Communication, Society and Media
ISSN 2576-5388 (Print) ISSN 2576-5396 (Online)
Vol. 9, No. 1, 2026
www.scholink.org/ojs/index.php/csm

*Original Paper*

# A Contrastive Analysis of Discursive Representations of EVs in Newspaper Coverage across Four Countries

Jingming Yan[1] & Jingxiang Cao[1*]

[1] Dalian University of Technology, Dalian, China

[*] Corresponding author

Received: September 28, 2026 Accepted: October 16, 2026 Online Published: November 5, 2026

doi:10.22158/csm.v9n1p194 URL: http://dx.doi.org/10.22158/csm.v9n1p194

***Abstract***

*Driven by rapid technological innovation and industrial transformation, Electric Vehicles (EVs) have become the new center of the global automotive industry. Different media interpret the EV transition from different perspectives. This study combines corpus linguistics and Fairclough's three-dimensional model to systematically analyze the reports on electric vehicles from People's Daily from China, The New York Times from the United States, Süddeutsche Zeitung from Germany, and The Straits Times from Singapore. These newspapers are located in countries that play different roles in the transformation of global electric vehicles. The study found that although corporate and government sources dominate in the reports of the four newspapers, there are significant differences in the semantic classification of electric vehicles. The institutional positioning, information acquisition habits and domestic industrial environment of each newspaper all affect the content of its reports, thus shaping a specific cognition of electric vehicle transformation for readers. This study not only provides an empirical paradigm of cross-language and cross-country linguistic discourse analysis for the electronic entertainment industry in international communication, but also helps the industry to understand the global discourse ecosystem more deeply, and provides a practical reference for multinational enterprises to overcome cultural barriers and adapt to narrative differences between different markets.*

***Keywords***

*Electric Vehicles (EVs), corpus-assisted discourse study, discourse study of news*

## 1. Introduction

Electric Vehicle (EV), primarily including pure electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles, refer to automobiles driven entirely or predominantly by new energy sources. Because of the intensifying realities of climate change and the increasing scarcity of oil resources, the

global automotive sector has rapidly accelerated its transition toward electrification in recent years. Propelled by the urgent global need for energy conservation, emissions reduction, and a new wave of technological revolution, electrification, intelligence, and connectivity have become key trends in the automotive industry's technological transformation. Promoting Electric Vehicles (EVs) is a crucial pathway to achieving carbon reduction and addressing global warming, which is a shared threat to all humanity.

While there is broad global agreement that shifting to EVs is essential for tackling climate change, how countries actually view and react to this shift depends heavily on domestic realities. In one context, electromobility is celebrated as an ecological triumph for humanity; in another, it triggers deep concerns about the decline of traditional auto industries, revenue losses, and unemployment. At the bottom, these different views reflect a growing concern about how the EV transition reshape the global politics and the international order.

This divergence becomes evident when comparing the news discourse of China, the USA, Germany and Singapore. Each of the four nations occupies a different position in the global automotive field. China has achieved a strategic leapfrogging in the EV industry, capitalizing on its early investment in battery supply chains and its vast domestic market. It has since become the world's largest EV market and a leading producer, with EV development closely tied to national priorities of industrial upgrading, energy security and green growth. The USA is home to major EV firms and has recently used federal incentives and tariffs to support domestic production. Among four countries, Germany is a long-established automotive power whose car industry faces the difficult task of moving from internal-combustion technology to electric mobility. Singapore does not have a large domestic car-manufacturing sector. Its EV issue is mainly one of urban transport management, infrastructure, environmental regulation and vehicle adoption.

This study compares EV news in four newspapers: *People's Daily* from China, *The New York Times* from the USA, *Süddeutsche Zeitung* from Germany, and *The Straits Times* from Singapore. Each is a major newspaper with a recognizable position in its national media environment, and each offers a stable archive from which long-term EV coverage can be collected. The comparison is designed to show how different linguistic patterns, source choices and institutional contexts shape the public construction of EVs.

*The New York Times* was selected because it is one of the most established national newspapers in the United States and has long been used in media research as an example of the American quality press (Roper Center, n.d.). *People's Daily* was selected because it is a central Chinese newspaper and an important official state-affiliated media channel in China's national news structure (*People's Daily* Online, n.d). *Süddeutsche Zeitung* was selected because it is one of Germany's major quality newspapers and has a national readership beyond its Munich base (*Süddeutsche Zeitung*, n.d). *The*

*Straits Times* was selected because it is the flagship English-language daily of SPH Media and a major national newspaper in Singapore (SPH Media, n.d.)

The use of native language newspapers is central to the research design. If this study used only English-language outlets from all four countries, the German and Chinese cases would be filtered through foreign-language or outward-facing news production. Such texts do not fully show how EVs are routinely discussed in domestic news. For Germany and China, German-language and Chinese-language newspapers are therefore necessary.

This study aims to answer three research questions.

RQ1: What are the differences in semantic category of collocates around EV across the four newspapers?

RQ2: What are the differences in source types of EV coverage across the four newspapers?

RQ3: What factors may characterize EV discourse differences?

## 2. Literature Review

### *2.1 EV and Geopolitics*

Electric Vehicles (EVs) were initially promoted as a decarbonization technology, but they are now treated as an object of industrial competition and great-power rivalry. As governments moved from encouraging consumer adoption to building domestic production capacity, EV support became industrial policy. Comparing China, Japan, Germany and the United States, Ma et al. (2019) find that these countries prioritize different areas according to their technological maturity and competitiveness, namely technological innovation, market development or infrastructure. This divergence reflects a broader trend: industrial policy has resurged worldwide as governments respond to climate commitments and geopolitical insecurity, making the EV a key arena of competition (Driscoll et al., 2026).

The competition is geopolitical because its supply base is geographically concentrated. Since the lithium-ion battery is the strategic component of the EV, control over lithium and battery manufacturing stands in for control over the industry. Altiparmak (2023) shows that lithium, now labelled “white petroleum”, has become a strategic commodity. Reserves are concentrated in the South American “lithium triangle” and Australia, while Chinese firms account for roughly half of global lithium production and over 70% of lithium-ion battery manufacturing capacity. The United States has folded critical minerals into its trade conflict with China, and the EU has designated lithium a key input for its industrial policy. The real contest is less about where minerals are extracted than about who leads midstream processing and manufacturing.

