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**Thesis for the degree of Master of Arts
Academic Advisor: Professor Taeho Hong**

The Moderating Effects of Review - Response Text Similarity and Personalized Managerial Responses on the Relationship Between Response Characteristics and Review Helpfulness

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I. Introduction

1.1 Research Background

Why Consumers Need Additional Signals (Cues) for Review Helpfulness

- They rely on available cues such as rating, text sentiment and etc., in order to judge whether review information is trustworthy and useful (Olson, 1972; Olson & Jacoby, 1972).

Role of Managerial Responses in Review Helpfulness

- *Review text alone may not be sufficient.*
- Managerial responses function as extrinsic cues (outside of review) **providing clarification of consumer situation, some additional information, signals about company's image** (Jin et al., 2023).
- Prior studies suggest **PMRs create more positive impressions and more information** than standard responses (Wei et al., 2013; Zhang et al., 2020).

Role of Similarity between Manager Response and Review Texts

- The similarity between managerial responses and review texts influences every time differently perceived helpfulness/company rating (Yang et al., 2021; ; Zhang et al., 2020).

I. Introduction

1.2 Research Gaps and Objectives

Research Gaps

1. **Limited focus on managerial response characteristics as direct effect on Review Helpfulness** => Prior research mainly focused on review characteristics, with less attention to managerial responses (Li et al., 2017; Xie et al., 2017).
2. **Response topic diversity underexplored** => while review topic diversity is widely studied (Yao, 2022) the question about response topic diversity is still remained
3. **Mixed evidence regarding the role of similarity between managerial responses and reviews** (Wang & Chaudhry, 2018; Zhang et al., 2020)
4. Limited research explains **when managerial responses become more or less effective**, particularly under different levels of textual similarity.
5. **Limited understanding of PMR effectiveness across conditions**
Prior PMR research mainly focused on **negative reviews and review inconsistency**, leaving its effectiveness under broader conditions unclear (Jin et al., 2023).

Research Objectives

- ⇒ **Study aims to advance the understanding of managerial response effectiveness in online review platforms by examining how managerial response characteristics influence review helpfulness and under what response conditions their effectiveness becomes stronger or weaker**
- To examine the direct effects of response topic diversity and response length on review helpfulness.
 - To investigate whether review–response text similarity moderates the relationship between managerial response characteristics and review helpfulness.
 - To explore whether personalized managerial responses further condition the moderating role of review–response text similarity in the relationship between managerial response characteristics and review helpfulness.

II. Literature Review

2.1 Online Review Helpfulness

- Review helpfulness refers to the extent to which a review assists consumers in making better purchase decisions (Mudambi & Schuff, 2010).
- Helpful reviews reduce information overload, improve decision confidence, and shape purchase intentions.
- Known determinants include review length, readability, emotionality, rating extremity, reviewer credibility, and timeliness (Mudambi & Schuff, 2010; Hong et al., 2017).

2.2 Cue Utilization Theory

Grounded in Cue Utilization Theory (Olson, 1972; Olson & Jacoby, 1972): consumers evaluate quality based on available cues when direct assessment is difficult.

Cue Type	Examples
Intrinsic (within the review)	Star rating, review length, sentiment, reviewer expertise
Extrinsic (outside the review)	Managerial response (PMR), response length, response speed

II. Literature Review

2.3. Review Helpfulness Determinants

Table 1. Summary of Findings about Review Characteristics and Response Characteristics

Category	Characteristic	Definition / Measurement	Mostly Studied As	Studies
Review Characteristics	Review Length	Number of words / informational depth in review	Direct effect	Mudambi & Schuff (2010); Hong et al. (2017)
	Review Topic Diversity	Breadth and diversity of topics discussed inside of review	Direct effect	Qazi et al. (2016); Stirling (2007); Zielinski (2022)
	Reviewer Expertise	Reviewer experience (e.g., number of reviews/helpful votes)	Control / Direct effect	Lo & Yao (2019); Liu et al. (2021)
	Rating	Stars in review/ count data	Direct/ U-shaped	Ahmad & Laroche, 2015; Mudambi & Schuff, 2010)
Response Characteristics	Response Speed	Time taken to respond to a review	Control	Li et al. (2017); Xie et al. (2017); Sparks et al. (2016)
	Response Length	Number of words / informational depth in managerial response	Most of time as a Moderator	Liu & Ji (2019); Kwok & Xie (2016); Wang & Chaudhry (2018)
	Response Topic Diversity	Breadth and diversity of topics discussed <u>inside of response</u>	This Study Direct Effect	Qazi et al. (2016); Stirling (2007); Zielinski (2022)

II. Literature Review

2.4. What are Standard Responses and Personalized Manager Response (PMR)?

Standard Responses

- Standard responses refer to **generic, template-based replies** posted by firms to customer reviews on online platforms. These responses usually contain broad expressions of apology, appreciation, or gratitude **without directly addressing the specific issues, experiences, or concerns mentioned in the review.**
- Because they are standardized and repetitive, they are often perceived as impersonal and less sincere, providing limited review-specific informational value (Wei et al., 2013; Wang & Chaudhry, 2018; Zhang et al., 2020; Wang et al., 2020; Xie et al., 2017).

Personalized Manager Response (PMR)

- Unlike standard responses, PMRs directly **address customer concerns, acknowledge detailed experiences, provide explanations or solutions, and demonstrate active engagement with the reviewer.**
- These responses are generally associated with stronger communication quality, higher credibility, reduced psychological distance, and greater consumer trust (Crijns et al., 2017; Sparks et al., 2016; Yang et al., 2021; Jin et al., 2023; Zhang et al., 2020).

