

**Are Lead-Users and Emergent-Nature Consumers really different?
Explaining the relationship between two key targets
for marketing co-creation strategies**

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This research extends Hoffman, Kopalle and Novak's work (2010) on the relationship between two key targets for co-creation: Emergent-Nature Consumers (ENC) and Lead-Users (LU). These authors have shown that an ENC - who can innovate in any domain, could be more effective than a LU- who innovates in one specific-domain, for the development of new product concepts. Based on a representative sample of French video-gamers (N=456), we show that these two innovating users have common conceptual roots and that ENC character trait corresponds to an extension of LU characteristics to all product domains. We also show that the ENC trait is an antecedent of specific-domain lead-usership. It finally appears that ENC and LU characteristics are crucial determinants for competence and engagement in co-creation activities.

Keywords: *Lead-Users, Emergent-Nature Consumers, Co-creation, New product development, Structural equation modeling*

Marketing literature suggests exploiting the innovating potential of two types of consumers: Lead-Users (LU) and Emergent-Nature Consumers (ENC). The advantages of the first are widely recognized: They are ahead of the market trends and expect high benefits from a solution to their advanced needs in one specific domain (Von Hippel, 1986). Lead-users and emergent nature consumers are both two highly attractive targets for marketing co-creation strategies: Their competence and engagement in co-creation are significantly greater than for other consumers (Vernet & Hamdi, 2013). Yet, to determine whether lead-users or emergent-nature consumers differ in terms of performance for co-creation strategies, a comparison have to be done. The assets of ENCs for concept development have been highlighted more recently by Hoffman, Kopalle, and Novak (2010): "these consumers are really helpful in developing product concepts, particularly in the consumer goods industry; moreover, they seem able to develop any product concepts that mainstream consumers found significantly more appealing and useful than concepts developed by lead-users". This result leads to focus on ENCs to the detriment of LUs despite the recommendations of much previous research (e.g., Franke, Von Hippel and Schreier, 2006; Lilien, Morrison, Searls, Sonnack, and Von Hippel, 2002). The "Emergent Nature" is conceptualized as a character trait applicable to all product or service categories.

If we want to shed light on this issue, we need to “re-examine” and compare the conceptual foundations of these two constructs. The choice of the ‘right’ target for a marketing co-creation strategy remains a tricky one: Should it aim at the *specialists* of a single product category (i.e. LUs), or should it rather aim at more general consumers (i.e. ENC’s)? What are their respective competences and willingness to get engaged?

Hence, this article aims to assess the degree of convergence and discrimination between these two concepts to increase our knowledge of the relationship between them at both theoretical and managerial levels.

1. Co-creating with innovative consumers

1.1 *Lead-user: product focused vs. general trait*

Lead-usership is generally appraised for a given product/service market. However, according to Churchill, Von Hippel and Sonnack (2009, p.9), identifying LUs in one product category leads to the inclusion of several different markets: (1) LUs in the *target* application and market, (2) LUs in similar applications in advanced “*analog*” markets and those (3) with respect to important *attributes* of problems faced by users in the target market. In the same vein, Von Hippel, Ogawa and De Jong (2011) propose an overall understanding of the LU when they study the innovations developed by users in the household sector. In their research, the LU is no longer studied within a specific product or service, but is aggregated on a set of connected markets related to the household sector. For their part, Jeppesen and Laursen (2009) took this further, proposing a global LU concept: They completely disregard the product category and measure the individual perception of lead-usership with regard to the whole products/services. Extending these findings to our research, we could assume a “global LU”¹ who transcends product or service category. This “global LU” would be a consumer, who is dissatisfied by a *great number* of products and services available on markets, but unlike other discontented individuals, the global LU regularly invents or experiments with *all sorts of original solutions* to solve the *various problems* encountered; these solutions *anticipate future trends in these markets*.

