

# Essay about telepresence effects on persuasion

## Three possible explanations

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**Paper presented at Presence 2001 - The Fourth Annual International  
Workshop on Presence**

<http://www.temple.edu/presence2001/index.htm>

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### ABSTRACT

The concept of Virtual Reality (VR) is currently very popular and is applied in various fields such as, for instance, psychology, entertainment, medicine, teleoperation and business. This latter is concerned (among other things) in studying potential benefits in designing immersive shops in comparison with more classical virtual catalogues. Immersive VR involves « the replacement of a user's real environment with a virtual environment » (Potter, 1996, P. 1).

Benefits of individual's immersion are multiple : persuasion (Kim and Biocca, 1997), flow state (Novak et al., 2000), arousal (Dillon et al., 2001), etc.

This paper aims at clarifying theoretically three possible explanations ("central route" effect, "confidence" effect or "source-monitoring error" effect) about immersive VR impact on persuasion. Each explanations could have differential business benefits.

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## 1. INTRODUCTION.

The concept of Virtual Reality (VR) is currently very popular and is applied in various fields such as, for instance, psychology, entertainment, medicine, teleoperation and business. This latter is concerned (among other things) in studying potential benefits in designing immersive shops (in comparison with more classical virtual catalogues). Immersive VR involves « the replacement of a user's real environment with a virtual environment » (Potter, 1996, P. 1) and, therefore could be defined as « a real or simulated environment in which a perceiver experiences telepresence » (Steuer, 1992, P. 77).

Benefits of individual's immersion could be explained according to three directions : "central route" effect, "confidence" effect and/or "source-monitoring error" effect. Each could have differential business benefits on persuasion. From a business point of view, it would therefore be crucial to deepen the underlying process.

First of all, VR and telepresence concepts will be briefly explained. Then, the three explicative theories of telepresence impact on persuasion will be developed. Finally, the Elaboration Likelihood Model will be used to understand more deeply this impact.

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## **2. VR AND TELEPRESENCE.**

According to Potter (1996), three general categories could emerge from various combinations of technology : desktop VR, augmented VR and immersive VR. Desktop VR usually involves use of a liquid-crystal shutter in order to present a unique image to each eye. Then, augmented VR superimposes elements of a virtual environment upon a user's real environment. Finally, immersive VR is associated with the concept of telepresence.

Telepresence or presence in the media is a psychological state in which the individual doesn't perceive the media existence anymore ; the media is transparent (Lombard and Ditton, 1997). First, this person senses his/her presence in the virtual environment and no more in the immediate physical one. Secondly, he/she responds to a specific object like he/she does if the media won't be there.

Since the apparition of telepresence concept in 1980 (in the article « Telepresence» written by Marvin Minsky for the Omni magazine), it is becoming a popular construct in media study and especially in new media study (World-Wide Web, 3D TV, etc.). Indeed, new media technological characteristics (for instance, interactivity, screen definition quality, etc.) enable the user to reach higher telepresence degrees (Ijsselsteijn et al., 2001). Therefore, to facilitate telepresence experience is an explicit goal in designing new media (Kim and Biocca, 1997 ; Ijsselsteijn et al., 2000).

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## **3. THREE EXPLANATIONS ABOUT TELEPRESENCE IMPACT ON PERSUASION.**

### **3.1. FIRST EXPLANATION OF THE IMMERSIVE VR BENEFITS ON PERSUASION : THE "CENTRAL ROUTE" EFFECT.**

According to some authors (e.g., Ditton, 1997; Reeves and Nass, 1996), immersive VR could be taken for direct experience with an object<sup>1</sup>. Direct experience with a particular object designates a behavioral act with this object while indirect experience is attitude formation toward an informational contact (Fazio and Zanna, 1981). These two experiences are on a continuum between two extremities : from direct manipulation with the product to word-for-mouth where the consumer receives product information but can't see or touch it (Mooy and Robben, 1998).