II. Literature Review

Crystal D. Elite 26
San Francisco, CA
@ 134 📷 69 📖 50

★★★★★ Jan 26, 2026
📷 2 photos

I came to Bottega with my sister on a Saturday morning. We stood at the entrance for about 10 minutes waiting to be seated, even though multiple staff members saw us there. There was a large party of about 15-20 people being attended to, and no one else paid attention to other guests.

Once we were finally seated, it took another 15 minutes just for someone to take our order, and the food didn't arrive for another 20 minutes after that. Unfortunately, we were never checked on throughout the meal, which made the service feel inattentive and unorganized.

The pasta itself was genuinely great, but not good enough to outweigh the lack of service. Overall, it's hard to justify coming back with an experience like this.

Roberto S.
Business Owner
Jan 28, 2026
Thank you for sharing your experience, Crystal! Please check your inbox when you get a chance.

Tannie N.
West San Jose, San Jose, CA
📷 5 Pizza reviews

★★★★★ May 2, 2025

Good pizza but way overpriced. I would have easily given them 5 stars but the ridiculous price they charge for their pie is beyond absurd. Yes it's good but for an equally just as good pizza, I can name 2 easily that I would much rather go to which are remarkably less in cost and just as good. I'm not going back that's for sure.

Helpful 1 Thanks 0 Love this 0 Oh no 0

Basim H.
Business Manager
May 3, 2025

Thank you for taking the time to share your thoughts. We're truly glad you enjoyed the quality of our pizza, though we're sorry to hear the price didn't meet your expectations. We take pride in using fresh, responsibly sourced ingredients—our dough rests for 72 hours, our mozzarella is made in house daily, and our proteins are all humanely raised. These choices do influence our pricing, but they reflect our commitment to quality. We appreciate your honesty and will take your feedback to heart as we work to offer the best value and experience possible.

Standard Response

Personalized Manager Response

Helpful Votes

Figure 1. Real life example of PMR and SR

* Image Reference: Yelp.com

II. Literature Review

2.5. What is Review - Response Textual Similarity ?

Review - Response Textual Similarity refers to the degree to which a managerial response meaningfully matches the content of the original customer review — capturing meaning-level correspondence rather than surface-level keyword overlap.

- Based on Semantic Textual Similarity (STS): evaluates whether two texts express similar meaning even when different words are used (Guder et al., 2026).
- Operationalized using Sentence-BERT (SBERT) + cosine similarity (Devlin et al., 2018; Reimers & Gurevych, 2019).

Table 2. Summary of Findings explains Difference of Review - Response Textual Similarity from Other Constructs

Construct	What It Captures	Measurement / Method	Difference	Studies
Topic Consistency	Whether review and response discuss similar topics	LDA topic modeling + cosine similarity between topic distributions	Captures topic overlap only ; cannot determine whether the response meaningfully addresses the concern	Yang et al. (2021)
Topic Matching	Degree of shared themes/issues between review and response	Machine-learning topic classification + topic overlap score	High overlap may reflect repetition rather than quality or engagement	Zhang et al. (2020)
Linguistic Style Matching	Similarity in writing style and function words	LIWC-based linguistic synchronization (pronouns, articles, conjunctions, etc.)	Style similarity \neq meaningful informational alignment	Ren et al. (2024)
Keyword / TF-IDF Similarity	Similarity in word frequency and lexical overlap	TF-IDF / keyword matching	Cannot capture synonyms, context, or implicit meaning	Al-Anzi & AbuZeina (2017)
Review - Response Textual Similarity (This Study)	Meaning-level contextual correspondence between review and managerial response	Sentence-BERT (SBERT) + cosine similarity	Captures whether managers genuinely address reviewer concerns beyond surface similarity	This Study

III. Research Framework

Phase 1. Data Collection and Preprocessing

- Collected reviews with managerial responses.
- Extracted key response characteristics and review characteristics