1.2 *Emergent nature consumers vs. lead-users*

Hoffman, Kopalle and Novak (2010) define the Emergent-nature as a “unique capability to imagine or envision how concepts might be further developed so that they will be successful in the mainstream marketplace”. Their ideas are innovative and capable of resolving all kinds of problems while also anticipating future market trends.

In comparison, specialized LUs’ ideas are original but they anticipate needs for *a single* market. By extension, ideas of “global LUs” are also probably original but anticipate needs for *any* market. This large spectrum requires a particular aptitude for original ideas and for feeling emerging needs before others do; this aptitude reflects personality traits like originality, imagination, creativity and anticipation that are shared by ENC’s. Therefore, we propose the following hypothesis:

H1: *ENC and “global LU” traits relate to the same concept.*

¹ We use the term “global LU” (i.e. lead-user in any product/service category) in opposition to the traditional LU construct (i.e. lead-user in one product/service category or domain-specific) that we interchangeably call “specialized LU” or “specific LU”.

According to Hoffman, Kopalle and Novak (2010), the major difference between ENC and specialized LUs (i.e. traditional LU construct) is the expertise, arguing that the first “not have to be experts in the product category”. However, Von Hippel (2011) takes the opposite position when he specifies that the value of the products created by LUs is not in their “product engineering”. ENCs and specialized LUs share several common traits: They are innovators in the given product or service category, but they are not necessarily experts in that category. In addition, open-mindedness, creativity and rationality (characteristics of ENCs), create a favorable context for lead-usership in any product category. Henceforth, if ENC is a character trait, it is coherent to think that it is an antecedent of the specific LU characteristics: Having this trait would thus increase the probability of being a LU in a given product category. If this was not the case, it would be difficult to explain the fairly high correlations (0.39 and 0.48) obtained by Hoffman, Kopalle and Novak, between the ENC trait and the fact of being a LU in a very specific product category (i.e. consumer home delivery goods). On this basis, and since, according to H1, ENCs and global LUs relate to the same concept, we can posit that:

H2: *The more an individual is ENC (or global LU) the more his/her capacity to be a specialized LU, in a given product category will increase.*

1.3 Emergent-nature consumers, lead-users and marketing co-creation

ENCs are attractive for co-creation because they “imagine or envision how concepts might be further developed so that they will be successful in the mainstream marketplace”. In the same way, LUs are natural and efficient targets for co-creation (Thomke & Von Hippel, 2002): “The best prospects are customers that have a strong need for developing custom products quickly and frequently”. For example, 3M estimates internally that ideas from groups of LUs are worth \$146 million, equivalent to 8 times the sum expected from the forecast sales resulting from traditional working groups (Lilien *et al.*, 2002). Other studies show that LUs are more efficient for co-creation than ordinary consumers (e.g. Jeppesen & Laursen, 2009; Magnusson, 2009).

Contrary to what might be supposed, it is not necessarily brand fans who are the most inclined to co-create; identification with the brand is not related to participation in innovative activities (Füller, Matzler and Hoppe, 2008). We might expect that LUs would engage in co-creation collaborative platforms (e.g. Thomke & Von Hippel, 2002), especially since they make great use of online and offline community resources (Bilgram, Brem and Voigt, 2008; Franke, Von Hippel and Schreier, 2006). Consequently, we can posit that:

H3: *The more an individual is ENC (global or specific LU), the more he/she will be favorably predisposed to marketing co-creation in terms of competences and involvement.*

2. Research Methods

In this research, we assess individuals’ specific lead-usership in the field of video games. We collected data through a web-based questionnaire survey. We collected 995 completed questionnaires administered in September 2011 on a representative sample of the French population over 16 years of age. The sample was selected according to the quota method (age, region, sex and level of education)². A filter question eliminated consumers who rarely or

² The sample was taken from an open-access panel managed by a European market research company.

never play video games; this amounted to 45.8% of the original population. Our final sample comprised 456 individuals.

