Les leaders d’opinion et l’influence dans les réseaux sociaux: une nouvelle conceptualisation pour une meilleure mesure

Ruspi Thomas*
IAE, Université Toulouse Capitole, CRM (UMR CNRS 5303)
thomas.ruspi@iae-toulouse.fr

Laurent Bertrandias
Université Toulouse Paul Sabatier, CRM (UMR CNRS 5303) et LGCO
laurent.bertrandias@iut-tlse3.fr

Eric Vernette
IAE, Université Toulouse Capitole, CRM (UMR CNRS 5303)
eric.vernette@iae-toulouse.fr

* IAE de Toulouse, 2 Rue du Doyen-Gabriel-Marty, 31042 Toulouse. 06-32-03-29-75

Résumé : L’identification des E-Leaders d’Opinion (E-LO) dans les réseaux sociaux internet (e.g. Twitter ou Facebook) est devenu un véritable enjeu pour les managers marketing. Plusieurs entreprises proposent ce type de service à partir de métriques algorithmiques (e.g. Lithium avec Klout). Ces méthodes peuvent manquer de fondements théoriques et de validité scientifique : sur quelle conceptualisation du E-LO sont-elles fondées ? Si le concept de leader d’opinion traditionnel (ie. offline) et ses méthodes d’identification sont bien définies, le construct de leader d’opinion sur les réseaux sociaux n’a jusqu’à présent pas été clairement défini et mesuré. Dans cet article, nous proposons une nouvelle conceptualisation du E-LO associée à une mesure spécifique. Dans cette approche, le leadership d’opinion est formé par trois dimensions : la création de contenu, la construction du capital social et l’expertise. Les validités de construit et prédictive sont vérifiées dans une étude empirique sur 167 utilisateurs des réseaux sociaux.

Mots clef : E-leaders d’opinion ; Réseaux sociaux internet ; Sociométrie ; Klout

Abstract: The identification of E-Opinion Leaders (E-OL) on Online Social Networkss (e.g. Twitter or Facebook) has become a challenge for marketing managers. Several companies deliver this service by using algorithmic metrics (e.g. Lithium with its Klout score). These kinds of methods lack for theoretical bases and so, for scientific validity: on which conceptualization of E-OL are they based? If traditional opinion leader (offline) have been well defined by academics, the construct of opinion leader on Online Social Networks has not been clearly delimitated and measured up to now. In this paper, a new conceptualization of E-OL on Online Social Networks is proposed in association with a related specific measure. In this approach, OL is formed by three dimensions, content production, social capital development and expertise. Construct and predicative validities are verified through an empirical study on 167 users of social networks.

Keywords: E-Opinion Leaders ; Online Social Networks ; Sociometry ; Klout

E-opinion leadership and influence on online social networks: from a new conceptualization to the development of better measures
E-OPIINION LEADERSHIP AND INFLUENCE ON ONLINE SOCIAL NETWORKS: FROM A NEW CONCEPTUALIZATION TO THE DEVELOPMENT OF BETTER MEASURES

Introduction

Through the development of Online Social Networks (OSNs) such as Facebook, Twitter or even Instagram, the identification of e-opinion leaders (E-OL) on whom the marketing managers would like to base their viral marketing campaigns, has become an important venture. Several companies offer bespoke solutions allowing to identify these influential individuals, such as Lithium which created the Klout score1. These tools have the advantage of being easily used by the companies working with them, but also present the inconvenience, to our knowledge, of having no scientific validity. Due to this, it is difficult to define what is «influence»: firstly it can be evaluated on many levels, secondly, it is difficult isolating the influence of a related phenomenon such as homophily (Aral and Walker, 2012); in line with their approach, we define influence as the extent to which received judgements and advices lead to engage in a given behavior. In order to circumvent these difficulties, it is possible to adopt an approach through the theoretical attributes of the E-OL on the OSNs, as it has already been done several times before with offline opinion leadership (OL) (e.g. Childers, 1986) or E-OL on the online forums (Fejlaoui & Vernette, 2009), firstly working on the definition of the concepts before developing the corresponding measures. The contexts in which these forms of (E-)OL apply are different to the OSNs. Although, according to (Rossitter, 2002), if the objective of a concept changes, it is necessary to adapt the definition of the measure. For this reason, we suggest first of all to adapt a definition and a specific measure for the E-OL on the OSNs, both based on theoretical attributes of the e-opinion leaders (E-OL). To do this, we will base ourselves on the sole conceptualization already adapted to an online e-leadership context: Fejlaoui’s and Vernette’s (2009). Secondly, this measure will be used to investigate the convergence of other (E-)OL identification methods (sociometric and algorithmic) with the theoretical attributes of the E-OL.