Fazio and his colleagues have found that attitudes formed through direct experience are more accessible and so more likely to be activated spontaneously and to influence behavior when the person is exposed to the attitudinal object than attitudes formed through indirect experience (Regan et Fazio, 1977 ; Fazio et al., 1978 ; Fazio and Zanna, 1978, 1981 ; Fazio et al., 1989). Indeed, direct experience entails that people will use "central route" to persuasion (from Petty and Caccioppo's

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<sup>1</sup> Up to now, the assimilation of telepresence experience in direct experience hasn't be proven empirically and, therefore, is not a fact but an analogy.

Elaboration Likelihood model) because greater cognitive elaboration<sup>2</sup> is required during this kind of experience (Eagly and Chaiken, 1993).

H1: The individual immersed in VR is likely to form more accessible attitudes toward the brand than the one non-immersed in VR.

### 3.2. SECOND EXPLANATION OF THE IMMERSIVE VR BENEFITS ON PERSUASION : THE "CONFIDENCE" EFFECT.

Another possible explanation for immersion benefits on persuasion is the individual's attitude confidence. Indeed, as the real environment disappears from the individual's awareness, he has direct contact with the object/event. Ajzen and Fishbein postulate that attitudes formed through direct experience are more stable and less modifiable than attitudes formed through indirect experience (1980). The individual in telepresence could therefore have a "feeling to know", a "sense of believing" in the information transmitted by the medium, i.e. more stable attitudes.

H2: The individual immersed in VR is likely to form more stable attitudes toward the brand than the one non-immersed in VR.

### 3.2. THIRD EXPLANATION OF THE IMMERSIVE VR BENEFITS ON PERSUASION : THE "SOURCE-MONITORING ERROR" EFFECT.

As the individual in telepresence confounds mediated experience and direct one, we could also say that a source-monitoring error is occurring (Ditton, 1997). Indeed, the person blends unconsciously information provided by the mediated source with information from the real world.

Source monitoring error has the great advantage that information from fictional source will be encoded with same qualitative characteristics as information from direct experience (Johnson et al., 1988). Moreover, the individual could use without hesitation "fictional" information instead of "direct experience" information in order to make decisions (Ditton, 1997).

In this particular case, the individual immersed in VR won't be persuaded neither because of greater cognitive elaboration nor greater attitude confidence but well because of information richness.

H3: The individual immersed in VR is likely to form attitudes with more sensorial details than the one non-immersed in VR.

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## 4. THE ELM CONTRIBUTION TO TELEPRESENCE

Before the Elaboration Likelihood Model application, we would like to explain very briefly the model foundations.

### 4.1. THE ELABORATION LIKELIHOOD MODEL.

The Petty and Cacioppo's elaboration-likelihood model (ELM) provides « a comprehensive framework for organising, categorising, and understanding the basic processes underlying the effectiveness of persuasive communications » (Petty and Caccioppo, 1986, P.3).

This model distinguishes two basic routes to persuasion : the central route, along which the person changes his/her attitude on the basis of elaboration on arguments contained in the message and, the

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<sup>2</sup> The term « elaboration » refers to the extent to which people think about issue-relevant arguments contained in the persuasive message.

peripheral one along which the person may change his/her attitude on the basis of peripheral cues (for instance, receiver attractiveness) (Petty and Caccioppo, 1986). We must notice here that high or low elaboration are continuum extremes ; message elaboration and attitude change processes may operate along this continuum.

The ELM predicts that the probability of following central route depends on consumer's motivation and ability to process the message ; high motivation and high ability are both necessary. If motivation and/ or ability to assess the merits of the message are low, the ELM assumes a high probability of peripheral processing.