These dynamics are increasingly understood through geoeconomics. Gong et al. (2026) argue that the EV battery industry exemplifies a shift from firm-led neoliberal globalization to “hybrid state-firm

driven" production networks, in which states use subsidies, trade-defense measures, investment screening and export controls to secure value-chain positions. The EU opened an anti-subsidy investigation into Chinese EV imports in 2023 and imposed tariffs in 2024, prompting Chinese counter-measures; China in 2025 added battery-cathode and lithium-extraction technologies to its controlled exports (Gong et al., 2026). Driscoll et al. (2026) add that securing EV supply chains has pushed both China and the United States to internationalize industrial policy, drawing on administrative capacity and military-financial power respectively. In these accounts, the EV is no longer just a product market but a meeting point for industrial, trade, security and climate agendas.

Within China, the EV also carries a national narrative beyond markets or emissions. Ampuero-Ruiz (2024) argues that EVs sit at the center of China's "Ecological Civilization", linking green technology to moral and administrative state power and producing new dependencies around new-energy resources. This overlaps with "industrial upgrading" and "corner overtaking": the idea that the shift away from internal combustion engines allows a latecomer to leapfrog incumbents and secure technological sovereignty (Gong et al., 2026).

Existing research, however, mainly examines policy, industrial strategy and state capacity. How these competing meaning are represented and weighted in news discourse across different countries remains underexplored. This is the gap the present study addresses.

*2.2 Studies on EV Coverage*

A growing body of empirical work has examined how electric vehicles are represented in news and on social media.

The earliest and still dominant strand relies on close, largely manual analysis of a single national press. Working in the Indian context, Jain et al. (2024) applied critical discourse analysis and the Gioia method to 718 popular-media articles published between 2020 and 2023, inductively distilling the coverage into four cumulative dimensions, industry-level enabling cues, economy-level motivations and motivators, impediments to diffusion, and harbingers of change, which were in turn unpacked into sixteen themes. The strength of this design lies in its interpretive granularity, surfacing the macro- and micro-level actors, policies and consumer dispositions that quantitative work tends to ignore. Yet the authors concede that the results are bounded by India's distinctive profile and are not easily generalizable, and the manual coding that yields such depth is difficult to scale to large corpora. A comparable trade-off appears in Aubertin et al. (2024), who combined quantitative content analysis with qualitative discourse analysis of 984 newspaper articles from British Columbia, Ontario and Québec across the decade from 2008 to 2018. Coding statements for private versus societal frames and reconstructing the storylines and discourse coalitions advanced by governments, industry, advocacy groups and experts, they showed that all three provinces framed plug-in vehicles as mixed private-public goods but diverged in their policy storylines, incentives for climate in British Columbia,

a contested "green economy versus policies for the rich" debate in Ontario, and an "economic independence" rationale in Québec. Although this design is longitudinal and comparative, its comparison is sub-national: it holds the national media system, language and federal context constant and varies only the province.

A second strand has turned to computational text analysis to overcome the scale ceiling of manual coding. Schreiber et al. (2023) used inductive topic modelling, Latent Dirichlet Allocation, analysed through topic-model networks, to map more than 13,000 newspaper articles and 280,000 tweets on battery-electric, hydrogen fuel-cell and internal-combustion vehicles in Germany, contributing the first comparison of news and social-media coverage for an alternative-fuel technology. Their comparison, however, runs across media types and vehicle technologies rather than countries: industry and governance frames dominated the German discourse overall, consumer-oriented frames were far more common on Twitter than in newspapers, and while newspapers had come to treat battery-electric vehicles as a viable replacement for the combustion engine, Twitter still carried a marked "ICEV loyalty" frame. Scherrer (2023) likewise relied on automated analysis which is a dictionary-based sentiment analysis of 7,805 articles from six German newspapers, but linked it, at the individual level, to a representative survey of 1,776 urban residents, finding that cumulative, ubiquitous and predominantly positive coverage of battery-electric vehicles was associated with more favorable attitudes toward them. These studies establish that media representations are consequential and can be measured at scale.

The claim that coverage shapes outcomes is reinforced from the demand side by Zhao et al. (2024), who matched a media-attention dataset compiled from four Chinese platforms with electric-vehicle sales across 275 cities from 2016 to 2022 and, using two-way fixed-effects and instrumental-variable estimation, found that media attention significantly accelerated adoption, operating indirectly through consumer attention, government focus, technological innovation and purchase subsidies. The study is valuable evidence that media matters in the Chinese market specifically, but it uses the coverage to take the volume of attention. It does not pay much attention to the discourse itself, leaving open the prior question of what is being said about electric vehicles and how that content varies.

Taken together, these studies leave the following limitaitons. The comparative work that does exist compares media types (Schreiber et al., 2023), vehicle technologies, or sub-national regions (Aubertin et al., 2024). There are few studies compare the coverage on EV across countries. Cross-national, cross-language comparisons remain rare. The few related comparative studies have generally been confined to two countries, non-news data, or cross-media rather than cross-national comparison. For example, Lv (2023) compares the identity discourse of Chinese and American new energy vehicle companies, but the data are corporate reports from BYD and Tesla. Cervini et al. (2025) examine electric-vehicle framing across traditional and social media, but their focus is on the relationship

between media types rather than on domestic newspaper discourse across different national media systems. These studies do not fully address how electric vehicles are constructed across several national presses, in domestic languages. These compounding limitations define the space that the present study addresses.

## 3. Method

### *3.1 Analytical Framework*

This study adopts Fairclough's (1992, 1995) three-dimensional model of Critical Discourse Analysis (CDA) as the framework. The model conceives of every communicative event as simultaneously a piece of text, an instance of discursive practice, and a piece of social practice, and it prescribes three corresponding levels of analysis: description of the formal properties of the text, interpretation of the relationship between the text and the discursive practices through which it is produced, and explanation of the relationship between those discursive practices and the wider social context. The three sub-sections that follow set out the model as a whole and then specify how each dimension is realised in this study. The description feature is analyzed by adopting corpus method to collect the textual data. At the interpretation level, the source-types of the coverage are coded and collected and explanation is through the geopolitics of global communication.

The three dimensions are conceived as nested. The text is embedded within discursive practice, which is in turn embedded within social practice. Therefore, the analysis expands outward from the text. The description focuses on the content and expression of the text. Interpretation explores how the text is generated and what existing discourse systems it draws on. The explanation asks why the text presents a certain form in the context of a specific power structure. This hierarchical logic directly corresponds to the research question of this study: the description level involves collocation patterns, and the interpretation and explanation level jointly explore how these patterns are related to their socio-political context.