Literature review

From an academic standpoint, the identification of opinion leaders (OL) is neither new (Katz and Lazarsfeld, 1955) nor characteristic of the context of OSNs. Two offline social network OL identification methods are regularly referred to: sociometrics and auto-evaluation. The sociometric method is based on the structure of the social networks meaning the manner in which the individuals are interconnected between themselves on that given network. The individuals with the most connections (Hubs and bridges), are considered opinion leaders (e.g. Hinz et al., 2011). Thus, this method takes into account the amount of incoming (in-degree) and out coming (out-degree) links for each individual. These items are also perceptible on the OSNs. For example, you can find the amount of «followers » (in-degree) and « following » (out-degree) on Twitter. Thereby, the sociometric method should be operational in order to identify the e-opinion leaders on these OSNs. As for the identification of OL by auto-evaluation, it consists in creating scales of measures based on the definition of the concept. Thereby, concerning opinion leadership, some measures based themselves on the capacity to influence of the OL (Flynn et al., 1996), others on the quantity and frequency of exchanged data (Childers, 1986; Gilly et al., 1998; King and Summers, 1970) by these OL, other measures assembling both dimensions (Miled and Louarn, 1994). Furthermore, other

1 Klout is an individual score of influence calculated between 1 and 100. The higher the score, the more influential the individual is.
works were oriented towards the study of the theoretical characteristics of OL. In that, some have shown the part played by expertise in the category of the product in which the OL exercises his leadership (Gilly et al., 1998; Grewal et al., 2000), his will of public individuation or need to feel unique (Bertrandias and Goldsmith, 2006; Chan and Misra, 1990), his strength of character which is superior to that of his entourage (Weimann, 1991), his tendency to be more innovative (Grewal et al., 2000) or even his high social capital (e.g. Burt, 1999). Concerning potential scales of measure dedicated to online opinion leadership (E-OL), only a definition and a specific scale to E-OL on online forums have been developed (Fejlaoui and Vernette, 2009), to our knowledge. In this research, the authors have conducted ten netnographic studies which allowed them to define the E-OL on forums as “a source, considered as an expert, capable of supplying messages rich in data; he has editorial skills and is able to defend his ideas; his comments, polite and courteous, show his attachment to the community”. Finally, concerning the identification of the E-OL, there also exists a new set of methods, specific to the context of OSNs, but the scientific validity of these methods have not been formally proven. It is about behavioural metrics that automatically calculate a score of influence (e.g. Klout; Kred) for individuals. The existence of several sets of identification methods for (E-)OL begs the question of their convergence and their efficacy: do they allow the identification of the same (E-)OL?

**Methodology**

To adapt the conceptualization and the measurement of e-opinion leadership on the forums of Fejlaoui and Vernette (2009) to the context of OSNs, we followed the main steps of Churchill’s paradigm (1979). First, we conducted fifteen semi-directive interviews with active users of OSNs (Facebook, Twitter, Instagram…), and then refined the new version of the scale of measure on a sample of 271 users of OSNs. Finally, in order to conduct a supporting analysis, we administered a questionnaire to OSNs users including the E-OL scale adapted to this context and an adapted E-influence dependent variable adapted from Aral and Walker (2012). In total we were able to obtain 167 viable questionnaires, 119 of which came from Twitter users who accepted to give their login (“@…”), this allowed us to collect their sociometric indicators (Followers and following) and calculate, for 95 of them, their Klout score via the API of this platform. This data will allow us to evaluate the convergence between the methods.