When situational (for instance, high message comprehensibility, etc.) and individual variables (for instance, high need for cognition, prior knowledge, etc.) ensure high motivation and ability, people are likely to resist to the appeal, to attempt to access relevant information from both external and internal sources, to scrutinize and make inferences about the message arguments in the light of any other information available, to draw conclusions about the merits of the arguments and to complete the elaborations into their attitude schema in a reasonable way (Petty and Caccioppo , 1986).

In the absence of argument scrutiny when motivation and/or ability are low, attitude are still formed and changed (Caccioppo & Petty, 1984). But those changes are based on heuristic processing (for instance, number of repetitions, number of arguments, humor degree of the ad, attractiveness, expertise of the source, etc.).

#### 4.2. THE MODEL APPLICATION.

As the individual in telepresence may confound mediated experience and direct experience, immersive VR could take advantage from direct experience benefits. The consumer who visits immersive VR is likely to form more favorable attitudes toward the product than one visiting non-immersive virtual one. Nonetheless, besides direct experience with the product itself, immersive VR is composed by a lot of peripheral cues, which could be sources of consumer's distraction. For instance, in an immersive virtual shop, you could see also shelves, ads, shop-keepers, other consumers, etc.

Moreover, as the consumer in telepresence is able and motivated to process the message, he will take the central route to persuasion. Therefore, the virtual environment will have little impact on persuasion. But what happens before being in telepresence? And, especially if the consumer is not able and/or motivated ?

In the case of non-motivation, a peripheral attitude change will occur (if peripheral cues are present). Then, the immersive character of a virtual shop is maybe little profitable : attitude change will be peripheral and not central, that means non-persistent attitude. Nonetheless, if certain peripheral cues are sufficiently attractive, these latter could improve consumer motivation and lead him/her to scrutinize message arguments.

More formally, we could formulate these followings hypotheses that we should experimentally investigate soon :

H4 : When a consumer is motivated and able to process the message (central route to persuasion, for instance because of an high involvement on new automobile information), high immersive VR (for instance, high graphical context, other virtual consumers, etc.) should lead to little benefits compare to non-immersive communication (in terms of attitude change, memorisation of the message, purchase intention).

H5 : When a consumer is able but not motivated to process the message (peripheral route to persuasion, for instance because of a low involvement on new automobile information), attitude could temporary change depending on presence versus absence of peripheral cues.

H5A : If peripheral cues are present (for instance, high VR environnement, avatars, etc.), this leads to temporary attitude change but also could increase motivation to process with more attention to information.

H5B: If peripheral cues are not present, the consumer regain his initial attitude.

H6 : When consumer is motivated to process, he could be distracted by a too high immersive VR and becomes therefore unable to process the message, that means an unstable attitude change. For instance, the consumer visiting a virtual shop could be distracted by other consumers speaking to him/her, or even some typical elements from VR (for instance, futurist people, sky with three suns, spatial vehicles landing next to him/her, etc.).

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## 5. CONCLUSION

The telepresence impact on persuasion is probably positive. The reasons for that could be multiple:

- First, because of the direct experience effect, telepresence requires more elaborated information processing, i.e., central route to persuasion. This route has consequences like attitude-behavior consistency, persistence of persuasion and resistance to counterpersuasion.
- Secondly, telepresence means the disappearance of mediation and therefore a first-hand experience. The individual seem to become more confident in his/her attitude toward the brand.
- Finally, the individual in telepresence could form attitudes perceptually similar than those formed through direct experience.

Moreover, a crucial question could be formulated in the light of the Elaboration Likelihood Model : Is it interesting for a company to have an immersive virtual shop in comparison with a more classical virtual catalogue ? Based on the model application, the answer is rather negative. In fact, the sole case whereby immersion is usefull is when the consumer is not initially motivated to process the message. But presence of immersive VR could increase consumer motivation and lead to central route to persuasion instead of peripheral one. In the other cases (motivated and able, motivated and not able), peripheral cues are not so important. In conclusion, the ratio benefits/costs of an immersive design is very low ! Indeed, virtual catalogue is very cheaper to design than immersive virtual shop.

