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## Information - Seeking as Optimal Consumer Experience. An Empirical Investigation

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*The central objective of this paper is to investigate the mechanisms leading to the formation of an optimal emotional-cognitive involvement of consumers during the act of online information searching and, thus, to the development of an open, exploratory information behaviour. We set out to improve the understanding of the online medium's impact on the information seeking experience and further on human's exploratory information behaviour. The paper is organized in six sections. We start by delineating the purpose of our study. Then we present our research model and its underlying hypotheses. Thirdly, we discuss the theoretical and empirical background of the constructs employed in our model. The fourth section contains a description of the data collection procedures and the related practical matters. Finally, we offer a detailed presentation of the empirical test results and conclude with some theoretical and managerial implications of conceptualizing and modelling consumers' optimal online information-seeking experiences.*

**Keywords:** information; investigation; consumer experience

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## Purpose of the study

During an online information-seeking activity users can live a series of successive experiences. Our study's objective is to evaluate the occurrence of a flow-like experience during these online information-seeking sessions. We consider flow important to the study of informational consumer behaviors in the digital age because it serves as a key antecedent to a more exploratory mindset and thus to more consumer generated value. Experiential behavior is relevant for word-of-mouth strategies based on influencing opinion leaders, as well as for providing entertainment and recreation and for enhancing consumers' product knowledge.

Drawing on previous flow models, we posit that, in order to be a flow like experience, online information-seeking has to be difficult enough to challenge users to maximally exploit their web skills and, at the same time, it must be optimally sustained and coordinated by web interfaces in order to still be perceived as achievable. When entering the flow state, we assume users are fully concentrated on the information task; they intrinsically enjoy what they are doing and feel liberated from time pressure. The essential marketing outcome consists, in our vision, in developing a more open, risk-prone, exploratory informational behavior.

## Research model and theoretical background

Drawing on eight structural models (Novak et al., 2000; Koufaris, 2002; Korzaan, 2002; Huang, 2003; Skadberg and Kimmel, 2004; Mathwick and Rigdon, 2004; Richard and Chandra, 2005; Guo and Poole, 2009) identified in online flow literature, we have built an empirical integrative model (Figure 1) to explain the flow experience of online information search as a complex process comprising preconditions, actual manifestations and a behavioral consequence.

We propose that the levels of navigability (Hypothesis 4) and usability (Hypothesis 3) of web platforms, as well as the level of challenge

associated with the online search (Hypothesis 2), the degree of users' web literacy (Hypothesis 1) or the state of being telepresent in the online medium (Hypothesis 5) are critical for entering a flow state during online information search and becoming more exploratory in one's information behavior (Hypothesis 6). We define flow itself as a state of deep concentration and intrinsic pleasure, in which the person searching for information doesn't feel under time pressure or afraid of losing control over his action and goals. Drawing on this flow definition, we have applied distinct operational measures for each aspect of flow state. For testing flow's relationships (as an overall experience) to its antecedents and the behavioral consequence of interest, we have used a summed scale accomplished as a simple arithmetic mean of the four sub-scales.

The hypotheses to be explored in this paper therefore are:

*H1:* The perceived level of the online information-seeking skills positively influences flow intensity during a web search session.

*H2:* The perceived amount of challenge is positively related to the flow intensity during online information-seeking activities.

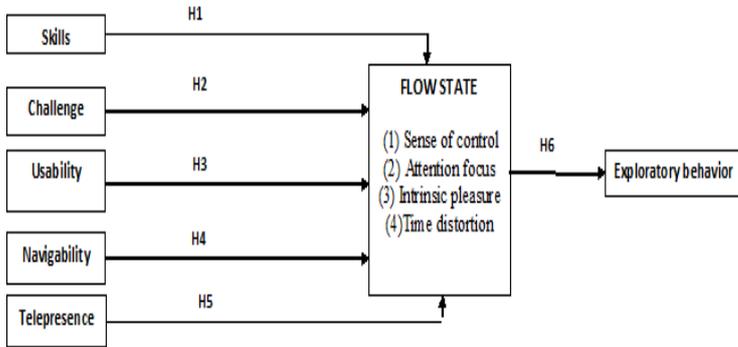
*H3:* The perception of the general web usability positively influences flow while searching for information online.

