clusters considers certain assumptions and limitations regarding the essential characteristics of the elements integrated into the cluster.

The generated clusters encompass the following aspects:

> Structural Aspect - the elements encapsulate a network of interconnected relations.

> Integrative Aspect - the relationships between the elements adhere to the requirements of integrativeness.

The characteristics embodied within the knowledge represented in the cluster are as follows:

> Infinity - constructing a cluster entails substituting "incompleteness" with "completeness." In other words, constructing a cluster necessitates defining the boundaries of knowledge and incorporating the constraints and assumptions that are necessary and sufficient for its construction (Neimeyer & Neimeyer, 1993).

The selection of constraints and assumptions is determined by the relevance of the knowledge to the instructional level.

> Systematicity - every element can be regarded as a collection of interconnected subsets (signs, details), and conversely, each element can be perceived as part of a more generalized class.

> Subjectivity - the process of cluster construction is profoundly subjective and heavily influenced by the characteristics of the constructor. In other words, it depends on the specific segmentation principle chosen by the constructor and the particular status of the attribute (Beail, 1985).

The analysis of the "politics" cluster in English has unveiled the following attributes: "volume," "temporality," "significance," "axiology," "social aspect, social responsibility, and interpersonal relationships," and "personification."

Table I: Verbalizers of the Concept "Politics"

POLITICS	
Verbalizers	government, civics, diplomacy, affairs of state, power struggle, political science, realpolitik, campaigning, political leanings, party politics, political views, polity, machinations, electioneering, opportunism, public affairs, political sympathies, manipulation, statecraft, policy, political relation, art of the possible, diplomatics, political beliefs…

Table II: Verbalizers of the Concept "Government"

GOVERNMENT	
Verbalizers	administration, control, authority, regime, rule, leadership, governance, direction, governing, supervision, dominion, state, domination, regulation, jurisdiction, power, ministry, bureaucracy, executive, guidance, politics, cabinet, public, legislature, running, supremacy, officials, form of government, reign…

Table III: Verbalizers of the Concept "Elections"

ELECTIONS	
Verbalizers	polls, alternatives, choice, vote, votes, ballots, options, preferences, the ballot box, picks, plebiscites, referendums, electoral, decisions, appointments, selection, ayes, voting, popular vote, secret ballot, a cup of tea…

Table IV: Verbalizers of the Concept "Civics"

CIVICS	
Verbalizers	politics, statesmanship, political science, statecraft, government, affairs of state, government policy, campaigning, polity, art of the possible, electioneering, legislature, backroom, jungle, diplomacy, realpolitik, sociology, civil law, governance, hat in the ring…

Table V: Verbalizers of the Concept "Diplomacy"

DIPLOMACY	
Verbalizers	tact, tactfulness, finesse, discretion, statecraft, statesmanship, negotiations, discreetness, sensitivity, skill, subtlety, artfulness, politics, poise, prudence, adroitness, care, address, consideration, civility, peacekeeping, dialogue, diplomat, talks, compromise, external policy, external relationships, foreign liaison …

Table VI: Verbalizers of the Concept "Power Struggle"

POWE STRUGGLE	
Verbalizers	politics, authority, force, manipulation, strength, antagonism, argument, conflict, conflict of opinion, contention, tug of war, battle for power, fight for power, strife over authority, power struggle, difference of opinion, full blast, lack of approval, lack of consensus, leadership struggle, power play, strong arm, test of strength, black power…

Table VII: Verbalizers of the Concept "Campaign"

CAMPAIGN	
Verbalizers	campaign, electioneering, candidature, candidacy, canvassing, politics, battle, hat in the ring, smoke-filled room, internal affairs, legislature, government, lobby, rivalry, contesting, advocate, agitating, competition, conflicting, confrontation, campaign trail, political campaign, passage of arms, campaigning for an election…

Table VIII: Verbalizers of the Concept "Party Politics"

PARTY POLITICS	
Verbalizers	politics, political views, partisanism, political differences, political divide, political divisions, public affairs, policy differences, political affiliation, political beliefs, political sympathies, non-partisan way, political forces, political group, political party, political patronage, partisan political, political choice…

Table IX: Verbalizers of the Concept "Political Views"

POLITICAL VIEWS	
Verbalizers	political opinion, political spectrum, political affiliation, political tendencies, political trends, political positions, party politics, political currents, political thought, political viewpoints, political class, political groups, political ideology, political sympathies, political system, political persuasion, political philosophy…

Table X: Verbalizers of the Concept "Machinations"

MACHINATIONS	
Verbalizers	intrigue, schemes, plot, trick, ruses, stratagem, contrivance, artifice, scheming, conspiracy, subterfuges, tactics, device, maneuver, wile, cabal, dodge, sharp practice, fooling around, dirty pool, opportunism, expedience, expediency, pragmatism, self-interest, self-seeking, exploitation…