The measures are all one-dimensional, five-point Likert scales. English scales were translated and adapted to French through back-translation. Specific lead-usership was measured with a four-item scale adapted to video games by Vernet et al. (2013) from Béji-Bécheur and Gollety's (2007) ($\alpha = .856$) original scale. To assess "global lead-usership" (Appendix 1), we adapted the same scale by simple transposition to a context of overall consumption of products/services: We replaced each item of the scale referring to "video game" with "products and services", following the same procedure as Jeppesen and Laursen (2009) ($\alpha = .817$). To measure Emergent-nature, the eight-item scale developed and validated by Hoffman et al. (2010) was used ($\alpha = .936$) (Appendix 1). Competence for co-creation is assessed with a four-item scale, interpreted as consumers' capability to make suggestions and/or to customize a product/service so that it corresponds to their own expectations ($\alpha = .814$). These items are close to those used by Von Hippel, Ogawa and De Jong (2011). Consumers' competence for video-game co-creation refers to their ability to (1) give editors positive feedback and (2) improve or create new video games to better fit their own needs. This is assessed with four items ($\alpha = .904$). Consumer engagement in co-creation is seen as « *co-production of contents between company and customers* » (Gambetti & Grafigna, 2010). It is measured with four items ($\alpha = .810$).

3. Results

First, we assess the convergent and discriminant validity of the measures with the Fornell and Larcker's (1981) criteria³ (Table1). All the AVE coefficients are above 0.50, so that the convergent validity among these three measures is established. On one hand, we observe that the measure of ENC traits shows discriminant validity with the measure of specific LU in video games ($r^2 = .27 < .65$ and $.62$). We obtain a similar result when comparing between specific LU in video games and "global LU" ($r^2 = .41 < .53$ and $.62$). On the other hand, conforming to posit H1, our measure of "global LU" does not allow us to discriminate this concept from that of ENC ($r^2 = 0.95 > .53$ and $.65$). The two constructs are highly correlated.

Table 1: Convergent and discriminant validity of the different measures of the concepts

	Emergent nature	Global LU	Specific LU
Average Variance Explained	0.65	0.53	0.62
Squared Correlations			
Emergent nature			
Global LU	0.95		
Specific LU	0.27	0.41	

To reinforce the validation of H1, we verified that a one-dimensional model of measure of the concepts EN and global LU was a better fit than a two-dimensional model.

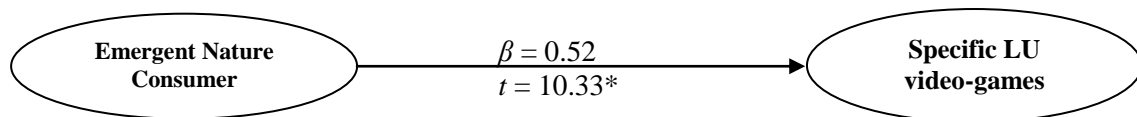
Indeed, the fit of a two-factor structural model to the two scales was poor (CFI = 0.81; RMSEA = 0.174); a single factor structural model however, fits quite well (CFI = 0.96; RMSEA = 0.073) supporting H1: Emergent Nature and "global LU" are not two distinct constructs.

³ The measures must have an AVE (average variance explained) above 0.50 and share more variance with their indicators (AVE) than with the measures of other concepts.

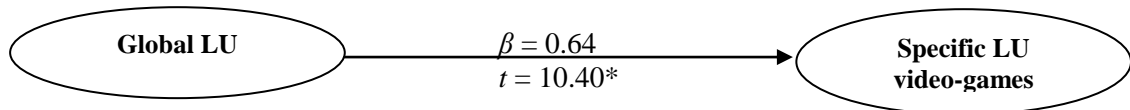
In the same vein, we wanted to see if a two-dimensional model of measure covering the concepts of ENC, global LU and LU in a specific product category-video game- would show a better fit than a one-dimensional or three-dimensional model. The results indicate that the fit indices of the two-dimensional model (CFI = 0.92; RMSEA = 0.09) conform to the usual norms established in the literature (Hu & Bentler 1995), and are far better than those obtained with the model fixed at one (CFI = 0.84; RMSEA = 0.134) or three dimensions (CFI = 0.80; RMSEA = 0.145). On the basis of these results that show the same tendencies, we can conclude that *H1 is validated: The constructs ENC and global LU relate to the same concept*. Symmetrically, our results also show that the ENC is conceptually different from the specific LU, thus confirming the results reported by Hoffman, Kopalle and Novak (2010).

