Essays on the Language Lens of Strategy: Theoretical Assumptions, and Discursive Strategy in the context of SpaceX

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This dissertation comprises of two essays (Chapter 2 and Chapter 3) that aim to delve into the language perspective of strategy. The concept of language has been increasingly gaining recognition in strategy research. However, a challenge arises as its theoretical advancement lags behind empirical work. Investigating the language lens can be beneficial in improving theoretical clarity and promoting enhanced reflexivity in strategy.

The first essay (Chapter 2) focuses on how strategy scholars approach language using a qualitative approach. I demonstrate the plurality of language, as it can be viewed as a window that objectively represents reality, or an enabler that constructively enacts reality. The former considers language as a proxy for measuring constructs, while the latter places language at the center of research. Additionally, I bring attention to an extreme enabling view as a linguistic trap, namely the outdated Whorfian hypothesis, which suggests that language determines thought and behavior. Reliance on this outdated theory undermines the convincing power of research that employs it.

The second essay (Chapter 3) builds on the first one and explores the enabling view of language in strategy research empirically. Specifically, I examine the enabling language and its relationship with other communicative elements, such as visuals and audio, in the field of discursive strategy. I investigate how discursive strategy, through social media, can be actively

utilized to promote entrepreneurial firms, such as SpaceX. Employing a mixed-method inductive analysis of the top 50 most-viewed SpaceX YouTube videos, I find that videos serve as effective tools of discursive strategy that convey disruptive innovation and inspire stakeholders to pursue future-making aspirations.

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1.0 Introduction

The 'linguistic turn' is often used to describe the growing interest in the role of language in strategy as well as the broader organization and management research (Boje, Oswick, & Ford, 2004; Cornelissen, Durand, Fiss, Lammers, & Vaara, 2015; Balogun, Jacobs, Jarzabkowski, Mantere, & Vaara, 2014; Mantere, 2013; Hannigan *et al*., 2019). Language (defined broadly) plays a vital role in understanding organizations (Alvesson & Karreman, 2000; Green & Li, 2011). Recent years have seen a new 'linguistic turn' (Phillips & Oswick, 2012; Loewenstein, Ocasio, & Jones, 2012; Gylfe, Franck, Lebaron, & Mantere, 2016; Mirabeau, Maguire, & Hardy, 2018; Vaara & Fritsch, 2021) that language is emphasized as more than a passive carrier of the world. Instead, researchers observe the emergence of a changing assumption involving a dynamic view of the role of language. Specifically, language constitutes the social reality (Berger & Luckmann, 1966; Gylfe, Franck, Lebaron, & Mantere, 2016; Alvarez & Sachs, 2021); it creates a space for the process of organizing and shapes strategy (Phillips & Oswick, 2012; Vaara & Fritsch, 2021). This shifting view of language is growing popular in strategy research.

The concept of language has illuminated much of strategy studies, garnering important insights into strategic change, strategy process and work, and competitive dynamics. However, the theoretical development of language has lagged behind the empirical work, with many language-related concepts underexplored (e.g., language assumptions, epistemology of language). Also, much less is known about whether having different assumptions of language affects the research setting and outcomes. Seeing strategy without language dimensions creates blind spots and distortions similar to these experienced when seeing the earth as a two-

dimensional map. In particular, strategy research has little discussion of different underlying assumptions of language and the consequences that they may have for strategy research.

To address this theoretical gap, **Chapter 2** of my dissertation explores the assumptions underlying the core concept of language used in the growing field of language-related research in strategy. I apply an inductive approach to analyze strategy research accumulated over the past three decades around the topic of language. I provide a theoretically informed, qualitative interpretation of how the authors in the field of strategy research treat language. Specifically, I demonstrate two assumptions, language as a window versus language as an enabler. The window view takes language as a proxy to constructs such as innovation and stakeholders' perceptions; the enabling view, instead, shows how language leads to various organizational outcomes. Considering the rapid increase of strategy papers in the second category, I also highlight the extreme version of enabling view as an assumption involving the problematic linguistic theory, the original Whorfian hypothesis, that potentially leads research into controversy. I consider the enabling view most promising and propose a future agenda for advancing this line of research.

To further develop the enabling view of language in strategy research, in **Chapter 3** of my dissertation, I explore how entrepreneurial firms use discursive strategies on social media for garnering publicity and support. Digitalization accelerates during the world pandemic, as firms leverage social media affordances to interact with stakeholders in developing and executing strategies. I conduct a mixed-methods study with video data from SpaceX. This study contributes to understanding language's role in contemporary organizations and digital technologies.

Chapter 2 explores the linguistic aspect of strategy, while **Chapter 3** focuses on how firms communicate with stakeholders using language and other discursive elements to promote their self-celebritization. Linguistics is a scientific study of language that contributes to

knowledge about how language works. Communication involves the use of natural languages, body language, and symbols effectively to convey information or meaning (Geeraerts & Cuyckens, 2007; Gleitman & Papagragou, 2013). Both linguistics and communication are important in strategy research, as linguistic theories and strategic communication implications can be studied and discussed in the same context (e.g., Pan *et al.*, 2018). Therefore, this dissertation does not aim to distinguish the two fields of studies, but rather, explores how they contribute to strategy research and provide insightful theoretical reasoning towards entrepreneurial firms' self-celebritizing process in **Chapters 2** and **3**.

2.0 Language Lens of Strategy: Plurality of Language, Research Settings, and Whorfian Hypothesis

Abstract: The concept of language has progressively gained popularity in strategy research. Yet a complication arises as its theoretical development falls behind empirical work. Uncovering the language lens is advantageous in improving theoretical clarity and leading to enhanced reflexivity in strategy. To explore how strategy scholars approach language, I demonstrate the plurality of language—language as window (objectively represents reality) and language as enabler (constructively enacts reality). The research settings vary as the former takes language as a proxy for measuring constructs, while the latter situates language at the center of research. Furthermore, I highlight an extreme enabling view as a linguistic trap: the original Whorfian hypothesis (i.e., language determines thought and eventually behavior). Reliance on this outdated theory undermines the convincing power of research that employs it.

Keywords: language, strategy, Whorfian hypothesis, research settings, linguistic assumptions

2.1 Introduction

The 'linguistic turn' commonly refers to the increasing interest in language's role in strategy and wider research on organization and management (Boje, Oswick, & Ford, 2004; Cornelissen, Durand, Fiss, Lammers, & Vaara, 2015; Balogun, Jacobs, Jarzabkowski, Mantere, & Vaara, 2014; Mantere, 2013; Hannigan *et al*., 2019). Language, broadly defined, plays a critical function in comprehending organizations (Alvesson & Karreman, 2000; Green & Li, 2011). This is attested by the establishment of various language-oriented theories, such as rhetorical theory (Watson, 1995; Zbaracki, 1998), discourse analysis (Fairclough, 1992; Grant, Keenoy, & Oswick, 1998), and sensemaking (Weick, 1995). Notably, strategy represents one of the initial fields of inquiry in which the significance of language[1] was widely acknowledged (Phillips & Oswick, 2012).

In recent years, a novel 'linguistic turn' has emerged (Phillips & Oswick, 2012; Loewenstein, Ocasio, & Jones, 2012; Gylfe, Franck, Lebaron, & Mantere, 2016; Mirabeau, Maguire, & Hardy, 2018; Vaara & Fritsch, 2021), as language has been redefined as more than a passive vessel for communicating the world. Rather, researchers have observed a shift in assumptions towards a dynamic perspective on the role of language. This changing view has highlighted the crucial role that language plays in constituting social reality (Berger & Luckmann, 1966; Gylfe, Franck, Lebaron, & Mantere, 2016; Alvarez & Sachs, 2021) and in shaping strategy (Phillips & Oswick, 2012; Vaara & Fritsch, 2021). It also gains momentum in several streams of research, including corporate governance (e.g., Dixon-Fowler, Ellstrand, & Johnson, 2013), technology and innovation (e.g., Kahl & Grodal, 2016; Kannan-Narashimhan &

[1] See Appendix A for a brief literature review about language, rhetoric, and discourse.

Lawrence, 2018), strategic change (Gylfe, Franck, Lebaron, & Mantere, 2016; Dalpiaz & Stefano, 2018), strategy as practice (e.g., Burgelman *et al*., 2018; Golsorkhi, Rouleau, Seidl, & Vaara, 2015) and process (e.g., Kaplan, 2008, 2011; Ocasio, Laamanen, & Vaara, 2018). Ultimately, language has become a central concept in much of strategy research, offering valuable insights into strategic change, competitive dynamics, strategy process and work, and innovation.

Theoretical development of the language lens has not kept pace with empirical work, with many important language-related concepts remaining underexplored. This has led to blind spots and distortions in strategy research, similar to those experienced when viewing the earth as a two-dimensional map. Particularly, strategy research has had limited discussion of the various underlying assumptions of language and their consequences. While previous work has addressed vocabularies (Loewenstein, Ocasio, & Jones, 2012) and language-related methods (Hannigan *et al*., 2019), the field of international management has been more proactive in criticizing the fixed view of language being an 'independent variable' (Janssens & Steyaert, 2014, p. 981) and in identifying the roles of language (i.e., structural, functional, and social) associated with international business (Karhunen, Kankaanranta, Louhiala-Salminen, & Piekkari, 2018). In contrast, the most relevant work is carried out by Vaara and Fritsch (2021) on strategic processes and practices. They argue that "language is not only used as a method of capturing other things but a key phenomenon in its own right" (p. 3) and call for more in-depth research on actual language use. However, apart from this theoretical statement by Vaara and Fritsch (2021), further research is needed to deepen our understanding of different assumptions of language and their consequences in broad strategy research.

Therefore, this paper extends the research of Vaara and Fritsch (2021) to the entire domain of strategy by addressing the following question: What are the underlying assumptions held by strategy research about the concept of language? I demonstrate the plurality of language—language as the window (objectively representing reality) and language as an enabler (constructively enacting reality)—as the language lens of strategy. Consequentially, the research settings vary as the former takes language as a proxy for measuring constructs, while the latter situates language at the center of research.

Theorizing language in strategy carries significant implications. First, language constitutes the foundation of common ground (Clark, 1996), making it a critical dimension for comprehending strategy, organizations, and societies. The language assumptions presented in this paper can assist future researchers in elucidating how language-related theorizing addresses challenges or issues affecting individuals, teams, organizations, and societies. Second, unveiling the language lens can prove advantageous in terms of theory and method development. Typically, researchers adopt diverse theoretical lenses (e.g., cultural, institutional) to understand how organizations function, based on their theoretical inclinations. By introducing the language lens to the extant lenses on a given phenomenon, distinctive dimensions of that phenomenon come to the fore—much like the story of the blind men and the elephant. Despite that language might be acknowledged through other theoretical lenses, it usually assumes a peripheral status. Conversely, the language lens puts language front and center. Articulating different language assumptions and their consequences in research settings contributes to theoretical clarity. Methodologically, language is associated with increasingly sophisticated qualitative and quantitative techniques. Explicitly acknowledging the language lens provides a unique perspective of particular phenomena and a distinct set of parameters in the analysis. Third, the

discussion of the core concept of language fosters reflexivity in the field of strategy. As language is construed differently by various scholars, reflecting on these differences can contribute to a diversity of organizational outcomes. Drawing from the language lens, we can now consider language not only as a subject of data but also as a construct. This entails consideration not only of how organizations perceive and value language but also of the consequences and implications. In addition, this paper exercises reflexivity by exposing an extreme version of the enabling view of language. Although language as an enabler highlights the importance of a proactive 'language lens' for understanding strategic phenomena, the original Whorfian hypothesis, which posits that language determines thoughts and actions, can spark controversy. To conclude, drawing from the field of linguistics, this paper contributes to language-theorizing in strategy research, while also highlighting a potential linguistic trap that requires attention.

In the rest of the paper, I demonstrate the significance of theorizing a language lens in strategy research. I then explain why my chosen method of inductive qualitative analysis is most appropriate for this type of research. Moving to the findings, I reveal a pattern of different research settings being associated with the different views of language, language as a window versus language as an enabler. In scrutinizing this plurality of language, I turn to linguistics to uncover the underlying assumptions of the concept of language used in strategy research. Additionally, I highlight a linguistic trap involving a problematic linguistic theory, the original Whorfian hypothesis (i.e., language controls thoughts), which potentially leads enabling-language research into controversy. Finally, I reflect on the language dimension of strategy, organization, and the broader management field. I demonstrate research opportunities and obstacles toward developing the language lens of strategy, as well as outlining practical implications.

2.2 Why theorizing language in strategy is important

First, uncovering the language lens is beneficial to theoretical clarity and method development in strategy research. The work of previous scholars has embarked on a new lens—the language lens in strategy. Generally, scholars tend to use different lenses (e.g., cultural, institutional) to understand how organizations function, depending on their theoretical orientations. Like different schemas, each of these lenses leads us to focus on certain variables and relationships while ignoring others. Each lens suggests a different set of practices and solutions to managers. Adding the language lens of strategy to the existing lenses exploring a given phenomenon, highlights different aspects of that phenomenon—much like the story of the blind men and the elephant. Although language may play a role in other lenses, it is usually peripheral. In contrast, the language lens puts language front and center. As such, although we can see the language lens as an additional component of the other lenses, it is also clear that the language lens can stand on its own.

Being explicit about the language lens is beneficial in several ways. Language is a key tool in persuasion, coordination, meaning-making, and institutional and cultural changes (Loewenstein, Ocasio, & Jones, 2012). Developing the understanding of previous strategy scholars' knowledge about language contributes to the clarity in construct and theoretical development for future research. It enriches our understanding of strategy and provides new theoretical insights as language links to organizational communication and managerial cognition (Vaara & Fritsch, 2021). Moreover, it advances the scholarly understanding of strategy as a social and organizational activity (Vaara & Fritsch, 2021).

As we sharpen the language lens, it also permeates our research methods. Methodologically, the existence of large corpora of texts such as press releases, conference call

transcripts, and news or magazine articles enables researchers to "identify the relevant linguistic content, create measures of important constructs, link them to other conventional measures (e.g., financial data, patent data, etc.), and use them in statistical models to answer important questions that heretofore remained unanswered due to lack of adequate quantitative measures" (Choi, Menon, & Tabakovic, 2021, p.1656). The language lens focuses our attention on new classes of independent and dependent variables and relationships, its own view of specific phenomena, and its own set of parameters to guide managerial action. In articles by Crilly (2017) and Pan *et al.* (2018), for example, the linguistic features become critical variables that provide new theoretical insights. Strategy scholars have actively applied meaningful linguistic measures to study important research questions in communication, cognition, representation, culture, and institutions (Choi, Menon, & Tabakovic, 2021). Furthermore, our data collection and analysis take on new forms. As an example, diverse language data processing methods have been applied such as text mining (Arts, Cassiman, & Gomez, 2018), natural language process and machine learning (Harrison, Thurgood, Boivie, & Pfarrer, 2019; Choi, Menon, & Tabakovic, 2021; Kaplan & Vakili, 2015; Barlow, Verhaal, & Angus, 2019), linguistic tools like LIWC (Crilly 2017; Pan *et al*, 2018), experiments (Falchetti, Cattani, & Ferriani, 2022), and qualitative methods (Kannan-Narashimhan & Lawrence, 2018; Dalpiaz & Stefano, 2018; Gylfe, Franck, Lebaron, & Mantere, 2016; Paroutis & Heracleous, 2013). In other words, language is associated with increasingly sophisticated qualitative and quantitative methods.

Second, this article discusses the concept of language to enhance reflexivity in the field of strategy. Language is construed differently by various scholars. We can reflect on these differences and how these differences inform how we manage, organize, and strategize, especially in contributing to a diversity of organizational outcomes. For example, Phillips,

Lawrence, and Hardy (2004) demonstrate the importance of studying the trajectories of language use in research, such as from where texts emanate, how they are used by organizational actors, and what connections are established among texts. Based on the language lens, we can begin to think not just about how to treat language in research but also about how language functions as a resource. We think not only about how organizations perceive and value language, but we seek to understand what the consequences of their choices and behaviors are.

Over the years, strategy research has repeatedly emphasized the importance of the concept of language (i.e., Boje, Oswick, & Ford, 2004; Rindova, Becerra, & Contardo, 2004; Phillips, Lawrence, & Hardy, 2004; Robichaud, Giroux, & Taylor, 2004; Ferraro, Pfeffer, & Sutton, 2005; Clarke & Cornelissen, 2011; Loewenstein, Ocasio, & Jones, 2012; Phillips & Oswick, 2012; Mantere, 2013; Gao, Yu, & Cannella, 2017; Ocasio, Laamanen, & Vaara, 2018; Karhunen, Kankaanranta, Louhiala-Salminen, & Piekkari, 2018; Alvarez & Sachs, 2021; Vaara & Fritsch, 2021; Piekkari, Tietze, Angouri, Meyer, & Vaara, 2021). These conversations around language are fundamental for theory building (Suddaby, 2010), especially in competitive dynamics, strategy process and practice, behavioral strategy, and other language-related strategy research. This article shares other scholars' goal by bringing clarity to theorizing around language in strategy and adds to the conversation by filling the void of the understanding of the underlying assumptions held by strategy researchers. By uncovering the underlying assumptions that authors of strategy articles hold about language, I promote reflexivity in terms of the multifaceted 'linguistic turn' and the dynamic view of language.

One example of this article exercising reflexivity is the exposition of an extreme version of the enabling view of language. Language as an enabler highlights the importance of a proactive 'language lens' for understanding strategic phenomena. However, when it goes to an

extreme—for example, the original Whorfian hypothesis assumes language determines thoughts and actions—it may lead research into controversy. Not many strategy researchers have explicitly applied the original Whorfian hypothesis, but articles in the broad business field have used it and they have received criticism, such as Chen (2013) critiqued by McWhorter (2014), and Chen and Miller (2010, 2011, 2015) questioned by Ao, Nicholson, Blatman, Madhavan, and Prescott (2022). Therefore, I highlight how this controversial linguistic theory is related to the 'too much enabling' in using language in research. I draw from linguistics to inform language-theorizing in strategy and organizational research. Emphasizing a potential linguistic trap aims to strengthen the linguistic foundation for theorizing or measuring language in future strategy research.

Third, language constitutes common ground, in which language becomes a critical dimension in understanding strategy, organizations, and societies. Language, knowledge, beliefs, and values are constituting factors in building common ground (Clark, 1996). Common ground is the shared basis for communication (Grant, 1996). Either verbal or non-verbal forms of communication cannot occur without building some levels of common ground (Clark, 1996; Alvarez & Sachs, 2021). From a language perspective, "everything that is communication is society" (Luhmann, 1995, p. 408). In other words, language is constitutive of the building blocks by which society gets transformed and reconstructed (Cooren & Seidl, 2020). Following this reasoning, organizations can also be the self-reproducing systems of communications (Luhmann, 2018) and the products of communicative activities (Cooren & Seidl, 2020). Loewenstein, Ocasio, and Jones (2012) demonstrate that an emphasis on vocabularies also provides the common ground for diverse scholars to integrate thoughts and disconnected ideas to converge. To conclude, this article not only expands theorizing about language, but also highlights a

language lens to inform contemporary developments in organizational and societal contexts. The language assumptions theorized in this paper support future scholars in illuminating how language-related theorizing addresses issues or challenges facing individuals, teams, organizations, and societies.

2.3 Inductive review method and results

2.3.1 Interpretive review

Systematic literature review advances a particular line of research by addressing shared questions among diversified studies; hence it is in itself a vital research endeavor of theoretical advancement (Zupic & Cater, 2015; Denyer & Tranfield, 2009; Simsek, Fox, & Heavey, 2021). I adopt an interpretive approach to synthesize prior academic research. Among many methods in systematic literature review, integrative (quantitative) and interpretive (qualitative/descriptive) reviews are two helpful approaches (Noblit & Hare, 1988). Integrative review fits the well-defined research subject with large amounts of studies and applies quantitative methods of meta-analysis (Lipsey & Wilson, 2001). Interpretive review, instead, is mainly thematic and appropriate for studies with a mix of qualitative and quantitative research and less clarity of terms (Suddaby, Bitektine, & Haack, 2017). Language-related strategy research clearly falls in the latter approach, as Phillips and Oswick (2012), Gylfe *et al*. (2016), and Vaara and Fritsch (2021) have observed the changing assumptions of language across a broad range of strategic and organizational topics. Therefore, a systematic literature review becomes significant to consolidate conceptually the language lens of strategy.

2.3.2 Review procedures for generating the dataset

A three-stage procedure following Tranfield, Denyer, and Smart (2003)—planning, executing, and reporting—guides the systematic review process. Firstly, at the planning stage, the objective of the review was defined as locating and reviewing representative language-related research in strategy. The leading strategy journal, *Strategic Management Journal* (SMJ), was selected as the key outlet for this review, as it "seeks to publish the highest quality research with questions, evidence and conclusions that are relevant to strategic management" as described on its official website.

The second stage is to execute the systematic review comprehensively. An extensive search is necessary given that strategy scholars may have used the term ‘language’ in a variety of ways. I applied a general selection requirement for my initial pool to maximize the inclusion of all relevant studies at SMJ. Specifically, I ran a search through Web of Science using a combination of the keywords ‘language*/ linguist*/discourse*/word*/vocabular*/rhetoric*/ text*/speech*/talk*/semantics*' in the title, abstract, and the full text to identify all language-related articles published at SMJ. Neither timeframe nor any additional selection restrictions are set to limit the search. The search returned 56 articles (up to July 2022). Web of Science contains a collection of SMJ articles dated from 1992 to early 2022, so 1992-2022 is the time frame for this search.

Considering the close proximity between language and the topic of communication, I also searched with the keyword ‘communicat*’ at SMJ, which yielded 88 articles. Surprisingly, 78 out of 88 articles do not mention any term from the above list of language-related keywords so these articles were excluded. The remaining 10 articles, however, were already included in the initial search.

Then, these 56 articles were reviewed in more detail. I read and coded the articles on a range of relatively obvious themes such as addressing language (broadly defined) as central, loose, or only in passing, theoretical justification, measurement (if any), outcome variable, etc. It became apparent that a few articles (n = 9) mentioned the keywords without any meaning attached to the concept of language, such as 'in other *words*' or 'the *text*ile industry.' These articles were set aside, leaving 47 articles. This initial set was then fixed as the basis for all future analysis.

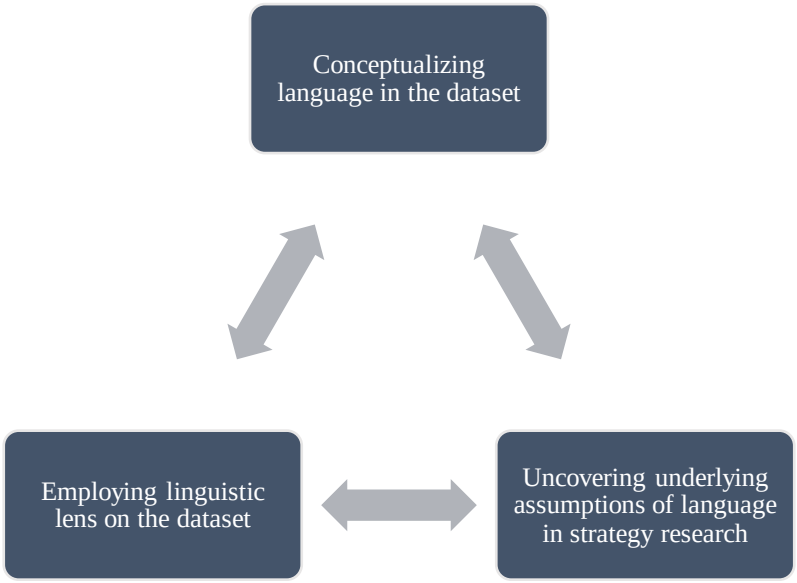

Figure 1 The analytical process in the systematic literature review

In addition to the literature search, dataset analysis is another action in execution. Following the analytical process in Karhunen *et al*. (2018), the underlying assumptions of language in these articles from the dataset were developed through the iterative process of conceptualizing language and surfacing the embedded linguistic theories. Figure 1 summarizes this iterative analytical process.

2.3.3 Results

Since the main objective of this paper is to understand the assumptions of language as theoretical foundations in language-sensitive strategy research, I analyzed the dataset by immersing myself in the data and allowed the categories and names of the categories to emerge (Jonsen, Fendt, & Point, 2018). The emergence of categories should reflect how researchers have conceptualized language in these articles. This included recognizing the applied definitions or assumptions on language and its relevant concepts, and eventually locating overlapping patterns in the dataset about how language has been 'talked' by researchers.

The identified categories indicate three general applications of language: (1) referring to language only in passing, so it does not involve any assumption; (2) language as a window that objectively represents reality and is a passive carrier of the world; and (3) language as an enabler that enacts reality.

These categories, especially the window and enabler views, are based on their linguistic origins. The window view and the enabling view differ based on the linguistic transition from the 'first cognitive revolution' of the 1950s to the more recent 'second cognitive revolution' (Geeraerts & Cuyckens, 2007; Sinha, 2007). During the first cognitive revolution, language was considered a window to higher cognition, and generative grammar was used to describe such a language structure. The second cognitive revolution, which incorporates non-objectivist theories, introduced cognitive linguistics that focuses on the relationship between natural language and social interaction. Both generative grammar and cognitive linguistics agree that mental representation is necessary for knowledge, but they differ in epistemology. Specifically, "the generative linguist takes natural language as the object of the epistemological relationship" while cognitive linguistic studies language as "the intermediate link between subject and object"

(Geeraerts & Cuyckens, 2007, p. 6). Similarly, the window view in strategy research represents an objectivist epistemology, while the enabling view reflects a subjectivist one.

