Title: The Influence of Category Communication on Consumer Preference for Innovative AI Products.

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Abstract:

In the advancing scenery of artificial intelligence, the communication of innovation is fundamental in influencing consumer decision-making. Relying on the communication of categories literature, this research project aims to investigate how consumers assess the complexities associated with selecting innovative products, particularly focusing on the role of categorical associations. By examining the cognitive frameworks that define consumer appraisals, this study seeks to explain the mechanisms through which customers interpret and judge AI novelties, ultimately contributing to a deeper understanding of the aspects that facilitate or deter product adoption in this dynamic field.

Keywords: Artificial Intelligence (AI), Innovation Communication, Product Categories, Cognitive Schemas.

Literature Review:

Cognitive schemas are mental structures that influence consumers' decision-making processes, predominantly when acquiring innovative products (Meyers-Levy and Tybout 1989). These conceptual constructions permit individuals to categorize information and assess various market offerings immediately. When a new product aligns with an existing unique category, consumers can easily access and apply their pre-existing schemas, simplifying the evaluation process and increasing the likelihood of product adoption (Rindova and Petkova 2007). However, products that span multiple categories or do not fit neatly into existing schemas require consumers to develop new mental frameworks (Rindova and Petkova 2007), which can result in increased cognitive effort, leading to hesitation in acquiring the product (Leung and Sharkey 2014).

In this setting, balancing familiarity and novelty in category labeling is critical for encouraging product adoption. Marketing strategists must carefully manage this equilibrium to facilitate the development of appropriate cognitive schemas that make new products more approachable and appealing to consumers (Leung and Sharkey 2014).

The existing literature has demonstrated that categorical identity is particularly crucial in the evaluation of recombinant innovations—products that merge elements from different technological domains (Sørensen and Feng 2017). Considering this, a clear and well-established categorical identity is vital, as it diminishes consumer uncertainty and the risk of misconceptions. This clearness not only aids consumers in making more informed decisions but also increases their confidence in embracing new and complex products.

Furthermore, category cues are essential for helping consumers understand the value of radically new products (Kuijken, Gemser, and Wijnberg 2017). Cues associated with higher-value categories can increase consumers' willingness to pay, underscoring the importance of strategic category positioning in shaping consumer perceptions and influencing purchasing behavior. The way customers mentally categorize new technologies significantly impacts their expectations and judgments. For example, the categories that consumers assign to innovations, such as virtual worlds, can shape how they recognize and evaluate these technologies (Nardon and Aten 2012). As a result, managers can leverage communication strategies to influence these categorizations, thereby enhancing consumers' understanding and facilitating technology adoption.

Drawing on insights from the literature, our research seeks to investigate the role of category communication in innovation, with a particular emphasis on artificial intelligence products. Therefore, we pose the following research question: *"What categorial communication strategies are most effective in persuading the public to try AI-based solutions?"*

Research Design:

To investigate this phenomenon within the context of AI tools, we assembled a comprehensive database consisting of 8,060 AI products, each annotated with one to three hashtags.

Based on the Rindova and Petkova study (2007), we believe that these hashtags serve as indicators of categorization, reflecting the diverse functionalities and applications of AI products.

Additionally, research on linguistic strategies confirms that the type of language used leads to positive emotions (Berger and Packard 2022). Based on these last statements, our study aims to contribute to the domain of communicating innovation in the evolving context of artificial intelligence by examining the relationship between hashtag categorization and consumer preferences.

Hypothesis:

In line with the theoretical foundations of the communication of categories, we propose the following research hypotheses:

1. Customers will prefer AI tools with fewer hashtags over those with more hashtags.

2. Pricing strategy moderates the relationship between the number of categories and the intention to adopt AI solutions.

3. Linguistic traits such as concrete or familiar words are important drivers in persuading AI products since they lead to a positive sentiment.

Methods:

To test our hypothesis, we approached a multiple linear regression to quantify the customers' intention to adopt AI products. Moreover, we deployed a sentiment analysis to identify additional control variables to explain more comprehensively our quantitative model.

Findings

The following table exhibits the results of a multiple regression analysis examining the predictors of the dependent variable ln(Saves). The model includes several independent variables: NUMBER #, REVIEWS, ln_wordcount, ln_valence, ln_extremity, ln_emotionality, ln_certainty, Free, Paid, and Freemium.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3,551	,435		8,159	<,001		
	NUMBER #	,643	,024	,340	27,293	<,001	,586	1,706
	REVIEWS	,259	,009	,277	28,340	<,001	,949	1,053
	ln_wordcount	-,346	,029	-,149	-11,790	<,001	,568	1,761
	ln_valence	-,289	,171	-,019	-1,689	,091	,724	1,382
	ln_extremity	,642	,135	,061	4,742	<,001	,545	1,836
	ln_emotionality	-,227	,089	-,029	-2,566	,010	,727	1,375
	ln_certainty	,064	,154	,004	,413	,679	,936	1,068
	free	1,506	,043	,404	34,798	<,001	,672	1,488
	Paid	-,198	,048	-,046	-4,093	<,001	,731	1,367
	freemium	,449	,042	,123	10,637	<,001	,684	1,463

[a] Dependent Variable: ln_Saves

Table n.1: Multiple linear regression

Source: Own elaboration

The constant term is significant ($\beta = 3.551$), representing the expected value of ln(Saves) when all predictors are held at zero.