Our hypothesis H2 considers that the ENC (or “global LU”) is an antecedent to the specific LU. In other words, the more an individual possesses the ENC (or global LU) traits, the more he/she will tend to be a specific LU in a given product category. We constructed two series of structural models on this basis; the first retains ENC as a predictor of specific LU and the second global LU (Figure 1).

Figure 1: Relations between the ENC (global LU) and the specific LU in video games



SMC = 0.27; Fit statistics: $\chi^2/df = 2.53$ (134.3/53); GFI = 0.95; IFI = 0.97; CFI = 0.97.



SMC = 0.41; Fit statistics: $\chi^2/df = 3.62$ (68.79/19); GFI = 0.96; IFI = 0.97; CFI = 0.97.

* $p < 0.001$

Figure 1 shows that the structural coefficients are both significant. Thus H2 is confirmed: The ENC and the global LU characteristics are two antecedents to the specific LU in a given product category – here, video games. We also observe that the beta is a little higher between global LU and specific LU than between ENC and specific LU (+ 0.12 points).

Table 2: The relationships of ENC, global LU and specific LU with marketing co-creation

Structural Models		Dependent variables		
Predictor variable		Competences for co-creation in general	Competences for co-creation in video games	Engagement in co-creation in general
Emergent Nature Consumer	Structural Coefficients	$\beta = 0.61$; $t = 11.56^*$ SMC = 0.38	/	$\beta = 0.50$; $t = 9.23^*$ SMC = 0.25
	Fit statistics	$\chi^2/df = 4.37$ (231.81/53); GFI = 0.91; IFI = 0.95; CFI = 0.95	/	$\chi^2/df = 1.63$ (86.52/53); GFI = 0.96; IFI = 0.99; CFI = 0.99
Global LU	Structural Coefficients	$\beta = 0.67$; $t = 10.34^*$ SMC = 0.45	/	$\beta = 0.57$; $t = 8.97^*$ SMC = 0.32

	Fit indices	$\chi^2/df = 7.26$ (138.1/19); GFI = 0.92; IFI = 0.92; CFI = 0.92	/	$\chi^2/df = 1.93$ (36.79/19); GFI = 0.98; IFI = 0.98; CFI = 0.98
Specific LU (video- games)	Structural Coefficients	/	$\beta = 0.78$; $t = 16.51^*$ SMC = 0.61	$\beta = 0.51$; $t = 8.91^*$ SMC = 0.26
	Fit indices	/	$\chi^2/df = 5.64$ (107.23/19); GFI = 0.94; IFI = 0.96; CFI = 0.96	$\chi^2/df = 1.78$ (33.89/19); GFI = 0.98; IFI = 0.99; CFI = 0.99

* $p < 0.001$

To test H 3, we created a series of structural models based on single relationships between one of the three predictor variables (ENC, global LU and specific LU) and the other of the three dependent variables representing marketing co-creation (competences for co-creation in general, competences for co-creation in video games and engagement in co-creation in general).

Table 2 shows that, conforming to the predictions of H3, the more an individual has an ENC (or global LU) character, the more competent he/she will be for co-creation and the readier he/she will be to get engaged in marketing co-creation whatever the product category. In the same vein, we notice that structural coefficients are particularly high between the degree of lead-usership in a specific domain (i.e. video games) and the competences for co-creation with companies in that particular market ($\beta = 0.78$, $p < .001$).

4. Discussion and Implications

From a theoretical perspective, an important result is that a great number of the essential characteristics of ENC merge with those of “global LU”. These two constructs translate similar traits: When confronted with a given material problem, such individuals do not remain passive. They have a predisposition to be a lead-user in any product or service category.