### *3.2 Study Process*

The study draws on four self-built corpora, each consisting of news articles on electric vehicles published by a leading national newspaper: *The New York Times* (the United States), *Süddeutsche Zeitung* (Germany), *The Straits Times* (Singapore) and *People's Daily* (China). The English and German articles were retrieved through LexisNexis, and the Chinese articles through the Image and Text Database of *People's Daily*. In each case, articles were identified by searching for electric-vehicle-related expressions in the headline

The composition of the four corpora is summarized in Table 1

**Table 1. Composition of the Four Corpora**

| | China_PD | USA_NYT | Germany_SZ | Singapore_TST |
|---|---|---|---|---|
| Newspaper | *People's Daily* | *The New York Times* | *Süddeutsche Zeitung* | *The Straits Times* |
| Articles | 751 | 777 | 2,497 | 345 |
| Tokens | 338,280 | 778,362 | 1,402,291 | 217,297 |
| Time span | 1980-2025 | 1980-2025 | 1997-2025 | 1992-2025 |

Before the main data collecting, in order to exclude high-frequency grammatical words that carry little discoursal content, stopwords were removed using the NLTK stopword lists for Chinese, English and German respectively.

The four corpora are in three languages. USA_NYT and Singapore_TST are in English, China_PD is in Chinese while Germany_SZ is in Germany. Different languages mean the comparison of the collocations or the content of discourse cannot be conducted directly. Therefore, the textual data are collected separately and then those data are categorized into designated semantic categories. Except this, the corpora differ considerably in size, the German corpus being the largest and the Singaporean the smallest. To prevent this imbalance from distorting the comparison, the cross-national comparison is conducted as the account.

All collocation analyses were carried out in Antconc 4.3.1. For each corpus, the node was defined by a language-specific regular expression capturing the principal electric-vehicle terms. The collocational values cannot be compared directly across the three languages. Cross-national comparison is therefore conducted at the level of representation. The collocates are translated and grouped into nine semantic categories defined by their shared meaning. Those categories are Brands, Charging, Environment, Geography, Industry, Market/Sales, Policy/Subsidy, Purchase/Use, and Tech/Battery. The normalized frequencies of these categories across the four newspapers were then compared using a chi-square test in SPSS 26, and standardized residuals were inspected to identify which categories each newspaper significantly over- or under-emphasizes relative to the others.

To analyse interpretative practice, a stratified sample of articles was drawn from the four corpora. Within the sample, every attributed claim was coded according to source type. Each source instance was coded into one of six categories: Government/Official, Industry/Corporate, Expert/Academic, Consumer/Public, Other Media/International Organization/NGO, Unattributed or vague source.

The interpretation of German collocates and concordance lines was supported by a LLM-powered generative AI (Doubao). The model was asked only to translate German collocates and concordance lines into English. It was not informed of the analytical purpose of the texts, which reduces the risk of translations being skewed towards an expected interpretation. All analytical decisions were made by the

researcher on the basis of these translations.

## 4. Results and discussion

### *4.1 Temporal Trends of EV News Coverage across Four Newspapers*

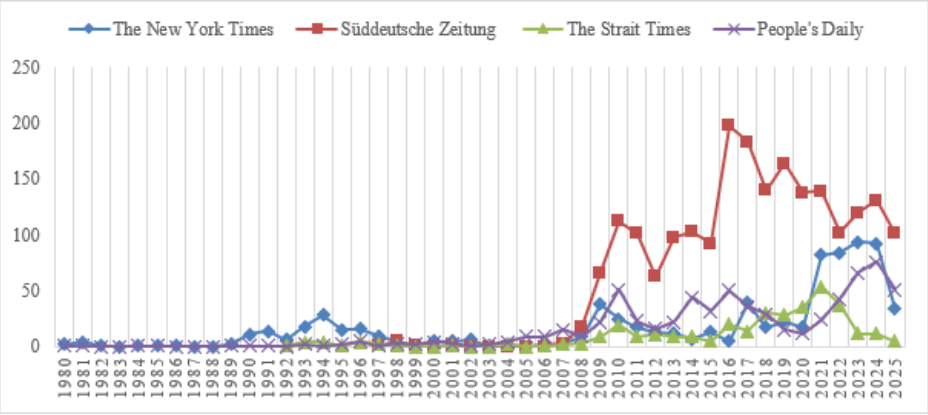



**Figure 1. Coverage of Electric Vehicles in Four Newspapers**

Figure 1 traces how coverage of electric vehicles has evolved over time across the four newspapers. A quick methodological note on the timeline is needed upfront. Because of differences in database archives, the corpora for *People's Daily* and *The New York Times* go all the way back to 1980, whereas the records for *The Straits Times* and *Süddeutsche Zeitung* start in 1992 and 1997, respectively. Still, since annual coverage across all four papers was practically negligible before 2008, the vast majority of data naturally clusters in the post-2009 era.

Back in 1980, when EVs first popped up in *People's Daily* and *The New York Times*, the terminology was not yet settled. Reporters wrote about the "electric car", "electric automobile", or "modern electric automobile" rather than using today's standard labels. Even in those early days, though, the press recognized these vehicles as a promising way to replace gas guzzlers, cut oil imports, and curb pollution. Yet because the technology, market, and charging networks were still in their infancy, those early stories mostly revolved around technical hurdles and basic questions of whether electric driving was even feasible.

After nearly three decades of sporadic mentions, these four newspapers ushered in a real reporting boom for the first time around 2009 and 2010. This growth has benefited from the joint promotion of some major events. The slump in global oil prices in 2008 and 2009 has sounded the alarm for the automotive industry, making people aware that electric vehicles will become the next major competitive battlefield. Subsequently, the 2009 Copenhagen Climate Conference put the issue of traffic emissions at the top of the global policy agenda. Soon after, four countries launched their own

initiatives. Major automobile manufacturing countries such as China, the United States and Germany have invested a lot of money in R & D and car purchase incentives, while import-dependent Singapore has begun to actively promote local electric vehicle pilot projects. Around the same time, automakers finally got rid of the concept car stage and put into production real mass-market models such as the Nissan Leaf and Mitsubishi i-MiEV, providing media reporters with a wealth of reporting material.

Coverage spiked again around 2016. This was especially obvious in Germany's *Süddeutsche Zeitung*, which hit nearly 200 articles that year as the country debated what electrification meant for its legacy carmakers. Since 2020, reporting volume has stayed on a high level across the board. By this point, major problems like battery range and slow charging had largely been worked out, allowing the sector to shift from a policy-propped niche into a genuinely market-driven industry. Car companies also began pairing electric powertrains with AI-driven smart driving systems, breathing fresh life into the news cycle. At the same time, escalating geopolitical friction over global EV supply chains has kept the industry in the headlines.