*H4:* The perceived level of web navigability positively influences flow intensity during online information-seeking.

*H5:* Telepresence intensity positively influences flow intensity during online information-seeking.

*H6:* Flow state intensity during online information-seeking activities positively influences the users' exploratory behavior.

The model comprises ten constructs that are operationalized with five-point rating scales (scale values from strongly disagree to strongly agree). In addition, an online information-seeking challenge variable specifies what respondents consider a challenge during online search. This background variable is not included in the base model.



**Figure 1:** The research model

Source: developed by the author

## Construct definition and scale development

The present section presents the theoretical and empirical background of each of the ten constructs introduced in the research model. Skills and challenges represent two essential preconditions of a flow state identified as such by most of the studies reviewed in our research (Novak et al., 2000; Koufaris, 2002; Huang, 2003; Skadberg and Kimmel, 2004; Li and Bowne, 2006; Guo and Poole, 2009). In the present model, both skills and challenges correlated to them refer to the online search process, ignoring other informational skills and challenges of users. The scales used to measure the two constructs are an adaptation of the scales proposed and validated by Novak and al. (1998; 2000). These scales have also been validated in other general web usage contexts (Huang, 2003; Li and Bowne, 2006), as well as in online shopping contexts (Koufaris, 2002; Skadberg and Kimmel, 2004; Guo and Poole, 2009) and in online gaming contexts (Voiskounsky et al., 2004; Chiang et al., 2011).

A technological feature we consider essential to define web 2.0 experiences and have which we therefore introduced in our research model is navigability. The navigability scale rephrases a subscale of

interactivity (the mapping scale) suggested by Novak et al. (1998) using Steuer's (1993) interactivity model. Although Novak et al. (1998) did not obtain good test results ( $\alpha$  alpha=0.50) for the scale in the context of an early development stage of the web, we propose retesting it in the context of present generation search interfaces.

Another technological feature we took into consideration is web usability, a construct closely related to that of navigability, as demonstrated by our selective literature review (Koufaris, 2002; Huang, 2003; Pace, 2003; Skadberg and Kimmel, 2004; Guo and Poole, 2009). The conceptual difference between the two constructs, as we perceive it, consist in the fact that navigability reflects the level of naturalness and intuitiveness with which search interfaces react to the actions initiated by the user, while usability rather describes the accessibility of the web's modes of presenting information. We have taken some items from the perceived complexity scale referring to dynamic complexity ( $\alpha$  alpha=0.84) and we have transformed it, by rephrasing the positive pole, in the expression of web usability (that is, approaching it from a structural point of view) and asked respondents to evaluate their perception of the web during while performing online information search activities with help of the search engines.

Supplementary, we chose to include telepresence<sup>1</sup> as a flow antecedent in our research model as it describes the capacity of the web and its second generation applications to replicate reality. In order to measure telepresence, we have partially used the scale designed by Novak et al. (1998). We posit that when users do not perceive the web interface as standing between them and the real world information may be a strong determinant of the flow experience. The original scale (Novak et al., 1998) operationalizes a subjective experience generated by the multi- and hypermedia attributes of the web and it was successfully tested by the authors ( $\alpha$  alpha=0.69) in the context of general web usage.

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<sup>1</sup> Telepresence "is the perception that the virtual environment one is interacting with is more real/dominant than the actual physical environment" (Novak et al., 2000:29).