We can certainly observe that at the time of writing, few if any academic articles dealing with the concept of ENC have been published since that of Hoffman et al. (2010), whereas the literature on specific LU’s has been prolific. We nevertheless think that the ENC remains of interest for two reasons. Firstly, the ENC poses the question of identifying specific traits in consumers that find it easy to imagine original products. Finally, according to Hoffman *et al.* (2010), ENCs develop more attractive concepts than specific LUs do. This result seems somewhat counter-intuitive. Replications are thus necessary: It would be interesting to repeat the experiment on other products and services, not only for the ideation phase, but also for the prototype development phases. Such replications would allow us to answer another important underlying question: Should marketing co-creation try to seek out individuals with particular personality traits (eg. creativity, rational thinking, etc.), that is, ENC or global LU, or should it rather seek individuals who know more about the relevant product category (specific LU)? In other words, is a contingent approach (individual competences in a particular product category) to marketing co-creation more, equally or less efficient than a trait-based approach?

From a managerial perspective, our results reinforce the interest of focusing on LUs or ENCs for co-creation, rather than aiming at ordinary consumers. Indeed, the more an individual is ENC, global LU or specific LU, the more he/she is likely to have competences and willingness to engage in co-creation activities.

Our results confirm the existence of a solid correlation between the ENC traits and the specialized LU characteristics and show that the first are an antecedent of the second. These two points are of interest for research institutes and marketing managers. In a first stage, it is

relevant to constitute a wide consumer panel with ENC's (or global LUs). For example, companies could filter out customers when they connect for the first time on an on-line platform and then could be directed towards different platforms according to their status (ordinary consumer, specific lead-user or emergent nature consumer/global lead-user). Such a panel can be built at a lower cost, for these consumers are more inclined to participate in panels than ordinary consumers: As we have shown, they are prepared to get engaged in marketing co-creation. In a second phase, if necessary, it is easy to filter this consumer base according to the category of product or service in order to select only specialized LUs who are competent for co-creation in the required domain.

To conclude, our research did not aim to establish the superiority - or the lack of difference – between ENC's and specialized LUs for developing new product concepts. One fruitful avenue for future research would be to verify, by replicating the study of Hoffman et al. (2010), whether a contingent approach to lead-users (individual competences within a product category) is more, equally or less effective than an approach based on personality traits (ENC or global LU) for marketing co-creation strategies.

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Appendix1. Scales

Specific-domain Lead-usership – video games (Vernette et al 2013 ; adapted from Béji-Bécheur, A., & Gollety, M. 2007).

1. I had expectations on the use of “video games” long before others
2. I have had ideas on how to improve the use of “video games” that have since been taken up by others
3. Today, “video games” on the market eventually meet needs that I have had for a long time
4. My ideas about “video games” are innovative compared to current practices

Global Lead-usership (Vernette et al 2013, derived from Béji-Bécheur, A., & Gollety, M. 2007).

1. I had expectations on the use of products or services long before others
2. I have had ideas on how to improve products or services that have since been taken up by others
3. Companies offer ideas that I have had for a long time
4. My ideas are innovative compared to current practices

Emergent Nature Consumer (Hoffman, D.L., Kopalle, P.K., & Novak, T.P. 2010).

1. When I hear about a new product or service idea, it is easy to imagine how it might be developed into an actual product or service
2. Even if I don't see an immediate use for a new product or service, I like to think about how I might use it in the future
3. When I see a new product or service idea, it is easy to visualize how it might fit into the life of an average person in the future
4. If someone gave me a new product or service idea with no clear application, I could “fill in the blanks” so someone else would know what to do with it
5. Even if I don't see an immediate use for a new product or service, I like to imagine how people in general might use it in the future
6. I like to experiment with new ideas on how to use products and services
7. I like to find patterns in complexity
8. I can picture how products and services of today could be improved to make them more appealing to the average person