Phase 2. PMR Prediction Model Development

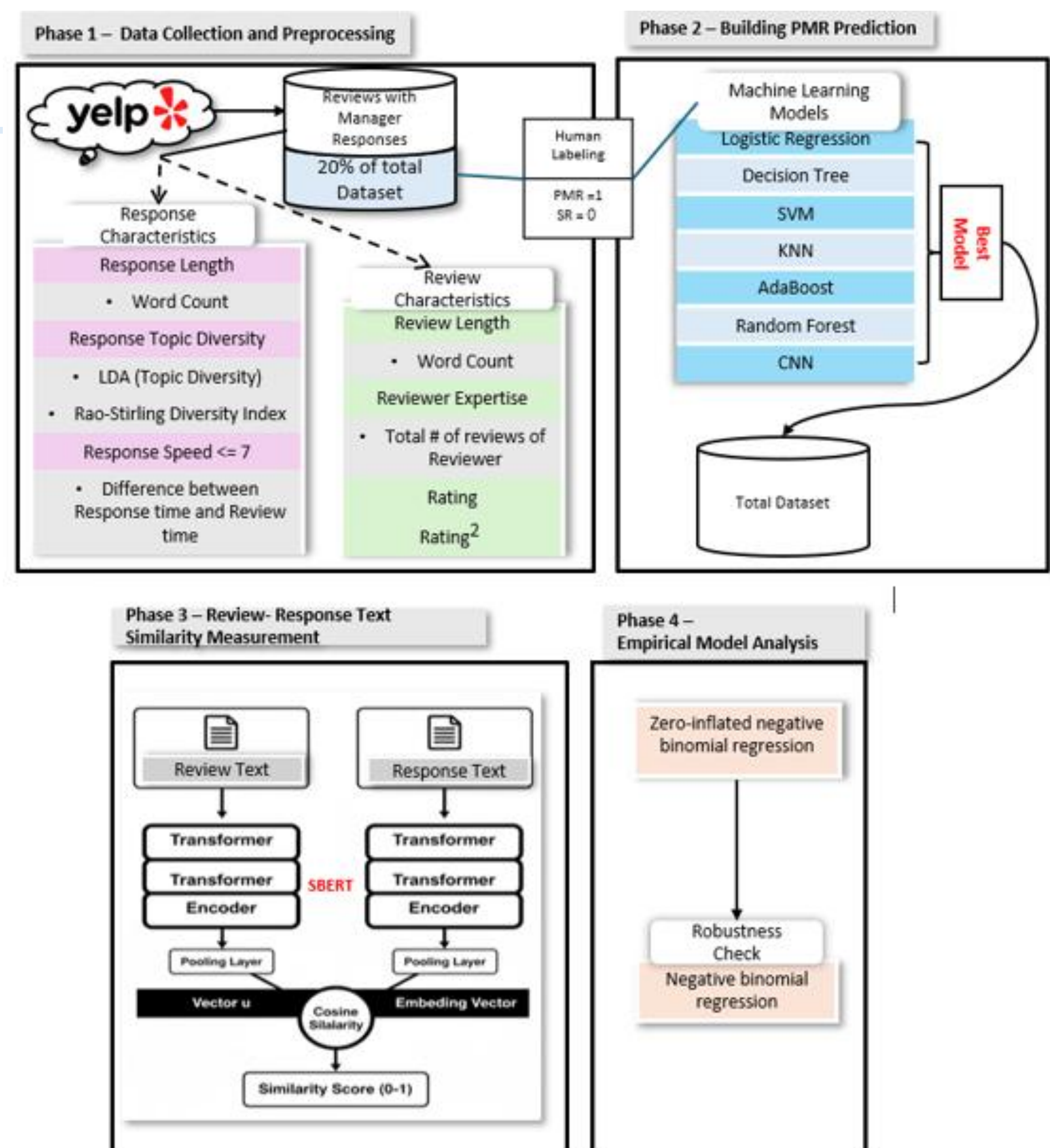
- 20% of the dataset for PMR classification. Applied preprocessing and manually labeled
- Built a Personalized Managerial Response (PMR) prediction model using supervised machine learning.
- Selected the best-performing model to classify PMR across the full dataset.

Phase 3. Review–Response Text Similarity Measurement

- Measured review–response textual similarity (RRTS) using SBERT embeddings and cosine similarity.

Phase 4. Testing Hypotheses (Empirical Model Analysis)

- Applied Zero-Inflated Negative Binomial (ZINB) regression as the main model.
- Conducted Negative Binomial regression for robustness checks.