Table 1 Classification of language-related articles in strategy published at SMJ (1992-2022)

Mentioning language only in passing (n=12)	**Plurality of language**	
	(1) Language as a window (n=16)	**(2) Language as an enabler (n=19)**
1. Zajac & Westphal, 1994 2. Swaminathan, 1998 3. Spanos & Lioukas, 2001 4. King & Zeithaml, 2003 5. Rangan & Drummond, 2004 6. Miller, Fabian, & Lin, 2008 7. Levinthal & Wu, 2010 8. Whittington, Yaris-Douglas, & Ahn, 2016 9. Christensen, Siemsen, Bronze, & Viswanathan, 2016 10. Criscuolo, Alexy, Sharapov, & Salter, 2019 11. Flammer & Kacperczyk, 2019 12. Asmussen & Fosfuri, 2019	1. Lee & James, 2007 2. Nag, Hambrick, & Chen, 2007 3. Ronda-Pupo & Guerras-Martin, 2012 4. Kaplan & Vakili, 2015 5. Lee, Hwang, & Chen, 2017 6. Mirabeau, Maguire, & Hardy, 2018 7. Arts, Cassiman, & Gomez, 2018 8. Harrison, Thurgood, Boivie, & Pfarrer, 2019 9. Barlow, Verhaal, & Angus, 2019 10. Angus, 2019 11. Choudhury, Starr, & Agarwal, 2020 12. He, Puranam, Shrestha, & Krogh, 2020 13. Peterson & Wu, 2021 14. Benton, Cobb, & Werner, 2021 15. Toh & Ahuja, 2021 16. Choi, Menon, & Tabakovic, 2021	1. Huy, 2011 2. Paroutis & Heracleous, 2013 3. Dixon-Fowler, Ellstrand, & Johnson, 2013 4. Kahl & Grodal, 2016 5. Gylfe, Franck, Lebaron, & Mantere, 2016 6. Crilly, 2017 7. Wenzel & Koch, 2018 8. Pan, McNamara, Lee, Haleblian, & Devers, 2018 9. Dalpiaz & Stefano, 2018 10. Burgelman *et al*, 2018 11. Knight, Paroutis, & Heracleous, 2018 12. Jalonen, Schildt, & Vaara, 2018 13. Kannan-Narashimhan & Lawrence, 2018 14. Ocasio, Laamanen, & Vaara, 2018 15. Choudhury, Wang, Carlson, & Khanna, 2019 16. Sasaki, Kotlar, Ravasi, & Vaara, 2020 17. Heavey, Simsek, Kyprianou, & Risius, 2020 18. Vaara & Fritsch, 2021 19. Falchetti, Cattani, & Ferriani, 2022

The last two categories (the window and enabler views) are important to uncover the understanding of language assumptions in strategy research, which reflects the purpose of this paper; while the first application demonstrates a surface use of language. For example, Miller, Fabian, and Lin (2008) suggest that firms should pay attention to *word-of-mouth communication* for future research. Levinthal and Wu (2010) briefly refer to the scholarly conversation as

discourse. In other words, the first category of application does not contribute directly to this paper's goal since they mention language and language-related concepts only in passing. This group of articles was not included for further discussion. Table 1 presents the distribution of the articles into the three categories, and the quantities of each category are relatively comparable. Specifically, among the last two categories, 31 of 35 articles are empirical studies.

Then, theoretical approaches to language rooted in linguistic theories were employed to further understand the two emerged categories (language as a window and language as an enabler). Involving the linguistic lens unearths the taken-for-granted language assumptions in strategy research. Moreover, the most challenging step was the classification process, as the majority of articles do not explicitly discuss their assumption or understanding of language. But, based on their existing description and application of language, I believe the categories present a meaningful way to organize the dataset following the major patterns. The last stage is reporting. Through several rounds of open coding and analysis, I derived the plurality of language as assumptions in strategy research: language as a window versus language as an enabler.

2.3.4 Validating the imputed classification

To determine the validity of my imputed classification—language in passing, language a window, and language as enabler—I examined whether the categories would hold beyond the original sample of this study. To conduct this test, I validated this classification scheme based on the most recent strategy research as well as the broader management articles.

First, I expanded the scope of strategic management articles to include a sample of working papers. I took advantage of the virtual setting of the Strategic Management Society (SMS) Annual Conference in 2021 and searched the same combination of keywords across

presentation descriptions on its online platform. I located 23 presentations in total, representing up-to-date strategy research. After reviewing and coding the titles, abstracts, presentation recordings, and full texts (if any), these working papers also reveal three general applications of language (6 in passing, 12 treating language as a window, and 5 as an enabler). Due to the unpublished nature of these SMS 2021 presentations, the following analysis or findings do not include them. But these work-in-progress manuscripts validate the classification of language assumptions in strategy.

Second, as a further validation, I conducted a search with the keyword 'language*' in the leading management journals through Web of Science. I identified 96 articles in total from *Academy of Management Journal* (21 articles), *Academy of Management Review* (19 articles), *Organizational Research Methods* (19 articles), *Organization Science* (15 articles), *Journal of Management Studies* (14 articles), *Strategic Science* (5 articles), and *Academy of Management Annals* (3 articles). These articles were published in the same time periods (1992-2022) as my original sample from SMJ. I assumed that all the 47 SMJ articles were indeed strategic management research, while these additional 96 articles represented general management research with strategic management research included.

Then, these 96 articles were placed iteratively into conceptual categories. Specifically, I identified 17 articles taking language in passing, 18 articles viewing language as a window, while the remaining 61 articles treating language as an enabler. These management articles exhibited a very high level of agreement with my imputed classification—language in passing, language a window, and language as enabler.

To conclude, across two extra samples of articles, I find validating support for my imputed categories of the language assumptions. Additionally, I plotted my dataset of 47 SMJ

articles together with the 96 management articles based on their years of publication and observed a growing trend, especially in recent years, see Figure 2(a). As Figure 2(b) shows, articles viewing language as an enabler were dated throughout 1992-2022; and its total number (80) is more than the other two categories combined (29 in passing and 34 window view).

2.3.5 Collective reflexivity on the review process and outcome

The purpose of this study is to theorize the language assumptions embedded in existing strategy research and it is crafted following a typology-based style. According to Cornelissen (2017), proposition, narrative, and typology are three common theorizing styles. Typology-based theorizing summarizes existing research and is recommended to be developed through a theoretical angle, which fits the nature of this study. In detail, since many of the researchers implicitly assume their understandings of language, I attempted to faithfully represent their voices expressed in their accounts through the open discussion of the methodological choices and decisions as explained above.

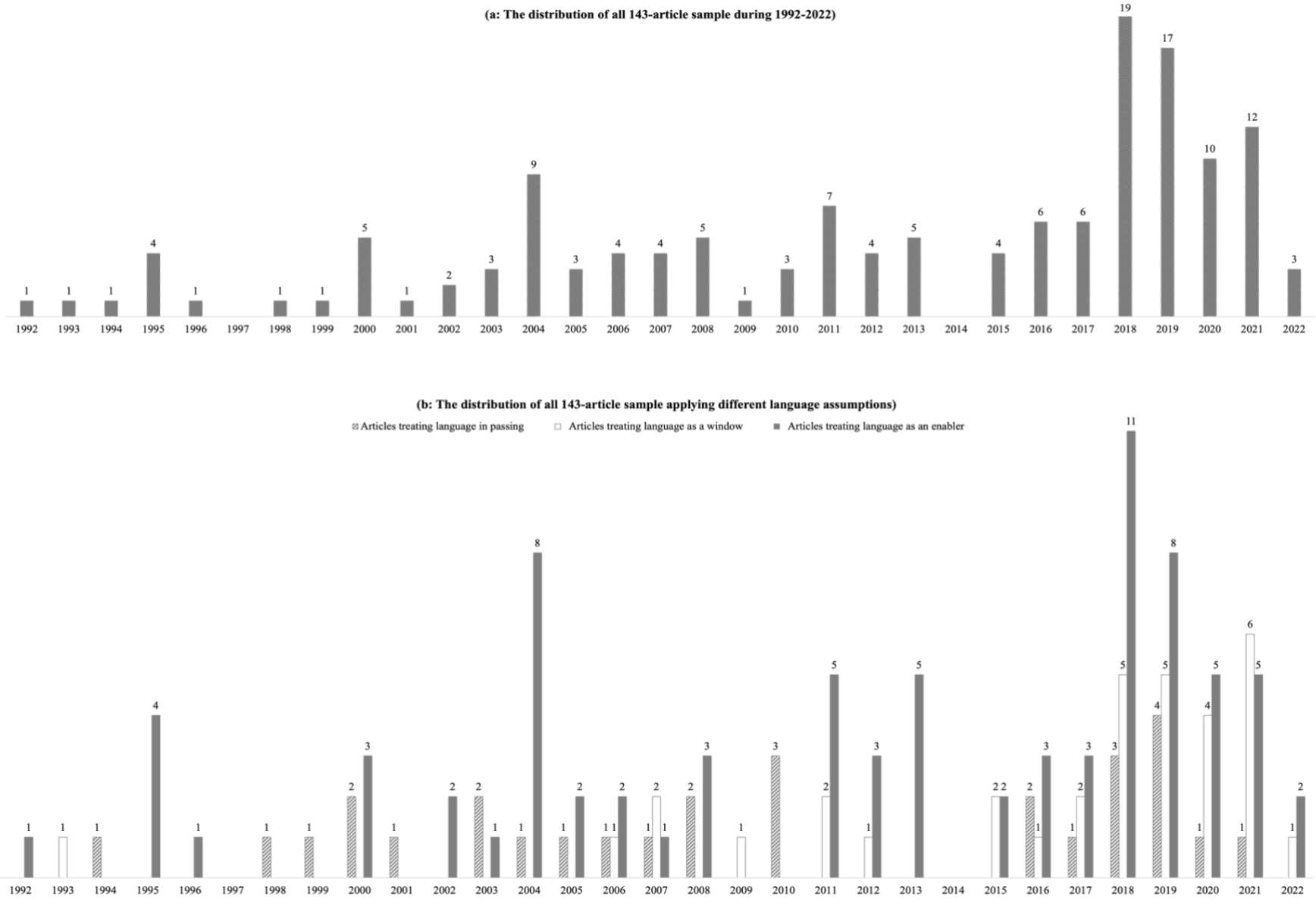

Figure 2 The total sample of 143 language-related articles (47 SMJ articles plus 96 management articles), 1992-2022

2.4 Plurality of language

Based on how strategy scholars treat language, I find the plurality of language as the assumption behind the use of language. Specifically, I demonstrate two assumptions, language as a window versus language as an enabler (see Table 2). When language is viewed as objectively capturing other things, it becomes a representative window of the world. When language is considered as constructively enacting the world, it is performative and enables reality.

Why does the plurality of language matter? The plurality view of language represents two separate research settings when it comes to language. Researchers treating language as a window tend to use language to measure something else, and language plays an indirect role in the research; while language is seen as an enabler, researchers use language directly as a key construct. In other words, if we want to know about an outcome variable Y, window-view researchers focus on a non-language-related construct X as the independent variable and use language (L) as data to measure X; enabler-view researchers, instead, treat a language concept (L) as the independent variable. Figure 3 visually depicts the differences in terms of their usage in research settings. The importance of acknowledging the plurality of language lies in the necessity of X. Imagine two researchers both studying Y and collecting the same language (L) data, researcher Window theorizes and tests a relationship between X (measured by L) and Y, and researcher Enabler reaches the same result by examining a relationship between L and Y. In this case, is X still necessary here? Of course, this is an extreme case. Though using language directly to understand Y achieves precision in the understanding of the enabling role of language; in reality, researcher Window can use different proxies of X other than language. What is more

important here is the missing link in terms of the boundary conditions of the plurality of language. In other words, when should we take language as a window or an enabler in research? Learning from existing work that used two language assumptions can bring some clarity to this matter. What I find is that the window view takes language as a proxy for explanatory constructs such as innovation and stakeholders' perceptions; while the enabling view, instead, shows how language leads to various organizational outcomes.

Table 2 Plurality of language as underlying assumptions in strategy research

Plurality of language	**Language as window**	**Language as enabler**
Underlying assumptions regarding language in strategy research	Consider language *objectively* Knowledge *of* language (knowledge of the world as mediated by language) Language as a method of capturing other things Being representative (saying, expressive) Objectivist epistemology	Consider language *constructively* Knowledge *through* language Language enacts reality as an enabler or constraint Being performative (doing, instrumental) Subjectivist epistemology
Linguistic lens	Structural; generative grammar	Social; cognitive linguistics
Usage	Language being a proxy or data of other constructs	Language itself being the construct
Example	Kaplan and Vakili (2015) use shifts in language in patents' abstracts to measure the emergence of breakthrough novel ideas. They argue that novelty is associated with patent citations as well as economic value.	Pan *et al*. (2018) find that concrete language induces positive investor assessment of firm value.

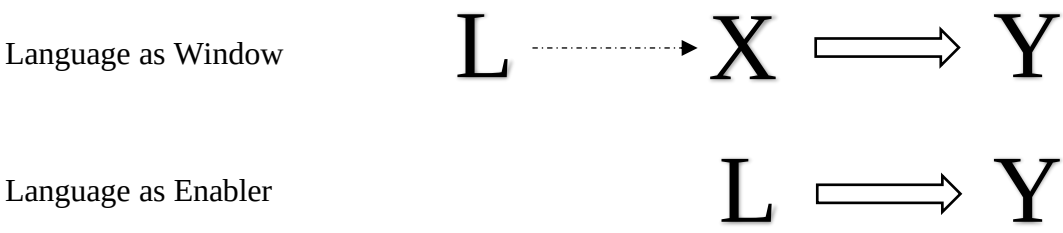

Figure 3 Plurality of language leads to different research settings (X is independent variable, Y is outcome variable, L is the language concept)

2.4.1 Language as window

Table 3 Strategy articles treating language as a window

Strategy articles	Language as a window to	The window influences or is influenced by	Language processing method	Finding
Lee & James, 2007	Investors' perceptions of male and female leadership	Gender (IV)	Centering resonance analysis on the frequency of the term "woman" in articles from the popular press	Popular press articles about the appointment of a female CEO tend to emphasize gender and gender-related information.
Nag, Hambrick, & Chen, 2007	Knowledge	Consensus definition of the strategy field (DV)	Biserial correlation on vocabularies used by strategic management scholars	Identify 54 distinctive words in the field of strategic management.
Ronda-Pupo & Guerras-Martin, 2012	Evolution of the strategy concept	Development of strategic management (DV)	Co-word analysis on nouns, verbs, and adjectives	The consensus of the strategy concept evolves with the development of the strategic management field.
Kaplan & Vakili, 2015	Emergence of breakthrough novel ideas	Number of patent citations (DV)	Topic modeling analyzing shifts in language in patents' abstracts	Novelty contributes to the creation of economic value.
Lee, Hwang, & Chen, 2017	CEO overconfidence	Founder CEO or professional CEO (IV)	Average fraction of negative words used in conference calls and across all tweets posted by a given CEO in a day	Founder CEOs use substantially fewer negative words in their personal tweets than professional CEOs.
Mirabeau, Maguire, & Hardy, 2018	Strategy manifestation	Strategy process and practice (DV)	Conceptually discussing texts capturing intended strategy and realized strategy	Highlight the interdependent relations among six manifestations of strategy.

Arts, Cassiman, & Gomez, 2018	Technological similarity	Patent classification (DV)	Text mining on the matched-text in patents	Text-matched patents are more likely to cite each other, to belong to the same patent family, or to have a common inventor.
Harrison, Thurgood, Boivie, & Pfarrer, 2019	CEOs' Big Five personality traits	Firm-level change (DV)	Machine-learning on transcripts of earnings calls	CEOs' personality traits affect strategic change, and the nature of effects differs based on their firms' recent performance.
Barlow, Verhaal, & Angus, 2019	Strategic categorization of new entrants	Competitive advantage in platform markets / new market entry (DV)	Basic cosine similarity analyzing how similar an app's description is to the most common apps versus to the most successful apps in this category	Developers can increase the installs of their first app by crafting an app text description that is similar to the description of most successful apps and as different as possible from the description of most common apps.
Angus, 2019	Search distance	Subsequent performance of nascent organization's product (DV)	Basic cosine similarity analyzing the similarity between the text descriptions of a developer's first and second apps in the Google Play app store	As the performance of a first app increases, the more harmful it becomes to make a very different second app.
Choudhury, Starr, & Agarwal, 2020	Novel inventions	New technology used for patent examination (DV)	Aggregate unique words in patents and count the proportion of patents with any new words relative to the prior corpus	Use attributes of human capital (domain expertise and vintage-specific skills) to mitigate potential biases of machine learning technologies in examining patents.
He, Puranam, Shrestha, & Krogh, 2020	Governance disputes (in online communities)	Dispute resolution (DV)	Qualitative analysis using Nvivo and machine-learning algorithms analyzing GitHub discussions	Governance disputes are resolved through the search for a satisfactory solution instead of bargaining for a better solution.
Peterson & Wu, 2021	Unforeseen interdependencies	Entrepreneurs' project experience (IV)	Count the number of entrepreneur's posts that contains either of the two groups of specific words: "unforeseen, unexpected, unanticipated" or "manufacturing, production, assembly, factory"	Entrepreneurs make less accurate predictions as they gain experience executing projects.
Benton, Cobb, & Werner, 2021	Risk disclosure as a strategic action	Corporate political position (IV)	The count of COVID-19 synonyms occurring in conjunction with a risk synonym in earnings calls	The more Republican-leaning a firm's campaign contributions are, the less likely it was to voluntarily disclose risks related to COVID-19.

Toh & Ahuja, 2021	Integration of process-product components within a firm's innovation portfolio	Firm profitability (DV)	Calculate the ratios of patents' texts containing a process or product claim across all patents filed by a firm in a year	High integration in the firm's process-product components, over and above having both types of components in the firm's innovation portfolio, enhances the firm's profitability.
Choi, Menon, & Tabakovic, 2021	Corporate diversification	Firm performance (DV)	Topic modeling analyzing the unstructured text in corporate annual reports	Corporate diversification is associated with higher firm value.

***Independent variable (IV) and dependent variable (DV) indicate the direction of relationship**

Treating language as a static medium in other phenomena can be comprehended based on the traditional information-processing approach that considers communication as a process of sending and receiving information only, leaving language's influence on the message, meaning, or receipt (Ocasio, Laamanen, & Vaara, 2018). In this case, language becomes a carrier of information (Ocasio, Laamanen, & Vaara, 2018) and it is treated merely as a window into other aspects of strategic phenomena, such as cognition, thinking, or reality (Vaara & Fritsch, 2021). Specifically, language plays an implicit role in research topics such as sensemaking, narratives, rhetoric, sense giving, and strategic plans (Jalonen, Schildt, & Vaara, 2018).

What topics do strategy scholars study involving a window view of language assumption, and how? The window view takes language as a proxy to constructs in terms of four themes of strategy research (see Table 3). The first theme is innovation, including topics such as novelty and technology. In terms of novelty, Choudhury, Starr, and Agarwal (2020) use the change in patent texts to measure novel inventions, and Kaplan and Vakili (2015) also capture the shifts in language in patents' abstracts to measure the emergence of breakthrough novel ideas. For the topic of technology, relevant constructs that used language as a window are technological similarity (Arts, Cassiman, & Gomez, 2018), innovation portfolio (Toh & Ahuja, 2021), search

distance (Angus, 2019), strategic categorization of new entrants (Barlow, Verhaal, & Angus, 2019). One similarity in how language is treated as a window reflected in these four articles is to compare texts of two objects, such as between patents (the first two) or between apps (the last two).

The second theme relates to leaders. For example, both Lee, Hwang, and Chen (2017) and Harrison, Thurgood, Boivie, and Pfarrer (2019) use language as a proxy for CEO traits. The former measures CEO overconfidence by calculating the frequency of negative words used by CEOs in their tweets and earnings conference calls. The latter compares earning calls with CEOs' personality scores to develop the linguistic measure of CEOs' Big Five personality traits. Moreover, Peterson and Wu (2021) find that entrepreneurs' previous experience is positively associated with their unforeseen interdependencies, and they measure this outcome variable by counting the number of specific words used by entrepreneurs such as "unforeseen, unexpected, unanticipated." Using a similar way of handling language as a window to perceptions, Lee and James (2007) focus on female leadership and calculate the frequency of the term 'woman' in popular press articles. They find that investors' perceptions about the appointment of a female CEO tend to emphasize gender, and gender-related information (e.g., family).

The third theme cover topics involving community and firm level phenomena. He, Puranam, Shrestha, and Krogh (2020) examine the discussions from GitHub to study governance disputes in online communities. They find that focusing on a satisfactory solution rather than bargaining for a better solution is key to dispute resolution. Choi, Menon, and Tabakovic (2021) use texts in annual reports to build a new measure for corporate diversification and find evidence for its positive influence on firm value. Moreover, language becomes a window to study the relationship between corporate political position and its risk disclosure action. Benton, Cobb, and

Werner (2021) calculate the proportion of COVID-19 synonyms in firms' earnings calls and reveal an interesting finding: Republican-leaning firms are less likely to disclose COVID-19 risks.

Reflection on the strategic management field is the last theme of research articles that view language as a window. Nag, Hambrick, and Chen (2007, p. 937) argue that language is "the medium that makes that social construction possible." Hence, in order to develop a consensus definition of the strategy field, they examine the vocabularies used by strategic management scholars and locate 54 distinctive words in the field of strategic management. Similarly, Ronda-Pupo and Guerras-Martin (2012) study the co-occurrence of keywords among 91 strategy definitions between 1962 and 2008. They conclude that the consensus of the strategy concept evolves, which is important to the development of the strategic management field. Mirabeau, Maguire, and Hardy (2018) publish a conceptual article about strategy manifestation. In particular, they point out sources of texts that can be used as windows to some strategy concepts. For example, a firm's intended strategy can be traced from "strategic plans, planning documents, annual reports, employee newsletters, investor communications" (Mirabeau, Maguire, & Hardy, 2018, p. 589), and "texts from lower levels of the organization that contain traces of projects ongoing or already accomplished, such as operators' reports, output and activity records, or performance summaries" are sources for the realized strategy (p. 590).

In summary, when it is assumed as a window, language mirrors the objects and the world (Phillips & Oswick, 2012). These examples listed in Table 3 have successfully applied language as the proxy to constructs. In these cases, language is seen as an important carrier of information and transmitter of meaning (Loewenstein, Ocasio, & Jones, 2012). Moreover, language can be theorized and measured at multiple levels of analysis, such as firms (Benton, Cobb, & Werner,

2021; Toh & Ahuja, 2021; Choi, Menon, & Tabakovic, 2021), projects including apps and patents (Arts, Cassiman, & Gomez, 2018; Barlow, Verhaal, & Angus, 2019; Angus, 2019; Choudhury, Starr, & Agarwal, 2020), and individuals (Lee & James, 2007; Lee, Hwang, & Chen, 2017; Harrison, Thurgood, Boivie, & Pfarrer, 2019; Peterson & Wu, 2021).

2.4.2 Language as enabler

Table 4 Strategy articles treating language as an enabler

Strategy articles	Language as an enabler	The enabler has an impact on	Language processing method	Finding
Huy, 2011	Linguistic identity (e.g., mother tongue of English or French)	Top-down strategy implementation in multilingual, multicultural firms	Qualitative research	Language is a potent emotion-arousing symbol in strategy implementation
Paroutis & Heracleous, 2013	First-order strategy discourse (i.e., what strategists themselves mean by the term 'strategy')	Institutional adoption	Qualitative analysis	Strategy practitioners employ different dimensions of first-order strategy discourse to accomplish different stages of institutional adoption.
Dixon-Fowler, Ellstrand, & Johnson, 2013	Female CEO dismissal announcements	Stock market reaction (shareholder value) for the remaining female-led firms	Text analysis	Negative investor reaction toward an exit female CEOs has a contagion effect on firms with existing female CEOs.
Kahl & Grodal, 2016	Discursive strategy (e.g., the use of language and visual images)	Customers' interpretation of technological change	Multilevel discourse analysis	To gain a competitive advantage, firms must use discursive strategies that effectively bridge their own interpretations of new technologies with those of their customers.
Gylfe, Franck, Lebaron, & Mantere, 2016	Human bodies and verbal discourse	Strategic change	Qualitative research	As convincing words and powerful arguments are ways of influencing strategic decisions, so are steady gazes, powerful postures, and commanding voices.
Crilly, 2017	Time and spatial language	Perception of future and tradeoff between short-and long-term returns	Textual analysis using LIWC	Actions that prioritize long-term returns depend both on executives conceiving the inevitability of the future (time-moving frame) and believing

				their capacity to shape outcomes.
Wenzel & Koch, 2018	Discursive practice	Conception of strategy and reality for others	Critical discursive analysis	The coordinated use of bodily movements in keynote speeches is consequential for highlighting different aspects of the communicated strategy.
Pan, McNamara, Lee, Haleblian, & Devers, 2018	Persuasive language attribute (e.g., language concreteness)	Investors' assessment of firm value/investor reaction	Content analysis using LIWC	Concrete language induces positive investor responses, conditional on the level of firm risk.
Dalpiaz & Stefano, 2018	Storytelling and narratives	Acceptance of strategic change	Qualitative research	Narratives have shelf lives. Strategy-makers construct and reconstruct meanings of change over time using three sets of distinct but interconnected narrative practices.
Burgelman *et al*, 2018	Language and meaning	Strategy work	Conceptual	It is vital to combine insights from the various discursive and narrative traditions in both areas and to enrich our understanding of the dynamics and practices of strategic communication in various contexts.
Knight, Paroutis, & Heracleous, 2018	Visual information (specifically in PowerPoint slides)	Strategic visibility/strategy process	Ethnographic case studies	Strategy conversations are influenced by the techniques strategists use to create slides, which in turn shape the kinds of follow-up actions taken.
Jalonen, Schildt, & Vaara, 2018	Strategic concepts	Strategic sensemaking and strategic cognitions	Abductive approach to a longitudinal case study	Strategic concepts are not mere means of communication, they are used as central micro-level resources in strategy work, and they are created, negotiated, debated, and even abandoned over time in the ongoing language games of strategic sensemaking.
Kannan-Narashimhan & Lawrence, 2018	Different forms of discourse	Strategic innovation process (e.g., adoption of autonomous innovation)	Qualitative research	Successful innovators shape a story supporting their innovation by rethinking their firm's current and potential resources and get supported before external market validation is available.

Ocasio, Laamanen, & Vaara, 2018	communication practices, vocabularies, rhetorical tactics, and talk and text	Strategic change	Conceptual	Seeing communication as a process can advance understanding of strategic change because vocabularies can dynamically shape organizational attention.
Choudhury, Wang, Carlson, & Khanna, 2019	CEO communication styles	M&A outcomes	Topic modeling, sentiment analysis, neural network algorithm	CEOs who were more dramatic in expressing themselves were also less likely to oversee major acquisitions
Sasaki, Kotlar, Ravasi, & Vaara, 2020	Strategic identity statements (texts as vision, mission, corporate philosophy, values, mottos, slogans)	Strategic change promotion	Case analysis with an interpretive historical approach	Crafting a new corporate philosophy or mission statement can help implement strategic change.
Heavey, Simsek, Kyprianou, & Risius, 2020	Leaders' social media engagement	Organizational reputation	Conceptual	Leaders' social media engagements may directly affect firm outcomes such as shaping reputation and accessing needed resources.
Vaara & Fritsch, 2021	Language and communication	Strategic decision-making and strategy work	Conceptual	we should not treat language merely as a window into other aspects of strategic phenomena but as a central means through which strategies are shaped and made sense.
Falchetti, Cattani, & Ferriani, 2022	Linguistic framing strategies (e.g., why framing versus how framing)	Novelty recognition/evaluation	Experiments	While novices appreciate novel ideas more when abstract 'why frames' are used, experts (i.e., professional investors and innovation managers) prefer novel ideas that are framed in concrete 'how' terms.