Over four decades, EVs have moved from the margins of science reporting into a mainstream topic bound up with everyday life and global trade. Having outlined this overall reporting trajectory, the following sections treat each newspaper's complete dataset as an integrated whole to examine the semantic categories of EV collocates at the text level (Section 4.1) and the distribution of source types at the discursive-practice level (Section 4.2)

*4.2 The Textual Dimension: Description*

At the textual level, the descriptive analysis begins by examining the collocates of EV-related search terms. Following the Firthian premise that "you shall know a word by the company it keeps", collocates are operationalized here as the immediate lexical environment through which each newspaper discursively construes the electric vehicle. The words that recur around the node indicate which aspects of the vehicle are foregrounded and which are backgrounded (Baker, 2006; Sinclair, 1991) To enable systematic cross-language comparison across the four corpora, extracted collocates were inductively grouped into nine semantic categories: Industry, Charging, Geography, Purchase/Use, Environment, Tech/Battery, Brands, Market/Sales, and Policy/Subsidy. Because the four sub-corpora differ substantially in overall size, raw frequencies cannot be compared directly across outlets. The distribution of semantic categories is therefore evaluated both proportionally and statistically.

The raw frequency distribution of collocates across the nine semantic categories is presented in Table 2. Viewed in terms of absolute counts, Market/Sales, Industry, and Policy/Subsidy account for the largest shares of collocates overall, reflecting a shared macro-level focus on commercialization, industrial production, and state regulation.

**Table 2. Frequency Distribution of EV-related Collocates across Nine Semantic Categories in the Four Corpora**

| Semantic category | China_PD | USA_NYT | Germany_SZ | Singapore_TST |
|---|---|---|---|---|
| Industry | 4089 | 3010 | 1036 | 251 |
| Charging | 551 | 296 | 674 | 387 |
| Geography | 1992 | 802 | 638 | 490 |
| Purchase/Use | 655 | 1247 | 2734 | 468 |
| Environment | 184 | 821 | 831 | 68 |
| Tech/Battery | 1193 | 721 | 567 | 44 |
| Brands | 168 | 345 | 253 | 38 |
| Market/Sales | 4052 | 3209 | 2172 | 496 |
| Policy/Subsidy | 3126 | 1214 | 1990 | 533 |
| Total | 16010 | 11665 | 10895 | 2775 |

To test whether these distributional patterns differ significantly across national contexts, a chi-square test of independence was conducted on the 4 × 9 （newspaper × semantic category） contingency table, with cases weighted by collocate frequency. The results confirmed a highly significant association, $\chi^2$ (24) = 6,571.82, $p < .001$, accompanied by a moderate-to-strong effect size, Cramér's V = .23 (Cohen, 1977). The distribution of collocate categories is therefore not independent of the newspaper. The semantic domains that cluster around the electric vehicle differ systematically across the four newspapers. These cross-national divergences are examined more precisely below through proportional comparisons and adjusted standardized residuals.

Turning from raw counts to relative proportions, Figure 2 illustrates that each corpus displays a distinctive semantic composition. *People's Daily* is weighted toward Industry (25.5%) and Market/Sales (25.3%) but adds a substantial Policy/Subsidy component (19.5%). *The New York Times* is dominated by Market/Sales (27.5%) and Industry (25.8%), which together account for more than half of its collocates. *Süddeutsche Zeitung* is led by Purchase/Use (25.1%), followed by Market/Sales (19.9%) and Policy/Subsidy (18.3%). *The Straits Times* exhibits the most even spread, with Policy/Subsidy (19.2%), Market/Sales (17.9%), Geography (17.7%), Purchase/Use (16.9%), and Charging (13.9%) all prominent and no single category exceeding one-fifth.

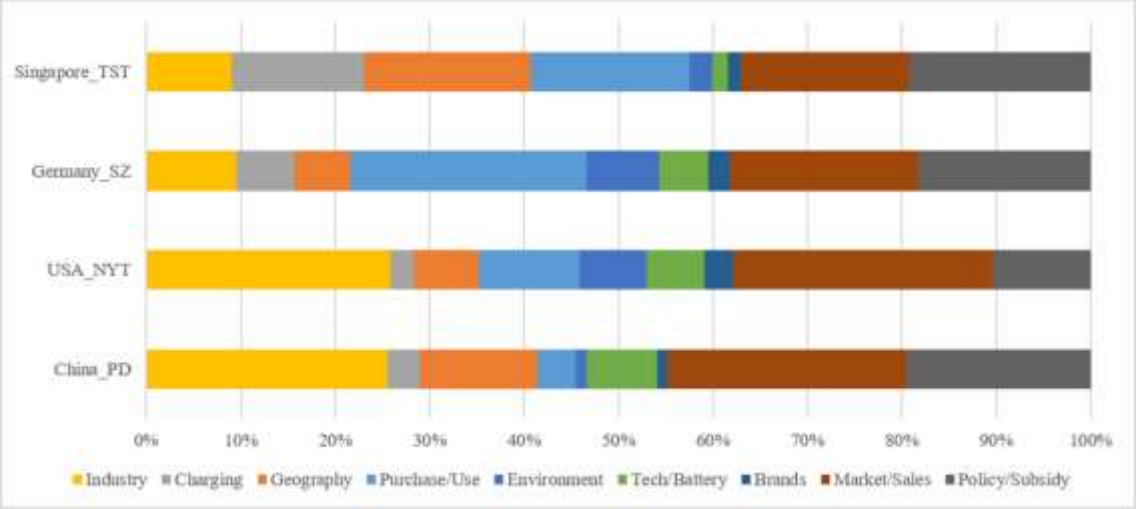



**Figure 2. Frequency-weighted Composition of EV-related Collocates across the Four Newspapers (%)**

Because these percentages are proportions of unequal totals, they describe rather than statistically test the cross-national divergences. The adjusted standardized residuals from the chi-square test, presented in Figure 3, provide the statistical anchor for the comparison. They measure how far each observed cell departs from the frequency expected under independence, on a z-scale, with values beyond ±1.96 significant at $p < .05$ and beyond ±2.58 at $p < .01$ (Agresti, 2013; Sharpe, 2015). In Figure 4.3, positive residuals (over-representation) are shaded red and negative residuals (under-representation) blue, so the analytical claims of significant emphasis or avoidance made below rest on this figure rather than on the raw percentages.