IV. Hypotheses Development

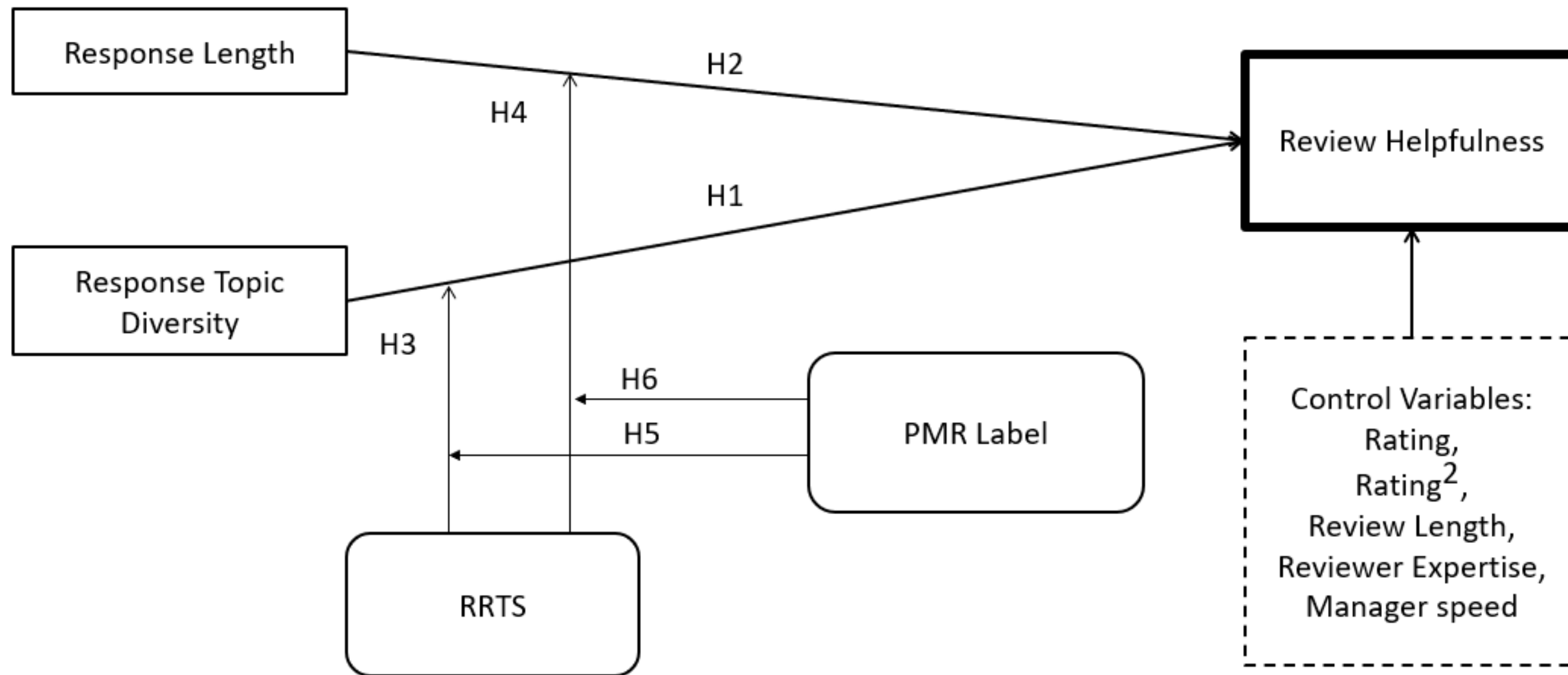


Figure 3. Conceptual Framework

IV. Hypotheses Development

4.1. Response Characteristics

Response Topic Diversity

Prior findings

- Higher review topic diversity enhances diagnosticity and helps consumers evaluate products from multiple perspectives (Stirling, 2007; Qazi et al., 2016).
- Broader information improves **diagnostic value**

Expected relationship

- Since review topic diversity usually influences positively on review helpfulness (Li et al., 2022), it is expected that Greater Response topic diversity reflects **more comprehensive issue coverage** and will have a positive effect on review helpfulness

H1: Response topic diversity positively affects review helpfulness.

Response Length

Prior findings

- Response length is positively associated with review helpfulness and firm performance (Liu & Ji, 2019; Xie et al., 2017). Mostly, it was studied as a moderator where it pos.

H2: Response length positively affects review helpfulness.

IV. Hypotheses Development

4.2. Review – Response Textual Similarity

- High topic matching improves evaluations (Zhang et al., 2020)
- High stylistic similarity improves future ratings (Ren et al., 2024)

Negative side of similarity

- High topic consistency weakens the positive effect of **review length** (Yang et al., 2021)
- Similarity may create **redundancy**, especially when responses simply repeat review content (Wang & Chaudhry, 2018)

Conceptually, RTD and RRTS are different terms, therefore, it is expected that RRTS will decrease the effect of diversity on review helpfulness.

H3: Review-Response Textual Similarity moderates the positive relationship between response topic diversity and review helpfulness such that the effect of response topic diversity on review helpfulness will be weaker when the level of Review-Response Textual Similarity is high.

H4: Review-Response Textual Similarity moderates the positive relationship between response length and review helpfulness such that the effect of response length on review helpfulness will be weaker when the level of Review-Response Textual Similarity is high.

IV. Hypotheses Development

4.3. Why PMR matters?

- Personalized managerial responses increase helpfulness, but it was studied under certain conditions (**Jin et al., 2023**) => Since the full influence is not explored, PMR is included as a second moderator to examine whether personalized responses make managerial responses more effective under different levels of textual similarity.

Expected three-way interaction

When Review - Response Textual Similarity is high:

Without PMR

=> Response may appear repetitive or generic

With PMR

=> Response appears sincere, tailored, and genuinely engaged

Expected effect

PMR is included to examine whether personalized responses make managerial responses more effective under different levels of textual similarity.

Hypothesis 5: *The negative moderating effect of the Review-response textual similarity (RRTS) on the relationship between response topic diversity and review helpfulness will be weaker when manager response is personalized.*

Hypothesis 6: *The negative moderating effect of the Review-response textual similarity (RRTS) on the relationship between response length and review helpfulness will be weaker when manager response is personalized*

V. Method and Analysis

5.1. Phase 1 - Data Collection and Preprocessing

- 117,416 reviews were collected from **Yelp.com** platform, which includes 141 restaurants from destinations such as San-Francisco, Hawaii, Washington, Las Vegas and New York.
- Reviews were selected manually which include manager responses.
- After applying “Response speed” variable, where manager speed is no longer than 7 days.

Hence, **the final dataset has been established => 28554 reviews with responses**

Yelp.com was utilized as a trustworthy platform for review helpfulness studies

$$Rao - Stirling = \sum_{ij}^k p_i p_j d_{ij}$$

- p_i - the proportion of the topic i
- p_j - the proportion of the topic j
- d_{ij} - cosine distance between topic i and topic j

(Zielinski et al., 2022; Nisar et al., 2020)

Table 3. Operational Definitions of Variables

Category	Variable	Description
Dependent variable	Review Helpfulness	Total number of helpfulness votes.
Moderating Variable	Review - Response Textual Similarity	Textual similarity between the content of a review and its corresponding managerial response by using SBERT and cosine similarity
	Personalized manager response (PMR)	The type of manager response
Control Variable	Review Rating	The rating in Yelp from one to five
	Review Length	The word count of a review
	Reviewer expertise	The number of written reviews of each reviewer
	Response Speed	The speed of the manager responds to a review, which is measured by the timeliness between the response and the review.
Independent Variable	Response length	The word count of a response
	Response topic diversity	Topic diversity measured by Rao-Stirling Diversity

V. Method and Analysis

5.2. Phase 2 – Building PMR Prediction

By adapting the previous study by Jin et al., 2023 for constructing PMR = 1 and SR = 0

This study also uses a supervised machine learning approach to classify Personalized Managerial Responses (PMRs).

Following prior research, 20% of the dataset is manually labeled . Manual PMR distribution: 1 = 3696 and 0 = 2446.

