

The Pharmakon of out of stock leading to brand loyalty

Ahmed Redha DJAHNIT^{#1}, Djamila BOUYOUCHEF^{*2},

*[#]Marketing & TIC, Ecole des hautes études commerciales EHEC
Pôle universitaire de Koléa, Koléa, wilaya de Tipaza, Algérie*

¹Ahmedredhal@yahoo.fr

^{}EHEC, Ecole des Hautes études commerciales
Pôle universitaire de Koléa, Koléa, wilaya de Tipaza, Algérie*

²djamila-barr@hotmail.fr

Abstract— We aim through this research to find a positive correlation between the out-of-stock situation & brand loyalty by advocating the similarities with the scarcity effect & the mind change of belonging or being loyal to a brand assuming the out of stock for diverse purposes.

Our research has demonstrate that the customers are more aware regarding the strategies being used by the marketers & develop a strong reactance, in the other way when the out of stock situation occurs accidently & without any will, it allow a sincere message toward the customers to predict that this is a normal situation when a brand is out of stock due to constraint demand or constraint supply, also we have seen through our research that customers are more attractive to the product when the company or brand advise & communicate clearly on the out of stock situation.

We have also added a new & recent concept attributed to the out-of-stock concept in an ethical & moral way, meaning that when the brand is engaged that clearly produces less sealable quantities bringing sustainability it's considered as a moral commitment & well perceived by the customers.

Keywords— Psychological reactance, Cognitive biases, out of stock, Scarcity, Brand Loyalty

I. INTRODUCTION

Nowadays, we have had experience of an out-of-stock situation which will raise a lot of questions & frustration regarding the non-accomplishment of the purchase, this situation results through several reasons starting from the logistic part & the forecasting accuracy [1]!

In the first research we aim through this research to find a positive correlation of the scarcity of the product & the out-of-stock situation, these concepts are constituting one element with different views.

We started our research by asking ourselves several questions, what is the difference between these two concepts? The scarcity is one of the marketing strategies used to increase attractiveness of the product [2], it illuminates the quality perception, the emergency of the purchase & accelerates the decision of purchase but redirect the intention of action to the product by cognitive biases scare. The out of stock is a concept being used for operation purposes, all the companies' guidelines, even from operation perspectives, are focusing strongly on the way the stock is being managed.

The demand planning is a central element & act as a pivot to predict the future sales, constraint demand, distribution, increase stock cover, all these elements are tracked through a number of key performance indicators that shown to the top management the efficiency of the operations & the achievement of the setting

target to avoid losing any sales opportunities, from the supply issues to the storage capacities and finally the trade marketing mechanisms, drop size, repurchase rate, penetration ratio et other metrics [3]

II. PROBLEM STATEMENT:

How does stock out, despite being recognized as negative impact, mutate into a pharmakon that leads to brand loyalty?

III. THEORETICAL CONCEPTS:

A. Determinism Vs libertarianism:

The first question to be asked “is the human responsible for his acts or not? is he having a free will? This question is central to our research, it exposes our determinism, are we destined to predefined goals or are other mechanisms managing our actions & behaviors?

For Spinoza, this aspect is an illusory movement dictated by the brain, because, as an integral part of nature, it belongs to a whole, an "empire within an empire." In his book *Ethics*, Spinoza introduces the concept of conscious actions that are unaware of their causes; the principle of causality is paramount for Spinoza, who describes events as a succession of causes that imply action. Nietzsche, also from his deterministic worldview, adopts the same path: man acts himself, but within the conceptual framework of the illusion of free will, illustrated in his masterpiece "On the Genealogy of Morality," where he unleashes the notions of good and evil upon these foundations [4].

The conclusions cited at the bottom of this article predefine the work of (*Libet et al., 1983*) as a path to the conscious experience of intention, which, for Libet, eliminates the presence of free will. However, the question remains open in this vague field: if this organ analyzes, synthesizes, and acts, we would be at the point of a lived experience of so-called conscious experience (*Alain Sans, 2013*) [5] The decision-making process has already taken place. Nevertheless, *Dehaene's* work, illuminated in his book "*The Code of Consciousness*," raises a very open question about consciousness, whether latent or meta-conscious.[6]

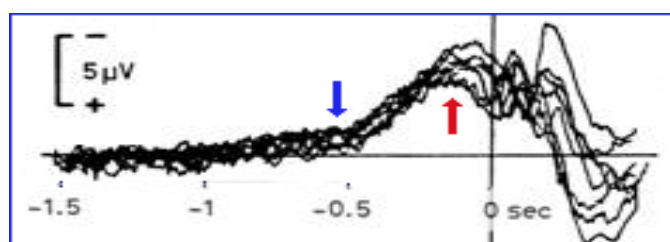


Fig1: Kornhuber & Deecke experience 1964.