| | Brands | Charging | Environment | Geography | Industry | Market/Sales | Policy/Subsidy | Purchase/Use | Tech/Battery |
|---|---|---|---|---|---|---|---|---|---|
| China_PD | -10.5 | -9.0 | **-26.7** | 16.3 | **21.1** | 4.9 | 12.7 | **-40.6** | 9.1 |
| Germany_SZ | 3.3 | 9.1 | 17.5 | -15.1 | **-32.6** | -11.6 | 5.4 | **47.1** | -4.6 |
| Singapore_TST | -2.3 | **24.3** | -5.6 | 15.2 | -15.2 | -7.8 | 3.8 | 7.5 | -10.3 |
| USA_NYT | 9.4 | -12.6 | 14.8 | -11.4 | 17.5 | 10.4 | **-21.2** | -6.4 | 0.4 |

**Figure 3. Adjusted Standardized Residuals from the Chi-square test of Newspaper × Semantic Category**

Read through the residuals, each newspaper exhibits a characteristic profile of significant over- and under-representation:

As shown in Figure 3, *People's Daily* significantly over-represents collocates related to Industry (+21.1), Geography (+16.3), Policy/Subsidy (+12.7), Tech/Battery (+9.1), and Market/Sales (+4.9). At the same time, categories like Purchase/Use (-40.6), Environment (-26.7), Brands (-10.5), and Charging (-9.0) are significantly under-represented. This distribution shows that Chinese official media mainly report electric vehicles from the perspective of macro structure and developmentalism. The relevant discussion is closely related to the national industrial upgrading, which is reflected in terms such as *产业化 (industrialization)*, *集群 (industrial clusters)*, *智能网联 (intelligent connected)*, and *出口 (export)*, and high-level policy interventions such as *免征 (tax exemption)*, *购置税 (purchase tax)*, *下乡 (rural EV promotion campaigns)*, and *规划 (strategic planning)*. In addition, the prominence of geographical factors, especially *全球 (global)*, *大国 (major power)*, and Southeast Asian nations such as *泰国 (Thailand)* and *印尼 (Indonesia)*. This further highlights the positioning of electric vehicles as an important area for global economic competition and overseas market expansion. On the contrary, in this government-led industrial narrative, consumers' personal purchase experience and environmental criticism have received little attention.

In contrast, *The New York Times* empahsizes Industry (+17.5), Environment (+14.8), Market/Sales (+10.4), and Brands (+9.4)， while obviously under-representing Policy/Subsidy (-21.2), Charging (-12.6), Geography (-11.4), and Purchase/Use (-6.4). This collocation shows that American newspapers mainly construct the narrative framework of electric vehicles through commercial market performance and macro environment transformation. As shown in Figure 2, Industry, Market/Sales, and Brands collocates foreground corporate competition, leadership, and product lineups, featuring words such as *company*, *executive*, *sales*, *demand*, *affordable*, and specific models or automakers like *pickup*, *Bolt*, *GM*, *BMW*, and *BYD*. At the same time, Environment collocates (*transition*, *revolution*, *shift*, *energy*, *air*) situate EVs within the broader narrative of climate change and energy transformation. It is worth noting that although Geography is under-represented in quantitative terms, its specific lexical items, such as *China*, *Chinese*, *rival*, *dominate*, *leading*, and *laggard*, reveal an acute preoccupation with Sino-U.S. industrial rivalry. Meanwhile, the marked under-representation of Policy/Subsidy (-21.2) and Charging (-12.6) reflects a market-centric reporting logic that downplays state intervention and municipal infrastructure planning.

In the German corpus, Purchase/Use shows the single largest positive residual across the entire dataset (+47.1), accompanied by significant over-representations in Environment (+17.5), Charging (+9.1), Policy/Subsidy (+5.4), and Brands (+3.3). Conversely, Industry (-32.6), Geography (-15.1), Market/Sales (-11.6), and Tech/Battery (-4.6) are significantly under-represented. Despite Germany's status as a legacy automotive manufacturing powerhouse, *Süddeutsche Zeitung* approaches the EV transition predominantly from a citizen-consumer and ecological perspective. The lexical environment around EVs in the this newspaper is heavily populated by everyday acquisition and driving vocabulary

(*Kauf [purchase]*, *Besitzer [owner]*, *anschaffen [to acquire]*, *fahren [to drive]*) alongside practical charging concerns (*Ladestationen [charging stations]*, *aufladen [to recharge]*, *parken [to park]*). Furthermore, the strong presence of Environment terms, such as *Umstieg (transition)*, *Verbrennern (combustion engines)*, and *Klimabilanz (carbon footprint)*, and consumer-facing subsidy terms like *Kaufprämie (buyer's bonus)* and *Zuschuss (grant)* demonstrates that this German newspaper evaluates EVs primarily in terms of practical usability, household financial incentives, and ecological validity.

Reflecting Singapore's position as a city-state without a domestic automobile manufacturing base, *The Straits Times* significantly under-represents Industry (-15.2), Tech/Battery (-10.3), Market/Sales (-7.8), Environment (-5.6), and Brands (-2.3). Conversely, it significantly over-represents Charging (+24.3), Geography (+15.2), Purchase/Use (+7.5), and Policy/Subsidy (+3.8). The newspaper's discourse is heavily anchored in the practicalities of urban infrastructure deployment and consumer adoption, highlighted by Charging collocates (*charging*, *points*, *hog [referring to station hogging]*) and Purchase/Use terms (*adoption*, *sharing*, *obstacles*, *benefits*). Simultaneously, Policy/Subsidy items (*incentive*, *programme*, *scheme*, *regulate*, *trial*) underscore the state's regulatory role in promoting domestic EV uptake. Meanwhile, the prominence of Geography collocates (*Singapore*, *US*, *China*, *Chinese*, *world*) indicates that The Straits Times frequently adopts a third-party observational stance, monitoring global EV developments in China and the United States while assessing their local implications.

*4.3 Discursive Practice: Interpretation*

This study does not attempt to cover the whole dimension of discourse and practice, but focuses on one aspect of the process: how news texts are produced, especially the routine process followed by journalists in obtaining news. Under this framework, "source type" only refers to the external voice that is introduced into the news report and used to construct the discourse related to electric vehicles. Journalists select and combine them. And by doing that, they give EV discourse different social functions and load it with different ideological values.