Treating language as an enabler corresponds to the contemporary approach to the communication process. Specifically, both speakers and recipients jointly engage with the understanding of the phenomenon and communication plays a key role in building actors' thoughts and actions (Ocasio, Laamanen, & Vaara, 2018). Here, language enacts reality, and it performs as a central means through which strategies are developed and made sense of (Vaara & Fritsch, 2021). In other words, language becomes an enabler, which is a key phenomenon in its

own right. For instance, to provide a language-based view of strategic processes and practices, Jalonen, Schildt, and Vaara (2018) introduce "strategic concepts" and define them as "linguistic expressions, essentially words or phrases with established and at least partly shared meanings, which play a central role in an organization's strategy discourse" (p. 2794). Another example is Wenzel and Koch (2018)—They explicitly express their assumption toward language in the discursive approach, and they highlight the importance of language as 'irreducible' in the organizational phenomenon and social life.

When language is treated as an enabler, language becomes central in research. Specifically, three interesting observations are generated from the language-enabling articles (see Table 4). First, the dominant methodologies in handling language logic and/or data are qualitative (e.g., Gylfe, Franck, Lebaron, & Mantere, 2016) and conceptual (e.g., Vaara & Fritsch, 2021). Moreover, the level of analysis is mainly at the firm level. For example, language can enable strategic change—a firm-level topic (e.g., Gylfe, Franck, Lebaron, & Mantere, 2016; Dalpiaz & Stefano, 2018; Ocasio, Laamanen, & Vaara, 2018; Sasaki, Kotlar, Ravasi, & Vaara, 2020).

Second, since the enabler view treats language as a key construct in research, it reveals two types of language concepts that are applied in the current research: specific linguistic features, and language as a whole. For linguistic features, strategy scholars tend to focus on a specific linguistic lens. The examples include linguistic identity (e.g., mother tongue of English or French) (Huy, 2011), persuasive language attribute (e.g., language concreteness) (Pan, McNamara, Lee, Haleblian, & Devers, 2018), visual information (specifically in PowerPoint slides) (Knight, Paroutis, & Heracleous, 2018), human bodies and verbal discourse (Gylfe, Franck, Lebaron, & Mantere, 2016), linguistic framing strategies (e.g., why framing versus how

framing) (Falchetti, Cattani, & Ferriani, 2022), and time and spatial language (Crilly, 2017). The rest applies language as a whole, such as discourse and narratives (Paroutis & Heracleous, 2013; Kahl & Grodal, 2016; Dalpiaz & Stefano, 2018; Wenzel & Koch, 2018; Kannan-Narashimhan & Lawrence, 2018), language and communication (Ocasio, Laamanen, & Vaara, 2018; Choudhury, Wang, Carlson, & Khanna, 2019; Heavey, Simsek, Kyprianou, & Risius, 2020; Vaara & Fritsch, 2021), language concepts and statements (Dixon-Fowler, Ellstrand, & Johnson, 2013; Jalonen, Schildt, & Vaara, 2018; Sasaki, Kotlar, Ravasi, & Vaara, 2020) and language and meaning (Burgelman *et al*, 2018). In sum, both language itself and its sliced-up features have been used as an enabler, which enhances the richness of language as a key construct in strategy research.

Third, language being an enabler has an impact on three sets of outcomes. The first set of outcomes includes strategy process, work, and implementation (e.g., Paroutis & Heracleous, 2013; Burgelman *et al*, 2018; Knight, Paroutis, & Heracleous, 2018; Kannan-Narashimhan & Lawrence, 2018). For example, Huy (2011) finds language to be a potent emotion-arousing symbol to implement strategy. The second set of outcomes involves strategic outcomes, such as M&A outcomes (Choudhury, Wang, Carlson, & Khanna, 2019) and strategic change. For example, Sasaki, Kotlar, Ravasi, and Vaara (2020) study mottos of Japanese firms used in nearly 300 years. They find that for firms implementing strategic changes, crafting a new corporate philosophy or mission statement will be helpful. The last set of outcomes covers the most articles (8 out of 19 articles). They are about perceptions, such as stock market reaction (Dixon-Fowler, Ellstrand, & Johnson, 2013), customers' interpretation of technological change (Kahl & Grodal, 2016), and perception of the future (Crilly, 2017). As an example, Pan *et al*. (2018) suggest that concrete language induces positive investor responses, conditional on the level of firm risk.

To conclude, both the window view and the enabling view get popular in strategy research over the years (see Figure 4). The enabling view, in particular, tends to grow fast. And I consider the enabling view to be more promising as it challenges the window view of language assumption.

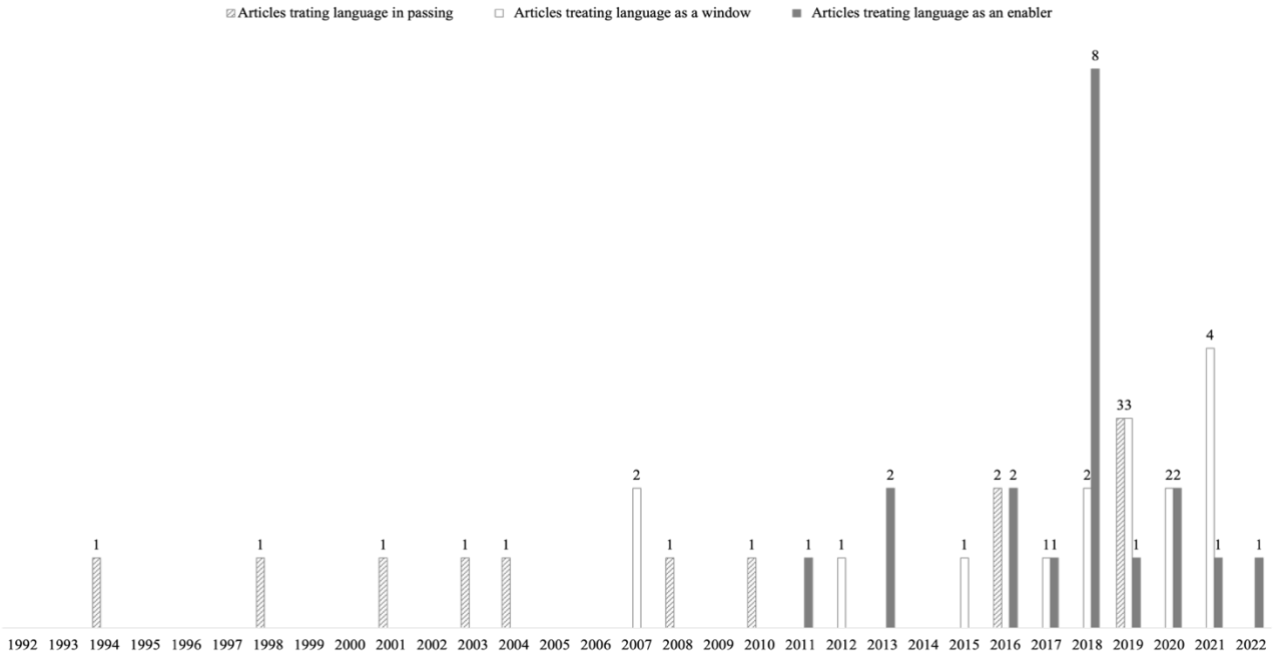

Figure 4 Comparing the trends: the window view versus the enabling view

2.4.3 The promising enabling view of language

Both the window view and the enabling view of language have value. The plurality of language reflects duality--both views are essential and interdependent, even though they are conceptually distinct (otherwise the duality would be a unity). Language as a window turns out to be a useful proxy for many constructs. And language as an enabler empowers individuals to comprehend actions and to shape the context in which they are acting (Alvarez & Sachs, 2021).

The plurality of language reasonably captures how scholars have treated language. As Loewenstein, Ocasio, and Jones (2012) put it, words and vocabularies do not only reflect or transmit information but also generate meaning and are bound to material practice. Ferraro, Pfeffer, and Sutton (2005) argue that language is more than a device for communication, because language drives understanding and behavior through mental imagery and cognitive schema. For example, Morand (1995) mentions that polite language can be used to create psychological distance.

When language is discussed in theories, management scholars do not tend to argue for the language being a window (because if they do, they would take the window view as default and not feel motivated to discuss it). Instead, scholars demonstrate critical acknowledgment of the relations of words to material practice, as language is consequential for coordination, culture, and cognition (Loewenstein, Ocasio, & Jones, 2012). Language as an enabler reflects the fact that language and discourse construct the social structure, and the latter cannot exist independently or before rhetoric (Green, 2004). In other words, words, discourse, and action are in a mutually constitutive relationship (Phillips, Lawrence, & Hardy, 2004). Alvesson (2003) explains the relationship between language and subjectivity. He argues that language should not be simply seen as an expression of subjectivity, instead, it constitutes subjectivity. Hence, both thinking and actions rely on the interaction and availability between discourse and subjectivities (Alvesson, 2003).

We find that strategy articles viewing language as an objective window have appeared throughout time while treating language as an enabler from a subjectivistic epistemology seems a more recent move (see Figure 4). In other words, the enabling view becomes promising, as more and more strategy research takes language as central in recent years. In Table 4, I have shown

research that translates language into specific linguistic concepts, such as linguistic frames (Falchetti, Cattani, & Ferriani, 2022), language concreteness (Pan *et al*., 2018), and spatial language (Crilly, 2017). Taken together, the articles in the category of enabling language chart a broad range of research challenges surrounding the language concept. Furthermore, among the rise of strategy research on language, a large part of this work has been done by scholars holding a view that language is an enabler. This acknowledgment of the enabling view has grown fast. For example, in competitive dynamics research, Rindova, Becerra, and Contardo (2004) explore how language influences stakeholders' mindsets in competitive settings. Gao, Yu, and Cannella (2017) take it further to theorize the role of word responses in direct, interfirm competitive engagement. Word responses are defined as language issued by a focal firm in the public setting to respond to a competitor's attack, which is different from action responses (Gao, Yu, & Cannella, 2017). They argue that language can influence the mindsets of rival executives, thereby deterring rivalry or altering its course.

Last but not least, the next steps involve expanding the scope of the enabler view by exploring the various levels of the enabling nature of language. It is worth examining the different ways in which language can be used to enable communication and understanding. Firstly, language can be purely mechanical in its function. Pan *et al*. (2018) have discussed the concreteness and abstractness of language, which is an example of exploring the mechanical level of the enabling language. Secondly, enabling language can focus on reliability. For instance, construct clarity (Suddaby, 2010) has been emphasized several times in management research. The enabling language behind the consistent use of terms and concepts promotes theoretical understanding and advancements. Finally, enabling language can be inspirational. Investigating how and why enabling language plays a role in the important speeches in human

history is essential, especially in the business domain, for the purposes of impression management, reputation, branding, and marketing.

2.5 Extreme enabling view: Original Whorfian hypothesis as a linguistic trap

The enabling view of language is promising. When language and its features are considered central in research, scholars should be mindful of an extreme version of language enabler, the Whorfian hypothesis. The original version of the Whorfian hypothesis is considered a linguistic trap, due to its strong arguments concerning the relationship between language and thoughts.

2.5.1 What is the Whorfian hypothesis and why it is problematic?

In the 2016 science fiction movie Arrival, linguist Louise Banks is called upon by the US government to decode aliens' language. As Louise learns the language, she starts experiencing the world differently: her perception of time changes. For example, Louise sees flash-forwards about her daughter who has not been born until some years in the future. It turns out that learning the aliens' language advances human's linear perception of time, allowing people to gain visions of future events.

This movie employs a popular linguistic theory called the Whorfian hypothesis (Sapir-Whorf hypothesis, or linguistic relativity), which states a deterministic view that language entirely controls how people think and eventually behave (Whorf, 1956). In other words, the language people speak imposes the boundary from which speakers' cognition cannot escape

(Han & Cadierno, 2010). Following the Whorfian logic, when various languages contain distinctive grammatical structures—for example, with or without future tense, their speakers should 'think' future differently, then their worldviews about time and even their culture become distinctive from each other. The movie Arrival portrays this argument by showing the power of alien language compared to human language: as Louise studies the alien language, her at-present physiological perception about time advances to see the future.

Despite its long-standing attraction gained from the popular culture, this original form of the Whorfian hypothesis has been long critically dismissed among linguists (Boroditsky, 2001), due to the lack of empirical evidence and theoretical contradictions (Hunt & Agnoli, 1991; Lucy, 1997; McWhorter, 2014). "Language being a central vehicle for concept formation has captured the interest of many linguists, anthropologists, philosophers, and psychologists," but language "cannot be taken to be the vehicle of thought" (Gleitman & Papagragou, 2013, p. 504). Pinker (1994, p. 57) claims Whorfianism as being "wrong, all wrong." Specifically, it over-simplifies the relationship between language, thought, and culture, and it over-claims what words can imply. In management, a number of scholars have recognized that words and their grammatical structure fully determining all cognition are more or less disproven (Loewenstein, Ocasio, & Jones, 2012; Ocasio, Laamanen, & Vaara, 2018).

Having the awareness of the outdated Whorfian hypothesis is crucial. As machine learning and artificial intelligence increasingly provide new tools to study words and vocabularies, more and more scholars require a theoretical foundation about the relationship between language and thoughts to justify the use of language as evidence for their desired theoretical outcomes. The popular Whorfian hypothesis, however, seems appealing because of its straightforward and deterministic answer to that relationship. The uncritical application of the

Whorfian hypothesis in business research could potentially weaken its theoretical development and mislead its readers on research implications.

2.5.2 Controversial research that applied the problematic Whorfian hypothesis

Application of the original Whorfian hypothesis can lead research into controversy. In the broad field of business research, a few articles have either explicitly or implicitly incorporated the original Whorfian hypothesis. Table 5 lists these examples as well as those that either deal with weak Whorfianism or strategy articles that do not use such an extreme enabling view. Demonstrating the examples is significant to highlight how not to fall into this linguistic trap. In the field of linguistics, a common sense in treating the original form of the Whorfian hypothesis as a linguistic hoax has been established. For other fields of social science, however, this popular idea that language determines thoughts can still be prevalent.

Table 5 Comparing articles with respect to their application of the strong Whorfian hypothesis

Examples		**Procedure**	**Conclusion**
Explicit use of **original** Whorfian hypothesis	Chen (2013) published in the *American Economics Review*	Explicitly connect language structure to decision making by testing whether the use of future markers (like the term "will") in a language leads to saving behavior across different nations	Having a future marker does not lead its speakers to pay more attention to the future (less saving behavior). Instead, not having one does
	Chi, Su, Tang, and Xu (2020) published in the *Journal of Corporate Finance* and featured in the *Harvard Business Review* (2020)	Explicitly resort to Whorfian hypothesis to construct the theoretical framework, and test either clear or ambiguous reference to future timing in language affects resource allocation	Using the language with ambiguous reference to future timing leads to more innovation at both firm and country levels.
Implicit use of the **original** Whorfian hypothesis	Chen and Miller (2010, 2011, 2015) published at the *Academy of Management Perspectives* and	Implicitly theorize that the paradoxical integration structure of Chinese language determines a relational culture as well as the nature of competition being relational	The competition in China is relational, which represents an entirely new type of competition in competitive dynamics

	Academy of Management Review		
Use of the **weaker** form of Whorfian hypothesis	Boroditsky (2001) published in the *Cognitive Psychology*	Conducted three experiments to examine the effect of people's native language thinking on their second-language understanding of time	Native language can shape habitual thinking about time, but it does not entirely determine thoughts in the original Whorfian sense
Not use Whorfian hypothesis	Crilly (2017) published at *SMJ*	Examine the analogies between time and space that executives use to describe the future in decision making: time moving frame "*future is approaching me*" versus ego-moving frame "*I'm approaching the future*"	Executives focus on long-term returns when they recognize the inevitable future (time-moving frame) and have the confidence to shape outcomes
	Pan *et al*. (2018) published at *SMJ*	Test how firms can communicate to reduce investors' perceived firm risks	Leaders' use of concrete language is associated with positive investor reaction, conditional on firm risk

In strategy, for example, Chen and Miller (2010, 2011, 2015) implicitly apply Whorfianism in their theoretical arguments to introduce a new concept, relational competition. Specifically, the authors repeatedly use Chinese words as evidence to argue a relational worldview in Chinese thinking and leverage this view to change the nature of competition. Ao, Nicholson, Blatman, Madhavan, and Prescott (2022) provide detailed explanations of how Chen and Miller make problematic Whorfian claims without explicitly mentioning the term 'Whorfian hypothesis.' And Chen and Miller's reliance on this linguistic trap weakens the claims of relational competition representing a fundamentally new view of competition. This is a case where the original Whorfian hypothesis plays as an implicit assumption without scholars' conscious choice. When using language as a theoretical argument or as data, scholars should critically unearth their taken-for-granted linguistic assumptions, and not fall into the linguistic trap of adopting the original Whorfian arguments about language's deterministic power to cognition.

The explicit applications of the original Whorfian hypothesis are spotted in economics and finance. To begin with, Chen's (2013) article published in the *American Economics Review*

claims to provide evidence for the Whorfian hypothesis and to be “the first to connect language structure and decision making” (p. 719). In this article, Chen introduces a linguistic concept, future-time reference, to economics. Future-time reference refers to “when and how languages require speakers to mark the timing of events.” (p. 691). Specifically, English specifies the future events with markers including “will” and different forms of “be going to;” while Chinese does not require its speakers to mark the future with these grammatical structures. To describe ‘go shopping’ as a future event, for instance, English speakers are obliged to say, “I will/am going to go shopping tomorrow" while Chinese speakers could simply state "I go shopping tomorrow." In this case, English contains strong future-time references whereas Chinese and other similar Asian languages are futureless. Chen (2013) uses the level of future-time reference (strong versus weak) to predict future-oriented behaviors across multiple countries (e.g., national saving behaviors). The result shows that the stronger future-time reference a language has, the less future-oriented behavior its speakers have. In other words, Chen’s (2013) message is somewhat counterintuitive: having a future marker does not lead its speakers to pay more attention to the future. Instead, not having one does.

Despite its popularity in media (who does not like the idea that grammar influences economy?!), McWhorter (2014) poses disagreement with Chen (2013) based on the linguistics knowledge of the Whorfian hypothesis. According to McWhorter (2014), language is complex by nature; solely relying on grammar for future markers is a poor choice because some languages do not imply the future as regularly as English does. For example, Chen (2013) treats Russian as a language with strong future-time reference; however, McWhorter (2014) points out that in fact, the Russian language does not have any future marker in the same way as the terms "will or be going to" in English or the future tense conjugations in French and Spanish. "It wasn't for

nothing that literary critic Edmund Wilson once ventured—possibly having drunk in some Whorfianism—that Russians' inability to be on time was because Russian doesn't have a future tense" (McWhorter, 2014, p. 98). Russia should not be grouped as those countries with strong future markers. Moreover, treating Russian as a language with weak future-time reference instead actually supports Chen's (2013) hypothesis, because Russia shows very high national saving rates compare to other countries. Taking a step further, Russian belongs to a family of languages—the Slavic brood, and so are languages such as Czech, Slovak, and Polish. Chen (2013) treats them all as languages having strong future markers. That is to say, according to Chen's hypothesis, these countries should all do poorly in saving. However, based on the figure of OECD savings rates (1985—2010) shared by Chen (2013, p. 715), Poland does have a low savings rate, but Czech speakers are good savers, and so do Russians; while Slovaks' saving rate ranks in between. In other words, using grammatical markers to predict national savings rates generates confusing implications. The problematic Whorfian hypothesis appears to provide a misleading theoretical foundation for Chen's work. As McWhorter (2014, p. 101) concludes, "how plausible is it that the reason savings rates in the United States have been so low has anything at all to do with the word *will*?"

Two years after the publication of Chen (2013), Chen collaborating with two other authors further discusses the relationship between future tense and economic decisions. Roberts, Winters, and Chen (2015) acknowledge that Chen's original analysis is based on a Whorfian effect of language on thought, because Chen (2013) mistakenly takes language as independent, ignoring the geographic and historical relatedness of languages. The authors run several tests and get mixed results. For instance, "in the cases where data was not aggregated and when the strictest controls for historical and geographical relatedness were applied, the correlation

between saving behavior and future tense was not significant" (Roberts, Winters, & Chen, 2015, p. 23). They conclude that psychological experiments may be a possible next step in studying this language topic (i.e., language structure—economic decisions), and applying the original Whorfian hypothesis through large-scale cross-cultural correlational studies may not be informative.

Though Roberts, Winters, and Chen (2015) point out the weakness of Chen (2013) as well as the pitfall of applying a Whorfian assumption through cross-cultural correlational research, the original Whorfian hypothesis does not stop attracting scholarly interest. Chi, Su, Tang, and Xu (2020) published in the *Journal of Corporate Finance* extends Chen's (2013) work to study how linguistic features can affect resource allocation at corporate and country levels. In the article, Chi *et al*. (2020) explicitly employ the Whorfian hypothesis as a theoretical framework. Later, their research is featured in *Harvard Business Review* (2020, p. 29) for their contribution to the question of "how language influences R&D spending." In summary, the Whorfian hypothesis has extended its popularity from linguistics, to economics, finance, and strategy research, and the general public. The wide application, potentially attracting more controversial usage, raises a valid concern. Hence, one of this article's motivations is to bring awareness of this linguistic trap to strategy and broader management scholars.

2.5.3 What's next?

The movie Arrival tells a story about how people cross-culturally respond to a joint human crisis and how they all unite together despite their different discourses. Arrival features the original form of Whorfianism to inform humanity about the power of language: Language is the first weapon drawn in conflicts, unless the difference in languages is not seen as a threat.

Language can never perfectly transfer or fully express meaning, but the attempt to communicate with openness, sympathy, and humility leads to beneficial changes in the world (Tamek, 2017).

Applying the Whorfian hypothesis in the movie helps to tell a good story. In research, this outdated theory should be applied with caution. Language may not determine thoughts, but nobody can deny a relationship existing between language, thoughts, and culture. Language both reflects and influences how people see the world. Culture and language are interrelated, and they are dimensions of each other (Selmer, 2006). Ferraro, Pfeffer, and Sutton (2005) also suggest that language and assumptions shape what people see and think about. Meanwhile, they share a concern that "theories become dominant when their language is widely and mindlessly used and their assumptions become accepted and normatively valued, regardless of their empirical validity. This is the case whether the language and assumptions are problematic and harmful or beneficial. … When theories produce self-fulling beliefs, societies, organizations, and leaders can become trapped in unproductive or harmful cycles of behavior that are almost impossible to change" (Ferraro, Pfeffer, & Sutton, 2005, p. 21).

For management scholars interested in this topic, the weaker form of Whorfian hypothesis, or Neo-Whorfianism is a potential avenue for research. If non-linguist social science scholars reflect on the taken-for-granted views of language, we can be explicit about the linguistic theoretical foundation and therefore enrich the knowledge of language-related management research.

2.5.3.1 The alternative: The weaker form of Whorfianism

Over the years, the Whorfian hypothesis has developed into two versions in linguistics. The original form of Whorfianism represents the strong version—language determines thoughts (Whorf, 1956). Then, since the 1970s, new research topics (e.g., language universals and

linguistic typology) have channeled scholarly attention toward softening the strong version of Whorfianism (Hill, 1999; Han & Cadierno, 2010). Though the deterministic Whorfianism becomes unacceptable, it still inspires linguists and psychologists to explore the language—cognition relationship; but this relationship can only be pursued under valid theories (Lucy, 1997).

The softened version—Neo-Whorfianism— states that language may have some influence on people's thoughts (Pederson, 2007). One major difference between the strong and the weak Whorfian hypothesis is the shift away from the grammatical or lexicon's direct influence on thoughts (Hill, 1999). The weak Whorfianism is embraced by modern linguistics, narrowing research about language and thoughts with precision. A research question reflecting the weak version of this theory may ask whether a specific feature of a language is associated with a particular cognitive operation (Pederson, 2007). In cultural linguistics, for example, Sharifian (2017) finds that culturally constructed conceptualizations (e.g., metaphor in a culture) shape some features of the language. In other words, the weak Whorfian hypothesis focuses on cultural experiences through specific features of the language, without over-claiming what words can imply.

As the weak version has become progressively prevalent (Ocasio, Laamanen, & Vaara, 2018) due to its focus on nuance and rigor, Neo-Whorfian scholarship is used to describe this stream of research. Scholarly efforts from linguistics, cognitive psychology, psycholinguistics, and anthropology (Han & Cadierno, 2010; McWhorter, 2014) continue to develop Neo-Whorfianism and provide narrowed empirical evidence with precision (e.g., Boroditsky, 2001; Lucy & Gaskins, 2001; Gentner & Goldin-Meadow, 2003; Levinson, 2003). Roberts, Winters, and Chen (2015) suggest experiments as a major tool to study this topic, such as Boroditsky

(2001; 2011); see Table 4. However, due to the nuanced linkage between language and thoughts, the interpretation of the results should be careful. As McWhorter (2014, p. 148) puts it, "Academic Neo-Whorfianism is—make no mistake. But how it is commonly interpreted beyond the laboratory just isn't real."

In management, scholars have cited Whorf's (1956) original piece to make a general argument that in the science community, any emergent concept or identity is shared through language (e.g., Nag, Hambrick, & Chen, 2007; Ronda-Pupo & Guerras-Martin, 2012), without mentioning the strong Whorfian hypothesis. If management scholars are interested in incorporating Neo-Whorfianism theoretically and empirically to study cross-cultural or multi-lingual phenomena, it is important to gain an awareness of the distinction between the strong version and the weak version of the Whorfian hypothesis. For example, Loewenstein, Ocasio, and Jones (2012) claim that language (e.g., word frequencies and word-to-word relationships) is one of many factors that can be used to infer cultural categories. Moreover, language is not the only avenue to study experience or culture. As Leavitt (2010, p. 9) puts it, "Much human thinking appears to be non-linguistic, involving various sensory modes; many people without the ability to speak can still think just fine."

2.5.3.2 Going beyond Whorfianism

The Whorfian hypothesis is one of many linguistic theories that non-linguistic scholars may take as assumptions in research. As interest in language has been rapidly growing in strategy, it is important to raise awareness of specific linguistic traps as well as to bring clarity to language assumptions. As the examples (i.e., Crilly, 2017; Pan *et al*., 2018) shown in Table 4 suggest, one promising avenue moving forward is the view of language being an enabler, without going extreme in linking language to thoughts or behaviors deterministically.

2.6 Discussion: The language dimension of strategy, organization, and society

This article aims to answer the question of how language matters in strategy research. The default assumption of language in strategy research to date has been that language objectively carries information and reflects reality as a window. In recent years, scholars took language seriously as it conveys valuable information and serves important strategic purposes: language constructs reality and enables action as an enactment. I highlight the importance of examining not only the assumptions of language, but also the research settings under which scholars consider language as a window versus as an enabler. My arguments concerning the role of language in reflecting or constructing action demonstrate the plurality of language as well as an extreme case of the enabling view, the Whorfian hypothesis.