B. Psychological Reactance:

We now enter another dimension, that of a theory developed by Jack Brehm, entitled "psychological reactance." Its foundations are both the observation and the notation of behavioral variations manifested by consumers following several significant events. The author extrapolates and in no way excludes two mechanisms that trigger the principle of scarcity. One would be the attributes of the product, namely its

availability or not "numerical observation using a comfort shortcut." Indeed, the product, presumed to be in smaller quantity compared to a close comparison, would be the subject of relief regarding its use, its effectiveness, and its positively appreciable reputation among other consumers.[7]

To illustrate this point, the author describes, through experiments conducted by psychology researchers, how this phenomenon primarily involves coercing the individual by making them believe and encouraging inaction. Endowed with the development of self-awareness at the age of three (a common anxiety attack in children of this age), the individual overcomes any obstacles that might hinder their freedom to act. The example of an advertisement launched by a tobacco company, encouraging women to break free from outdated ties and act with complete freedom, assuming responsibility through liberation, yielded impressive results: the number of female smokers increased dramatically.

C. Semantic priming:

The study of semantic priming, a phenomenon by which the interpretation of a stimulus is facilitated by a prior, semantically related stimulus, is a central field of application in cognitive psychology and semiotics. (*JH Neely 1991*) [8]

Space, as a polysemous concept linked to the environment and an indivisible element of brain function, is a foundation of mental structuring and representation.

This analysis proposes to explore the semiotic aspect by highlighting the impact of space on the production of meaning and relationships.

Let's return to *Ferdinand de Saussure's* work on the notion of the sign, which is composed of a signifier (in our case, a perceptible form), the absence of the product, and the signified (here, the idea associated with this absence). A stock shortage then becomes interpreted information, for example, an empty shelf (signifier); the product is in high demand, desirable, or exclusive (signified). The amplification of a perceived value—the disruption—acts as a semantic trigger, igniting a multitude of associations, not only scarcity but also exclusivity and prestige, a mimetic desire. In conclusion, this highly relevant aspect shows that stock shortages are not merely an economic or purely logistical reflection, but also a strong and powerful semiological act, a sign conveying the value of scarcity, prestige, and distinction.[9]

D. Phantom Alternative

Described as a phantom alternative, a phantom alternative is a choice that appears real within a set of presented options yet is unavailable at the time of decision-making. It appears in the choice structure (catalog, advertisement, or other communication medium) as a possible option but cannot be selected because it is out of stock or has not yet been launched. Phantom products evoke uncertainty about acquisition.

Indeed, the work of *Peter H. Farquhar and Anthony R. Pratkanis* (*Decision Structuring with Phantom Alternatives*, 1993) describes these products as influencing decision-making behavior in several ways:

- The contrast effect: the presence of an ideal but unavailable alternative makes the other options comparatively less attractive or alters perception.
- Change in decision criteria: the phantom helps define what one might desire; it establishes a kind of reference point, an ideal, even if unattainable, which influences how options and alternatives are compared.

Phantom products act as a decoy to encourage and influence the choice structure. This practice, used by marketers, relies on influence mechanisms. Disruption is a central factor in this perspective, diverting the target

when the product is unknown or unfamiliar, or reinforcing the choice. These practices tend toward misleading communication, which can be harmful if detected.[10]

E. Cognitive dissonance:

Cognitive dissonance is the internal conviction a person adopts to avoid a consequence that contradicts their beliefs.