Classification Models

Seven classifiers are compared:

Table 4. Results of Classifiers							
Metric	Logistic Regression	Decision Tree	KNN	AdaBoost	Random Forest	SVM	CNN
Precision	91.0%	89.0%	85.0%	88.0%	89.0%	92.0%	93.0%
Recall	95.0%	87.0%	91.0%	90.0%	94.0%	93.0%	95.0%
F1-score	93.0%	87.7%	88.1%	89.3%	91.3%	92.6%	94.2%
Accuracy	91.4%	85.3%	85.2%	87.0%	89.3%	91.0%	92.9%

Evaluation Metrics

$$Accuracy = \frac{TP+TN}{TP+TN+FP+FN} \quad (1)$$

$$Precision = \frac{TP}{TP+FP} \quad (2)$$

$$Recall = \frac{TN}{TP+FN} \quad (3)$$

$$F1 - Score = 2 \times \frac{Precision \times Recall}{Precision + Recall} \quad (4)$$

Following by>

- **PMR = 18015**
- **Standard Response = 10539.**

V. Methods and Analysis

5.3. Phase 3 – Review- Response Textual Similarity Measurement

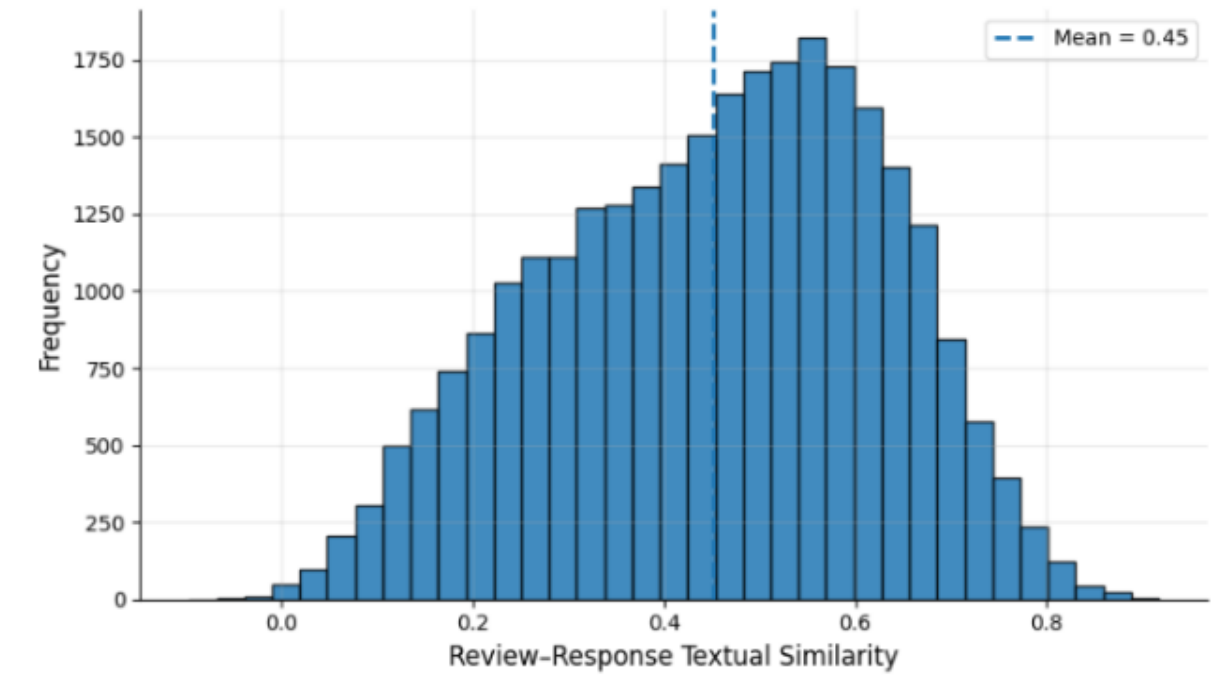
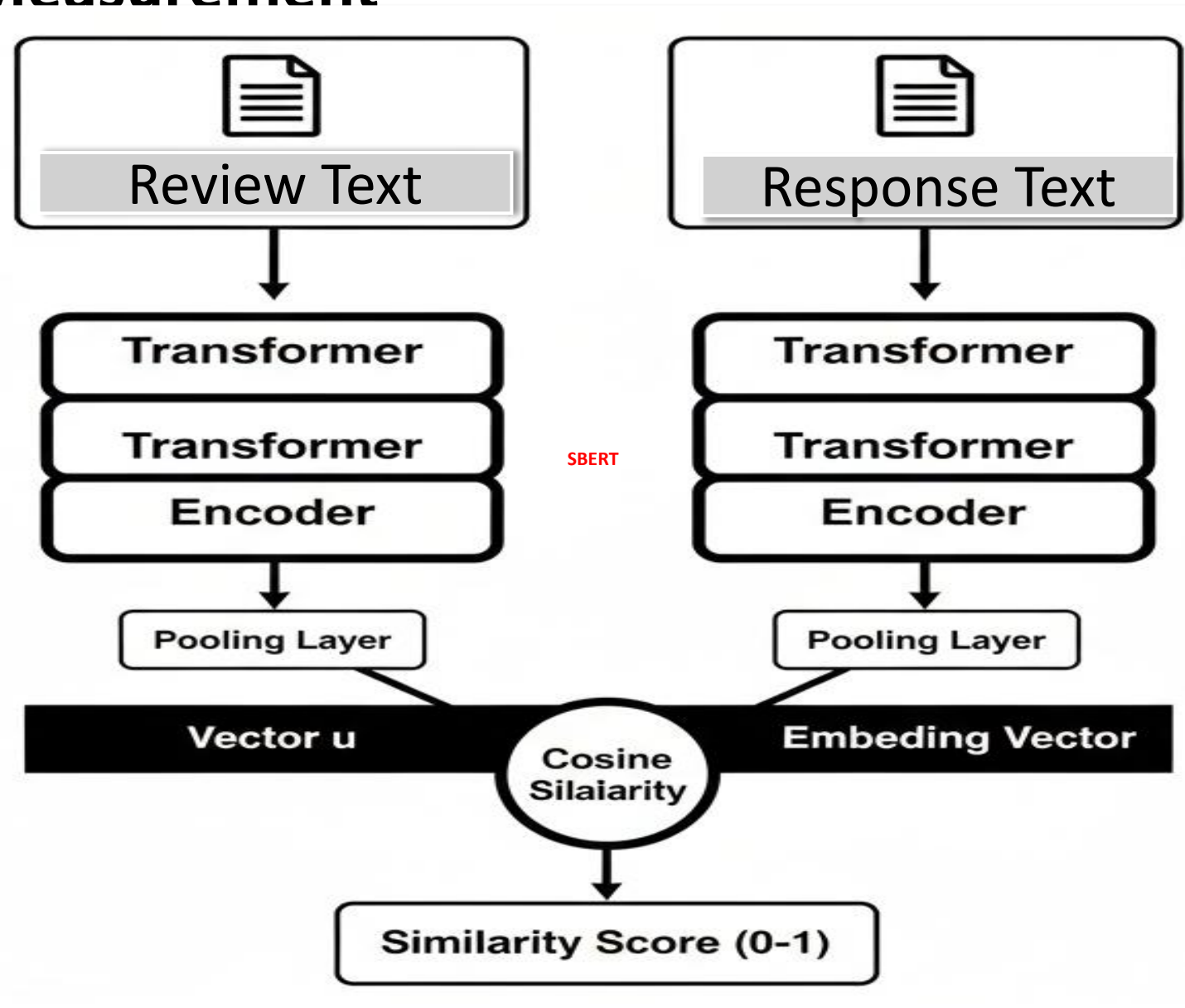