Similar to the argument made by Loewenstein, Ocasio, and Jones (2012) that the understanding of vocabulary structure contributes both to theory and research practice, the language lens of strategy also contributes to the language literature in terms of theoretical development and the overall research settings. This stream of research has seen a significant uptick in interest in strategy and management (Barnard, 1938; Mintzberg, 1973; Phillips, Lawrence, & Hardy, 2004; Gao, Yu, & Cannella, 2017) and social sciences (Alvesson & Karreman, 2000) over the past two decades.

This article refines strategy research by highlighting the role of language—an important tool that scholars frequently employ in today's research. Ronda-Pupo and Guerras-Martin (2012, p. 163) demonstrate "a need for scholars of strategic management to work toward a common shared language that will allow us to know its essence as a science." It accurately captures the purpose of this paper—to expand that common ground by distinguishing two different views of language in strategy research.

Specifically, the language lens of strategy can play out in two different ways. First, adopting the language lens provides a new and powerful way to view organizational phenomena. It particularly provides a new avenue to understand phenomena where the primary focus is on non-language-centric issues. For instance, one's research may be about strategic decision-making, group dynamics, or organizational change. In any of these cases, using language as data in addition to other analytical methods will sharpen our contextual understanding of this research. While language may not be central to the research, it might provide new insights as powerful moderators or mediators. If one thinks carefully about the language involved in the relationship of X and Y, the theoretical formulation and methodological approaches of one's work will be different. Using the language lens in this way is a minimum condition for advancing strategy work. The researcher will have a richer understanding of the 'context of language,' which should provide new opportunities for explanation and prediction.

Second, the language lens of strategy potentially influences the interpretation of research results and implications when language is treated differently. It makes us speak in a different 'language' (like 'concrete language' in Pan *et al*., 2018), ask different questions (e.g., how visual language influences strategic action in Knight, Paroutis, & Heracleous' work in 2018), and use a different framework in the methodological aspects of our research (e.g., topic modeling in Kaplan and Vakili's work in 2015). Hence, it is beneficial for scholars in future research to show an explicit epistemological stance toward language.

Broadly speaking, a shift in the views of language from being a window to an enabler implies that our strategy and management research start developing more influence on society. Economics, for instance, has had a much greater influence on government policy than the other social sciences, mainly because economic norms and language are descriptive and prescriptive

simultaneously (Bazerman, 2005). According to Bazerman (2005), descriptive research accumulates knowledge, and prescriptive research offers useful advice to influence society. Applying language as an enabler leads strategy and management research one step further to confront society head-on. Another reason that economics is influential is through its self-fulfilling theories. Ferraro, Pfeffer, and Sutton (2005, p. 8) explain that "theories can 'win' in the marketplace for ideas, independent of their empirical validity, to the extent their assumptions and language become taken for granted and normatively valued, therefore creating conditions that make them come 'true'." Language is identified as one of the significant mechanisms through which theories come to be self-filling. Specifically, in the socially constructed reality (Berger & Luckmann, 1966), “language evokes certain associations, certain motives, and certain norms. Acting on the basis of that language in ways consistent with those norms and assumptions, we do things that, in turn, will produce behavior on the part of others consistent with our linguistic frame. Language produces a social reality that reinforces and validates the terminology we use” (Ferraro, Pfeffer, & Sutton, 2005, p. 16). Future theorists should explore how the rise and decline of the different lenses of language affect the adoption of management practices in order to expand the overall societal influence of our field.

2.6.1 Looking toward future research opportunities

The basic thesis of this paper is that the language lens brings new functionality to research. This article will have little effect unless we (1) reflect on how we do our research (e.g., testing with different language assumptions or combining both); (2) reflect on some of our institutional positionings, such as stimulating more language-based research in leading management journals; and (3) experiment with new forms of data collection and analysis. When

more and more members of our profession start to apply the language lens in their research, the body of research will grow more quickly.

There are tremendous opportunities for examining issues of language in current and future research. Here, I chart some possible paths for future research. As scholars adopt the language lens, what new opportunities for research does it reveal? First, though the plurality of language reflects duality, it would be interesting to connect both views creatively in research. As Eisenhardt (2000) puts it, changes can be driven by pluralism in ideas, among people, within organizations, and across industries. In other words, combining each side of pluralism together can bring out rich interconnections between the two (Eisenhardt, 2000). Also, as the world is constructed by the use of language, how to account for complex phenomena through language (Alvesson, 2003) would be interesting. As Phillips, Lawrence, and Hardy (2004) suggest, both the content of texts and the trajectories (e.g., where texts emerge from, how they are used by organizational individuals, and what relationships can be established among texts) are important. It will be a fruitful avenue for viewing language as a tool used in social construction coupled with focusing on social context.

Second, this article represents a first attempt to integrate strategy research and research on language—two streams of research that have so far been largely separated. To further encourage the growing body of research studying language, one basic 'assumption' of this article is to regard language as positive and contributing. It will be informative for scholars in future research to explore the alternative: When language is not by default 'positive or contributing?' For example, the language lens of strategy in this article theorizes language being a window versus an enabler. Then, what if language works as a wall (e.g., language reflects information wrongly, so it is not a window but a wall to block communication)? How about language being a

constraint in contrast to an enactment (e.g., use language to enable things to NOT happen)? Also, can language be both an enabler and a constraint? Furthermore, under what conditions does the language lens have limited effects? Studying the boundary conditions of the plurality of language will be informative.

2.6.2 Obstacles to the language lens

It may be instructive to ponder briefly why language is not fully embedded in our research. If it has been such a pervasive phenomenon, why don't we see many well-articulated language views throughout strategy research? This phenomenon stems from several reasons.

The first reason is that in the early days, it was neither easy to gain organizational access nor capture corporate events linguistically over time using multiple measures. The field studies of organizations become studies of opportunity, as access to language data not only consumes time but extra resources and require a great deal of cooperation. Scholars are accustomed to getting in and out of organizations quickly. These additional obstacles disturb the development of a language lens in the early days. As technology advances in computer science and communications, more tools for analyzing texts become available. And, as the world pandemic moves activities virtually, researchers gain more access and convenience to textual data. These changes explain the increase in language-related research in management in general.

Second, perhaps the biggest impediment to using the language lens (especially the enabling view) is that it is simply challenging to do. The boundaries between linguistic theories and theories in the field of strategy and even management has yet to be crossed to a high degree. As management scholars, we are not experienced enough to know how to choose language variables. Moreover, although researchers can be equipped with computational tools to detect

frequencies and even quantify texts, we are not yet able readily to detect various dimensions of language. Some features of language research are inherently complex and we do not yet have all of the methodologies needed to measure complex language phenomena—for example, the combination of visual and audio variations in language. I believe that the further application of language-based research requires new methodological approaches that may resonate with most interdisciplinary studies. To conclude, though there is not yet a mature or rich set of theoretical and methodological tools regarding language in management, my aim in this article is to make progress in that direction.

2.6.3 Implications for entrepreneurship, international business, and broader management and organization research

The language lens has been focused on strategy research, but the implication of plurality of language is relevant to organization and management studies as well. In fact, one ambitious goal of the language lens is to enable a bigger social impact in our broader fields like economics, an effective manner in which to influence policy and material practice. As a start, one may ask, how does the plurality of language inform the work that broader management and organizational scholars are doing? Language can be a strategic tool in many settings and plays significant roles across a variety of disciplines.

In entrepreneurship, current theories are not sufficient to answer questions such as how language shapes relationships among stakeholders, or how entrepreneurial endeavors emerge or unfold (Alvarez & Sachs, 2021). But language is significant as new language results from entrepreneurial endeavors and gives meaning to new product and service ideas; hence, Alvarez & Sachs (2021) highlight the linguistic turn in entrepreneurship and stakeholder theory. The

plurality of language proposed in this article can further the conversation on the intersection between linguistics and entrepreneurship. Moreover, language from entrepreneurial storytelling has been used to occupy resources from stakeholders and bring down ambiguity (Aldrich &Fiol, 1994; Martens, Jennings, & Jennings, 2007). For entrepreneurship topics, including pitches and narratives, and media use (Vaara & Fritsch, 2021), a closer focus on the different views of language can contribute to these understandings.

In international business, language has been an important concept in terms of its relations to culture and institutions (Scherer & Palazzo, 2007). Scholars can use these theoretical discussions about the plurality of language to advance discourse-based global strategies (Treviño & Doh, 2020) and the knowledge of multilingual markets (Brannen, 2004; Welch & Welch, 2019).

Last but not least, the emphasis on language could potentially alert social science to falsify constructs or theories, in the case that new words are created to ‘re-costume old theories…but not adding to our knowledge” (Fabian, 2000, p. 365). A good example is Ao *et al*. (2022). The authors argue that the popular 'relational competition' (Chen & Miller, 2010, 2011, 2015) is an interesting concept but does not yet qualify for being a construct. Their reasoning depends on Chen and Miller's implicit application of the original Whorfian hypothesis, which is problematic. Ao *et al*. (2022) also suggest that labeling known phenomena with new names may become redundant.

2.6.4 Implications for managerial practice

This article mainly targets an academic audience, so what are the implications for the business world? As Loewenstein, Ocasio, and Jones (2012) put it, language matters both for

theory and practice. And it matters a great deal, as vocabularies and discourse steer attention toward certain issues over others (Ocasio, Laamanen, & Vaara, 2018). In today's business world, we often observe firms strategically using language in public settings. The plurality of language, especially the enabling view of language, supports business practitioners in releasing the power of language and communication, at least in three ways.

First, the most straightforward role of language is to influence impression management. The enabling view of language highlights the importance of the choice of strategic vocabularies that firms should use or should not use. Strategic use of words can influence others' perception toward a firm, such as improving stakeholders' impression, or saving the at-risk image of a firm.

One may disagree, arguing that a firm's use of language can be a bluff. Indeed, the cheap talk theory detailed by Crawford and Sobel (1982) explains a scenario where language becomes less relevant: when two firms experience opposing motivations, one takes the other's released information as deceptive, then the interactive language does not change the 'true conversation' between them.

This concern of language being bluff is valid but incomplete (Porter, 1980), which introduces the second role of language—its influence on competitive dynamics. Competition, in nature, deals with the misalignment of incentives. Competitors' language can be useful in several manners. To begin with, competitors' linguistic signals serve as an opportunity for firms to gain competitive advantages. In today's business setting, firms can verify their competitors' revealed information and pay attention to those words associated with long-term outcomes (Gao, Yu, & Cannella, 2017). The signaling theory, as an example, highlights language's role in revealing important information in terms of a rival's intent and attitude (Heil & Robertson, 1991; Moore, 1992; Porter, 1980). Following the reasoning of cheap talk theory, firms will miss viable

commitments and warnings (Porter, 1980) if they scorn rivals' language. Ignoring competitors' linguistic signals equals disregarding the existence of competitors altogether (Porter, 1980; Gao, Yu, & Cannella, 2017).

Furthermore, firms' choice of using language for certain purposes is framed as discursive strategy. This strategy describes firms' active participation in producing texts, such as interviews, technology conferences, press releases, earnings conference calls, business newspapers, product brochures, or even live streaming shows (Kahl & Grodal, 2016). To some degree, issuing these statements bonds the firms to their claimed information (Gao, Yu, & Cannella, 2017); at stake is reputation and trust in public settings (Kim, 1996; Stocken, 2000). Bluffing information leads to discounted reputation, while credible statements win strong trust from the public (Ferrier, 1997). In other words, thoughtful choices of language improve firms' impression management and competition efforts.

Lastly, the language lens of strategy has important implications for individual practitioners. Top managers often communicate with a broad range of stakeholders with the intent to influence them. Knowing effective ways to decide what to say and how to say are essential capabilities (Choudhury, Wang, Carlson, & Khanna, 2019). Generally, firm agents have choices about using certain vocabularies, linguistic framing, language structure, images and audio (Loewenstein, Ocasio, & Jones, 2012; Kahl & Grodal, 2016). These choices take place when they describe new products, take initiatives, shape the actions of others, or change market stakeholders' interpretation and response to the focal firm. As an example, Kahl and Grodal (2016) argue that the choice of texts and discourse is important for entrepreneurs in the nascent market, because how they linguistically approach their customers can aid or hinder firm performance. Using language as a window to innovation, Arts, Cassiman, and Gomez (2018)

suggest that patent practitioners—including inventors, attorneys, and patent examiners—can use linguistic cues to assess the novelty of patents. Some cutting-edge research has suggested how emotional and body movements accompany the making and delivery of linguistic messages. Huy (2011) suggests leaders acquire rich vocabularies of emotions as well as capabilities of recognizing emotions for better communication with their subordinates. Gylfe, Franck, Lebaron, and Mantere (2016) highlight the body's role in channeling textual expression in order to better implement strategies.

To conclude, the language lens of strategy highlights the importance of human agency in language. If assuming language is pure bluff or cheap talk, practitioners run the risk of losing the advantages of language being a cost-effective and flexible tool in achieving organizational goals and personal career aspirations.

2.6.5 Implications for the language of business: Window language versus enabler language

Scenario #1. Imagine that you are a potential partner for a private company called SpaceX, and you want to get a very quick sense of this company. First, you search on Wikipedia and read the first paragraph on the page: "*Space Exploration Technologies Corp. (doing business as SpaceX) is an American spacecraft manufacturer, space launch provider, and a satellite communications corporation headquartered in Hawthorne, California. It was founded in 2002 by Elon Musk, with the goal of reducing space transportation costs to enable the colonization of Mars. It manufactures the Falcon 9 and Falcon Heavy launch vehicles, several rocket engines, Cargo Dragon, crew spacecraft, and Starlink communications satellites*." Okay, then you check out SpaceX's mission in its official webpage and also read the first paragraph, "*You want to wake up in the morning and think the future is going to be great - and that's what being a*

spacefaring civilization is all about. It's about believing in the future and thinking that the future will be better than the past. And I can't think of anything more exciting than going out there and being among the stars. –Elon Musk." Now, which statement prompts you to instantiate this partnership?

Scenario #2. Imagine that you are introducing Trader Joe's to a person moving from a southern U.S. state to Pittsburgh. In order to differentiate Trader Joe's from Walmart, you show this new person the following two statements. First, Trader Joe's aims "*to bring our customers the best food and beverage values and the information to make informed buying decisions*" (Heath & Heath, 2006, p. 21). Second, Trader Joe's is "*home of cheap thrills*" for customers like "*unemployed college professor who drives a very, very used Volvo*" (Heath & Heath, 2006, p. 21). Which statement will help you persuade this new Yinzer to try Trader Joe's?

In both scenarios, the first statement uses representative language that abstractly mirrors what the company does; while the second statement applies performative language that brings clarity, color, and emotion to intrigue the audience. The former is the 'window' language of business, and the latter is the 'enabler' language of business. Both types of corporate languages are important, as "language pervades every aspect of organizational life" (Neeley & Kaplan, 2014, p. 70), and ongoing communication takes place "between managers and employees, marketers and customers, corporate headquarters and the front line" (Heath & Heath, 2006, p. 21).

However, too much of the window statements in corporate language becomes a disability and prevents firms from differentiating themselves (Watson, 2005). Window language happens a lot to top executives. Top executives are immersed in the logic and convention of their business for years, so that their expressions tend to use abstract and life-less words to describe the essence

of the business. This phenomenon is described as “the curse of knowledge” by Heath and Heath (2006). Too many experiences and knowledge make executives’ language vague and hence hard to receive resonance from or build a common ground for audiences such as employees, customers, and business partners (Heath & Heath, 2006).

To defeat the curse of too much knowledge, adopting enabler language in the business can be beneficial in many ways. First, acknowledging the differences between window (descriptive) language and enabler (performative) language can help corporate language transit and be flexible in utilizing the power of language. As an example, Burton (2018) shows that using accessible and plain language over jargon or professional statements can make deals faster and increase customer satisfaction in legal contracts. Second, adopting enabler language make strategy statements stickier. The enabler language considers more than what to say but also how to say, which builds the foundation for delivering audience-appropriate messages (Bendapudi & Bendapudi, 2009). Third, speaking window language only is “far too small for the territory of relationship and collaboration we’ve entered” (Burrell, 2007, p. 28) in the business world. Burrell (2007) applies images and ideas from the poems to fuel discussions, and this example of bringing business and poetry together is to cultivate “a language big enough to represent both the world you inhabit and the next, larger world that awaits you” (Burrell, 2007, p. 28). Highlighting the importance and use of enabler language is my work, my contribution to the mindful use of language to improve the strategic management of business.

2.7 Conclusion

In this article, I discuss (1) how the plurality of language changes research settings, (2) how not to fall into a linguistic trap when treating language mindfully, and (3) how the language lens deepens our understanding of strategy research and practice. The language lens of strategy can be a key intellectual tool for both rethinking our research assumptions and creating new research opportunities. This article also provides evidence of the need for scholars of strategic management to work toward a common shared ‘language’ lens, which facilitates the development of the field and its research methods and leads to its progress as a scholarly discipline.

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2.9 Appendix A: Language, rhetoric, and discourse

Rhetoric, as a type of instrumental discourse, is applied to persuade the audience, coordinate social action, and reach decisions (Green, 2004). New practices can be legitimated and institutionalized through rhetoric, people/actors produce and assign meaning, constructing both their identities and the world through rhetoric. Green (2004) emphasizes rhetoric's role in the diffusion process, because what managers say and how they say it matters a great deal. In other words, managers act as rhetors, which implies the linguistic origins of rationality and institutions: "To rationalize is to give discursive reasons for actions; to institutionalize is to accept and take these reasons for granted. This makes language central to understanding variations in the diffusion and institutionalization of managerial practices and suggests a more active conceptualization of discourse and social action" (Green, 2004, p. 654).

In Phillips, Lawrence, & Hardy (2004), **discourse** is defined as "a system of statements which constructs an object" (Parker, 1992, p. 5). **Text** is any kind of symbolic expression requiring a physical medium and permitting of permanent storage" (Taylor & Van Every, 1993, p. 109). **Talk** is therefore also a kind of text (Fairclough, 1995; van Dijk, 1997a), and, in fact, the texts that make up discourses may take a variety of forms, including written documents, verbal reports, artwork, spoken words, pictures, symbols, buildings, and other artifacts (e.g., Fairclough, 1995; Grant, Keenoy, & Oswick, 1998; Taylor *et al*., 1996; Wood & Kroger, 2000). Discourses cannot be studied directly—they can only be explored by examining the texts that constitute them (Fairclough, 1992; Parker, 1992). Accordingly, discourse analysis involves the systematic study of texts. Discourse analysis does not, however, simply focus on individual or isolated texts, because social reality does not depend on individual texts but, rather, on the bodies of texts. Discourse analysis, therefore, involves the analysis of collections of texts, the ways they are

made meaningful through their links to other texts, the ways in which they draw on different discourses, how and to whom they are disseminated, the methods of their production, and the manner in which they are received and consumed (Fairclough, 1992; Phillips & Hardy, 2002; van Dijk, 1997a,b). Discourse analysis has proven a useful theoretical framework for understanding the social production of organizational and inter-organizational phenomena (e.g., Alvesson & Karreman, 2000; Grant *et al*., 1998; Hardy & Phillips, 1999; Morgan & Sturdy, 2000; Mumby & Clair, 1997; Phillips & Hardy, 1997, 2002; Putnam & Fairhurst, 2001). Topics include identity, institutions, strategy, and organizational change (Phillips & Oswick, 2012).

Phillips and Oswick (2012) suggest the term "**discourse**" contains two different meanings. The first meaning of "discourse" can be replaced by words such as "conversation" and "dialogue." Discourse here indicates the spoken language in use in public speech and interactive communication directly with one another. The second meaning refers to the coherent expression through written texts of the inter-related set of ideas, rather than the specifics of the language used. For example, "discourse of democracy" focuses on the explanation of the concept, democracy.

3.0 Discursive Strategy in 'Self-Celebritizing' Entrepreneurial Firms: Video-Based Analysis in the Context of SpaceX

Abstract: Discursive strategy involves using words, visuals, and audio to inform stakeholders, shape perceptions, and gain support. However, the use of discursive strategy on social media to self-celebritize entrepreneurial firms is not well understood, despite the potential benefits of increased visibility, reduced uncertainty, and enhanced differentiation. This study examines how discursive strategy through social media can be actively performed in the context of SpaceX, employing a mixed-method inductive analysis of the top 50 most-viewed SpaceX YouTube videos. The findings suggest that videos are effective tools of discursive strategy for conveying disruptive innovation and inspiring stakeholders toward future-making aspirations. This study contributes to the literature on the language lens of strategy, space commercialization, and video as data.

Keywords: discursive strategy, entrepreneurial firm, SpaceX, video analysis

3.1 Introduction

"Law 32: Play to people's fantasies. … Life is so harsh and distressing that people who can manufacture romance or conjure up fantasy are like oases in the desert: Everyone flocks to them. There is great power in tapping into the fantasies of the masses."

--Robert Greene "The 48 Laws of Power" (1998, p. 263)

"I mean, we gotta be excited about the future. We gotta do things that make us want to live! It cannot always be about problems every day. Do you want to wake up every morning everything is just a problem? But what inspires you? What makes you excited about the future? There's got to be some things like that."

-- Elon Musk

Discursive strategy refers to the strategic use of words, visuals, and audio across various communication channels to inform stakeholders, influence their perceptions, and gain support. In particular, discursive strategy through social media represents a self-promotional strategy aimed at achieving a level of "celebritization" for the firm (Heavey, Simsek, Kyprianou, & Risius, 2020). The process of celebritizing a firm through discursive strategy can be evidenced by the organization's increased visibility and reputation (Fowler, 2017), which in turn benefits the firm by facilitating access to additional support and resources (Heavey *et al*., 2020), enabling the firm to exert influence on competitors (Gao, Yu, & Cannella, 2017; Connelly, Tihanyi, Ketchen, Carnes, & Ferrier, 2017), and ultimately impacting market outcomes (Kahl & Grodal, 2016). From a theoretical perspective, discursive strategy can play a critical role in the success of

entrepreneurial firms, particularly those operating in nascent industries or sectors such as SpaceX in the emerging commercial spaceflight industry, and startups. By leveraging discursive strategy through social media, these firms can enhance their visibility and reputation, thereby increasing their likelihood of success in the market. According to cultural entrepreneurship theory, for example, discursive acts are considered a crucial means for entrepreneurs to gain attention and support (Taeuscher, Zhao, & Lounsbury, 2022).

However, there is a lack of understanding regarding the use of discursive strategy on social media to self-celebritize an entrepreneurial firm. Celebritized firms often benefit from increased visibility and reputation, which can stimulate "economic transactions where markets might otherwise fail by providing incentives for firms to behave in certain predictable ways" (Barnett & Pollock, 2012, p. 8). But young and entrepreneurial firms typically face difficulty getting noticed, lacking a significant history that others can use to assess their value (Petkova, 2012; Barnett & Pollock, 2012). Rather than relying solely on promising future outcomes or ideas (Petkova, 2012), entrepreneurial firms can harness the power of discursive strategy through social media to perform visibility-enhancing activities (Martins, 2005; Whittington & Yakis-Douglas, 2012) and develop an initial reputation. This process of celebritization begins with creating a public profile for the firm as an external image (Martins, 2005). Entrepreneurial firms can then disseminate information and establish a performance history to gain attention and ultimately shape public perceptions toward them (Deephouse, 2000). The construction of visibility and reputation is rooted in a firm's historical patterns of reliable and consistent behaviors and outcomes (Mishina & Devers, 2012; Rindova, Pollock, & Hayward, 2006). Consequently, entrepreneurial firms can progress "from being small and unknown to being well-known and successful" (Petkova, 2012, p. 383) and use this self-celebritizing process as a

strategic intangible asset for the firm (Rindova & Martins, 2012). Social media can also help entrepreneurial firms to minimize uncertainty regarding the firm value and differentiate them from competitors (Fischer & Reuber, 2014).

Therefore, the purpose of this study is to explore what discursive strategy through social media can be actively performed by entrepreneurial firms for 'self-celebritization'. Specifically, the research question is investigated in relation to one firm, SpaceX, an entrepreneurial firm that utilizes its YouTube channel as a vital means of communicating its mission, advancements, and achievements to the general public. With a substantial following of over 6 million subscribers and over 650 million views, SpaceX's YouTube channel serves as an ideal platform to examine discursive strategy. By analyzing the discursive strategies employed by SpaceX, this study seeks to identify exemplary approaches that can be emulated by other entrepreneurial firms seeking to maximize their publicity through discursive practices.

When considering SpaceX as a case study, I explore the most effective discursive strategies utilized by SpaceX on its YouTube channel, and how these strategies contributed to the firm level of publicity and engagement. To create a comprehensive archival dataset of SpaceX's YouTube content, a sample of the top 50 most-viewed videos was collected, comprising about 15% of the total 328 videos. These 50 videos were representative of the larger population since they accumulated a collective 333.3 million views (as of February 17, 2023), accounting for more than half of the channel's total views over the 16 years from 2008 to 2023. Given the inductive and qualitative nature of this stream of research (Barnett & Pollock, 2012), a mixed-method inductive analysis is employed in this study to examine the selected videos. It is commonplace to employ a mixed-methods approach when examining social media phenomena (e.g., Galletta Horner, Galletta, Crawford, & Shirsat, 2021). In this study, the qualitative analysis

is concerned with the content of discursive strategy, while the inductive quantitative analysis complements this by exploring the specific elements through which the content is conveyed.

As a result, the qualitative analysis reveals that SpaceX's discursive strategy is centered around positioning itself as an innovative company that is leading the way toward the future. By highlighting its technological innovation process, employing visionary language and visually compelling content, utilizing humor to reframe failures, and incorporating music and mission acoustic sounds, SpaceX effectively employs these discursive elements to create a persuasive and inspiring narrative. Furthermore, the inductive quantitative analysis examines how various elements of discursive strategy (such as elapsed time, live-streaming format, music, and celebrity CEO) impact firm-level publicity and engagement. For example, videos with a live-streaming format, inclusion of music, shorter duration, the inclusion of Elon Musk, or the absence of verbal audio tend to gain more comments. Together, this study suggests that videos serve as effective discursive tools of self-celebritization to unfold disruptive innovation and convince stakeholders of future-making aspirations. While this study analyzed data from one social media platform (YouTube), its goal is to provide implications for strategic communication for self-celebritizing firms across multiple platforms and communication channels.

3.2 Theoretical background

In general, organizations proactively engage in various forms of discursive practices across multiple communication channels, including but not limited to advertising, public relations, investor relations (such as corporate press releases, annual reports, earnings calls, strategy briefings, and annual meetings), and customer service. According to Mintzberg (1973)

and Green (2004), managers are fundamentally discursive beings, dedicating around two-thirds to three-fourths of their time to verbal interactions. “Managers have choices about what words, linguistic structures, and images they use to describe their firm and the technology, and how they position these texts in relationship to the firm’s customers. …These choices, in turn, influence market stakeholders’ reactions to and interpretations about the firm and the nascent market in ways that both aid and hinder the adoption of the new technology and firm performance” (Kahl & Grodal, 2016, p. 150). Hence, discursive strategy can be seen as “ways of activating and utilizing specific discursive resources in particular contexts” (Vaara, Kleymann, & Seristo, 2004, p .5).