From this brief and simple definition, Albert Mokeiber (2019) provides an illustration of a state of homeostasis where cognitive functioning needs to resolve the tension of a cognitive state through evidence of consonance. As an example, the author describes the phenomenon of the smoker who knows that smoking yellows their teeth, causes chronic bronchitis, and increases the risk of lung cancer, yet the smoker(s) sometimes invent ad hoc justifications such as "I'm stressed right now," "smoking helps me not to gain weight," or "I'm too young to get cancer." [11]

The author also describes the experience in the book "The Failure of a Prophecy," published in 1956. Festinger shares an experience of an apocalyptic sect that was led at the time by a woman who claimed she had received a message from extraterrestrials telling her that the apocalypse would strike the earth on December 21, 1954. Convinced, she managed to manipulate a group of followers into planning a flight in a flying saucer before the apocalypse. On the day, nothing happened, and the woman explained that the earth was spared thanks to the forces of good and light! [12][13]

F. Hermeneutic dimension of the interior cinema:

For the *Lionnel NAKKACHE*, mental life is not limited to perception: it consists of a constant narrative process. The individual interprets the scenes projected by their inner cinema, imbuing them with autobiographical continuity, and inscribing their values, emotions, and memories within them. Thus, the brain produces not only images but also meaning.

The inner cinema is merely the visible part of a much larger cognitive process. The unconscious represents the technical machinery hidden behind the screen: massive, parallel, and silent operations. The conscious film is an infinitesimal selection of actual mental activity. This asymmetry underscores the fragility of the subject, whose personal narrative rests on a set of largely opaque operations.

From an epistemological standpoint, this implies that consciousness is never directly observable by scientists, neuroscience can only provide correlates, not equivalents, and finally, all interpretations of lived experience remain mediated by theoretical models.[14]

G. Two faces for one coin! scarcity vs out of stock:

Coming to the new & perceived literature, we analyze the effects of the scarcity, nowadays this concept is perceived in a way to reduce agency[15], therefore the customers see brands, e-commerce web sites that are using these methodologies to attract customers on their products are not necessarily sincere & compliant all the time ! this connotation was perceived by the customers on a deductive situation, when you announce that only 30 pieces in stock ! & finally, the semiotics do not reflect this situation, the customers will doubt the sincerity of the message & the information that is spread by the brand! Thus, in this way customers are more agile in the way they perceive attractiveness through the stores.[16]

Our research had demonstrated that the customers are more aware regarding the strategies used by the marketers & develop a strong reactance in the opposite way, in the other way when the out of stock situation

occurs accidentally & without any will, it allow a sincere message toward the customers to predict that this is a normal situation when a brand has shortage due to constraint demand or constraint supply, due to forecasting errors & also we have seen through our research that customers are more attractive to the product when the company or brand advise & communicate clearly on the out of stock situation, even in product launch (Apple with Iphone 16, Sony (Playstation5) or the regular product.

H. From clarity in communication to brand loyalty:

The second section was concentrated on the brand loyalty, the literature being written, from the behaviorism theory where the loyalty was calculated by the number of purchase of the same brand, to the relationship theory where the confidence & attachment play a central role to define the loyalty, from this starting we have & toward the last two points advocated above, centralized our research on the unexpected out of stock situation which orient the message to a human error & the ethical part to rely on the confidence, the attachment & also the way other perceive me through the message i deliver by purchasing this particular brand.

The scarcity marketing is today perceived in a controversial way, the usage of the scarcity without a real scarcity is nowadays detected by the consumer in some cases, which install a barrier to the brand loyalty, this practice was useful from the past, attracting consumer & simulating the fact that this brand is much qualitative so the consumer build his cognition from the perception message (Only one left !), today, this method is somehow revoked or detected simultaneously by the consumer who see this kind of practice as a manipulation of his cognitive biases, thus it act in an opposite way but accelerating the unloyalty & brand switch by altering the consumer trust[17].

In the opposite, the out of stock, will take place in this competition by its natural way of behaving, the out of stock as a concept is the termination of the stock temporary or definitive without any human influence, the natural demand occurs & the consequences are the perception of the reduced availability without any will.[18]

IV. METHODOLOGY:

Our research adopts a descriptive & analytical approach based on quantitative data collected from an online questionnaire, it's divided on three sections, from the elementary data from the respondents, age, gender, socio professional situation, the second session is declined for perception & evaluation of the out of stock situation & future behaviors of consumers & the third section is dedicated for Likert metrics, combining the out of stock situation with the brand loyalty concepts (attitude, attachment & congruence).

V. EMPIRICAL RESULTS:

A. Brand Attachment

Through this research we have conducted an online questionnaire for data collection, we reached 223 respondents as sample size, confidence level of 95%, P value of 0,5 (unspecified population), Margin error (ME 6,56%).

To enrich our research different scales were used to extrapolate the situation of out of stock to the brand loyalty & thus by projecting the emotional aspect of the attachment scale to the out-of-stock situation & the brand congruence.