Figure 4. Distribution of Review- Response Textual Similarity

Review - Response Textual

$$Similarity (RRTS) = \frac{R_i \times MR_i}{||R_i|| \times ||MR_i||}$$

Reimers & Gurevych (2019)

- MR_i - Manager Response text
- R_i - Review text

V. Methodology

5.4. Phase 4 – Testing Hypotheses (Empirical Model Analysis)

Main Model: Zero-Inflated Negative Binomial (ZINB)

Table 7 shows that dependent variable (review helpful votes) contains a **large number of zero values**.

Therefore, **ZINB regression** is appropriate because it handles:

- Excess zeros
- Overdispersed count data

Mafael (2019); Zhou & Guo (2017); Zhu et al. (2014)

Robustness Checks

To verify the reliability of results, additional models are applied:

Negative Binomial Regression

- Controls for **overdispersion** in count data
- Frequently used for helpfulness vote analysis (Guo & Zhou, 2016).

Table 5. Distribution of review helpfulness level

Reviews helpfulness level	Reviews number	Percentage
0	21650	75.82%
1	4550	15.93%
2	1230	4.31%
3	447	1.57%
4	217	0.76%
5	125	0.44%
6	83	0.29%
>=7	252	0.88%

Note: ***p < 0.01, **p<0.05, *p<0.1

Testing Model :

$$\begin{aligned}
 \text{Review Helpfulness} = \exp [& + \beta_0 + \beta_1(\text{Review Rating}) + \beta_2(\text{Review Rating}^2) \\
 & + \beta_3(\text{Review Length}) + \beta_4(\text{Reviewer Expertise}) + \beta_5(\text{Response Speed}) + \\
 & \beta_6(\text{Response Length}) + \beta_7(\text{RTD}) + \beta_8(\text{RRTS}) + \beta_9(\text{RRTS} \times \text{RTD}) + \beta_{10}(\text{RRTS} \times \\
 & \text{Response Length}) + \beta_{11}(\text{PMR}) + \beta_{12}(\text{Response Length} \times \text{RRTS} \times \text{PMR}) + e]
 \end{aligned}$$

V. Method and Analysis

Table 6. Statistical Description of the Variables

Variable	Mean	Std.dev	Min	Max
Review Helpfulness	0.533	2.810	0	117
Personalized manager response (PMR)	0.631	0.483	0	1
Review Rating	4.246	1.188	1	5
Squared Review Rating	19.444	8.030	1	25
Review Length (Huang et al, 2015)	82.396	83.677	6	952
Reviewer expertise (Liu et al., 2021)	110.895	289.342	1	9784
Manager Response Speed	1.167	1.627	0	7
Review - Response Textual Similarity between response and review text	0.452	0.175	- 0.098 × 10 ⁻³	0.917
Response length	50.308	32.413	1	417
Response topic diversity	0.256	0.159	0.021 × 10 ⁻⁸	0.667

All Variance Inflation Factor (VIF) values in proposed Model were below 10, and all tolerance values exceeded 0.1.

Based on the criteria suggested by Hair et al. (1998), it was determined that **Model does not suffer from multicollinearity issues, indicating that the model demonstrates acceptable reliability.**

Table 7. Variance Inflation Factor (VIF) of Variables

Variable	VIF	Tolerance
Review Length	9.043	0.077
Response Length × Review–Response Textual Similarity × Personalized Managerial Response	7.293	0.137
Reviewer Expertise	6.747	0.148
Response Length × Review–Response Textual Similarity	6.599	0.152
Squared Review Rating	4.766	0.210
Personalized Managerial Response (PMR)	4.620	0.216
Response Topic Diversity × Review–Response Textual Similarity × Personalized Managerial Response	4.303	0.232
Review Rating	3.908	0.256
Response Topic Diversity × Review–Response Textual Similarity	3.842	0.260
Response Length	2.535	0.395
Review–Response Textual Similarity (RRTS)	2.368	0.422
Response Speed	1.554	0.643
Response Topic Diversity (RTD)	1.407	0.711
Hair et al. (1998): VIF < 10; Tolerance > 0.100		