Over the years, the global pandemic has accelerated the pace of digitalization, prompting firms to utilize the affordances of social media to interact with stakeholders in developing and executing strategies (Heavey, Simsek, Kyprianou, & Risius, 2020). Through social media, firms can leverage discursive strategies to achieve specific goals. An example of the use of discursive strategy to influence outcomes is demonstrated in van den Broek’s (2022) observation that political actors use the replacement of the term “corporate social responsibility” with “corporate sustainability” as one of the four strategies to influence firms’ political access. Furthermore, Sasaki *et al*. (2020) demonstrate the effect of discursive strategy on strategic changes in firms by examining how changes in firm-level mission statements over time are facilitated. Jin, Li, and Hoskisson (2022) suggest that both deliberately manipulating and restricting the disclosure of information can control external reactions toward the firm. Management scholars also have studied discursive strategies in constructing firm identity (Dameron & Torset, 2014), legitimacy (Suddaby & Greenwood, 2005), strategic ambiguity (Sillince, Jarzabkowski, & Shaw, 2012),

sensemaking (Vaara & Whittle, 2022), and common ground (Kwon, Clarke, & Wodak, 2014; Alvarez & Sachs, 2021).

While some studies center solely on words and texts to examine discursive strategy (e.g., van den Broek, 2022; Suddaby & Greenwood, 2005), others have begun to acknowledge the significance of visual and audio elements in communication (e.g., Kahl & Grodal, 2016; Wenzel & Koch, 2018; Clarke, 2011). This study seeks to understand the nexus between language and non-language (such as visual and audio practices) components within the discursive strategy.

The enabling role of language. The study of organizations has undergone a linguistic turn, recognizing the performative power of language (Green, 2004; Alvesson & Karreman, 2000; Wenzel & Koch, 2018). Language is considered "an irreducible part of social life", as highlighted by Fairclough's (2003, p. 2) assertion. Burke's (1969) notion of language as symbolic action and Geeraerts and Cuyckens' (2007) recognition of language as a tool for organizing, processing, and communicating information further emphasize language's enabling role. For example, linguistic framing of strategies can influence how audiences perceive and value innovative ideas (Falchetti, Cattani, & Ferriani, 2021); and the choice of words in corporate presentations influences organizational attention patterns (Ocasio, Laamanen, & Vaara, 2018). Together, these ideas highlight language being an enabler and the central importance it holds in the strategic use of language within the discursive strategy.

The nexus between language and visuals. In addition to language, discursive acts may also utilize visuals, as both language and non-language components can perform in distinct yet complementary manners (Bell & Davison, 2013). Cognitive research indicates that humans utilize both the auditory/verbal and visual channels for comprehending communication (Knight, Paroutis, & Heracleous, 2018). In other words, it is essential to recognize the significance of not

only oral and written expressions but also visual symbols and designs (Kahl & Grodal, 2016). For example, Clarke (2011) conducted a visual ethnographic study on entrepreneurs and discovered that visuals play a crucial role in conveying the value of their entrepreneurial firms to resource providers. Hence, one goal of this study is to explore the nexus between language and visuals in discursive strategy in the context of SpaceX.

Discursive strategy and social media. The examination of discursive strategies through social media is embedded in the broad context of digital transformation, which has been significantly accelerated by the COVID-19 pandemic. The strategy community has urged the need in contemporary organizations to reimagine business practices in response to this changing world (Vaara & Fritsch, 2021). Specifically, social media, as one type of digital technology, is a podium for social influence (Leonardi, 2014; Leonardi & Meyer, 2015; Leonardi & Vaast, 2017; Lovelace, Bundy, Pollock, & Hambrick, 2022; Huang & Yeo, 2018) and strategic actions (Heavey, Simsek, Kyprianou, & Risius, 2020; Tan, 2016). This study aims to shed light on the implications of increasing digitalization for new businesses, from a discursive perspective.

3.3 Research Design and Data Collection

Research Design and Setting. I used an inductive research method focusing on a single in-depth case: SpaceX YouTube videos. This inductive case study method is well suited to answering my research question—What discursive strategy through social media can be actively performed by entrepreneurial firms for 'self-celebritization'?—for several reasons.

Inductive research methods are well-suited for the in-depth exploration of phenomena (e.g., Chai, Doshi, & Silvestri, 2022). These methods also prove particularly advantageous in

circumstances where categories and processes remain incompletely understood (Gehman *et al*., 2017). Rather than testing the relationships among existing constructs, inductive research methods support researchers' efforts to develop new constructs and theoretical frameworks (Edmondson & McManus, 2007). Given the infrequency of opportunities to observe disruptive innovation processes, such as those at SpaceX, they serve as natural candidates for inductive inquiry. By focusing solely on the context of SpaceX, rich empirical data can be gathered, which offers the opportunity for a comprehensive understanding (Lincoln & Guba, 1985; Eisenhardt, 1989) of the discursive strategy employed.

The commercial space industry. My research setting is the commercial space industry, a rapidly growing but nascent sector of the space industry. Historically, space research and exploration were predominantly led by government agencies such as NASA. However, in recent years, private companies, including SpaceX, Blue Origin, Virgin Galactic, and Planetary Resources, among others, have emerged as major players in the industry. The commercial space industry encompasses a range of for-profit activities, including the development of new spacecraft and rockets, human spaceflight, payload delivery (e.g., satellites), space mining (the extraction of valuable resources from celestial bodies), space tourism (leisure activities in space), space manufacturing (the production of unique goods and materials in the absence of gravity), and space-based research and development.

The commercial space industry represents an ideal research setting due to its nascent stage and high level of public attention. The industry is characterized by firms engaged in radical innovation, such as the development of reusable rocket designs. Furthermore, the industry is home to a number of firms with high-profile founders and CEOs, including Elon Musk (SpaceX), Jeff Bezos (Blue Origin), and Richard Branson (Virgin Galactic). Given these factors,

studying the commercial space industry offers a unique opportunity to explore the intersection of disruptive innovation, celebrity firms, and language use in social media.

SpaceX as the most successful and popular company in the commercial space industry. Established in 2002 in the United States by Elon Musk, SpaceX has emerged as a leading and innovative private aerospace company in the space industry. Elon Musk, the founder and CEO of SpaceX, is also a well-known public figure and celebrity. The company's mission is to make life multi-planetary by facilitating human exploration and settlement on Mars and beyond while reducing the cost of space transportation. SpaceX develops rockets and spacecraft and launches space transportation systems, collaborating with NASA and the U.S. military to achieve its goals.

SpaceX has made significant milestones in space exploration. According to SpaceX's "Making History" tab, it claims that "SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company capable of returning a spacecraft from low-Earth orbit, and in 2012 our Dragon spacecraft became the first commercial spacecraft to deliver cargo to and from the International Space Station. And in 2020, SpaceX became the first private company to take humans there as well" (SpaceX, 2023). These accomplishments and more are listed in **Table 1**, showcasing the company's successful and disruptive innovations.

The focus of this study is on SpaceX, as this company has revolutionized the space industry through its continued innovations and successful endeavors, setting the stage for a new era of space exploration and inspiring a new generation of enthusiasts and scientists. In comparison, both Blue Origin and Virgin Galactic are companies involved in a relatively narrower business—the emerging space tourism industry. Blue Origin is focused on reusable rockets and suborbital spaceflight for suborbital space tourism flights, while Virgin Galactic is

using a unique aircraft-launched spacecraft for its suborbital flights. Planetary Resources focused on developing the technologies for asteroid mining before it was acquired by ConsenSys in 2018.

Table 2 The milestones accomplished by SpaceX

Year	SpaceX technological milestones
2008	The first privately developed liquid fuel rocket to reach Earth orbit: Falcon 1
2012	The first private spacecraft in history to visit the space station: Dragon
2015	The first-ever orbital class rocket landing: the first stage of Falcon 9 rocket returned and landed at Landing Zone 1
2016	On April 8, 2016, Falcon 9 launched Dragon to the International Space Station (ISS), and its first stage landed on the "Of Course I Still Love You" droneship
2017	On March 30, 2017, SpaceX achieved the first reflight of an orbital class rocket as the Falcon 9 first stage returned to Earth for the second time after delivering the payload
2018	On February 7, 2018, Falcon Heavy's first launch to orbit saw successful landing of 2 of its 3 boosters and the launch of its payload to space.
2019	The first American spacecraft to autonomously dock with ISS: Dragon, on March 3 at 3:02 a.m. PST
2020	SpaceX's Falcon 9 and Crew Dragon system became the first commercial system in history to be certified by NASA for human spaceflight to and from ISS

SpaceX YouTube channel. The SpaceX YouTube channel (https://www.youtube.com/spacex) was established on July 30, 2008, and uploaded its first video on November 25, 2008, depicting the Falcon 9 engine test. On its YouTube page, SpaceX is described as a company that "designs, manufactures and launches the world's most advanced rockets and spacecraft" (SpaceX YouTube, 2023). The SpaceX YouTube channel has gathered substantial public attention, evidenced by its 6.13 million subscribers and over 653 million views as of February 17, 2023. The SpaceX YouTube channel features a corpus of 328 videos that document the company's endeavors in the domains of space exploration and rocket technology. The channel serves as an avenue for SpaceX to showcase its advancements in various aspects of the commercial space industry, such as rocket launches, reusable rocket technology

development, facility tours, and press conferences. Overall, SpaceX content produced on this popular online video platform presents a distinctive perspective on the forefront of technological advancements and innovations in the commercial space industry.

One may question the choice of focusing on SpaceX's own YouTube channel as a data source, given the abundance of SpaceX-related content available on the platform. However, it is worth noting that when conducting a search for SpaceX on YouTube, the official SpaceX channel appears first in the search results, along with other popular videos created by SpaceX. This argument is supported by **Appendix Figure A**. When it comes to the SpaceX YouTube channel, all of its videos are publicly available on the platform. However, it's worth noting that only registered YouTube users have the ability to like or comment on a particular video. More importantly, the focus on SpaceX's own YouTube channel is logical and justified because this media outlet is directly under the control of SpaceX and is the most immediate means of promoting its discursive strategy

Data collection and description. The SpaceX YouTube channel provides a rich source of archival data from a data perspective. The availability of such data has grown rapidly in recent years (Grodal, 2018), and it has become an increasingly prominent source for qualitative studies (Kahl & Grodal, 2016; Ozcan & Santos, 2015; Raffaelli, 2019). Archival data can be linguistic or visual in nature (Kahl & Grodal, 2016), with videos often containing both sources of data. Furthermore, archival data such as YouTube videos are widely accessible and often available for free on the internet. This availability provides an opportunity for researchers to study new phenomena and real-time actions across different spaces and timeframes, enabling a deeper understanding of various social and cultural aspects. In archival research, constant access to the

sample is available as well, which allows for the collection of sufficient data to achieve saturation.

Table 3 The summary of statistics of the top 50 most viewed SpaceX YouTube videos 2008-2023

Key statistics			**Top 50 most viewed SpaceX videos**
Publicity	Views	Min	2.6 million
		Max	31.7 million
		Median	4.6 million
		Average	6.7 million per video
		Total	333.3 million
Engagement	Likes	Min	6.4 thousand
		Max	749 thousand
		Median	80 thousand
		Average	120 thousand per video
		Total	5997.4 thousand
	Comments	Min	1 thousand
		Max	43 thousand
		Median	5 thousand
		Average	8.5 thousand per video
		Total	426 thousand
	Likes of each video's top comment	Min	0.007 thousand
		Max	652 thousand
		Median	2.5 thousand
		Average	22.68 thousand per top comment
		Total	1133.738 thousand
Time	Duration (video length)	Min	12 second
		Max	10.8 hour
		Median	199 second
		Average	1.2 hours per video
		Total	58.7 hours
	Elapsed days	Min	518 days
		Max	4490 days
		Median	1904.5 days
		Average	1958.56 days
		Total	97928 days
	Time period		2010-2021
Format	Live streaming		20 out of 50
	Music		23 out of 50
	Animated videos		4 out of 50

These 50 videos were representative of the larger population, as they accumulated a total of 333.3 million views (as of February 17, 2023), which accounts for over 51% of the total views of SpaceX's YouTube channel over the 16 years from 2008 to 2023. To ensure a comprehensive dataset, I collected the following qualitative and quantitative data on these 50 videos (updated to February 17, 2023). The comprehensive data potentially enhances the precision of data, thereby facilitating a deeper understanding of the underlying phenomenon and providing relevant insights into the research questions. **Tables 2**, **3**, and **4** provide a summary of the crucial statistics associated with these videos.

Table 4 Descriptive of the qualitative data of these 50 most-viewed SpaceX YouTube videos

Qualitative data	**Quantity**	**Word count**				
		Min	**Max**	**Median**	**Average**	**Total**
Title	50	2	10	5	5	250
Description	39	7	232	118	116.8	4,556
Transcripts (obtained)	14	485	14,578	3,297	4310.3	60,344
Top comment	50	2	83	15	19.5	974
Total	**66,124 words**					

Table 4 Top 50 viewed SpaceX YouTube videos, ranked by publicity (the number of views)

No.	Title	Date	Views	Likes	Comments	Live streaming	Duration			Content		
			(million)	(thousand)	(thousand)		Hour	Min	Sec	Music	Rocket launch/ landing/ docking/ firing	Success
V1	Falcon Heavy Test Flight	2/6/18	31.7	541	43	Yes	0	34	18	Yes	Yes	Yes
V2	How Not to Land an Orbital Rocket Booster	9/14/17	28	749	38	-	0	2	8	Yes	Yes	**Both failure & success**
V3	Live Views of Starman	2/8/18	18.9	257	24	Yes	4	13	10	-	-	Yes
V4	Starship | SN5 | 150m Flight Test	8/5/20	15.7	257	17	-	0	1	0	-	Yes	Yes
V5	SpaceX Pad Abort Test	5/8/15	12.3	149	6	-	0	2	7	-	Yes	Yes
V6	Starship | SN10 | High-Altitude Flight Test	3/3/21	11.6	290	31	Yes	0	14	46	-	Yes	Yes
V7	Falcon Heavy Animation	2/5/18	10.7	171	14	-	0	3	26	Yes	Yes	Yes
V8	Crew Demo-2	5/27/20	9.9	249	4	Yes	5	57	56	Yes	-	Yes
V9	Starship | SN8 | High-Altitude Flight Test	12/9/20	9.7	204	21	Yes	1	59	32	-	Yes	Yes
V10	Starship | SN8 | High-Altitude Flight Recap	12/24/20	9.3	190	13	-	0	2	20	Yes	Yes	Yes
V11	Falcon Heavy & Starman	3/11/18	8.6	212	13	-	0	1	52	Yes	Yes	Yes
V12	SpaceX Interplanetary Transport System	9/27/16	7.8	133	15	-	0	4	21	Yes	Yes	Yes
V13	Starship | SN15 | High-Altitude Flight Test	5/5/21	6.8	181	16	Yes	0	16	5	-	Yes	Yes
V14	Grasshopper 744m Test | Single Camera (Hexacopter)	10/12/13	6.6	59	4	-	0	1	36	-	Yes	Yes
V15	SpaceX Testing - Dragon Drop Test (HD)	11/4/10	6.3	55	2	-	0	2	32	Yes	Yes	Yes
V16	Crew-1 Mission | Launch	11/16/20	6.2	144	5	Yes	4	33	14	Yes	Yes	Yes
V17	Starship | Earth to Earth	9/29/17	5.9	94	11	-	0	1	57	Yes	Yes	Yes
V18	Crew Demo-2 | Splashdown	8/2/20	5.9	114	3	Yes	7	56	24	-	Yes	Yes
V19	Elon's SpaceX Tour - Offices	11/12/10	5.8	117	6	-	0	3	12	Yes	-	-

V20	Starship | SN9 | High-Altitude Flight Test	2/2/21	5.7	157	17	Yes	0	13	42	-	Yes	Yes
V21	CRS-6 First Stage Landing	4/15/15	5.3	21	3	-	0	0	22	-	Yes	**Failure**
V22	150 Meter Starhopper Test	8/27/19	5.1	100	8	Yes	0	2	37	-	Yes	Yes
V23	The Future of Design	9/5/13	4.9	121	7	-	0	3	48	Yes	-	-
V24	Starship Update	9/29/19	4.7	79	6	Yes	1	25	29	Yes	-	-
V25	Falcon Heavy | Flight Animation	1/27/15	4.7	50	4	-	0	2	29	Yes	Yes	Yes
V26	F9R First Flight Test | 250m	4/18/14	4.5	18	2	-	0	1	52	-	Yes	Yes
V27	Falling Back to Earth | HD Footage From Space	6/5/15	4.4	33	4	-	0	1	54	Yes	-	Yes
V28	Making Humans a Multiplanetary Species	9/28/16	4	49	6	-	1	4	45	-	-	-
V29	Inspiration4 | Launch	9/16/21	4	111	4	Yes	4	39	46	Yes	Yes	Yes
V30	Arabsat-6A Mission	4/12/19	4	86	6	Yes	0	54	10	-	Yes	Yes
V31	Crew Dragon | Launch Escape Demonstration	1/19/20	3.9	76	4	Yes	0	30	17	Yes	Yes	Yes
V32	Grasshopper 325m Test | Single Camera (Hexacopter)	7/6/13	3.8	23	3	-	0	1	35	-	Yes	Yes
V33	Falcon 9 First Stage Landing | From Helicopter	12/21/15	3.7	26	2	-	0	0	12	-	Yes	Yes
V34	Crew-1 Mission | Rendezvous and Docking	11/17/20	3.6	69	2	Yes	10	47	14	-	Yes	Yes
V35	Starship | SN11 | High-Altitude Flight Test	3/30/21	3.6	69	6	Yes	0	15	54	-	Yes	Yes
V36	360 View | First Stage Landing on Droneship	4/29/16	3.5	50	3	-	0	0	38	-	Yes	Yes
V37	Multi-Angle: Grasshopper 12-Story Test Flight 12/17/12	12/24/12	3.4	6.4	1	-	0	0	58	-	Yes	Yes
V38	Bangabandhu Satellite-1 Mission	5/11/18	3.4	53	5	Yes	0	53	36	Yes	Yes	Yes
V39	CRS-10 | Falcon 9 First Stage Landing	2/19/17	3.4	41	3	-	0	0	54	-	Yes	Yes

V40	Crew-1 Mission | Return	5/2/21	3.3	67	2	Yes	7	45	30	Yes	Yes	Yes
V41	Dragon 2 Propulsive Hover Test	1/21/16	3	28	2	-	0	0	46	-	Yes	Yes
V42	"The Falcon has landed" | Recap of Falcon 9...	1/12/16	3	47	3	-	0	3	37	Yes	Yes	Yes
V43	SpaceX SuperDraco Thruster Firing	5/28/14	3	35	1	-	0	0	34	-	Yes	Yes
V44	CRS-8 | First Stage Landing on Droneship	4/9/16	2.9	30	3	-	0	0	39	-	Yes	Yes
V45	ORBCOMM-2 Full Launch Webcast	12/22/15	2.9	34	4	Yes	0	45	27	Yes	Yes	Yes
V46	Inspiration4 | Splashdown	9/19/21	2.9	89	4	Yes	2	2	45	Yes	Yes	Yes
V47	Starship | SN6 | 150m Flight Test	9/4/20	2.9	81	7	-	0	0	55	-	Yes	Yes
V48	Starship | SN10 | High-Altitude Flight Recap	3/16/21	2.8	100	9	-	0	1	48	Yes	Yes	Yes
V49	Making Life Multiplanetary	9/29/17	2.7	49	5	-	0	43	28	-	-	-
V50	First-stage landing | Onboard camera	5/27/16	2.6	33	4	-	0	0	30	-	Yes	Yes

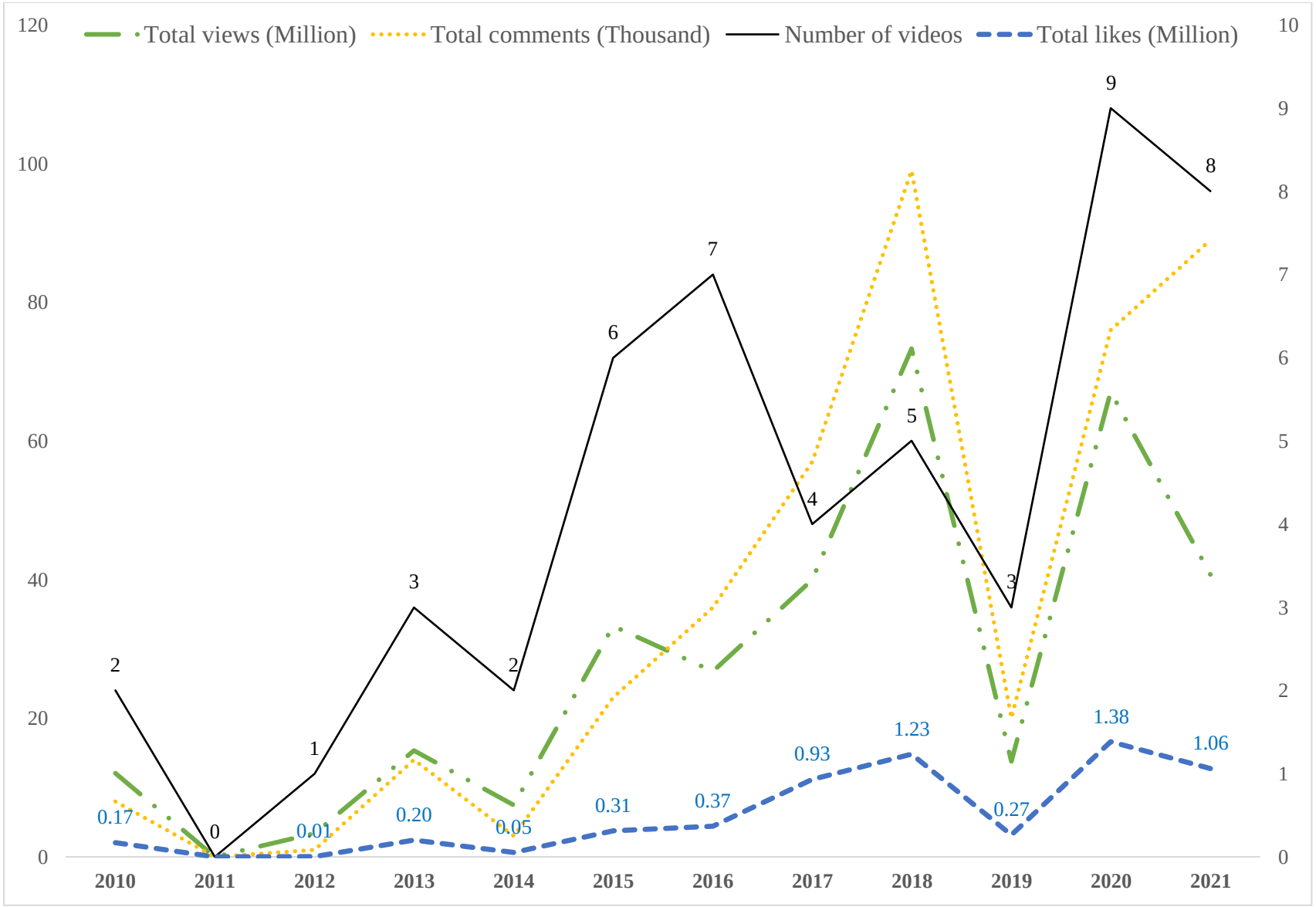


Figure 1 Temporal lens: Yearly comparison among the most-viewed SpaceX YouTube videos

Table 5 Temporal lens: Compare the most and least recent most-viewed SpaceX YouTube videos

Temporal lens	**Total views** (million)	**Total likes** (thousand)	**Total comments** (thousand)	**Videos**
Least recent 25 videos (11/4/10 - 9/29/17)	138.4	2,050.4	142	V2, V5, V12, V14, V15, V17, V19, V21, V23, V25, V26, V27, V28, V32, V33, V36, V37, V39, V41, V42, V43, V44, V45, V49, V50
Most recent 25 videos (2/5/18 - 9/19/21)	194.9	3,947	284	V1, V3, V4, V6, V7, V8, V9, V10, V11, V13, V16, V18, V20, V22, V24, V29, V30, V31, V34, V35, V38, V40, V46, V47, V48

Table 6 Transcribed 14 out of 50 videos

No.	Title	Transcribed	Live streaming	Hour	Min	Sec	Elon Musk Speech	Word Count
V6	Starship | SN10 | High-Altitude Flight Test	Yes	Yes	0	14	46	-	644
V13	Starship | SN15 | High-Altitude Flight Test	Yes	Yes	0	16	5	-	973
V19	Elon's SpaceX Tour - Offices	Yes	-	0	3	12	Yes	485
V20	Starship | SN9 | High-Altitude Flight Test	Yes	Yes	0	13	42	-	663
V23	The Future of Design	Yes	-	0	3	48	Yes	619
V24	Starship Update	Yes	Yes	1	25	29	Yes	10,143
V28	Making Humans a Multiplanetary Species	Yes	-	1	4	45	Yes	7,972
V30	Arabsat-6A Mission	Yes	Yes	0	54	10	-	2,070
V31	Crew Dragon | Launch Escape Demonstration	Yes	Yes	0	30	17	-	4,867
V35	Starship | SN11 | High-Altitude Flight Test	Yes	Yes	0	15	54	-	867
V38	Bangabandhu Satellite-1 Mission	Yes	Yes	0	53	36	-	4,524
V45	ORBCOMM-2 Full Launch Webcast	Yes	Yes	0	45	27	-	6,589
V46	Inspiration4 | Splashdown	Yes	Yes	2	2	45	-	14,578
V49	Making Life Multiplanetary	Yes	-	0	43	28	Yes	5,350
Counts		14 transcribed videos	10 out of 14 are live streaming	4 h	320 min	444 sec	5 Elon Musk speeches	60,344 words

(1) Video title. Each video posted by SpaceX on YouTube includes a concise and informative headline that serves as the primary point of reference for the audience. Here are three examples of such titles—"*Starship Update*," "*Falling Back to Earth | HD Footage From Space*," and "*Making Humans a Multiplanetary Species*." A total of 50 titles were collected, as part of the qualitative data.