The Likert scale from 1 to 5 has resumed the following results:

Question	T value	P value	Mean	Standard deviation
When you distinguish a product out of stock what is your view toward the brand	6,232	0,000	3,6861	1,64403

From a statistical perspective, the T value is significantly superior to the reference value ($T=6,232$), Mean is set at 3,6861 which means that even in the stock out situation the consumer has affection toward the brand, $P>0,001$ & SD (1,64403) which is statistically significant, thus the respondents stay affective toward the brand & this is not altering their perception negatively, in opposite, the fact that the brand is having trouble in supplying the market demand it reinforce the perception of the good quality & the increasing demand, which reinforce the loyalty by confirming the faith that the consumers are having regarding their brand.

The question was declined in five sub questions to test the affection, the attachment, joy & happiness, comfort & attraction.

All the sub questions had significant statistical results, in another way the consumer, when their brand is out of stock in some conditions can be a real advantage of brand perception. Thus, the out of stock can play a real role in changing & reinforcing positive correlations toward brand loyalty [19]

This means that despite a stock shortage situation, respondents show a positive tendency to strengthen the link with the brand; in other words, they do not reject the brand and retain a certain intention of attachment or emotional loyalty.

B. Brand involvement:

The second scale examines the brand involvement which is a direct link to the first scale (attachment), the image of the self & the wanted image belonging to a brand.

N° Question	Affirmation	Mean	Standard deviation	T value	P value	Interpretation
1	It's a product that matter to me	3,78	1,493	7,760	<0,001	Strong personal attachment
2	It's a product to which I give particular importance	3,80	1,467	8,124	<0,001	Affective & symbolic importance
3	i particularly enjoy talking about this product	3,69	1,423	7,246	<0,001	moderate social experience
4	We can say that this product is interesting for me	4,14	1,428	11,911	<0,001	Strong interest & cognitive engagement

5	I can feel I'm particularly attractive to this product	3,85	1,502	8,426	<0,001	Strong emotional attraction
6	Just learning about the product is a pleasure	3,52	1,547	5,063	<0,001	A moderate but authentic cognitive satisfaction

The overall scales results demonstrate strong statistical results for personal attachment & self-image but moderate impact from a social view, thus the out of stock is perceived personally as it conveys & reassures the faith of the consumer toward the brand & reinforces his perception by the behaviors of others that make the brand out of stock by purchasing the product [20].

C. Brand Congruence:

N° Question	Affirmation	Mean	Standard deviation	T value	P value	Interpretation
1	This brand corresponds to the image I have of myself.	3,35	1,575	3,358	<0,001	Moderate personal congruence
2	This brand matches the image I want to project.	3,34	1,539	3,306	<0,001	Moderate idealized congruence
3	This brand gives me a good image.	3,27	1,507	2,667	0,008	Average social congruence
4	his brand corresponds to the image I want to project to others	3,21	1,609	1,915	0,057	Projected social congruence was weak and not significant

The results highlight a moderate but significant identity congruence between the brand and consumers. This congruence is primarily based on a personal and idealized self-image, reflecting a close and positive identification with the brand.

Conversely, the social dimension—the image presented to others—suggests that loyalty is not motivated by external perception but by a lasting personal attachment.

Therefore, loyalty born of congruence differs from transactional loyalty; it rests on an alignment of values and identity that persists even in the face of constraint or unavailability.[21]

VI. CONCLUSION

The research reveals a real game change, from the intuitive perception of the out of stock usually seen as negative & decreasing the brand loyalty to scarcity used as a marketing strategy to maximize sales & attractiveness of the product & thus lead to brand loyalty.

How can two same concepts from hermeneutics being perceived as so divergent! This questioning was very strange, from one hand the out of stock is constituting a threat & the scarcity an opportunity of brand attraction & loyalty?

This is why through a deep analysis we found that the concept of out of stock is now emerging to new definition, when the signify change its connotation from negative to positive depending on several aspects, the scarcity marketing is nowadays a source of different ethical controversial matters, when this technique is used in its own without a real situational events ! this is typically a source of confusion that why marketers are using the scarcity without any real scarcity ?

In this way, we advocate the fact that the out of stock in a normal way is acceptable, because it reflects the natural event of having an out-of-stock situation & not acting in superficial way in communicating the out-of-stock situation. Thus, the out of stock is normal & natural & it reinforces the idea of having extra demand on the market, proven quality or acting in a sustainable way to protect the environment.