Specifically, the study examined the distribution of information sources in the four mainstream newspapers. In the sampled corpus, all labeled statements are extracted and encoded. These categories are established based on data induction and are generally consistent with the established hierarchical classification of information sources in the classical news source literature (Gans, 1979; Manning, 2000). Subsequently, each information source instance is classified into one of six types:

Type 1 is Government/Official. This category mainly covers government departments, regulatory agencies and designated state officials. Comments from these sources typically focus on policy guidance, national strategic planning, and general trends in industry development.

Type 2 is Industry/Corporate. This category includes automobile manufacturers, energy companies, and well-known or anonymous corporate executives or spokespersons. Their remarks are mostly used to

highlight important milestones, manufacturing blueprints, market strategies, and technical parameters of specific electric vehicle models.

Type 3 is "Experts/Academia". Such information comes from researchers, scientists and university experts who are well-known or affiliated to specific institutions. Their contributions often provide an objective assessment of technological advances, infrastructure bottlenecks, and the overall development of electric vehicles.

Type 4 is "Ordinary Citizens/Consumers". This group includes the general public, daily drivers, and individual electric vehicle users who are clearly identified or anonymous. Their voices are included to reflect the hands-on driving experience, consumers' attitudes towards the adoption of electric vehicles, and the public's expectations of affordability and convenience.

Type 5 is "Other media/International Organizations/NGOs". In all the texts, these four newspapers often quote external media or institutional reports to provide background for the development of electric vehicles. This category includes supranational organizations such as domestic and foreign news agencies, other print or digital publications, the World Bank or United Nations agencies, as well as non-governmental organizations or environmental advocacy groups used to confirm factual claims.

Type 6 is "Unattributed/Vague". In news practice, some statements do not specify the source. Therefore, the sixth category covers ambiguous or anonymous sources that are indexed only by general labels, such as "some people", "insiders in the industry", "observers" or "insiders", as well as any signed statements that cannot be accurately classified into the first to fifth categories.

Based on this coding scheme, the proportional distribution of the six source types across the four newspapers was calculated, as presented in Table 3.

**Table 3. Frequency Distribution of Source Types across the Four Newspapers**

| Source type | China | USA | Germany | Singapore |
|---|---|---|---|---|
| Type 1 | 27.41% | 21.03% | 28.08% | 26.10% |
| Type 2 | 39.25% | 53.52% | 47.30% | 40.04% |
| Type 3 | 12.15% | 8.12% | 9.07% | 10.93% |
| Type 4 | 8.57% | 7.05% | 4.75% | 7.94% |
| Type 5 | 3.12% | 6.93% | 7.13% | 6.00% |
| Type 6 | 9.50% | 3.35% | 3.67% | 8.99% |

As shown in Table 3, among the four newspapers, Type 2 (Industry/corporate) accounts for the largest proportion. In *The New York Times* (USA_NYT), Type 2 accounts for more than 50 %, while in the other three newspapers, it accounts for about 40% to 47%. This shows that in the whole corpus, industry and enterprise behavior are the main types of information sources. As an emerging field,

electric vehicle news reports are highly dependent on industry professionals to show the dynamics of enterprise and technology development. Similarly, Type 1 (Government/official) consistently ranks second among the four newspapers, accounting for about 21% to 28% of all information sources, highlighting the key role of government discourse in electric vehicle reporting. This model shows that the development of electric vehicles is deeply influenced by national policies, such as financial subsidies, emission regulations, and infrastructure planning, which require official guidance and interpretation. In contrast, the proportion of other types of sources in the four newspapers is relatively small. This shows that in the report of electric vehicles, narrative authority is mainly dominated by government and industry participants, leaving limited discourse space for ordinary consumers and academic experts.

A chi-square test of independence on the newspaper × source-type contingency confirmed a statistically significant association, $\chi^2(15) = 88.04$, $p < .001$, though with an effect size (Cramér's V = .108, Phi = .187). This difference in effect size is itself a first finding worth noting explicitly. It demonstrates that the types of voices a newspaper incorporates into its EV coverage vary significantly but relatively modestly across the four newspapers, especially when compared with the much larger cross-national divergence in the semantic categories foregrounded by that coverage. Put differently, the four newspapers appear to differ more in what they say about EVs than in whose voices they use to say it. Nevertheless, as the standardized residuals below reveal, the differences that do exist are far from random.

| | Type1 | Type2 | Type3 | Type4 | Type5 | Type6 |
|---|---|---|---|---|---|---|
| China_PD | 1.6 | -3.8 | 2.1 | 1.5 | -3.4 | 3.9 |
| USA_NYT | -3.3 | 5.6 | -2.2 | -0.2 | 1.7 | -4.3 |
| Germany_SZ | 1.6 | 0.8 | -0.7 | -2.3 | 1.4 | -2.5 |
| Singapore_TST | 0.6 | -3.1 | 0.9 | 0.8 | 0.3 | 3.1 |

**Figure 4. Adjusted Standardized Residuals from the Chi-square Test of, Newspaper × Source Type**

As shown in Figure 4, based on the significant chi-square test results ($p<0.001$), the adjusted standardized residual accurately points out the structural differences in the types of information sources among the four newspapers. In the heat map, the red cell represents a positive residual, that is, the

observation frequency is higher than the expected value, reflecting a relative preference; the blue cell represents a negative residual, that is, the observation frequency is lower than the expected value, indicating relative avoidance. Specifically, the residual value exceeds the critical threshold ±1.96, indicating a statistically significant deviation at the $p < 0.05$ level.

In *People's Daily*, Type 6 (unattributed, +3.9) and Type 3 (experts, +2.1) show significant positive residuals, while Type 2 (industry, -3.8) and Type 5 (other media, -3.4) exhibit significant negative residuals. Although the previous bar chart shows that the industry is still the largest source category in absolute terms, its share is still significantly lower than expected. This means that compared with the other three newspapers, *People's Daily* is less dependent on corporate actors in terms of the main builders of the electric vehicle discourse. Its most prominent feature is a strong preference for Type 6. *People's Daily* frequently employs generalized expressions such as *有人 (some people)*, *相关专家群体 (relevant expert groups)*, *某业内人士 (an industry insider)*, *有关部门 (relevant authorities)*, which serve to convey consensus while adhering to domestic institutional norms. Meanwhile, the positive residuals for Type 3 (+2.1) and Type 1 (+1.6) highlight the reliance on expert and official authority to interpret policies and guide the industrial development.