VI. Results

6.1. Results of ZINB

- **H1: Response Topic Diversity**
Positive and significant ($\beta = 0.535$, $p < 0.05$) - **Supported**
- **H2: Response Length**
Positive and significant ($\beta = 0.003$, $p < 0.1$) - **Supported**
- **H3: Review-Response Textual Similarity × Response Topic Diversity**
Negative and significant ($\beta = -1.339$, $p < 0.1$) – **Supported**
- **H4: Review-Response Textual Similarity × Response Length - Not Supported**
Negative and Insignificant ($\beta = -0.005$, $p < 0.05$)
BUT Model 4 and Model 5 (-0.008, 0.009, $p < 0.1$, $p < 0.05$) support before interaction
- **H5: Response Topic Diversity × Review-Response Textual Similarity × PMR ($\beta = 1.007$, $p < 0.05$)**
Positive and Significant -**Supported**
- **H6: Response Length × Review-Response Textual Similarity × PMR**
Negative and significant ($\beta = -0.005$) - **Not Supported**

Table 8. Results of ZINB

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Review Rating	-0.483 ***	-	-	-	-0.477***	-
		0.486***	0.482***	0.478***		0.486***
Review Rating ²	0.074***	0.075***	0.075***	0.074 ***	0.073***	0.074***
Review length	0.652***	0.648***	0.649	0.650***	0.651***	0.650***
Reviewer expertise	0.471***	0.471***	0.471***	0.471 ***	0.4701***	0.469***
Response Speed	0.017*	0.017*	0.017*	0.018*	0.016*	0.015*
Response Length		0.000	0.001	0.003**	0.004**	0.003*
RTD		0.210**	0.227**	0.322*	0.382*	0.535 **
RRTS			-0.8620*	-0.085	0.029	0.020
RTD × RRTS				-0.033	-0.480	-1.339*
Response Length × RRTS				-0.008*	-0.009**	0.005
PMR					-0.049	- 0.051
RTD × RRTS× PMR						1.007 **
Response Length × RRTS× PMR						-0.005*
N	28554	28554	28554	28554	28554	28554
Log likelihood	-21768.88	-	-	-	-21757.01	-
		21765.53	21762.08	21758.98		21752.60
Pseudo R2	0.142	0.142	0.142	0.143	0.143	0.143
P value chi2	0.000	0.000	0.000	0.000	0.000	0.000
***p<0.001, **p<0.05, *p<0.1						

VI. Results

6.2. Robustness Check

- As a robustness check, a Negative Binomial regression was additionally estimated, and the results remained largely consistent with the proposed ZINB model, indicating no substantial differences in the direction or significance of key relationships.
- Following** Dawson (2014) and Perduyn et al. (2026), alternative model with additional interactions were compared to assess potential over-parameterization, and the parsimonious model (proposed) demonstrated a lower Bayesian Information Criterion (**BIC = 43,680.97**) than model including additional such as PMR × RRTS interaction terms (**BIC = 43,687.34**), suggesting superior model fit as a BIC difference greater than 6 indicates substantial support for the preferred model (Kass & Raftery, 1995).

Table 9. Robustness Check

Variables	Model 7 Negative Binomial Regression
Review Rating	-0.455***
Review Rating ²	0.070***
Review length	0.650***
Reviewer expertise	0.482***
Response Speed	0.014 *
Response Length	0.009*
RTD	0.579**
RRTS	0.032
RTD × RRTS	-1.468**
Response Length × RRTS	0.006
PMR	-0.046
RTD × RRTS × PMR	1.0196**
Response Length × RRTS × PMR	-0.007
N	28,554
Log likelihood	-21748
Pseudo R2	28,554
P value chi2	0.000

***p < 0.001, **p < 0.05, *p < 0.1

VI. Results



Figure 4. Interaction between Response Topic Diversity and Review-Response Textual Similarity (Before PMR)