Table XI: Verbalizers of the Concept "Political Sympathies"

POLITICAL SYMPATHIES	
Verbalizers	politics, political beliefs, political leanings, party politics, political views, political sympathies, policy preferences, political affiliation, political expression, political inclinations, political opinion, political persuasion, political sensitivity, political spectrum, shades of political opinion, geopolitical, government…

Table XII: Verbalizers of the Concept "Statecraft"

STATECRAFT	
Verbalizers	diplomacy, statesmanship, civics, political science, politics, finesse, government, affairs of state, government policy, negotiation, backroom, delicacy, matters of state, hat in the ring, internal affairs, international relations, smoke-filled room, electioneering, policy, polity, state, statism, authority…

Table XIII: Verbalizers of the Concept "Political Beliefs"

POLITICAL BELIEFS	
Verbalizers	political ideas, political ideology, political sympathies, political affiliation, political alliance, political expression, political aspirations, political doctrine, political ideals, political morals, political opinions, political outlook, political perception, political persuasion, political views, political beliefs, political conviction, political positions…

Table XIV: Verbalizers of the Concept "Political Tendencies"

POLITICAL TENDENCIES	
Verbalizers	political trends, political views, political spectrum, political opinion, political class, political currents, political groups, political viewpoints, general tendencies, movement, human tendencies, policy direction, policy guidelines, policy orientation, policy trends, political actors, political affiliation, political areas…

Table XV: Verbalizers of the Concept "Political Ideology"

POLITICAL IDIOLOGY	
Verbalizers	political belief, political ideologies, political views, political philosophy, racial ideology, official ideology, political convictions, political doctrine, political ideals, political ideas, political morals, political principles, political system, set of ethical doctrines, cultural ideology, government ideology, human ideology…

Table XVI: Verbalizers of the Concept "Political Regime"

POLITICAL REGIME	
Verbalizers	system of government, political organization, bureaucratic regime, political structure, federal regime, parliamentary regime, political authorities, civil government, local regime, militant regime, political circles, political class, political community, political dispensation, political entity, political establishment, political framework…

From a procedural standpoint, the integration of the elements (verbalizers) occurred through a series of distinct stages. Initially, interconnections were established among the elements, followed by the dissolution of boundaries between them. Subsequently, the elements shed their previous (individual) characteristics, drawing nearer to one another and assimilating new properties.

Conclusion

The examination of the outcomes derived from the clustering process has revealed the following regularities:

All clusters encompass three distinct types of knowledge:

a) Static or declarative knowledge, comprising definitions of rules, laws, methods, principles, and concepts.

b) Dynamic or procedural knowledge, facilitating the practical application of knowledge by utilizing relevant rules, laws, methods, and principles.

c) Functional or transfer knowledge, enabling the appropriate adaptation and utilization of knowledge in diverse contextual scenarios.

All clusters correlate with the conceptual "Professional Communication" identifier within the cluster grid.

Each cluster maintains an equivalent conceptual distance from the concept identifier of the cluster grid, thereby indicating a harmonized conceptual alignment of all clusters regarding the preservation of the conceptual essence of the cluster grid's identifier.

The conceptual definition of the clusters displays a complete correlation with the conceptual identifier of the cluster grid.

The repertoire of the cluster grid adequately reflects the intricate nature of the thematic dimension inherent in professional communication.

Within the integrative methodology framework, the principle of integrity encompasses a systematic analysis of the construct. This principle serves as a foundation for exploring the specific characteristics of clusters. Employing the principle of integrity is deemed an efficacious strategy for elucidating profound interconnections and attributes of the construct.

References

Beail, N. (1985). *Repertory grid technique and personal constructs: applications in clinical & educational settings*. Cambridge, MA: Brookline Books.

Brachman R. J., Levesque, H. J. (1982). *Competence in knowledge representation*. Proc. AAAI-82, Pittsburgh, pp. 189–192.

Etherington, D. W. & Reiter, R. (1983). *On inheritance hierarchies with exceptions*. Proc. AAAI83, pp. 104–108.

Fransella, F., Bell, R. C. and Bannister, D. (2004). *A manual for repertory grid technique* (2a, illustrated, revised, annotated ed.). Chichester: John Wiley & Sons.

Goldstein, I. and Papert, S. (1977). Artificial intelligence, language, and the study of knowledge. *Cognitive Science, Vol. 1*. No. 1.

Helson, H. (1987). The Psychology of "Gestalt". *American Journal of Psychology 100, 3*/4: p. 537. http://dx.doi.org/10.2307/1422694

Jankowicz, D. (2004). *The easy guide to repertory grids*. Chichester: John Wiley & Sons.

Neimeyer, G. J. & Neimeyer, R. A. (1993). *Defining the boundaries of constructivist assessment*. In Neimeyer G. J. (Ed.), Constructivist Assessment (pp. 1-30). Newbury Park, CA: Sage.