Four dimensions of the flow state have been identified based on an overlap of definitions from a range of studies investigating the construct and considered adequate to define the flow state experienced during an online information-seeking activity. Attention focus (Koufaris, 2002; Huang, 2003; Li and Browne, 2006; Guo and Poole, 2009) and control (Koufaris, 2002; Huang, 2003; Li and Browne, 2006; Guo and Poole, 2009) are fundamental flow dimensions. While in a flow state, people do not have any room in their minds for any distractions, worries or irrelevant thoughts. They also feel a sense of control over their actions, which drives away concerns about failure. A flow activity is also a self-contained activity defined by intrinsic enjoyment (Koufaris, 2002; Skadberg and Kimmel, 2004; Li and Browne, 2006; Guo and Poole, 2009). Another commonly reported dimension of the flow experience (Skadberg and Kimmel, 2004; Li and Browne, 2006; Guo and Poole, 2009) is time distortion (also called transformation of time or temporal dissociation). A distorted sense of time makes time appear to pass very slowly or very rapidly compared to an ordinary experience.

We have used Guo and Poole's measure (2009) for focused attention ( $\alpha$  alpha=0.90) and we have extended it with Huang's items (2003) from his focused attention scale ( $\alpha$  alpha=0.82). We named the resulted scale attention focus. To measure the sense of control in the context of online information search we have used a short variant of Guo and Poole's (2009) scale, tested by them in the context of online shopping ( $\alpha$  alpha=0.90). For evaluating the intrinsic enjoyment dimension of online information search we have created a scale that combines items from Koufaris's (2002) enjoyment scale ( $\alpha$  alpha= 0.81) with items from Guo and Poole's (2009) autotelic experience scale ( $\alpha$  alpha= 0.91). The time distortion scale entirely uses Guo and Pool's scale called transformation of time, that has proven consistent reliability ( $\alpha$  alpha=0.92) in the context of online shopping.

A particular consequence of the flow experience of online search is of special interest to this study: exploratory informational behavior. Several studies explore the connection between flow and exploratory

behavior (Novak et al., 1998; 2000; Korzaan, 2003; Richard & Chandra, 2005). To measure exploratory behavior as a result of online search experience, we have used a five-item scale adapted after Novak et al. (1998). The exploratory behavior scale measures the degree to which the user is open to experiments and discovery in his/her information search behavior. It evaluates both exploratory goals and exploratory information-seeking strategies.

## **Online data collection strategy**

The plan that we have conceived to collect data includes the creation of a survey which has two parts. In part a respondent were asked to give background variables such as age, education or professional status. In addition, they were solicited an evaluation (5-point Lickert scale) of their perception on what constitutes a challenge during online search sessions. Part B of the questionnaire has the main intention to make an in-depth investigation of the elements that make online information-seeking an optimal, flow-type experience.

Participants in this investigation were approached by placing invitations on several Facebook profiles (with the approval of owners) and by e-mailing invitations to personal contacts, requesting them to forward the link to the online questionnaire<sup>2</sup>. The content included a brief explanation of the subject of the research and a personalized request for support in the distribution of the questionnaire (emotional request, chain request).

The questionnaire was applied as an online form, publicly available for one week. The form is based upon a specially designed web application which has been developed for performing the present research. By using the PHP and HTML languages, the application is adapted to the type of collected data and provides the possibility to select

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<sup>2</sup> We chose to adopt the non-probability convenience sampling method (e-mail list and Facebook profiles of acquaintances), and we used the procedure of questionnaire self-administration.

questions and answer options from the database, but also to post them for those accessing the form.

The security and operativity of storing questions and answer variants were ensured by the use of the MySQL database engine, mainly chosen due to the very wide variety of data types it can store.

Answers storage was designed considering the further integration with the SPSS 19 software and thus determined answer choices to be encoded as SPSS variables. After filling in a certain number of questionnaires, MySQL facilitated data extraction for a preliminary SPSS data manipulation and generation of a clearer vision on probable results.

## Research results

### Descriptive statistics for the background variables

A total of 356 subjects responded to over 95% of the questions included in the questionnaire, of whom 109 (30.6%) men and 240 (67, 4%) women. The collected data show that most respondents are aged between 18 and 35 years (79.8%), are presently not married (64.6%), have a high education level (82.1%) and are preponderantly active in the fields of education (36.5%) and services (26.1%).