(2) Description. Out of the 50 most-viewed SpaceX videos on YouTube, 39 of them feature a section of text located directly beneath the video title. This section, known as the description, serves to offer the audience supplementary information about the video's content. Using the most-viewed SpaceX video on YouTube (31.7 million) as an example:

> Title: *Falcon Heavy Test Flight*
>
> Description: *Following its first test launch, Falcon Heavy is now the most powerful operational rocket in the world by a factor of two. With the ability to lift into orbit nearly 64 metric tons (141,000 lb)---a mass greater than a 737 jetliner loaded with passengers, crew, luggage and fuel--Falcon Heavy can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy, at one-third the cost. Falcon Heavy draws upon the proven heritage and reliability of Falcon 9. Its first stage is composed of three Falcon 9 nine-engine cores whose 27 Merlin engines together generate more than 5 million pounds of thrust at liftoff, equal to approximately eighteen 747 aircraft. Only the Saturn V moon rocket, last flown in 1973, delivered more payload to orbit. Falcon Heavy was designed from the outset to carry humans into space and restores the possibility of flying missions with crew to the Moon or Mars.*

(3) Upload date. The SpaceX YouTube channel has been posting videos since 2008, but the 50 most-viewed videos were published between 2010 and 2021. The upload date is important for the audience to track the timeline of videos and helps to answer questions related to the performance of videos over time. **Table 5** divides the 50 videos into two parts based on their upload dates—the less recent (2010-2017) and the more recent (2018-2021). One may assume that older videos would collect more views, likes, and comments due to a longer elapsed time. However, in the case of SpaceX, the most recent 25 videos have 56.5 million more views, 1,896.6 thousand more likes, and 142 thousand more comments than the least recent 25 videos. This indicates that the most recent videos have contributed more to the engagement and publicity of the SpaceX YouTube channel. Additionally, by grouping the 50 videos according to the year in which they were posted, **Figure 1** visualizes the rising number of SpaceX videos as well as their popularity.

(4) Publicity: Number of views. Publicity refers to the attention, visibility, interest, awareness, and exposure received from the public, including on the YouTube platform. The number of views on SpaceX's YouTube channel is an indicator of its level of publicity. Each video's total views represent the number of times it has been watched. It is generally the case that any individual, irrespective of YouTube membership status, may view YouTube videos, unless restricted by age or the video creator, which does not apply to SpaceX. The top 50 most-viewed SpaceX videos have attracted a cumulative total of over 333 million views, corresponding to an average of 6.7 million views per video.

(5) Engagement: Number of likes and comments. The engagement level between SpaceX and YouTube users (estimated at 2 billion active users by Google search), is indicated by

the use of the 'like' and 'comment' features, which are exclusive to registered YouTube users. These features are utilized to showcase interaction and participation on the platform.

Upon viewing a YouTube video, users may utilize the 'like' button to express enjoyment or approval of the content. The number of 'likes' a video receives serves as an indicator of its positive acceptance among YouTube users. It is important to note that each user may only contribute one 'like.' The top 50 most-viewed videos by SpaceX received a total of 5.997 million 'likes,' averaging 120 thousand 'likes' per video.

Additionally, the comment section on a YouTube video page is designed to facilitate text-based responses, questions, and discussions among YouTube users, as well as between users and the video creator. This section serves as a virtual space for interaction and engagement. In the study, a total of 426 thousand comments were attracted across the 50 targeted videos.

(6) Format. The YouTube video produced by SpaceX may exhibit variations in its format, encompassing both pre-recorded and edited normal videos, as well as live streaming videos that are broadcasted and interacted with in real time. Further variations may be observed in the incorporation of music, animated visuals, and diverse content topics (e.g., rocket test, success or failure). One goal of this study is to differentiate the impact of various video formats on the levels of publicity and engagement. Among these top 50 most-viewed videos, it is notable that 20 videos were live-streamed, and 23 videos incorporate music—David Bowie's piece "Life on Mars?" has been used the most. Moreover, a mere four videos were found to feature fully animated visuals, which were

utilized to depict future strategy and innovation. Specifically, these videos have been identified as V7, V12, V17, and V25, and their respective details can be found in Table 4.

(7) Duration. Video duration is defined as the total length of time that a video runs from its beginning to its end. Among the top-viewed SpaceX YouTube videos, the duration varies widely. For instance, the shortest video (V33 "*Falcon 9 First Stage Landing | From Helicopter*") is only 12 seconds in length, yet this pre-recorded video has attracted an impressive 3.7 million views. Conversely, the longest video, V34 ("*Crew-1 Mission | Rendezvous and Docking*"), which was live-streamed, has a duration of 10 hours, 47 minutes, and 17 seconds, and has accumulated 3.6 million views.

(8) Transcripts. Regarding the verbal component of these videos, it was found that 26 of the 50 videos included spoken language. However, upon further examination, only 21 of these videos were found to contain a meaningful length of spoken content. The remaining 5 videos (e.g., V4, V15, and V48) included only background conversations, basic technical commands, or a simple countdown, and were therefore excluded from this study. These remaining 21 videos with a meaningful length of spoken language was useful in the following quantitative inductive analysis as a control variable.

The next step in the process was to gather the written transcripts of the spoken content of these 21 videos. Fortunately, transcripts for 13 of the videos were available directly on its YouTube page. However, some data cleaning was necessary to remove non-language cues such as [Music], [Applause], [Laughter], etc. As for the remaining 8 videos, a decision had to be made due to the use of transcripts data as well as the budget for research. Seven of these videos show similar patterns of content (e.g., live streamed launches) as most of the direct transcribed 13 videos, hence, they were excluded in the

data collection process, with confidence that the theoretical dimensions explored from these seven videos will overlap with the direct transcribed videos. The single remaining video, V24 "*Starship Update*" (https://www.youtube.com/watch?v=sOpMrVnjYeY), did not have access to a direct transcript either. But this video is important as it captures Elon Musk's full speech. Therefore, an AI transcription speech-to-text service (https://transcribe.wreally.com/) was used, and a fee of $32 was paid to transcribe this approximately 1.5-hour-long V24 video. **Table 6** provides a summary of the transcribed information for all 14 videos. It is noteworthy that 10 out of 14 videos were live-streamed, and 5 featured speeches by Elon Musk. In total, over 60 thousand words of transcripts were added to the qualitative dataset. The combined length of all transcribed videos is 9.46 hours.

(9) Top comment and number of likes it received. As a supplement to the existing dataset, the top comment from each video was also collected as additional qualitative data. The top comment was determined based on the number of likes it received in each video's comment section, representing the most recognized reaction from SpaceX YouTube users. **Appendix Table A** provides the full list of the top comments for the 50 most-viewed SpaceX videos. On average, a top comment received 22.68 thousand likes. This information is important in understanding how users collectively react to SpaceX's videos.

3.4 The mixed-method design for the video analysis and findings

The primary focus of this study is to investigate the most effective discursive strategies employed by SpaceX on its YouTube channel, and how these strategies have contributed to the company's level of publicity and recognition. To achieve this, the research question is broken down into sub-questions, which include: (1) What are the primary themes and topics that are covered in SpaceX's most viewed YouTube videos? (2) How have these themes and features evolved over time? (3) In what ways can SpaceX utilize the knowledge of discursive strategy to shape their future content creation strategy?

The selection of a particular methodology holds significant importance as it can heavily influence the researcher's perspective on the phenomenon, ultimately shaping their understanding and interpretation of the data. Specifically, "Although methods are merely tools, they do have consequences. Choose methods that help you answer your research questions with ingenuity and incisiveness. *How* you collect data affects *which* phenomena you will see, *how*, *where*, and *when* you will view them, and *what* sense you will make of them" (Charmaz, 2014, p. 15).

Given the richness and dynamic nature of video data, a mixed-method design is the most appropriate approach for this study. The qualitative design will encompass all textual and visual data and will primarily focus on understanding the "what" questions, which involve identifying patterns of topics and contents (e.g., Chai, Doshi, & Silvestri, 2022), and exploring both linguistic and non-linguistic features (e.g., visuals) in terms of how these contents are presented. For example, Knight, Paroutis, and Heracleous (2018) utilize a qualitative method to scrutinize visual data extracted from PowerPoint slides to understand meaning-making in strategy. The quantitative design is also inductive and supplements the qualitative analysis. It focuses on all

the numeric data, which can reveal changes in discursive features in videos over time. By combining these two approaches, a comprehensive analysis can be conducted to shed light on the future development of discursive strategy on the firm level.

3.4.1 Qualitative analysis: What content discursive strategy should highlight in videos and how?

The design of qualitative analysis in this study was to comprehend the specific content emphasized by SpaceX in their most-viewed videos. The purpose was to identify recurring patterns in the discursive strategy employed by SpaceX, which facilitated the organization's public recognition and stakeholder engagement. Additionally, the qualitative interpretation aimed to elucidate the interplay between the highlighted content and other discursive elements, including audio and visuals.

Video data analyzing process. Initially, I delved into the history of SpaceX and the commercial space industry in which it operates, and compiled a timeline of significant milestones achieved by SpaceX (see **Table 1**). I then began the analysis by focusing on its top 50 most-viewed YouTube videos. I chose to start here for the qualitative analysis because these videos represent the most straightforward, multi-dimensional messages a firm can communicate to its stakeholders, resulting in public attention.

The qualitative coding process was initiated by reviewing the videos, titles, descriptions, transcripts (if available), and the top comment of each video. These data sources were used to conduct a series of iterative formal coding procedures (Bryman & Burgess, 1999) to identify emergent theoretical dimensions (Corbin & Strauss, 1990; Charmaz, 2006). The first round of coding was guided by the research question and theoretical perspectives, which led to the

identification of first-order categories. These categories were subsequently grouped into second-order themes. Some themes pertained to SpaceX's past accomplishments, resulting in codes such as *launch America* and *rocket reusability*. Other themes were indicative of the company's ongoing progress, such as *new rocket development*. Additionally, there were themes that encompassed SpaceX's long-term aspirations, resulting in codes such as *space civilization*, *reusable interplanetary transport system*, and *Earth-to-Earth travel through rockets*. As themes emerged, the final stage involved identifying overarching theoretical dimensions to understand the primary discursive strategy employed by SpaceX in terms of its content. **Table 7** illustrates the three-level data analysis process employed to identify the content of SpaceX's discursive strategy, with **Table 8** providing the theme-by-theme evidence.

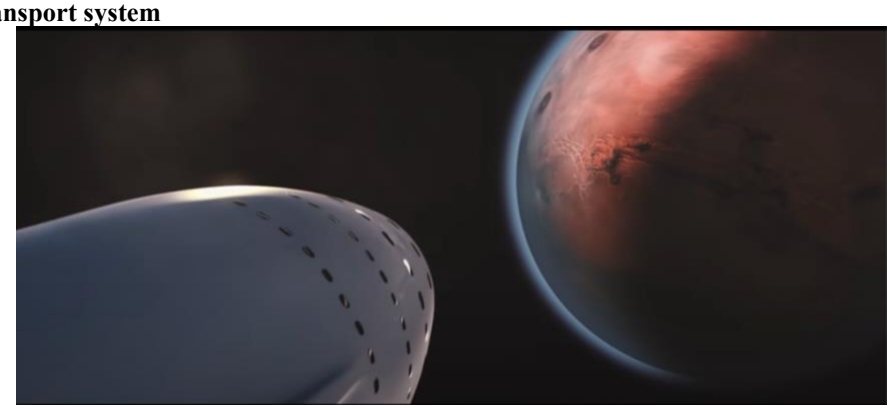
Table 7 Data structure in the qualitative design

Example videos	First-order categories	Second-order themes	Aggregated theoretical dimensions
V5, V15, V31	A. Dragon escape and abort test	1. Launch America	I. Disruptive innovation
V8, V16, V18, V34, V40	B. Crewed Dragon test and mission (e.g., Crew-1)		
V29, V46	C. Inspiration4 (world's first all-civilian human spaceflight to orbit)		
V30, V38, V42, V45	D. Satellite-related missions (e.g., Arabast-6A, Bangabandhu Satellite-1, ORBCOMM, ORBCOMM-2)		
V21, V39, V44	E. Commercial resupply service for NASA (e.g., CRS-6, CRS-8, CRS-10)		
V1, V3, V11	F. Starman (Tesla Roadster) in orbit		
V2, V14, V21, V27, V33, V36, V42, V44, V50	A. Vertical landing (e.g., Falcon 9, First stage, Orbital rocket booster)	2. Rocket reusability	
V14, V37	B. Grasshopper development		
V26	C. Falcon 9 Reusable test		
V1, V11	A. Falcon Heavy launch	3. New rocket development	
V4, V6, V9, V10, V13, V20, V35, V47, V48	B. Starship prototype (e.g., SN5, SN6, SN8, SN9, SN10, SN11, SN15)		
V22, V32	C. Starhopper test		
V24	D. Elon Musk's update on Starship		
V41, V43	E. SuperDraco engine		
V12, V28, V49	A. Human presence on Mars	4. Space civilization	II. Future-making
V19, V28	B. Elon Musk's vision: Making humans a multiplanetary species		

V7, V12, V25	A. Falcon Heavy heading to Mars	5. Reusable interplanetary transport system	
V24, V49	B. Future of SpaceX Super Heavy and Starship		
V17, V49	A. Starship vision	6. Earth to Earth travel through rocket	
V23	A. Future of workflow and design	7. Influences on other domains	
V29, V46	B. Space missions fundraising for cancer research		

Table 8 Dimensions, Themes, and Data (Qualitative design)

Theoretical Dimensions, Themes, Categories	**Representative Data** [*source*]
Disruptive innovation	
1. Launch America	
A. Dragon escape and abort test	"This test, which does not have NASA astronauts onboard the spacecraft, is intended to demonstrate Crew Dragon's ability to reliably carry crew to safety in the unlikely event of an emergency on ascent." [*V31: Description*]
B. Crewed Dragon test and mission (e.g., Crew-1)	"SpaceX and NASA are targeting Sunday, November 15 for Falcon 9's launch of Dragon's first operational crew mission (Crew-1) to the International Space Station (ISS) from historic Launch Complex 39A (LC-39A) at NASA's Kennedy Space Center in Florida." [*V16: Description*]
C. Inspiration4	"After three days orbiting Earth, Dragon and the Inspiration4 crew– the world's first civilian mission to orbit – safely splashed down off the coast of Florida at 7:06 p.m. EDT on Saturday, September 18, 2021, completing their first multi-day low Earth orbit mission." [*V46: Description*]
D. Satellite-related missions (e.g., Arabast-6A, Bangabandhu Satellite-1, ORBCOMM-2)	"Bangabandhu Satellite-1 will be deployed into a geostationary transfer orbit (GTO) approximately 33 minutes after launch. The Bangabandhu Satellite-1 mission will be the first to utilize Falcon 9 Block 5, the final substantial upgrade to SpaceX's Falcon 9 launch vehicle. Falcon 9 Block 5 is designed to be capable of 10 or more flights with very limited refurbishment as SpaceX continues to strive for rapid reusability and extremely high reliability." [*V38: Description*]
E. Commercial resupply service for NASA (e.g., CRS-6, CRS-8, CRS-10)	"CRS-8 | First Stage Landing on Droneship" [*V39: Title*]
F. Starman (Tesla Roadster) in orbit	"Falcon Heavy put a Tesla Roadster and its passenger, Starman, into orbit around the sun. At max velocity Starman and the Roadster will travel 11 km/s (7mi/s) and travel 400 million km (250 million mi) from Earth." [*V11: Description*]
2. Rocket reusability	
A. Vertical landing (E.g., Falcon 9, First stage, Orbital rocket booster)	"While most rockets are designed to burn up on atmosphere reentry, SpaceX rockets are being designed not only to withstand reentry, but also to return to the launch pad for a vertical landing." [*V14: Description*]
B. Grasshopper development	"SpaceX's Grasshopper takes a 12-story leap towards full and rapid rocket reusability in a test flight conducted December 17, 2012 at SpaceX's rocket development facility in McGregor, Texas. Grasshopper, a vertical takeoff and landing vehicle (VTVL), rose 131 feet (40 meters), hovered and landed safely on the pad using closed loop thrust vector and throttle control. The total test duration was 29 seconds." [*V37: Description*]
C. Falcon 9 Reusable test	"Video of Falcon 9 Reusable (F9R) taking its first test flight at our rocket development facility. … The F9R testing program is the next step towards

	reusability following completion of the Grasshopper program last year." [*V26: Description*]
3. New rocket development	
A. Falcon Heavy launch	"Falcon Heavy is now the most powerful operational rocket in the world by a factor of two. … Only the Saturn V moon rocket, last flown in 1973, delivered more payload to orbit." [*V1: Description*]
B. Starship prototype (e.g., SN5, SN6, SN8, SN9, SN10, SN11, SN15)	"SN8 demonstrated a first-of-its-kind controlled aerodynamic descent and a landing flip maneuver." [*V10: Video caption*]
C. Starhopper test	"SpaceX was directly controlling the vehicle based on new sensor readings, adding a new level of accuracy in sensing the distance between Grasshopper and the ground, enabling a more precise landing." [*V32: Description*]
D. Elon Musk's update on Starship	"(Elon Musk) We have gone through various iterations of heat shield, there's a lot of ways to skin the cat here. The ultimately we decided to have a heat shield hexagonal tiles" [*V24: Video transcript*]
E. SuperDraco engine	"SpaceX has completed qualification testing for the SuperDraco thruster, an engine that will power the Dragon spacecraft's launch escape system and enable the vehicle to land propulsively on Earth or another planet with pinpoint accuracy." [*V43: Description*]
Future-making	
4. Space civilization	
A. Human presence on Mars	"Elon Musk provided an update to his 2016 presentation regarding the long-term technical challenges that need to be solved to support the creation of a permanent, self-sustaining human presence on Mars." [*V49: Description*]
B. Elon Musk's vision: Making humans a multiplanetary species	"(Elon Musk) Great rocket engineers and great scientists…enabling us to become a space civilization" [*V19: Video transcript*]
5 Reusable interplanetary transport system	
A. Falcon Heavy heading to Mars	 [*V12: Still frame captured at 3:35*]
B. Future of SpaceX Super Heavy and Starship	"SpaceX's Starship and Super Heavy launch vehicle is a fully, rapidly reusable transportation system designed to carry both crew and cargo to Earth orbit, the Moon, Mars, and anywhere else in the solar system." [*V24: Description*]
6. Earth to Earth travel through rocket	
A. Starship vision	"(Elon Musk) If you build a ship that's capable of going to Mars, what if you take that same ship and go from one place to another on Earth. So, we looked at that and the results are quite interesting. … Most of what people consider to be long-distance trips would be completed in less than half an hour. The great thing about going to space is there's no friction, so once you're out of the atmosphere, it will smooth as silk. No turbulence, nothing, there's no weather. … You can get to most long-distance places like said in less than half an hour. And if we're building this thing to go to the Moon and Mars, then why not go to other places on Earth as well." [*V49: Video transcript*]

7. Influences on other domains	
A. Future of workflow and design	"(Elon Musk) It's going to revolutionize design and manufacturing in the 21st century" [*V23: Video transcript*]
B. Space missions fundraising for cancer research	"Inspiration4 & St. Jude: Raised $615,862.00. The Inspiration4 mission is part of Jared Issacman's ambitious fundraising goal to give hope to all kids with cancer and other life-threatening diseases. Help Jared reach his $200M goal and donate today." [*V29: Video page*]

This qualitative video analysis presented several challenges. For instance, there were instances where an activity took place in a video without any substantial information being provided in the title, description, or even within the video itself in the form of written or audio captions. In the absence of more comprehensive information, this video could not be meaningfully coded into any existing or new first-order categories. Analyzing such videos required the knowledge of the space missions, as well as additional checks on the internet and triangulating data to obtain the required context.

As an example, V5, titled "*SpaceX Pad Abort Test*," lacked any description, and its 2-minute duration only revealed a countdown in the beginning, some commands language in the middle, and the sound of the launch at the site. Although a spacecraft was visible in the video, researchers without any background information would find it challenging to identify the object or the objective of the "abort test." Despite this, Video 5 received over 12 million views, more than 150k likes, and over 5k comments, which indicates very high public visibility and stakeholder engagement. After conducting further verification, the spacecraft in the video was identified as the *Dragon* capsule or spacecraft designed to transport people or sensitive cargo to and from outer space (more information available at https://www.spacex.com/vehicles/dragon/). Armed with this essential information, the video was coded as the "*Dragon escape and abort test*" as a first-order category. The Dragon spacecraft's successful escape capability was a crucial part of SpaceX's *Launch America* initiative (the second-order themes) and part of the *disruptive*

innovation (aggregated theoretical dimension) that SpaceX has introduced to the commercial space industry.

V42 is another example of the challenging video-based analysis, as it features a successful launch and landing after the delivery of 11 satellites. However, the title, description, as well as the video itself provide no information about the nature of the mission or the customer. With additional research, it was discovered that this space mission was not a commercial resupply service for NASA but instead a delivery service provided for ORBCOMM, a customer of SpaceX. With this verified information, V42 can be coded as both a *vertical landing* and *satellite-related mission*. This example highlights the importance of conducting thorough research and data triangulation to accurately interpret and code video-based data.

Recognizing the complexity of video analysis, this study employed a thorough, iterative process across three rounds to enhance the validity of findings. The first round was conducted in January 2023, in which all 50 videos were fully watched, initial codes were generated, and relevant information such as live streaming, rocket features, and mission outcomes were recorded. In the second round, conducted on February 17, 2023, all numerical data were updated, including likes, views, and comments, and all videos were independently coded again. Notes from the first two rounds were then compared to refine the codes and themes. In the third round, conducted in early March, all videos and data were further analyzed to finalize the first-order categories, second-order themes, and key theoretical dimensions. (To ensure the robustness of the findings, two external researchers can be invited in the future to examine the theoretical dimensions and supporting empirical evidence, as well as to provide a critical perspective.) During this process, I engaged with research on emerging industries, innovation, discursive strategy, corporate reputation, and celebrity firms and CEOs, consistently moving between the

literature and the data. As a result of this iterative approach, I identified two critical theoretical dimensions—disruptive innovation and future-making—as the principal components of SpaceX's discursive strategy.

Findings on the 'what' question of discursive strategy. After the exploratory analysis of the top 50 most-viewed SpaceX YouTube videos, I found that both (I.) *disruptive innovation* and (II.) *future-making* are the key contents of the company's discursive strategy that successfully attract high publicity.

The main focus of SpaceX's discursive strategy is on its (I.) *disruptive innovation*, which includes both the company's past achievements and its current cutting-edge technology developments. Specifically, their achieved innovations include *launch America* and *rocket reusability*. (1) The term "Launch America" was initially coined to describe the return of human spaceflight capabilities to the United States in May 2020. This achievement was made possible by SpaceX and NASA after a decade of relying on the Russian Soyuz spacecraft to transport astronauts to the International Space Station (ISS) following the retirement of the Space Shuttle program in 2011. In this study, the second-order theme of *launch America* broadly describes SpaceX's testing and execution of space missions within the United States, including NASA crew missions and other customers' satellite-based missions (see evidence listed from 1A to 1F in **Table 8**). (2) The other theme, *rocket reusability* is a critical capability for SpaceX. By using reusable rocket boosters, SpaceX is able to keep launch costs low and ensure sustainable space missions. Popular videos showcase the development process of the booster's key component (see evidence 2B in **Table 8**), as well as both successful and failed vertical landing attempts made by SpaceX over the years. It is worth noting that the successful development of reliable reusable rockets has laid the foundation for SpaceX to support the United States in bringing back human

spaceflight. SpaceX's discursive strategy also emphasizes (3) new rocket development, in addition to their established innovations. Starship, Starhopper, and SuperDraco are examples of cutting-edge rocket technologies that aim to disrupt the space industry even further (see evidence 3A-3E in **Table 8**).

Another focus of SpaceX's discursive strategy is on its (II.) *future-making* narratives, which are mainly illustrated in videos of Elon Musk's speeches and animated visuals. The key themes of these narratives are the multiplanetary (4) *space civilization*, (5) *reusable interplanetary transport system*, and (6) *Earth to Earth travel through rocket*. These themes enable the audience to resonate with SpaceX's long-term aspirations. Furthermore, the data uncovers SpaceX's (7) *influences on other domains*, including design and health research, as a crucial aspect of its efforts to shape the future beyond the realm of space. The evidence from 4A to 7B for the *future-making* dimension is multi-dimensional in **Table 8**, including textual data from video description, video transcript, and video page, as well as visual data (5A), which also reflects the dynamic use of the discursive strategy of SpaceX.

Both (I.) *disruptive innovation* and (II.) *future-making* are not mutually exclusive. In fact, I have observed that they can be seamlessly blended together in the same videos, such as V24, V28, and V49. For instance, V28's description provides a clear illustration of this combination:

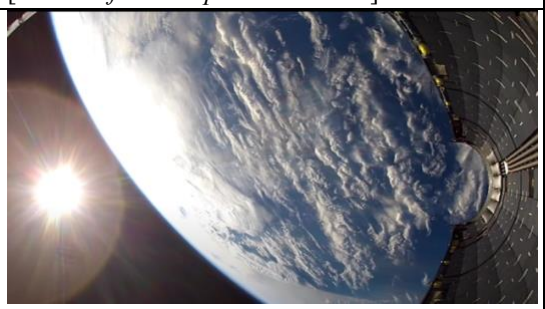
> "SpaceX Founder, CEO, and Lead Designer Elon Musk will discuss the long-term technical challenges that need to be solved to support the creation of a permanent, self-sustaining human presence on Mars." [*V28*, *Description*]

This example refers to both "long-term technical challenges," which pertains to *disruptive innovation*, and "permanent, self-sustaining human presence on Mars," which signifies *future-making*.

Findings on the 'how' question of discursive strategy. In addition to the key contents of discursive strategy SpaceX employs, during the qualitative analysis, the findings related to the manner in which SpaceX presents their content can also yield valuable insights for other companies' discursive strategies.

The first aspect concerns the effective use of visuals in SpaceX's discursive strategy, which is comprised of three distinct features: (a) employment of sci-fi visuals, (b) utilization of multi-angled cameras, and (c) blending of reality and animation.

Table 9 SpaceX's discursive strategy: Effective visuals

Representative visuals		
Live streamed launches	 [*V1: Still frame captured at 22:07*]	 *[V30: Still frame captured at 20:07]*
SpaceX unique visuals	 *[V27: Still frame captured at 0:34]*	 *[V1: Still frame captured at 33:34]*

Visual-related top comments of the SpaceX videos

Videos	**Top comment** *(with the keyword in bold)*	**Number of likes**
V6	"That landing scene looks like an epic high budget **sci-fi** movie."	1.8k
V10	"this felt like a **sci-fi** movie!"	2.9k
V30	"That perfect double booster landing is one of the **most beautiful things** that I seen in my life."	1.5k
V39	"Watching these landings will **never get old**."	1.4k

(a.) The use of sci-fi visuals can be attributed to the visually captivating nature of space missions. SpaceX appears to be carrying on the tradition that was initiated by NASA during the Apollo era, through live streaming their launches in real-time. Additionally, SpaceX distinguishes itself through innovative and imaginative methods (see **Table 9**). For instance, during the Falcon Heavy test flight, SpaceX sent a Starman cruising in a Tesla Roadster into outer space. In fact, some of the top comments on the videos describe the SpaceX footage as resembling sci-fi movies (see examples in **Table 9**).