The variable NUMBER # exhibits a positive and significant effect on saves ($\beta = 0.643$, $\rho < .05$), indicating that greater use of hashtags is associated with an increase in saves.

The pricing model plays a crucial role, with free AI products exerting the most substantial positive effect on ln_Saves, followed by freemium, whereas paid content slightly reduces saves.

Reviews are also a significant predictor of saves ($\beta = 0.259$, $\rho < .05$), with a higher number of reviews leading to more saves.

The word count of a product's description shows a significant negative association with ln_Saves ($\beta = -0.346$, $p < .001$), suggesting that shorter descriptions are more likely to result in saves.

The variable ln_extremity is a significant predictor of saves ($\beta = 0.642$, $p < .001$), demonstrating that more polarized content tends to be saved more frequently. In addition, the emotionality expressed within the content has a slight but statistically significant negative effect on saves ($\beta = -0.227$, $p = .010$).

The control variables ln(valence) and ln(certainty) do not have a significant effect.

Breusch-Pagan test, Newey-West HAC standard errors, and linear HCSE indicated that the model suffers from heteroskedasticity. However, we could assess that in all three tests, the same variables (ln_valence, and ln_certainty) are the ones that cause heteroskedasticity problems and thus we believe that this issue would not severely impact our model.

Furthermore, there are no issues of multicollinearity, ensuring the robustness of our findings.

Conclusions:

This paper investigates the influence of categorical communication on consumer preferences for innovative AI tools by analyzing the roles of hashtags, pricing strategies, and linguistic features.

Our findings reject the first hypothesis by exposing that the categorization through hashtags positively impacts consumer saves, suggesting that more categories help consumers understand AI products' features.

We admit that the second hypothesis is ascertained since we could test that higher prices deter consumer interest.

Moreover, customers' reviews significantly affect preferences, indicating the magnitude of social push in decision-making.

Finally, we accept the third hypothesis, concluding that linguistic features play a crucial role. Specifically, the number of words and the intensity of the sentiment expressed are effective in describing the unique attributes of AI tools.

Overall, this research provides empirical evidence of the significance of categorical communication in developing marketing strategies. As the AI landscape continues to emerge, managers should strategically communicate AI product categories to heighten consumer engagement and market success.

BIBLIOGRAPHY:

Berger, Jonah A., and Grant Packard. 2022. “Wisdom from Words: The Psychology of Consumer Language.” *Consumer Psychology Review* null:null. https://doi.org/10.1002/arcp.1085.

Carleton University, Luciara Nardon, Kathryn Aten, and Naval Postgraduate School. 2012. “Valuing Virtual Worlds: The Role of Categorization in Technology Assessment.” *Journal of the Association for Information Systems* 13 (10): 772–96. https://doi.org/10.17705/1jais.00311.

Kuijken, Bram, Gerda Gemser, and Nachoem M. Wijnberg. 2017. “Categorization and Willingness to Pay for New Products: The Role of Category Cues as Value Anchors.” *Journal of Product Innovation Management* 34 (6): 757–71. https://doi.org/10.1111/jpim.12414.

Leung, Ming D., and Amanda J. Sharkey. 2014. “Out of Sight, Out of Mind? Evidence of Perceptual Factors in the Multiple-Category Discount.” *Organization Science* 25 (1): 171–84. https://doi.org/10.1287/orsc.2013.0828.

Meyers-Levy, Joan, and Alice M. Tybout. 1989. “Schema Congruity as a Basis for Product Evaluation.” *Journal of Consumer Research* 16 (1): 39. https://doi.org/10.1086/209192.

Rindova, Violina P., and Antoaneta P. Petkova. 2007. “When Is a New Thing a Good Thing? Technological Change, Product Form Design, and Perceptions of Value for Product Innovations.” *Organization Science* 18 (2): 217–32. https://doi.org/10.1287/orsc.1060.0233.

Sørensen, Jesper B., and Mi Feng. 2017. “Analogical Learning and Categorical Identity during Market Emergence.” In *Research in the Sociology of Organizations*, edited by Marc-David L. Seidel and Henrich R. Greve, 50:283–313. Emerald Publishing Limited. https://doi.org/10.1108/S0733-558X20170000050009.