**Results**

Following the interviews and purifying step, the dimensions Demonstration abilities, Editorial abilities, Bond to the community, Relational behaviour and Data quantity of the E-OL scale on forums of Fejlaoui and Vernette (2009), inadmissible in the context of OSNs, are eliminated. Only the dimension Expertise (contingent to the category of products; here movies) is kept. Two other factors (stable characteristics) came out of the conversation about the representation of the concept of the e-opinion leaders on the OSNs. The first one concerns the Will to create valuable content by his contacts, materialised by published information, messages, photos and videos: the opinion leader takes a great care in the selection and the quality of the visuals (photo, video), the links and the information that he deems useful to publish on his social network. The second concerns the will of the E-OL to be followed, listened and re-published by the largest amount of individuals on the OSNs, meaning that they desire to develop their Social Capital. Globally, we define the E-OL of the OSNs as “individuals who are expert in a given category of products, who desire to develop their social capital and are cautious about sharing content (messages, information, photos, videos, etc.) that is valuable to their contacts”.
Table 1: The items of the E-LO measurement scale

<table>
<thead>
<tr>
<th>Valuable Content</th>
<th>Social Capital</th>
<th>Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ELO1] When I post on the OSNs, I often insert useful links for my contacts.</td>
<td>[ELO5] I look to obtain a large amount of people who take interest in what I say on the OSNs.</td>
<td>[ELO9] I feel more able than most of my contacts on the OSNs to speak about cinematographic films.</td>
</tr>
<tr>
<td>[ELO2] When I post on the OSNs, I often insert interesting links for my contacts.</td>
<td>[ELO6] I look to develop the amount of people who follow my conversations on the OSNs.</td>
<td>[ELO10] I feel that I am more experienced regarding cinematographic films than most of my contacts on the OSNs.</td>
</tr>
<tr>
<td>[ELO3] On the OSNs, I often post qualitative information for my contacts.</td>
<td>[ELO7] On the OSNs, I look to make sure that my posts are appreciated by the largest amount of people possible.</td>
<td>[ELO11] I feel more technically qualified to speak of cinematographic films than most of my contacts on the OSNs.</td>
</tr>
<tr>
<td>[ELO4] When I post on the OSNs, I often give useful information for my contacts.</td>
<td>[ELO8] On the OSNs, I look to make sure that my posts are reposted by the largest amount of people possible.</td>
<td></td>
</tr>
</tbody>
</table>

Our construct being formative, we conducted the confirmatory factor analysis using structural equation modelling with the Smart PLS software. More precisely, we integrated our measurement in a model allowing us to test its predictive validity towards a measure of e-influence in the category of the product.

Figure 1: Structural model to test the predictive validity of E-LO on E-Influence

![Structural Model](image.png)

The e-opinion leadership has a significant and interesting impact on the auto-evaluated influence in the category of products ($\beta = 0.375; p<0.001$; significance estimated using the Bootstrap method on 2000 samples). Regarding the psychometric qualities of our measure, the reliability of the three dimension of the construct of the E-OL on the OSNs is satisfactory (Cronbachs alpha’s: 0.936 for the Expertise, 0.951 for the creation of valuable content, for the Social Capital) and their convergent validity is established (respective $\rho_{VC}$: 0.887 for the Expertise, 0.873 for the creation of valuable content, 0.797 for the Social Capital). The discriminant validity of the three dimensions is also established by comparing the squared correlations among it and the respective AVE. Besides that, these three dimensions explain 85.19% of the concept’s total variance.