(b.) The utilization of multi-angled cameras can be observed through the video titles, descriptions, and footage, as presented in **Table 10**. For instance, the list of textual evidence provided below (with keywords highlighted) demonstrates SpaceX's dynamic employment of filming techniques in documenting their innovative outcomes and processes.

> "A **GoPro** inside a fairing from a recent Falcon 9 flight captured some spectacular views as it fell back to Earth. Footage is played in real time." [V27, Description]
>
> "**360 View** | First Stage Landing on Droneship" [*V36, Title*]
>
> "**Multi-Angle**: Grasshopper 12-Story Test Flight 12/17/12" [*V37, Title*]
>
> "4X **slow motion** (of Dragon 2 propulsive hover test)" [*V41, Video caption*]
>
> "First-stage landing | **Onboard camera**" [*V50, Title*]

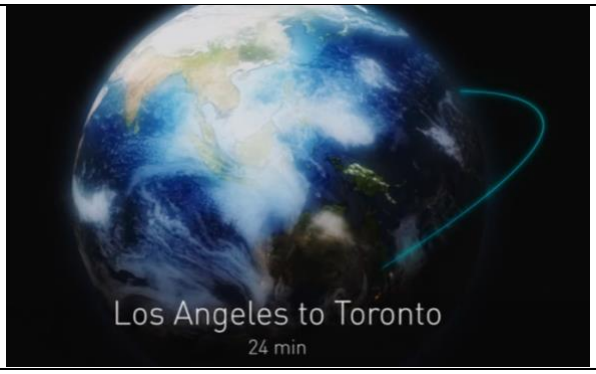
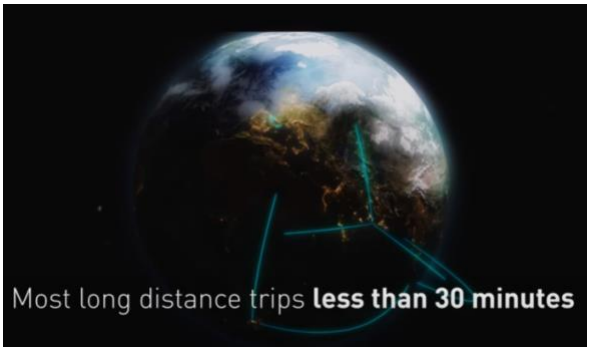
Table 50 SpaceX's discursive strategy: Using multi-angled cameras

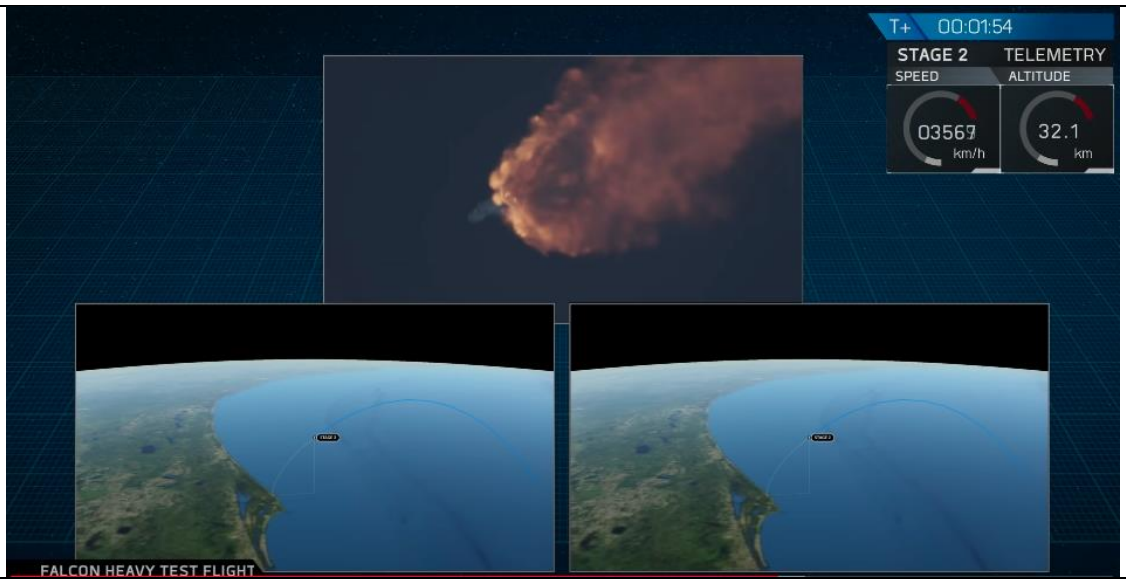
V5. Multi-angled cameras were installed and presented different views in turns

V30. Multi-angled views shown at the same time [*still frame captured at 27:42]*


(c.) SpaceX employs both real-life footage and animated videos. The still frames provided as examples above are typically based on real-life footage. This type of footage is often used to showcase the execution of space missions and the testing of new technologies. On the other hand, animated videos or footage are primarily used to illustrate future plans, as shown in **Table 11**.

Table 61 SpaceX's discursive strategy: Supplementing real-life footage with animation

V17. Future-making: Earth to Earth travel through rocket	
	
	
V1. Animation used to show expected ascent [*still frame captured at 23:52]*	



The second aspect relates to transparency in SpaceX's discursive strategy. Specifically, the company's openness about its failures and challenges is evident in real-life visuals (as presented in **Table 12**), highlighted in various videos (such as V2 and V21), and publicly acknowledged by Elon Musk, which may have enhanced SpaceX's reputation as a transparent and accountable organization.

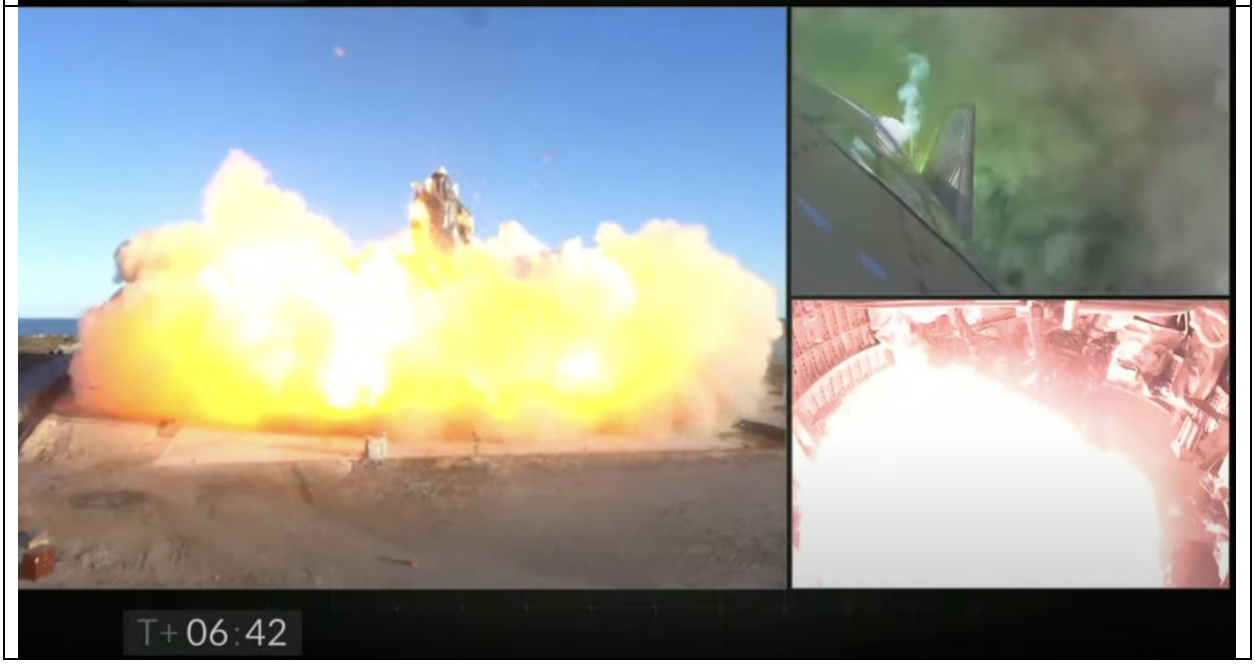
> "Falcon 1, this is where we started out you know. A lot of people only heard about SpaceX relatively recently…and say Falcon 9 and Dragon just instantly appeared and that's how it always was. But it wasn't. We start off with just a few people who really didn't know how to make rockets, and the reason that I ended up being the chief engineer or chief designer, not because I want it, it's because I couldn't hire anyone. Nobody good was joining." [*V49, Video transcript*]

The manifestation of failures and struggles is clearly evident in the top 50 most-viewed SpaceX YouTube videos, signifying the company's commitment to transparency as a cornerstone of its discursive strategy. A testament to this is the top comment on one of the videos

which reads, “They are never afraid of showing their failures, and that great” [*V20, top comment, 1.9k likes*].

Table 72 SpaceX’s discursive strategy: Transparency in failures

V9. Failed vertical landing [*still frames captured at 1:54:55 and 1:54:56]*



Building on the discursive practice of transparency, the third aspect pertains to SpaceX's discursive strategy of reframing failures. When faced with showcasing failures, SpaceX employs a specific linguistic approach of renaming the event as an “exciting” “rapid unscheduled disassembly”:

> “Low pressure in the fuel header tank during the landing burn led to high touchdown velocity resulting in a hard (and **exciting!**) landing.” [*V9, Description*]
>
> “Shortly after the landing burn started, SN11 experienced a **rapid unscheduled disassembly**. Teams will continue to review data from and work toward our next flight test.” [*V35, Description*]
>
> “It does appear though that another **exciting** test as we see.” [V35, Video transcripts]
>
> “As if the flight test was not **exciting** enough, SN10 experienced a **rapid unscheduled disassembly** shortly after landing.” [*V6, Description*]

This framing of failures as an exciting experience resonates well with the audience. For instance, a top comment with over 1k likes reads, “‘looks like we had another exciting test’ thats why I love SpaceX. They have the right attitude with their flight tests.” [*V35*].

Another effective practice of reframing failure is through the use of humor and uplifting music to alter the audience's perception of failures. A great example of this is V2, titled "How Not to Land an Orbital Rocket Booster." It is the second most viewed video on SpaceX's YouTube channel and showcases various failures the company has experienced. **Table 13** provides a summary of how SpaceX employs humor to reframe their failed landing events (the quoted words are from the video captions). However, this written explanation alone cannot capture the actual impact of the video. Therefore, it is recommended to watch V2 (available here:

https://www.youtube.com/watch?v=bvim4rsNHkQ) and experience the acoustic sounds of bombed boosters, stunning visuals, and the accompanying music. It is no surprise that the top comment on V2 with over 18k likes states, "'This isn't flying. This is falling with style," indicating the success of SpaceX's discursive strategy in reframing failure.

Table 13 V2 "How Not to Land an Orbital Rocket Booster" video caption analysis

SpaceX Rocket Booster Landing Events		Re-framing
September 2013	"*Hard impact on ocean*"	N/A
April 2014	"*First soft water landing*"	N/A
July 2014	"*Second soft water landing*" "*Breaks apart after tipping*"	N/A
August 2014	"*Engine sensor failed*"	"*Rocket is fine? It's just a scratch*" (Visual: burned booster debris lying on the ground)
September 2014	"*Ran out of liquid oxygen*"	
January 2015	"*Ran out of hydraulic fluid*"	"*Well, technically, it did land…*" "*Just not in one piece*" (Visual: booster exploded with multiple bouncing pieces of debris on the droneship)
April 2015	"*Sticky throttle valve*"	"Look, that's not an 'explosion'" "It's just a rapid unscheduled disassembly" (Visual: booster explosion and messy debris on fire on the droneship)
January 2016	"*Landing leg collapsed*"	"*Entropy…is such a lonely word*" (Visual: booster burst in fire after unstable landing and falling over on the droneship)
March 2016	"*Landing burn failed*"	"*The course of true love never did run smooth*" (Visual: distant view of bright explosion in the dark)
May 2016	"*Radar glitch*" "*Landing legs damaged*"	N/A
June 2016	"*Ran out of Propellant*"	"*#$@&%?!^*&^%^$!*" (Visual: Booster fell over on the droneship, exploded, and burst into flames)
December 2015	"*First successful land landing*"	N/A
April 2016	"*First successful droneship landing*"	N/A
Final remark caption: "*You are my everything*" (Visual: A successful landed booster sitting on the droneship in the ocean)		

Summary. SpaceX's discursive strategy is centered around positioning itself as an innovative company that is leading the way toward the future. By highlighting its technological innovation process, employing visionary language and visually compelling content, utilizing humor to reframe failures, and incorporating music and mission acoustic sounds, SpaceX effectively employs these discursive elements to create a persuasive and inspiring narrative. The effective use of discursive strategy can capture the attention and imagination of both stakeholders and the wider public, resulting in long-lasting support and interest in advancing SpaceX's standing in shaping the future of space exploration. In other words, videos serve as effective tools in discursive strategy to unfold disruptive innovation and convince stakeholders of future-making aspirations.

The first major content in SpaceX's discursive strategy is disruptive innovation. Disruptive innovations are characterized by the creation of a completely new market through the introduction of a novel product or service that does not have a pre-existing optimal solution to a particular problem (Camillus, 2016; Camillus *et al*., 2021; Christensen & Overdorf, 2000). In the space industry, following the retirement in 2011 of the 30-year reusable space shuttle program, the U.S. government had been relying on Russian rockets for human spaceflight. However, with the introduction of SpaceX's reusable rockets as 'product' and the 'service' of launching humans and satellites from the U.S., SpaceX has disrupted the industry by creating an entirely new commercial spaceflight sector. Incorporating disruptive innovation into the discursive practices of social media can enhance and reinforce the public perception of the firm's capabilities.

The second major content in SpaceX's discursive strategy is future-making. The future construed by leaders plays a key role in shaping the strategy of not only established firms but also entrepreneurial firms (Crilly, 2017; Thompson & Byrne, 2022). Future-making is

performative. It is not merely an objective reality waiting to happen, nor is it solely a subjective perception that exists within the minds of individuals (Bacon-Gerasymenko, Coff, & Durand, 2016; Ganzin, Islam, & Suddaby, 2020). Future-making reflects what firms do to realize their imagined futures (Wenzel *et al*., 2020; Jarzabkowski, Balogun, & Seidl, 2007). In the context of SpaceX, space civilization, as one theme of future-making, can play a vital role in contributing to the overall sustainability and advancement of humankind (Camillus, Bidanda & Mohan, 2018). As Toffler (1970) mentions about future shocks, "Science first gave man a sense of mastery over his environment, and hence over the future. By making the future seem malleable, instead of immutable, it shattered the opiate religions that preached passivity and mysticism" (p. 398). Meanwhile, videos serve as a tool for imagination, allowing firms to create such a 'malleable' future and make these credible images and messages visible to the public.

3.4.2 Quantitative inductive analysis: How does discursive strategy matter in videos?

Among the top 50 most-viewed SpaceX YouTube videos, what makes some videos more popular than others? In other words, what are the factors that contribute to the varying levels of popularity among the top 50 most-viewed SpaceX YouTube videos?

This study's central premise is that a firm's discursive strategy plays a crucial role in contributing to its publicity. However, an alternative explanation could assert that discursive strategy is less relevant, and the passage of time is the primary factor (e.g., Falchetti, Cattani, & Ferriani, 2021). For example, one may argue that SpaceX's older videos will accumulate more views, likes, and comments than their more recent ones. Hence, this study employs a quantitative inductive approach to conduct a supplementary analysis to explore whether the time is the most significant factor in a firm's publicity on social media. Moreover, if time alone is insufficient,

this exploratory analysis can help identify various aspects of discursive strategy that can influence firm-level publicity.

Dependent variables. *Views* refers to the number of times (in millions) a SpaceX video has been watched on the YouTube platform, and it indicates the video's level of publicity or visibility.

Likes represents the count of times (in thousands) the 'like' button has been clicked for a specific SpaceX video on YouTube, serving as a measure of engagement within the YouTube platform.

Likewise, *Comments* captures the number of text-based reactions (in thousands) to a particular SpaceX video on the YouTube platform, reflecting another level of engagement within the YouTube platform.

Independent variable. *Elapsed days* computes the number of days that have transpired from the video uploading date until February 17, 2023 (the date when the data was last updated), inclusive of both the start and end dates. For the top 50 most-viewed YouTube videos of SpaceX, the minimum number of elapsed days is 518 (as shown in **Table 2**). This means that, in a way, the youngest popular video of SpaceX was posted in the latter part of 2021.

Control variables. *Spoken language*. Dummy variable, where a value of 1 indicates that a video has a significant amount of verbal audio (n=21), while a value of 0 signifies that there is no spoken language present in the video (n=29).

Music. Dummy variable, with a value of 1 indicating that a video contains background music (n=23), while a value of 0 indicates that there is no music present in the video (n=27).

Live streaming. Dummy variable, where a value of 1 denotes that a video is being live streamed in real-time (n=20), while a value of 0 indicates that the video is pre-recorded and edited (n=30).

Duration. A continuous variable, representing the total length of time (in seconds) of a video.

Elon Musk. Dummy variable, where a value of 1 indicates that Elon Musk (the celebrity CEO) appears over 3 seconds or gives a talk in the video (n=5), while a value of 0 indicates his absence (n=45). This variable is designed to control for the effect of celebrity CEO on firm reputation.

Title word count. Count data, measuring the number of words in each title of a video. The title of a video is often the first piece of information that the audience sees, making it an important variable to consider when analyzing a video's popularity.

Understanding these variables is crucial since they serve as legitimate sources for reducing information asymmetries about a firm's behavior and strategy through videos, as stated by Graf-Vlachy, Oliver, Banfield, Konig, and Bundy (2020).

Negative binomial regression. The dependent variables in this study, including views, likes, and comments, are count data with non-negative integer values. When dealing with count data, researchers commonly compare negative binomial regression and Poisson regression (e.g., Grinza & Quatraro, 2019; Song, Asakawa, & Chu, 2011).

I utilized the negative binomial model, based on two considerations. First, the dependent variables in this study do not exhibit equality between the variance and the mean, which violates the Poisson model assumption. Second, I selected the negative binomial model through a model comparison analysis. I applied a user-written *countfit* function in Stata to generate a graph that

displays the residuals against count outcomes. The model with a line closest to zero for each dependent variable is likely the best fit for data analysis, as small residuals suggest well-fitting models (Caner & Tyler, 2015). Based on the graphs (see **Figure 2**), the negative binomial model is the better-fitting model for all three dependent variables. And the unit of analysis is video.

In addition, I checked the variance inflation factors (VIFs) to rule out the possibility of multicollinearity in this study. According to the VIF results (refer to **Table 15**), there is minimal concern about multicollinearity since the VIFs of all six models are either 2.39 or 2.41, significantly lower than the threshold of 10 (Ryan, 1997; Kennedy, 1992).

As a result, **Table 14** displays the descriptive statistics and correlation matrix for all the data utilized in the negative binomial regression analysis. It is evident that all the key variables exhibit significant variance, while the correlation coefficients remain consistent with the expected outcomes. Furthermore, **Table 15** provides a summary of the statistical results derived from six negative binomial regression models, including both base models with control variables only (Models 1, 3, and 5) and the full models (Models 2, 4, and 6). The log-likelihood ratios of the full models were improved from the base model. Hence, I used the full models for statistical interpretations.

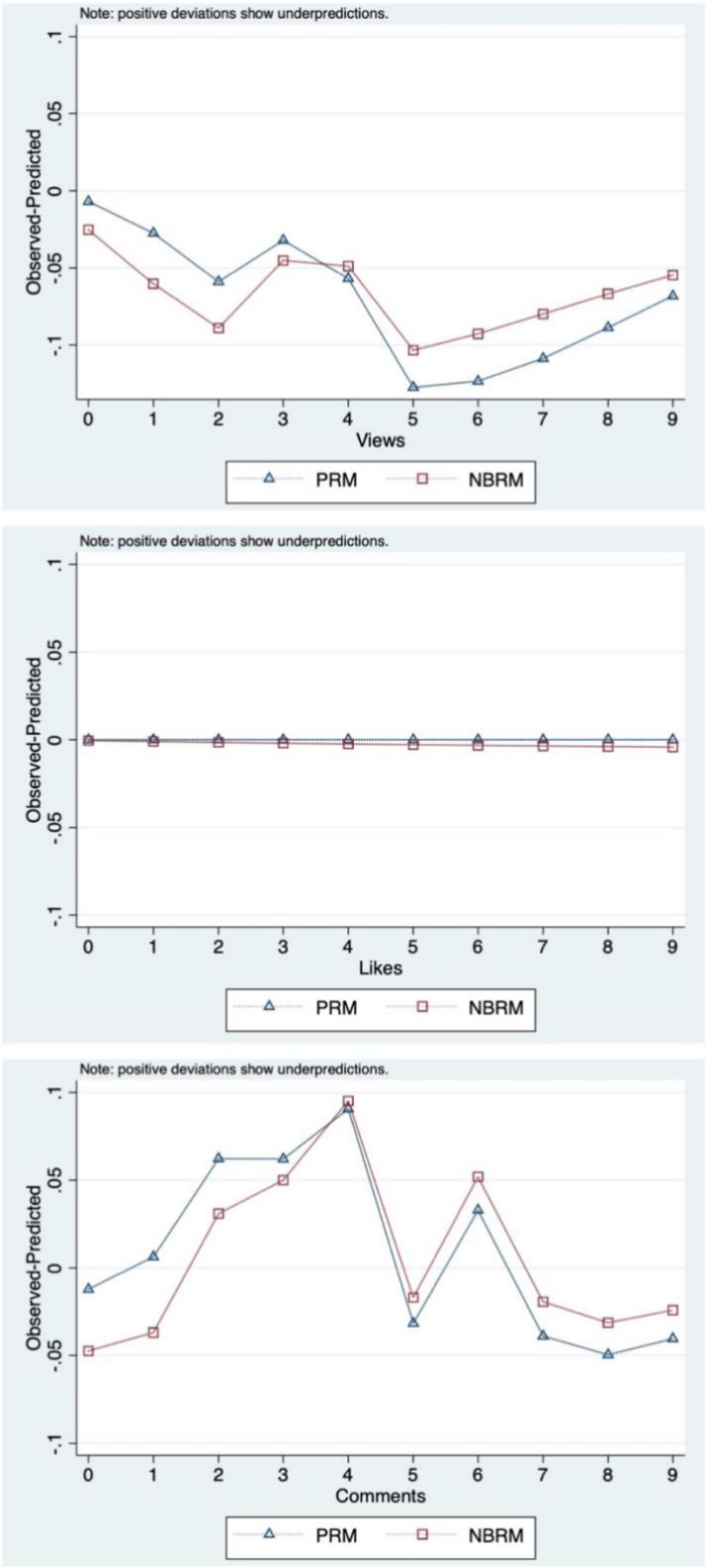


Figure 2 Model comparison analysis: Poisson model (PRM) versus fixed effects model (NBRM)

Table 14 Descriptive statistics and correlations

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Views	1.00									
2. Likes	0.92***	1.00								
3. Comments	0.88***	0.89***	1.00							
4. Elapsed days	-0.10	-0.27*	-0.28**	1.00						
5. Spoken language	-0.06	0.07	0.03	-0.41***	1.00					
6. Music	0.15	0.23	0.11	-0.03	0.19	1.00				
7. Live streaming	0.10	0.18	0.20	-0.66***	0.71***	0.07	1.00			
8. Duration	-0.02	0.03	-0.13	-0.44***	0.46***	0.05	0.56	1.00		
9. Elon Musk	-0.13	-0.09	-0.09	0.23	0.39***	0.09	-0.14	-0.07	1.00	
10. Title word count	-0.01	-0.01	0.03	0.27*	-0.41***	-0.29**	-0.34**	-0.26*	-0.28**	1.00
Observations	50	50	50	50	50	50	50	50	50	50
Mean	6.67	119.95	8.52	1958.56	0.42	0.46	0.40	4224.14	0.10	5.00
Std. dev.	5.90	131.25	9.17	1080.11	0.50	0.50	0.49	8629.64	0.30	1.69
Min	2.60	6.40	1.00	518.00	0	0	0	12.00	0	2.00
Max	31.70	749.00	43.00	4490.00	1.00	1.00	1.00	38834.00	1.00	10.00

Note: Significance levels: *** $p<.01$, ** $p<.05$, * $p<.10$

Table 15 Negative binomial models

	Views		Likes		Comments	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	b (se)	b (se)	b (se)	b (se)	b (se)	b (se)
Constant	1.67***	1.78***	4.07***	4.95***	1.51**	2.36***
	(0.42)	(0.49)	(0.48)	(0.55)	(0.50)	(0.56)
Control variables						
Spoken language	-0.58	-0.59	-0.41	-0.55	-0.77^{+}	-0.92*
	(0.36)	(0.36)	(0.44)	(0.42)	(0.43)	0.41
Music	0.37^{+}	0.37^{+}	0.68**	0.74***	0.45^{+}	0.52*
	(0.20)	(0.20)	(0.23)	(0.22)	(0.24)	0.22
Live streaming	0.69^{+}	0.65^{+}	0.93*	0.66	1.48***	1.21**
	(0.36)	(0.38)	(0.45)	(0.44)	(0.45)	0.44
Duration	-0.00001	-0.00001	-0.00001	-0.00002	-0.00005**	-0.00006***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00
Elon Musk	0.03	0.07	0.08	0.63	0.54	1.04^{+}
	(0.47)	(0.48)	(0.57)	(0.57)	(0.58)	0.58
Title word count	0.01	0.01	0.03	0.03	0.04	0.05
	(0.06)	(0.06)	(0.08)	(0.07)	(0.08)	0.07
Independent Variable						
Elapsed days		-0.00005		-0.00040**		-0.00043**
		(0.00)		(0.00)		(0.00)
Test/model statistics						
Average VIF	2.39	2.41	2.39	2.41	2.39	2.41
Log Likelihood	-135.65	-135.55	-282.12	-278.02	-150.05	-145.53

Note: N = 50. Significance levels: *** p<.001; ** p <.01; * p <.05; $^{+}$ p <.10

Main results. (1) Elapsed Days is negatively associated with both Likes and Comments. In Model 2, Elapsed Days exhibited a negative, yet insignificant relationship with Views ($b = -0.00005$, $p > .10$). However, statistically significant negative associations were observed between Elapsed Days and Likes ($b = -0.00040$, $p < .01$) in Model 4, and between Elapsed Days and Comments ($b = -0.00043$, $p < .01$) in Model 6.

The finding is intriguing, as older videos tend to receive fewer likes and comments compared to more recent ones. One possible explanation for this trend is that, as SpaceX's reputation and publicity continue to grow, increased attention is being directed toward the company's recent progress, which is frequently showcased on its YouTube channel.