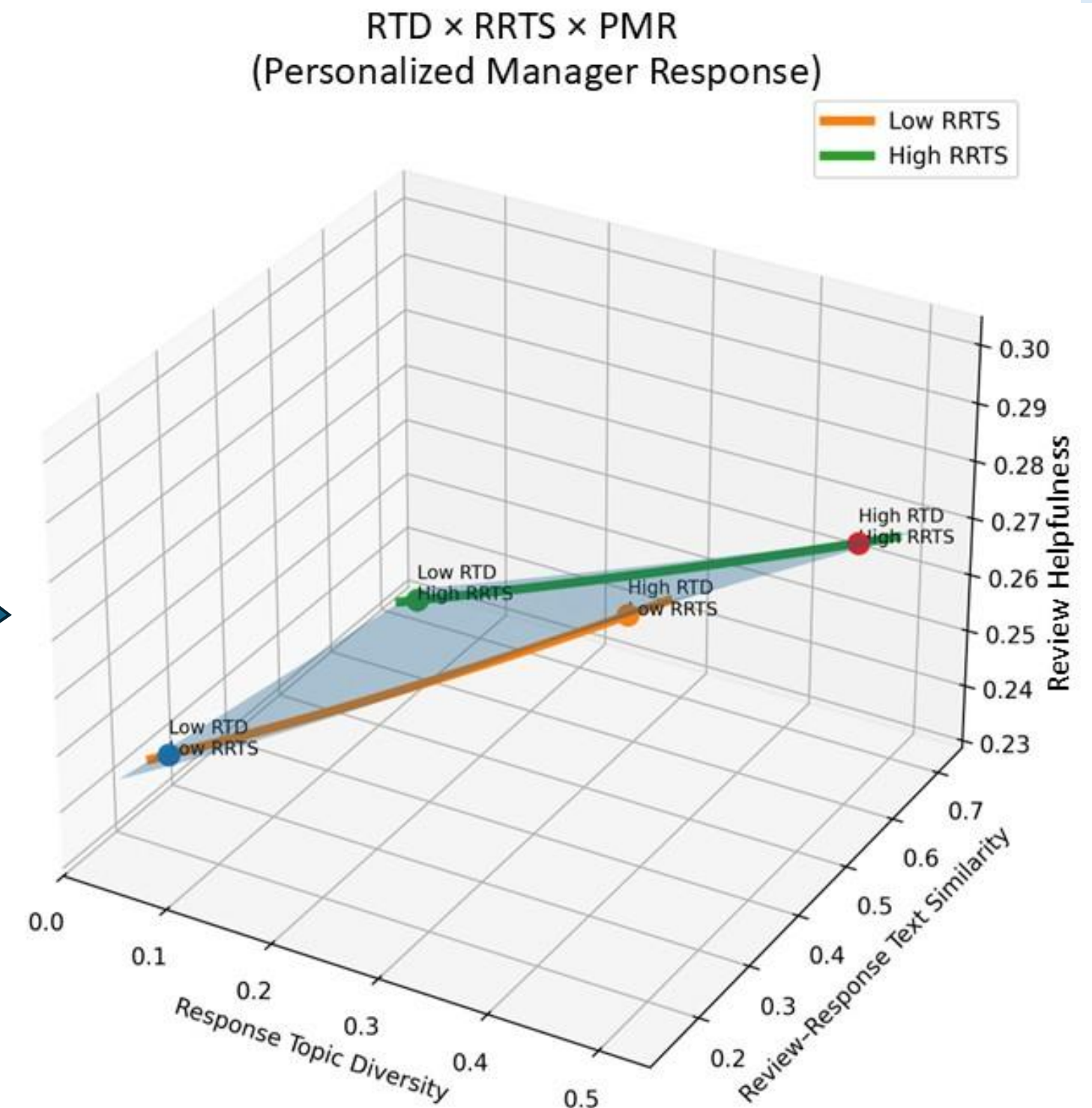


Figure 5. Interaction between Response Topic Diversity and Review-Response Textual Similarity (After PMR)

VII. Conclusions

7.1. Summary of the Study

1. Since prior studies focused on similarity, highlighting that reviews have to be similar, => while This study claims here **Matching alone is not enough** — excessive similarity may reduce informational novelty, so effective responses should balance relevance, diversity, and personalization.
2. **Response characteristics matter**- > **Response topic diversity** and response length positively affects review helpfulness
3. **High Review - Response Textual Similarity** weakens the positive effect of **response topic diversity** The moderating effect on **response length** was not fully supported in the final model, although earlier models showed significance
4. When managerial responses become **too textually and meaningfully similar to the original review**, the beneficial effect **of diverse and informative responses decreases**, as highly similar responses may be perceived as repetitive and provide limited informational novelty to consumers.
5. **PMR strengthens response effectiveness**

The findings suggest that **personalization helps offset the negative consequences of high textual similarity**, meaning that even when responses closely resemble review content, personalized elements can make responses appear more sincere, relevant, and valuable to consumers, thereby maintaining their effectiveness.

VII. Conclusions

7.2. Theoretical Contribution

1. **Extends Cue Utilization Theory** by conceptualizing managerial responses as important **extrinsic cues** that shape consumers' evaluation of review helpfulness.
2. **Shifts the focus from review-side to response-side mechanisms** by introducing **response topic diversity (RTD)** as an underexplored managerial response characteristic influencing review helpfulness.
3. **Advances similarity research** by examining **semantic-level review–response textual similarity (RRTS)** using contextual meaning rather than traditional topic matching or linguistic style similarity approaches.
4. **Clarifies the boundary conditions of managerial response effectiveness** by demonstrating when response characteristics become more or less effective under different levels of review–response similarity.
5. **Extends personalization literature** by positioning **PMR as a higher-order boundary condition**, showing how personalization mitigates the negative effects of excessive similarity in managerial responses.

VII. Conclusions

7.3. Practical Contributions

1. Suggests firms should provide **longer and topically diverse responses** to improve review helpfulness.
2. Indicates that **excessively similar responses may reduce informational novelty**, highlighting the need for balanced response strategies.
3. Emphasizes the importance of **personalized managerial responses** for improving consumer perceptions and response effectiveness.
4. **Additional Practical Contribution (AI implication)**
 - Provides practical guidelines for **AI-generated managerial responses**, suggesting that firms can improve response quality by designing AI systems to generate responses that are **topically diverse, appropriately similar to customer concerns, and personalized rather than overly generic**.
 - Suggests that firms can use **NLP/AI-based monitoring systems** to evaluate managerial responses and optimize response strategies, reducing repetitive or overly similar responses while improving perceived helpfulness.
5. **Prediction of Personalized Manager Response may help reader understand how this company will reply to further review text, and it can help in forecasting the reputation of a company**
 - This can improve customer service consistency, monitor staff performance, support training, and strengthen online reputation.
 - Readers may infer future service quality from response style, influencing trust and ratings.

VII. Conclusions

7.4. Further Research Directions

Future Directions

1. Extend to other platforms and industries

Future studies may examine **hotels, e-commerce, tourism, or healthcare services**

2. Explore additional response characteristics

Future research may investigate **response sentiment, emotional tone, response depth, or politeness**

3. Investigate AI-generated managerial responses

Future research may compare **human vs. AI-generated responses** and their influence on review helpfulness



THANK YOU