In *The New York Times*, Type 2 (industry/corporate) is as high as +5.6, showing a very positive trend, while Type 1 (-3.3), Type 3 (-2.2), and Type 6 (-4.3) are lower than expected. This pattern reflects a market-oriented narrative framework, which is highly dependent on corporate actors. *The New York Times*' reports mainly focus on the automotive industry dynamics, new product releases, and the company's market strategy. The lack of Types 1, 3, and 6 indicates that *The New York Times* is more inclined to prioritize reporting on the statements of business entities over non-governmental directives, and strictly adheres to the principles of journalistic professionalism, avoiding the use of vague or unsigned sources.

In *Süddeutsche Zeitung*, Type 4 (-2.3) and Type 6 (-2.5) show significant negative residuals, while Types 1, 2, and 5 are positive but remain within the normal expected range. In general, the distribution of reporting sources of *Süddeutsche Zeitung* has achieved a relative balance and has not relied too much on any single category. However, the lack of Type 4 indicates that German media still maintain the traditional industrial orientation, emphasizing industrial transformation and corporate direction, while giving limited space to the consumer perspective. Meanwhile, the significant negative residual for Type 6 (-2.5) reflects the rigorous editorial standards of German quality press regarding transparent attribution.

*The Straits Times* also exhibits a significant preference for Type 6 (+3.1) alongside a significant avoidance of Type 2 (-3.1). This sourcing profile closely aligns with Singapore's national context. Since the city-state lacks a large-scale domestic automotive manufacturing sector, local journalists have fewer indigenous corporate sources to draw upon directly. Consequently, EV coverage in *The Straits*

*Times* shifts its focus toward domestic charging infrastructure policies (Type 1, +0.6), expert evaluations (Type 3, +0.9), consumer experiences (Type 4, +0.8), and synthesized commentary framed through unattributed observers (Type 6, +3.1).

*4.4 Social Practice: Explanation*

According to Fairclough's three-dimensional model, moving into the social practice stage means stepping back from the immediate text. Having mapped what lexical patterns dominate the coverage (4.1) and how different voices are brough in (4.2), the task of this section is to ask why the four newspapers write about EVs the way they do, and what kind of reality they end up construing for their readers. In the present study, reasons leading to these differences are analyzed from the concrete institutional realities each newspaper operates in, which means its place within a specific media system (Hallin & Mancini, 2004, 2012; George, 2012), its day-to-day sourcing rules (Gans, 1979; Manning, 2000), and its domestic automotive industrial base.

Take *The New York Times*. Its heavy reliance on corporate voices (Type 2, +5.6) and its preoccupation with Industry (+17.5), Market/Sales (+10.4), and Brands (+9.4). This can be seen in recurring words like *executive*, *company*, *financial*, *sales*, alongside carmakers like *GM*, *BMW*, and *BYD*. It is a reflection of a commercial paper in a liberal media system (Hallin & Mancini, 2004). In this environment, a new technology becomes front-page news mainly when it shakes up corporate competition, Wall Street valuations, or energy markets (*transition*, *revolution*). At the same time, the newspaper's sharp avoidance of vague, unattributed claims (Type 6, -4.3) comes down to standard American journalistic norms, which demand strict on-the-record attribution to protect newsroom credibility (Gans, 1979; Carlson, 2011).

A very different dynamic plays out in Germany's *Süddeutsche Zeitung*. Operating within a democratic-corporatist press tradition (Hallin & Mancini, 2004), Germany's leading quality papers (Qualitätszeitungen) have long seen themselves as forums for public deliberation. Because Germany is both a traditional car-making giant and a mature consumer society with deep green roots. Phasing out combustion engines (Verbrennern) hits close to home affects both household budgets and climate debates. Under this circumstance, newspaper's vocabulary is packed with everyday consumer concerns and ecological trade-offs, from *Kaufprämie (buyer's bonus)* and *Nettolistenpreis (net list price)* to *Ladestationen (charging stations)* and *Klimabilanz (carbon footprint)* (+47.1 in Purchase/Use; +17.5 in Environment). This civic orientation also explains why the paper keeps a relatively even balance across government, industry, and NGO sources rather than letting automakers dominate the page.

By contrast, as an official central newspaper, *People's Daily* is tasked with communicating macro-policy directions and national development strategies, not consumer buying guides (Zhao, 1998). That mandate explains why its collocates cluster heavily around industrial upgrading, such as *产业化 (industrialization)*, *集群 (clusters)*, *下乡 (rural promotion)*, and *出口 (export)* (+21.1 in Industry;

+12.7 in Policy/Subsidy). Meanwhile everyday car buying barely registers (-40.6). The institutional mandate of an official press precludes it from functioning as a promotional vehicle for specific commercial brands, thereby explaining its suppressed reliance on corporate sources (Type 2, -3.8). Instead, reporters lean on academic experts (Type 3, +2.1) for technical authority and use broad, collective labels (Type 6, +3.9), such as *业内人士 (industry insiders)* or *有关部门 (relevant authorities)*, to signal institutional consensus.

In Singapore, meanwhile, *The Straits Times* faces a much simpler structural reality. Singapore possesses no large-scale domestic automobile manufacturing sector. In news-sourcing terms (Manning, 2000), local reporters have no domestic automakers feeding them corporate press releases, which naturally drives down both corporate sourcing (Type 2, -3.1) and Industry vocabulary (-15.2). Combined with the paper's pragmatic, public-service ethos (George, 2012), coverage gravitates toward what actually matters to local readers, namely, municipal policy rollouts (*incentive, trial*) and the headache of urban charging (*points, hog*, +24.3 in Charging), while watching the US-China EV race from the sidelines (+15.2 in Geography).

Taken together, these preferences actively shape how the EV transition is understood in each society. By repeatedly foregrounding certain themes and voices, each paper normalizes its own institutional angle as the "common-sense" way to view EV (Fairclough, 1995, 2003). Read through, *People's Daily* constructs EV transition as a state-guided project of industrial modernization and global trade expansion. In *The New York Times*, the EV shift looks like a corporate and market-driven transformation. In *Süddeutsche Zeitung*, it becomes a practical household and environmental dilemma. In *The Straits Times*, it is represented as a hands-on problem of urban infrastructure management.

These readings are offered as institutional explanations of production-side news patterns, not as hard causal claims that specific policies dictated specific articles, nor as proof of how readers actually thought about EVs. As noted in Section 4.2, the consumption side of Fairclough's (1992, 1995) framework, how audiences in each country received, trusted, or pushed back against this coverage, lies beyond what a corpus of newspaper texts can tell us. The present account should therefore be read as an institutional and textual explanation of source-management and news-writing patterns across the four newspapers, rather than as a normative judgment on any media system.