(2) The empirical analysis in Model 6 (see **Table 15**) demonstrates that videos with a live streaming format, inclusion of music, shorter duration, absence of verbal audio, or inclusion of Elon Musk tend to gain more comments.

Specifically, in Model 6, shorter videos receive more Comments with statistical significance at $p <.001$ level, than the longer videos, holding all other factors constant. This makes intuitive sense, considering the audience's attention span and the shareability of the video.

An unexpected finding in Model 6 is that videos with no spoken language tend to gain more Comments ($b = -0.92$, $p < .05$). Among the most-viewed videos from SpaceX, the verbal audio typically involves either a detailed explanation of a live streaming event or a speech by the company's celebrity CEO, Elon Musk. The shorter videos usually offer a brief glimpse of key activity in innovation. For instance, video V33, "*Falcon 9 First Stage Landing | From Helicopter*," is just 12 seconds long, while video V21, "*CRS-6 First Stage Landing*," lasts only 22 seconds. It is probable that SpaceX's audience finds concise visuals to be the most exciting, which partially explains why they tend to leave comments.

(3) Any live-streaming video provided by SpaceX offers a real-time, interactive experience for the audience, making it inherently more engaging and dynamic than pre-recorded videos. This format not only increases publicity through Views (Model 2: $b = 0.65$, $p < .10$) but also attracts more engagement through Comments (Model 6: $b = 1.21$, $p < .01$). In other words, even among the top 50 most-viewed videos, SpaceX's live-streamed videos seem to be more popular than pre-recorded videos, all other factors being equal.

(4) Assuming that all other factors remain constant, the inclusion of music in a video leads to a favorable increase in all three dependent variables—Views (Model 2: $b = 0.37$, $p < .10$), Likes (Model 4: $b = 0.74$, $p < .001$), and Comments (Model 6: $b = 0.52$, $p < .05$)—in comparison to videos that do not feature any music. Thus, music can be considered a valuable component of innovative firms' discursive strategy to enhance publicity and engagement on social media.

(5) One may assume that the involvement of Elon Musk plays a vital role in the popularity of a video. Well, in this analysis, having Elon Musk in a video tends to result in a greater number of Comments (Model 6: $b = 1.04$, $p < .10$), while keeping all other factors constant.

In the present analysis, the variable "Elon Musk" is represented as a dummy variable that takes on values of 1 or 0, depending on whether or not he appears over 3 seconds in a given video. Furthermore, after examining the top comments collected for each of the most-viewed SpaceX videos, it became apparent that YouTube users make references to Elon Musk, which provides additional support for this finding. The following are some examples of these top comments:

V12. "*Can we just talk about the quality of:*

- *The song*

- *The animation*

- ***Elon musk***"

V24. "*I'm watching a guy saying we should become a multi planet civilisation as soon as possible and we should do it now, waving **his** fist, and behind **him** there's a huge ass spaceship that **he** built. What a time to be alive*."

V28. "*If humans survive long into the future, **Elon musk** will probably be the most remembered person in humanity's history*."

V49. "***his** poor public speaking makes **him** a more believable character. i believe in **Elon**'s vision*"

(6) Based on the sample analyzed, the length of the title, as measured by word count, appears to have no observable impact on the outcome. This result could be attributed to the fact that all titles in the sample were concise, thereby negating any potential effect of length on the results.

Regarding the titles of the videos, one interesting observation is that Elon Musk's name is featured in only one out of the fifty most-viewed videos, namely in V19 "*Elon's SpaceX Tour - Offices*". However, it is worth noting that several videos solely feature Elon Musk's speeches without explicitly mentioning his name, such as V23 "*The Future of Design*", V24 "*Starship Update*", V28 "*Making Humans a Multiplanetary Species*", and V49 "*Making Life Multiplanetary*".

Summary and limitation. I utilized a quantitative inductive approach to take preliminary steps towards understanding the underexplored topic of discursive strategy in influencing firm publicity and reputation on social media. However, it is important to acknowledge certain

limitations in terms of this exploratory analysis, including the relatively small sample size (n=50), the focus on one single case (SpaceX), less complex regression (absence of moderation or mediation), and a limited number of variables (total of 10).

I argue that this exploratory effort has successfully achieved its aim of providing initial insights into the question of how various elements of discursive strategies (such as time, live-streaming format, music, and celebrity CEO) impact firm-level publicity and reputation. These findings offer a unique dimension of understanding that supplements the qualitative analysis conducted in this study. Based on the results of this quantitative inductive analysis, suggestions can be made regarding a firm's dynamic discursive strategy. Furthermore, the acknowledgement of the limitations of this study provides ample opportunities for future research to further explore this complex and underexplored topic.

To summarize, it is important to note that publicity (measured by views) and engagement (measured by likes and comments) were used as proxies for self-celebritization in this study. As a next step, it would be interesting to examine the relationships among these attributes based on theories and other social media research to further improve this study. Additionally, regarding the finding that the inclusion of music and celebrity CEO, as well as short duration, can support the self-celebritizing process of an entrepreneurial firm, one potential explanation could be that music triggers emotions, information triggers cognition, and celebrities trigger social influence. Theories from interdisciplinary fields of study may help to strengthen this finding.

3.5 Discussion and Conclusion

Chambliss (1989, p. 81) characterizes excellence as the accumulation of mundane activities: "Superlative performance is really a confluence of dozens of small activities, each one learned or stumbled upon, which have been carefully drilled into habit and then are fitted together in a synthesized whole. There is nothing extraordinary in any one of those actions; only the fact that they are done consistently and correctly, and all together, produce excellence." This idea of "excellence is mundane" accurately captures the nature of discursive strategy evident in SpaceX's YouTube videos. Crafting an effective discursive strategy demands an orchestration of written and audio texts, visual images, and audio to effectively showcase the firm's vision, culture, and operation. As Heavey *et al*. (2020) put it, firms can employ the multi-dimensional discursive strategy utilized on social media to effectively align stakeholders towards a shared vision and establish the agenda for stakeholder discourse regarding the firms. Cultural entrepreneurship theory proposes that entrepreneurial narratives should be sufficiently unique to stand out (Taeuscher, Zhao, & Lounsbury, 2022). In the case of SpaceX, its discursive strategy focuses on revealing SpaceX’s culture of innovation over time as well as its future-making efforts in enhancing the public interest in space exploration more generally, which can be leveraged as a catalyst for increased innovation and investment in the field.

This study provides four key takeaways. Firstly, discursive strategy is important for a firm's publicity and stakeholder engagement, and videos are effective tools for "self-celebritization". Secondly, the content of the discursive strategy should highlight the key competitive advantages of the entrepreneurial firms. Thirdly, transparency and trust can be demonstrated through the use of evidence in language, visuals, and audio during a firm's self-

celebritizing process. Lastly, the use of live-streaming format, inclusion of music and celebrity CEO, and short duration can support the self-celebritizing process of an entrepreneurial firm.

Theoretical implication: Videos data as methodologically convenient artifacts for future research. Firm-level videos can serve as a valuable and methodologically convenient resource for various research objectives. Specifically, videos can be utilized for three distinct purposes in research.

First, multiple research topics can be explored using videos as data. (1) Past and emergent strategy. Intended strategy pertains to the collection of interviews or strategic plans that outline an organization's intended course of action for the future. Conversely, realized strategy is informed by retrospective interviews or organizational reports that provide insights into the actual strategies implemented and outcomes achieved (Mirabeau, Maguire, & Hardy, 2018; Spee & Jarzabkowski, 2011; Liu & Maitlis, 2014). Firm-level videos provide data about both discourse and action related to the intended and realized strategy. For example, in the context of SpaceX, most disruptive innovation videos reflect the realized strategy, while the future-making videos allow researchers to ascertain SpaceX's intended or emergent strategy. (2) Open strategy. In their paper, Vaara and Fritsch (2021) delve into the realm of open strategy, examining how strategic presentations and communications can take on new forms and unfold differently with digital technologies. This shift in strategy execution raises intriguing questions for scholars to consider, as they explore how this novel approach in strategy may alter the types of inquiries they ask. To facilitate research in this area, firm-level videos offer a convenient means of studying the discursive acts of firms through the use of digital technologies. (3) Competitive dynamics. As Gao, Yu, and Cannella (2017) put it, the significance of language in competitive dynamics research is often overlooked, despite being a hot topic. As a response, I argue that

videos can offer another dimension for analyzing competitive engagement. For example, SpaceX's videos about releasing new rockets or services can be seen as evidence of competitive moves. Building on this logic, future research could explore YouTube videos as competitive action and response to study the competitive interaction between Blue Origin and Virgin Galactic, as they strive to dominate the emerging space tourism industry (Chai, Doshi, & Silvestri, 2022).

Second, the utilization of videos as a form of data enables advancements in video-based analysis. For the purpose of this study, videos and their corresponding information were employed as data to conduct both qualitative and quantitative analyses in an inductive approach. However, further developments in the video-based analysis have the potential to yield novel perspectives and theoretical insights. In contemporary strategy research, scholars such as Wenzel and Koch (2018) have examined bodily movements in keynote speeches by analyzing video footage to gain insight into strategic communication. Additionally, Choudhury, Wang, Carlson, and Khanna (2019) have conducted research on CEO communication styles through videographic data by utilizing facial and text analysis. The multi-dimensional design of videos allows for a wealth of data to be extracted, including textual content, tonal nuances, musical accompaniments, acoustic sounds, and visual aesthetics, making them an invaluable tool for researchers in this field.

Finally, the utilization of videos as a form of data presents an opportunity for investigating non-listed firms, which are typically private entities that are not publicly traded on a stock exchange. Conducting research in such domains can be particularly difficult, as these firms often have limited public information available. In the context of my research, the space industry provides a fascinating empirical setting, yet the lack of publicly disclosed data has

posed significant challenges. However, with the emergence of social media platforms like Twitter and YouTube, private space firms are generating self-reported data that offer valuable research opportunities. Traditional management research has largely relied on databases of listed firms, neglecting non-listed firms, and potentially leading to biased research findings. The use of videos as data represents a promising avenue for addressing this limitation.

Practical implication: The enabling language--using new words to indicate new reality. Speaking of disruptive innovation and future-making, it is worth noting that new combinations of vocabularies, and even new languages, are often created alongside these developments. For example, in the videos showcasing SpaceX's future-making Earth-to-Earth travel via rockets, the top comment reads, "this would bring jetlag to a whole new level. Rocketlag" [*V17, top comment, 2.6k likes*]. In this context, "rocketlag" is a newly coined term that serves to illustrate the future of super speedy cross-continental travel, as opposed to the more commonly used term "jetlag".

The emergence of new words reflects the science of the imagination, enabling ideas to materialize into existence through their expression (Gartner, 2007; Dimov, 2020). "Innovations in vocabularies are similar to crystallizations of ideas that serve as focal points of attention. To develop new ideas and challenge conventional ways of strategic thinking and acting, there is a need to tolerate, nurture, and even promote new words, concepts, and categories as an essential part of strategic change" (Ocasio, Laamanen, & Vaara, 2018, p. 160). Especially in entrepreneurship, it is practically crucial to develop new words to effectively articulate envisioned futures, as the inadequate existing vocabularies may hinder one's ability to seize opportunities (Christensen *et al*., 2019; Ocasio, Laamanen, & Vaara, 2018) or fail to give meaning to new ideas and entrepreneurial endeavors (Alvarez & Sachs, 2021). In other words,

entrepreneurs in practice need to be "skilled rhetoricians" (Falchetti, Cattani, & Ferriani, 2021, p.4). Through new language, new practices diffused through various communicative modes (e.g., words, visual representations of objects and bodily movements, audios) can be institutionalized, transcending current norms and leading to a transformative shift (Rorty, 1989; Green, 2004). Through social media, entrepreneurial firms can practice the discursive strategy of using new words and concepts to enact future-making and distinguish themselves from rivals. This practice enables entrepreneurial firms to strategically shape their discourse and present their values in innovation distinctly and compellingly.

To conclude, this study explores how discursive strategy through social media can be performed to celebritize and promote entrepreneurial firms, with the case of SpaceX being the exemplar of "best practice". The findings demonstrate that videos serve as an effective medium for communicating disruptive innovation and inspiring stakeholders to aim for future goals. From a practical standpoint, this study emphasizes the importance for practitioners to leverage discursive strategies through social media as a powerful, cost-effective, and flexible tool for impression management and strategic communication. Finally, this study contributes to the existing literature on the strategic use of enabling language and on space commercialization, and encourages the adoption of video as a source of data in management research.

**Note: If any reader is looking for an enjoyable viewing experience, I highly recommend the following SpaceX videos, including V1 (the initial 37 seconds), V2, V12, and V42.*

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3.7 Appendix

Appendix Table A The comment with the highest number of likes for each of the most-viewed SpaceX YouTube videos

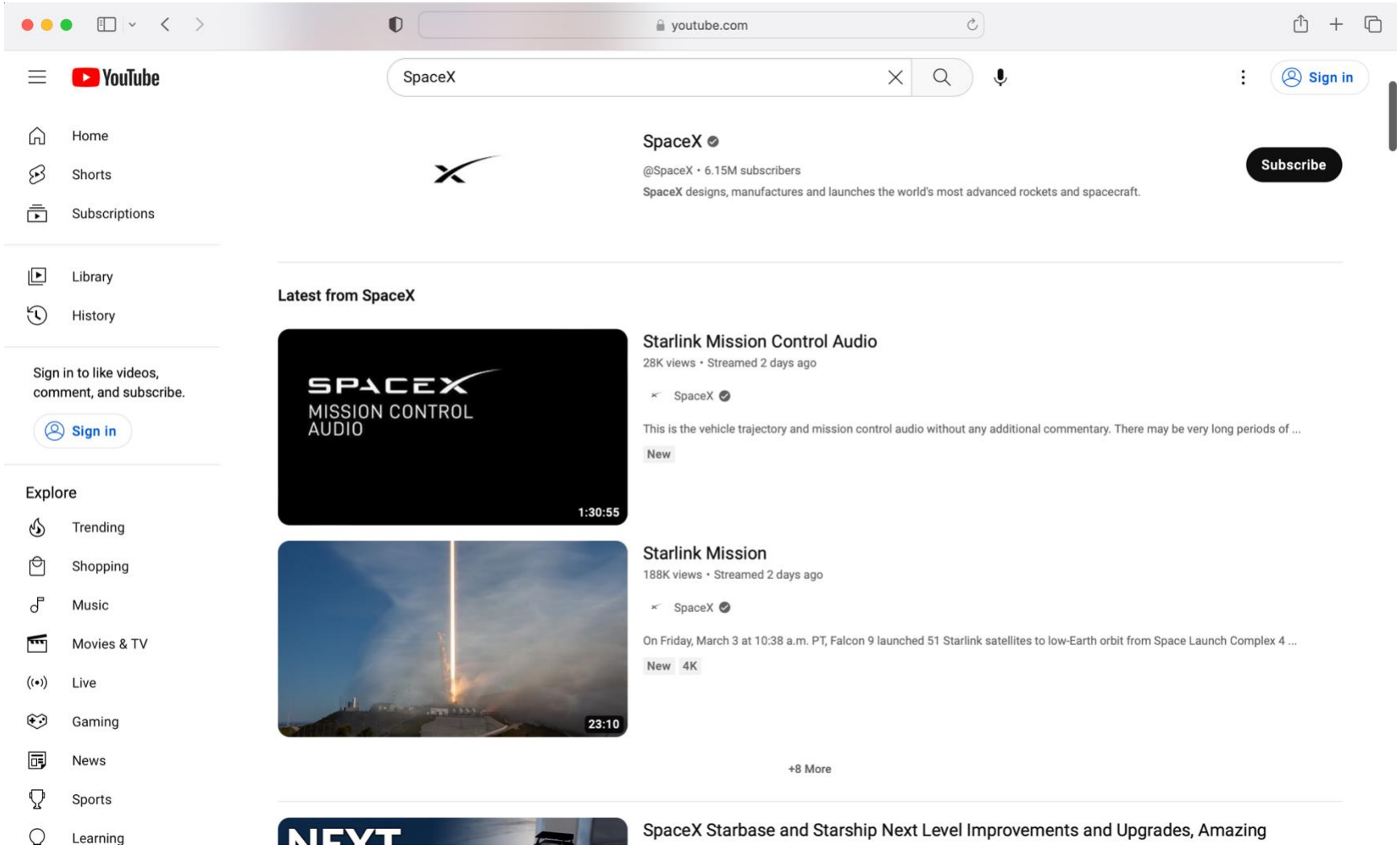
No.	Video title and link	Top comment of each video	Comment likes (thousand)
V1	Falcon Heavy Test Flight	Imagine the excitement when Starship flies for the first time	7.4
V2	How Not to Land an Orbital Rocket Booster	This isn't flying. This is falling with style.	18
V3	Live Views of Starman	It looks so peaceful. No politics, no media, no drama, just peace and quiet.	2
V4	Starship | SN5 | 150m Flight Test	Looks like Raptor was leaking, probably from the high pressure fuel line, I'm glad it made it to full duration. Congratulations!	4.7
V5	SpaceX Pad Abort Test	You should definitely be able to get this as an option for the new Tesla model X to circumvent being stuck in traffic. Like how hard can it be to mount those thrusters and a few parachutes to a car when you got all that frunk space?	1.6
V6	Starship | SN10 | High-Altitude Flight Test	That landing scene looks like an epic high budget sci-fi movie	1.8
V7	Falcon Heavy Animation	Absurdly wonderfull.	3
V8	Crew Demo-2	It’s okay, SpaceX. You go when you feel like it.	3.8
V9	Starship | SN8 | High-Altitude Flight Test	T-10 starts here ---> 1:48:01. This was more exciting than any action movie that has come out in the last ten years!!	4
V10	Starship | SN8 | High-Altitude Flight Recap	this felt like a sci-fi movie! thanks to the spacex team	2.9
V11	Falcon Heavy & Starman	SpaceX, to everyone involved, thank you for doing what you're doing. The benefit of your actions stretch far beyond the call for humanity to become inter-planetary. You're inspiring an entire generation to think in bold new ways. You're not only pushing the boundaries of human exploration, but of human imagination as well. The effects of your efforts today will shine on for centuries. From one human being to another, to many others, and for many others, I thank you. We thank you.	3.5

V12	SpaceX Interplanetary Transport System	Can we just talk about the quality of : - The song - The animation - Elon musk	3.4
V13	Starship | SN15 | High-Altitude Flight Test	Historic moment for all humans! great work by the Spacex team!	2.5
V14	Grasshopper 744m Test | Single Camera (Hexacopter)	Watching this after just having seen the two F9H boosters land simultaneously really shows how far they've come in just 5 years.	2.1
V15	SpaceX Testing - Dragon Drop Test (HD)	Who else was hoping they were gonna just drop it on concrete without a parachute?	6.1
V16	Crew-1 Mission | Launch	Go SpaceX! On to the moon, mars and beyond!	2.1
V17	Starship | Earth to Earth	this would bring jetlag to a whole new level. Rocketlag	2.6
V18	Crew Demo-2 | Splashdown	6:23:00 The descending starts. 6:28:00 Splashdown. 7:40:00 The capsule is open. 7:46:30 Bob Behnken gets out of the capsule. 7:49:50 Dough Hurley gets out of the capsule.	3.7
V19	Elon's SpaceX Tour - Offices	Such a down to Mars guy	20
V20	Starship | SN9 | High-Altitude Flight Test	They are never afraid of showing their failures, and that great	1.9
V21	CRS-6 First Stage Landing	I was really rooting for that valiant RCS thruster to snatch victory from the jaws of defeat, but alas it was not to be.	2.7
V22	150 Meter Starhopper Test	In my opinion, we are experiencing the most exciting period of space exploration since 1972.	2
V23	The Future of Design	I'm now only seeing this technology, 7 years after it was created... Wtf.	6.5
V24	Starship Update	I'm watching a guy saying we should become a multi planet civilisation as soon as possible and we should do it now, waving his fist, and behind him there's a huge ass spaceship that he built. What a time to be alive.	3.5
V25	Falcon Heavy | Flight Animation	Ok what mods are you using to get these great visuals in KSP?	6.3
V26	F9R First Flight Test | 250m	Probably the channel on Youtube, who puts the most money into each video :)	0.9
V27	Falling Back to Earth | HD Footage From Space	This is merely the first test of space surfboard technology, I know there's a bunch of daredevils who want to try riding this thing.	3.4
V28	Making Humans a Multiplanetary Species	If humans survive long into the future, Elon musk will probably be the most remembered person in humanity's history.	1.3

V29	Inspiration4 | Launch	Words cannot simply describe how flawless and routine this looks. From the suit up, checkouts, even layout of the live webcast, the presentation, the Futurama black/white interior and exterior of their facilities, their Tesla, even that editing with the music in the intro... SpaceX is truly the 21st century private space company doing the impossibles	2.2
V30	Arabsat-6A Mission	That perfect double booster landing is one of the most beautiful things that I seen in my life.	1.5
V31	Crew Dragon | Launch Escape Demonstration	5 years ago reusing rockets was a crazy concept. Today it feels wasteful to destroy a booster that only flew four times.	8.7
V32	Grasshopper 325m Test | Single Camera (Hexacopter)	Wow, thats pretty incredible considering modern rockets are disposable.	0.007
V33	Falcon 9 First Stage Landing | From Helicopter	What a time to be alive	2.3
V34	Crew-1 Mission | Rendezvous and Docking	7:59:27 Approach and Docking. 10:00:25 Hatch Opening. 10:12:35 Entering the ISS.	2.2
V35	Starship | SN11 | High-Altitude Flight Test	"looks like we had another exciting test" thats why I love SpaceX. They have the right attitude with their flight tests.	1
V36	360 View | First Stage Landing on Droneship	Fantastic! Now I need to get a copy of this and try to add spatial sound effects.	2.5
V37	Multi-Angle: Grasshopper 12-Story Test Flight 12/17/12	just after 6 years... they rent their tecnology to space agency and have a tesla roadster in the space heads to Mars :) Incredible, well done!	0.017
V38	Bangabandhu Satellite-1 Mission	I love how normal and routine SpaceX launches seem now. Really shows how they're pushing the industry forward.	0.246
V39	CRS-10 | Falcon 9 First Stage Landing	Watching these landings will never get old.	1.4
V40	Crew-1 Mission | Return	25:05 separation from ISS 1:05:55 going away 6:42:56 parachute deployed 6:43:45 another parachute deployed 6:46:55 splashdown 7:00:00 floating in water 7:15:00 recovered on recovery vessel 7:22:27 hatch opening and Astronaut thanking everyone 7:23:25 hatch open visually	3.2

		7:32:36 Mike coming out 7:34:57 second astronaut coming out(finished)	
V41	Dragon 2 Propulsive Hover Test	Now, what I want it a video and audio recording from inside the capsule during a test.	3.1
V42	"The Falcon has landed" | Recap of Falcon 9...	Damn this is slick, but unlike most slick marketing videos something legitimately awesome was actually accomplished. Fantastic work.	7.6
V43	SpaceX SuperDraco Thruster Firing	I'm always excited when SpaceX uploads a video	1.8
V44	CRS-8 | First Stage Landing on Droneship	"Just remember, that's like a 25 floor building standing on a vessel in the middle of the ocean." - Scott Manley	312
V45	ORBCOMM-2 Full Launch Webcast	"LZ 1: The Falcon Has Landed." Best Line ever.	1.1
V46	Inspiration4 | Splashdown	Shows the perfection of Spacex: A whole flight with absolutely no flaws. Great work everyone! On to the future of a spacefaring civilization.	2.4
V47	Starship | SN6 | 150m Flight Test	I'm so glad SpaceX shares their progress on Starship. It's so inspiring!	2.5
V48	Starship | SN10 | High-Altitude Flight Recap	What an incredible moment in history, to have witnessed this, Glorious!	0.868
V49	Making Life Multiplanetary	his poor public speaking makes him a more believable character. i believe in Elon's vision	1.4
V50	First-stage landing | Onboard camera	It is very risky to time-warp a landing, which makes this even more impressive.	0.652

**It is important to note that the comment that appears up-front in the comment section of each top-viewed SpaceX YouTube video may not have the highest number of likes. Therefore, a search process is essential to identify the most liked comment for each video. This table, updated to March 4, 2023, provides a summary of the most representative comment for each video. It can be guaranteed that the comment selected for each video is one of the top two most liked comments, while accounting for possible search errors.*



Appendix Figure A Why choosing SpaceX YouTube Channel

4.0 Conclusion

Upon reflecting on the journey of this dissertation, it becomes evident that two primary themes have determined its direction and major contributions: language and the space industry.

First, this dissertation was inspired by the simple question of whether learning a new language influences one's thoughts and behaviors as a multilingual individual. In search of an answer, a linguistic professor (who later joined my dissertation committee!) recommended "The Language Hoax" by McWhorter (2014), which not only provided a response to the question but also presented a critical insight into why an established linguistic understanding, such as the outdated Whorfian hypothesis, is not widely known in strategy research. This realization became the fundamental motivation for my dissertation, which aimed to argue against the linguistic trap that suggests linguistic structure solely determines thoughts. In **Chapter 2**, the study examines how scholars treat language and their implications, leading to the discovery of the window versus enabler views of language as my key argument. **Chapter 3** explores the use of enabling language in real-world practices, providing theoretical insights into impression management and strategic communication literature.

Second, the space industry was another crucial theme in this dissertation. In fact, this industry inspired my pursuit of a second Ph.D. degree in Strategic Management and Entrepreneurship. Theoretically speaking, the emerging commercial spaceflight industry presents a fruitful empirical context for testing existing theories and developing new ones. Practically speaking, it is essential to introduce management theories to the "hard science" represented by the space industry, as well as the military sector. Incorporating SpaceX as a case study in Chapter 3 fulfilled my goal of involving the space industry in the dissertation. Last but not least,

it is the author's long-term goal to visit outer space someday—hopefully through the research on the space industry—and make this dream come true for more people!

In conclusion, this dissertation provides a critical examination of the role of language in strategy research. It highlights the importance of understanding the different assumptions on language and its theoretical advancement, as well as the potential benefits of using language as a central focus in strategy research. Through two empirical analyses (**Chapter 2** and **3**), this dissertation demonstrates the value of investigating the enabling view of language, its role in discursive strategy, and its impact on promoting entrepreneurial firms.

This dissertation makes a significant contribution by addressing a theoretical gap in the language-based view of strategy. It advances the field by promoting enhanced reflexivity in the use of language, especially with the emergence of new language processing techniques, such as machine learning, in strategy research. This is crucial because it highlights the importance of clarity in language assumptions as a fundamental aspect of theory building in various areas of strategy research, including competitive dynamics, strategy process and practice, and behavioral strategy. By filling this gap and emphasizing the significance of language in strategy, this dissertation provides a valuable foundation for future research in this area.