Upon the in-depth investigation of what users consider to be most challenging aspects of information seeking we have found that the challenge mainly consists of selecting suitable key words (65.2%) and distinguishing relevant links from irrelevant links (50.8%). Less challenging are perceived scanning a page for relevant information (47.5%), choosing the correct syntax for a search engine query (34.0%) and understanding the content and non-linear structure of a web site (30.9%).

Bivariate analysis required the connection between two variables to be checked by the  $\chi^2$  test (Foltean, 2000). The most statistically significant relations were found between the types of challenges and the age of the

respondents, followed by those between the types of challenges and the education level. Thus, while selecting suitable keywords for a search engine query represents a challenge for those over 25 years of age, scanning web pages for relevant information and understanding the content and non-linear structure of a web site rather challenges the younger subjects, aged under 25 years (Table 1).

**Table 1:** Significant age-related differences in challenge perception

Type of perceived challenge	Age		$\chi^2$ Test	Result
	<25	>25		
Selection of keywords for the query	59%	70.2%	$\chi^2=4266$ (1,N=349); p=0.041	Significant difference
Scanning a page for relevant information	56.3%	40.9%	$\chi^2=8127$ (1,N=349); p=0.005	Significant difference
Understanding the content and non-linear structure of a web site	38.4%	26.3%	$\chi^2=5857$ (1,N=349); p=0.020	Significant difference

Source: developed by the author

A possible explanation might be the fact that people under 25 have simpler search goals due to what we presume to be their more uncomplicated view on information. However, when it comes to distinguishing between relevant and irrelevant information, this task requires a more nuanced view and a wider experience, which both come with growing age and superior education. 60.7% of those with a medium and lower education level considered that going through web pages in search for relevant information is a challenge, as compared to only 45.3% of those with a higher education level.

## **Purification of the measurement instrument**

In order to test the predictive power of the elaborated model, we have first performed a purification of the measurement instrument. The first stage in the analysis of the measurement scales used in the present research consisted of checking uni-dimensionality by factor analysis techniques. The high values (between 0.5 and 0.89 for the KMO index) obtained for all model constructs upon the KMO and Barlett tests justified the use of the factor reduction method for all the ten scales, showing that variables are influenced by the extracted factors.

The values of communalities reflect the percent of the results dispersion explainable by the common action of the retained factors, and the results obtained indicate a good representation of the used factorial models. The values obtained for the Cronbach's alpha coefficient following these measurements, for all the ten scales, ranged between 0.527 and 0.906, indicating a sufficient level of reliability.

The performed factor analysis supported maintaining the scales in the initially proposed formats with three exceptions: (1) the consistency of the skills scale improved when eliminating an item; (2) also following factor analysis, the initial composition of the attention focus scale substantially changed – the calculated Cronbach's alpha value for the two identified factors justified eliminating the second dimension of the construct and exclusively integrating the first factor in the conceptual model of the research; and finally (3) for the exploratory behavior scale, the confirmatory factor analysis identified two dimensions – which we named exploratory behavior and exploratory goals – and excluded the latter from our model, based upon the theoretic argument that it does not express a consequence, but rather an antecedent factor of flow as modeled by previous studies (especially, Guo and Poole, 2009).

### Hypotheses testing results

After presenting results for the descriptive analysis and the purification process of the measurement instrument, in the following part of our study we have evaluated the prediction power of the proposed theoretical flow model. At this stage, the power of relations between the included research variables was analyzed by simple linear regression (Foltean, 2000).