In a multi-trait multi-method perspective (MTMM), (Campbell and Fiske, 1959), we have correlated the global score of our E-OL measure, as well as those of the different dimensions of it, with the sociometric measures (followers and following) and the Klout (see Table 1). We use the spearman’s coefficient because of the small sizes of the samples and because it’s more relevant to correlate very different metrics on the basis of ranks. The results show that Klout and the “followers” sociometric indicator are highly and significantly...
correlated. Secondly, it is interesting to see that sociometric indicators are, most of time, significantly and weakly correlated with our scale. Another interesting result is the weak, but significant, correlation between Klout and our two dimensions which are not contingent with the product category (Valuable Content and Social Capital) while there are not significant correlation between Klout and the contingent one (Expertise).

Table 2 : Spearman’s correlations between the E-LO scale, its dimensions and the other tools (Sociometric tools and Klout Behavioural metrics) (*sign 5% ; **sign 1% ; ns not significant)

<table>
<thead>
<tr>
<th>Klout</th>
<th>Global E-OL</th>
<th>E-OL Expertise</th>
<th>E-OL valuable content</th>
<th>E-OL Social Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klout</td>
<td>1</td>
<td>0.395**</td>
<td>0.044 ns</td>
<td>0.283**</td>
</tr>
<tr>
<td>Followers</td>
<td>0.783**</td>
<td>0.380**</td>
<td>0.091 ns</td>
<td>0.335**</td>
</tr>
<tr>
<td>Following</td>
<td>0.489**</td>
<td>0.295**</td>
<td>0.235*</td>
<td>0.244**</td>
</tr>
</tbody>
</table>

Perspectives

The first contribution of this work is to offer a conceptualization and a measure that are both adapted to the object (OSNs) of the E-OL concept, following Rossiter’s recommendations (2002). Our definition of the concept is based on E-OL’s conceptual traits and has a hybrid structure: two dimensions refer to general traits (Will to create valuable content and Will to develop social capital). The third dimension is the Expertise that is contingent to the product category. It confirms that E-OL is not a general concept but a monomorphic one, identical to the traditional OL. Indeed, King & Summer (1970) notice that only 13% of E-OL have this status in more than 4 categories of product. Moreover most of the traditional measures are contingent to the product category through the formulation of the items (e.g. Childers, 1986).

While some algorithmic tools, dedicated to the identification of influential individuals, are easy to use and are even more widespread, the use of our declarative scale by marketing manager in order to identify E-OL on OSNs seems incongruous. But, this new tool could be useful to know more about the interest of algorithmic and online sociometric methods. That directly leads us to our second contribution that relates to the results of the study of convergence between measurement tools. The weak, and in one case not significant, convergence between sociometric indicators and our scale confirms findings in the offline context (e.g. Lee et al., 2010) that showed that the two methods do not identify exactly the same OL. In our context this issue is more accentuated. A reason could be found in the automatic and cumulative process of links counting on Twitter that is necessary to build the sociometric indicators. This process does not allow to differentiate celebrities (athletes, politicians, artists…) from E-OL. This represents an important limitation to the usage of sociometric approaches in OSN context. As for the Klout measure, it is interesting to notice that it converges significantly with the two general dimensions of our scale, but not with the domain-specific one. It confirms that Klout metric is calculated on the basis of OSNs behaviours and conversations, regardless of their purpose or nature. Thus these tools are not in line with the monomorphic conceptualization which prevails for traditional OL. Moreover, we saw that the notion of expertise is central in defining both the OL and E-OL in the literature. This is here a managerial implication in order to improve the Klout.

This research is not exempt of limits. First it lacks of external validity. It would be necessary to reiterate it with different sample groups, more respondents, other categories of product and integrating other behavioural metrics (e.g. Kred). The diversity of practices, between the different OSNs platforms (Coutant and Stenger, 2013) should also be taken into account in future research. Second, we have measured the e-influence by auto-evaluation: it
would be interesting to integrate an objective measure of e-influence in order to better evaluate the tool that we propose as well as other indicators (sociometrics, metrics as Klout or Kred).

References