The consumers, being more agile & aware of the marketers' techniques, provide sufficient elements for the consumer that this is only a way to attract their perception & redirect the way of consumption! This provocation of the cognitive biases reduces the agency of the consumers that develop a psychological reactance in the opposite way, instead of activating the reactance in their advantage to attract by the fear of missing out, the reactance operates in the opposite direction when the consumers are aware of this manipulation & will be more resistance to these mechanisms. In the other way the out of stock is nuanced by space semiotics & no influencing message is there to accelerate purchase.

From this perspective, the out of stock is becoming more natural, no manipulation occurs & it's the own perception of the consumer that identifies the real scarcity of a product.

This research was fascinating by it's controversial aspect of thinking out of the box, it claim another era of seeing consumer behavior & deliver key messages for the professional marketers, from an enquiry concerning human understanding, the heresy of rationality became more subject to discussion by referring to the question of free will balancing between determinism & libertarianism, the recent discovery in the cognitive science illustrate how human are exposed to irrationality as part of their being & the adaptation toward common situations.

Today, the responsibility of brands and the microeconomic fabric must be centered on collective responsibility, increasing informational compliance and decreasing normative compliance with thoughtful and responsible media coverage, becoming an egregore revealing a collective psyche, an ethical and non-moralizing discourse, allowing human feeling to return to this complexified sphere creating an Anthropocene environment.

VII. REFERENCES

- [1] Chantal Connan Ghesquière, *Comportement du Consommateur et Facteurs d'Influence en Cas de Rupture de Stock*, revue de gestion, Volume 33, numéro 172, 2007
- [2] Micheal LYNN, *Scarcity's Enhancement of Desirability: The Role of Naive Economic Theories*, 1992
- [3] Campo K., Gijsbrechts E., Nisol P., "Towards Understanding Consumer Response to Stockouts", *Journal of Retailing*, vol. 76, n° 2, summer 2000, p. 219-242.

- [4] Jordane Boudesseul, *libre arbitre : de la philosophie aux sciences cognitives*, 2015
- [5] Alain SANS, *Neurosciences et libre arbitre*, P7.2013
- [6] B Libet, C A Gleason, E W Wright, D K Pearl, *Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential). The unconscious initiation of a freely voluntary act*, 1983.
- [7] Brehms JW, *A Theory of Psychological Reactance*, New York, Academic Press.1966.
- [8] JH Neely, *Semantic priming effects in visual word recognition, A selective review of current findings and theories*.1991.
- [9] Ferdinand De Saussure, *Cours de linguistique générale*, 1916.
- [10] Peter H. Farquhar, Anthony R. Pratkanis, *Decision structuring with phantom alternatives*, 1993.
- [11] Albert Mokeiber : *votre cerveau vous joue des tours* ; 2019 éditions Allary
- [12] Festinger L. *La théorie de la dissonance cognitive* : 1967
- [13] Brehm, J. W., & Cohen, A. R. *Explorations in cognitive dissonance*. John Wiley & Sons, Inc.1962
- [14] Lionel NACCACHE, *Le Cinéma intérieur : Projection privée au cœur de la conscience*,2020
- [15] Vincent BERTHET, *l'Erreur est humaine, aux frontières de la rationalité*, 2018,
- [16] Nokhiz, P. & Ruwanpathiarana, A.K. *Consumer Autonomy or Illusion? Rethinking Consumer Agency in the Age of Algorithms*, 2025.
- [17] Luce, M.F., & Others, *Dark Side OF Scarcity Promotions: How Exposure to Limited-Quantity Advertising Can Shape Behavior*. Journal of Consumer Research, 2016.
- [18] Uzma Khan & Alexander Depaoli, *Brand Loyalty in the fact of stockout*, Journal of Marketing Science 2023
- [19] Lacoeuilhe, J. *L'attachement à la Marque : Proposition d'une Echelle de Mesure*, recherche et application en marketing, 15(4), 61-77. 2000.
- [20] Strazeirri, A. *Mesurer L'implication Durable Vis-à-vis d'un Produit Indépendamment du Risque Perçu*. Recherche et Applications en Marketing, 9(1), 73-91. 1994.
- [21] Virginie Maille & Nathalie Fleck -Dousteyssier, *Congruence perçue par le consommateur : vers une clarification du concept, de sa formation et de sa mesure*, 2011.