**Table 2:** Hypotheses testing results

Hypotheses	Significance	Anova Test		Model Summary	Coefficients		Result
		F	p	R <sup>2</sup>	Beta	t	
H <sub>1</sub>	Online information-seeking skills positively influence flow intensity during web searching.	41.038	0.000	0.104	0.322	6.406	admitted
H <sub>2</sub>	Perceived challenge of online information search positively relates to the flow intensity.	138.301	0.000	0.281	0.530	11.760	admitted
H <sub>3</sub>	Web applications' usability positively influences flow while searching for information online.	38.895	0.000	0.099	0.315	6.237	admitted

H4	Navigability positively influences flow intensity during online information-seeking.	23.800	0.000	0.063	0.251	4.879	admitted
H5	Telepresence during online information search positively influences flow intensity.	96.158	0.000	0.214	0.462	9.806	admitted
H6	Flow state intensity positively influences the degree of exploratory behavior.	55.122	0.000	0.135	0.367	7.424	admitted

Source: developed by the author

In the first hypothesis we have started from the presumption that high levels of web skills facilitate a flow type experience during online search. The hypothesis is confirmed, and regression analysis reveals a good F value (41.038) at a significance level of 0.000. The value of the R2 coefficient indicates a 10.4% influence of web skills upon the optimal search experience.

Hypothesis 2 is based upon the assumption that high levels of challenge posed by an online information-seeking activity positively influence the intensity of flow while performing that activity. The F value is elevated and significant (138.301; p=0.000), which shows that the level of challenge is a good flow predictor. The regression coefficient for this relation recorded the highest value as compared to the other tested variables (Beta=0.530). Finally, the R2 value shows that 28% of the flow

variance may be explained by the variance of the perceived challenge levels.

By testing hypothesis 3 we sought to verify the existence of a connection between the independent variable of web usability and the dependent variable of flow. The predictability of flow intensity based upon the level of web usability is high, as indicated by the F value (1.345) = 38.895, at a level of significance of 0.000, but the value of R<sup>2</sup> indicates a low contribution of web usability variance in explaining the variance of flow (10%).

In the case of hypothesis 4, we presumed that the web navigability level positively influences the intensity of flow while searching information online. The results of statistical tests show that the level of navigability only explains the intensity of flow in a proportion of 6.3%. A possible justification of the lower value of the beta coefficient (0.251) might be the relatively low internal consistency of the navigability measurement scale which only includes two items to illustrate the concept. Flow intensity is determined by the level of navigability according to the following formula of the regression equation: Flow = 2.735 + 0.197 x (individual score of navigability). Thus, if the individual score of perceived navigability is 4.5 –we may predict a level of flow intensity of 3.62.

The assumption according to which telepresence influences the intensity of flow during an online search is confirmed by the high values of the F coefficient (96.158; p=0.000) and of the regression coefficient (Beta=0.462). The intensity of telepresence explains in a proportion of 21% the flow intensity during online information search and is, together with the perceived level of challenge, its best predictor.

Hypothesis 6 is confirmed (F=55.122; p<0.001), and the R<sup>2</sup> value indicates a 13.5% contribution of flow variance in explaining the exploratory behavior. The beta value shows that, when the intensity of flow increases by one standard deviation, the intensity of the exploratory behavior increases by 0.367 standard deviation.

## Implications and further research directions

Our test results demonstrate that the employed flow model can be successfully used to evaluate and predict optimal, engaging consumer experiences and an exploratory behavior in the context of marketing communication. However, we recommend further exploratory theoretical research in the area of information behaviors and web experience design studies in order to perfect the operationalization of more sensitive constructs like navigability, usability and the sense of control, which could improve the model's prediction power in online information-seeking contexts.

The flow model is important for marketers because it underlies what makes for a compelling online information-seeking experience and helps improve advertising campaigns and other integrated marketing communication plans. It can also expand scholars' knowledge of interactive and exploratory consumer behavior. An actual marketing benefit of designing compelling information-seeking experiences and encouraging consumers' exploratory information behavior may be an increased level of consumer-driven innovation. Exploratory-minded consumers are more effective problem solvers, risk takers, as well as active, independent and creative communication partners.

A major methodological drawback of our present research consists in the fact that we did not manipulate external challenge levels and technological features. Instead, we simply asked subjects about their perceptions on personal and technological factors whenever they search for information online. Moreover, we asked them to generally and retroactively evaluate their online information-seeking experiences rather than their experiences with a particular search topic or a particular background (commercial or otherwise). Further research could evaluate the flow experience of online information seeking in such experimental contexts.

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