## 5. Conclusion

This study combined corpus linguistics with Fairclough's three-dimensional critical discourse framework to examine how electric vehicles are constructed across four major newspapers from four countries: *People's Daily* in China, *The New York Times* in the United States, *Süddeutsche Zeitung* in Germany, and *The Straits Times* in Singapore. Tracing the diachronic coverage from 1980 to 2025, media attention remained sporadic for decades before experiencing a synchronized surge around 2009

and 2010 driven by oil shocks, climate governance, and early mass-market models. Coverage peaked again around 2016 during intense debates over Germany's auto industry transition, and has remained elevated since 2020 as the sector matured and supply chain geopolitics intensified.

Regarding the first research question on textual patterns, collocation analysis reveals significant cross-national variations in the semantic domains foregrounded by each newspaper (Cramér's V = .23). While market sales, industry, and policy dominate overall raw counts, standardized residuals highlight distinct editorial priorities. *People's Daily* heavily over-represents industrial collocates, state subsidies, and global geography while paying little attention to consumer purchases or the environment. *The New York Times* gravitates toward corporate production, sales figures, and the energy transition while sidelining subsidies and charging infrastructure. Meanwhile, *Süddeutsche Zeitung* registers the dataset's highest positive residuals for everyday purchasing and driving terms, accompanied by ecological footprints and charging stations. *The Straits Times* focuses intensely on local charging points and international geographic references.

Turning to the second research question on discursive practices, news sourcing displays strong structural similarities alongside clear divides. Corporate actors and government officials together monopolize roughly two-thirds to three-quarters of all attributed claims across all four outlets, leaving ordinary citizens and academic experts at the margin. The effect size for sourcing differences (Cramér's V = .108) is much smaller than that for collocate categories. The four newspapers differ more in what they say about EVs than in whose voices they use to say it. Even so, residual patterns show that *The New York Times* leans overwhelmingly on corporate executives while strictly avoiding vague attributions, *Süddeutsche Zeitung* maintains a balanced sourcing structure, and both *People's Daily* and *The Straits Times* rely less on commercial carmakers than expected for different reasons, frequently utilizing collective or unattributed expressions (Type 6) to summarize macro-level trends.

Addressing the third research question at the social level, reasons for these textual and sourcing variations are summarized into each newspaper's institutional positioning, newsroom routines, and domestic industrial context in the present study. As an official organ, *People's Daily* elevates EVs into a state-guided project of industrial modernization and strategic planning. Operating as a commercial paper in a liberal market, *The New York Times* frames EVs through corporate competition and financial performance. Rooted in a democratic-corporatist tradition within a major car-making nation, *Süddeutsche Zeitung* evaluates EVs through household economics and ecological accountability. Finally, operating in a city-state without large-scale indigenous car manufacturing, *The Straits Times* domesticates EVs as a practical matter of urban infrastructure management and regional observation.

There are several limitations of the present research. This study focused on production-side text analysis without audience data. That means how readers actually received or contested these media frames remains unexamined. Regarding the discursive analysis, the source types were examined

through a representative stratified sample of news articles rather than an exhaustive count across the entire corpus. While this sample fully captured the primary sourcing patterns, future work could scale up automated extraction methods to map the entire dataset.

**References**

Altiparmak, S. O. (2023). China and lithium geopolitics in a changing global market. *Chinese Political Science Review*, *8*(3), 487-506.

Ampuero-Ruiz, P. I. (2024). New energy vehicles and the political geoecology of China's Ecological Civilisation. *Environment and Planning C: Politics and Space*, *42*(8), 1317-1331.

Aubertin, A., Axsen, J., & Gunster, S. (2024). Electric vehicles for climate, a green economy, or independence? Comparing policy discourse in newspapers across three Canadian provinces. *Energy Research & Social Science*, *108*, 103353.

Cervini, C., Ruan, T., Lv, Q., Clawson, R. A., & Lee, A. (2025). Electric vehicle framing: Comparing insights using traditional and social media. *Energy Research & Social Science*, *130*, 104464.

Driscoll, D., Kiefel, M., & Larsen, M. (2026). Internationalizing industrial policy: How China and the United States use state capacity to secure critical minerals for electric vehicles. *Politics & Society*, *54*(2), 215-246.

Fairclough, N. (1992). *Discourse and social change*. Polity Press.

Fairclough, N. (1995). *Critical discourse analysis: The critical study of language*. Routledge.

Gong, H., Guo, Y., Chen, Y., & Asheim, B. (2026). Integrating geoeconomics into the GPN framework: The internationalization of Chinese EV battery firms amid China-EU strategic interaction. *Economic Geography*, *102*(3), 179-208.

Graber, D. A. (1979). [Review of the book *Deciding what's news: A study of CBS Evening News, NBC Nightly News, Newsweek, and Time*, by H. J. Gans]. *Political Science Quarterly*, *94*(4), 692-693.

Jain, M., Talwar, S., Rastogi, R., Kaur, P., & Dhir, A. (2024). Policy stimulation for the electric vehicle industry: An analysis of mainstream media discourse. *Business Strategy and the Environment*, *33*(6), 5303-5324.

Lv, J. (2023). A corpus-based study on the identity discourse of Chinese and American new energy vehicle companies. *International Journal of Education and Humanities*, *9*(2), 157-164.

Ma, Y., Shi, T., Zhang, W., Hao, Y., Huang, J., & Lin, Y. (2019). Comprehensive policy evaluation of NEV development in China, Japan, the United States, and Germany based on the AHP-EW model. *Journal of Cleaner Production*, *214*, 389-402.

Manning, P. (2001). *News and news sources: A critical introduction*. SAGE Publications.

Scherrer, A. (2023). How media coverage of technologies affects public opinion: Evidence from alternative fuel vehicles in Germany. *Environmental Innovation and Societal Transitions*, *47*,

100727.

Schreiber, J., Scherrer, A., & Breetz, H. L. (2023). Driving discussion: Media framing of electric, hydrogen, and conventional vehicles in German newspapers and Twitter. *Energy Research & Social Science*, *103*, 103193.

Zhao, X., Li, X., Zhao, Z., & Luo, T. (2024). Media attention and electric vehicle adoption: Evidence from 275 cities in China. *Transportation Research Part A: Policy and Practice*, *190*, 104269.