In the future, hypotheses proposed in this paper have to be tested through an experimentation in order to validate explanations and to find other differential telepresence effects.

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## REFERENCES.

Ajzen I, Fishbein M., « Understanding attitudes and predicting social behavior », Englewood Cliffs, NJ: Prentice Hall, 1980.

Baron R.M., Kenny D.A., « The moderator/mediator variable distinction in social psychological research : Conceptual, strategic and statistical considerations », Journal of Personality and Social Psychology, 51, 1986, PP. 1173-1182.

Cooperstock J.R., Sidney S.F., Buxton W., Smith K.C., « Reactive environments », Communications of the ACM, 40(9), 1997, PP. 65-66.

Dillon C., Lessiter J., Freeman J., Keogh E., Davidoff J., « Presence : Reflexive and reflective measures », paper presented for The 2000 London Conference, 2001.

Ditton Th., « The unintentional blending of direct experience and mediated experience : The role of enhanced versus limited television presentations in inducing source-monitoring errors », unpublished doctoral dissertation, Temple University, 1997.

Eagly A.H., Chaiken S., « The psychology of attitudes », Harcourt Brace Jovanovich College Publishers, Fort Worth, 1993.

Fazio R.H., « Attitudes as Object-Evaluation Associations : Determinants, Consequences, and Correlates of Attitude Accessibility », in R.E. Petty et J.A. Krosnick (Eds), « Attitude Strength – Antecedents and Consequences », Lawrence Erlbaum Associates, Mahwah, New Jersey, 1995.

Fazio R.H., Powel M.C., Williams C.J., « The Role of Attitude Accessibility in the Attitude-to-Behavior Process », Journal of Consumer Research, 16, 1989, PP. 280-288.

Fazio R.H., Zanna M.P., « On the predictive validity of attitudes : The roles of direct experience and confidence », Journal of Personality, 46(2), 1978, PP. 228-243.

Fazio R.H., Zanna M.P., « Direct experience and attitude-behavior consistency », in M.P. Zanna (Ed), Advances in experimental social psychology, vol. 14, 1981, PP. 161 – 202, San Diego, Academic Press.

Fazio R.H., Zanna M.P., Cooper J., « Direct Experience and Attitude-Behavior Consistency : An Information Processing Analysis », Personality and Social Psychology Bulletin, 4(1), 1978, PP. 48-51.

Ijsselsteijn W.A., Bouwhuis D., de Ridder H., « New media, new measures ? », paper presented for The 2000 London Conference, 2001.

Ijsselsteijn W.A., de Ridder H., Freeman J., Avons S.E., « Presence : Concepts, determinants and measurement », Proceedings of the SPIE 3959, paper presented at Human Vision and Electronic Imaging V, USA, 2000 (a).

Ijsselsteijn W.A., Freeman J., de Ridder H., Avons S.E., Pearson D., « Towards an Objective Corroborative Measure of Presence : Postural Responses to Moving Video », Paper presented at Presence 2000 – 3rd International Workshop on Presence, 27-28 March 2000 (b), Techniek Museum, Delft, The Netherlands.

Johnson M.K., Foley M.A., Suengas A.G., Raye C.L., « Phenomenal characteristics of memories for perceived and imagined autobiographical events », Journal of Experimental Psychology, 117(4), 1988, PP. 371-376.

- Kim T., Biocca F., « Telepresence via television : Two dimensions of telepresence may have different connections to memory and persuasion », Journal of Computer-Mediated Communication, 3 (2), 1997. Disponible : <http://ascusc.org/jcmc/vol3/issue2/kim.html>
- Lombard M., Ditton T., « At the heart of it all : The concept of presence », Journal of Computer-Mediated Communication, 3 (2), 1997, available : <http://ascusc.org/jcmc/vol3/issue2/lombard.html>
- Mooy S.C., Robben H.S.J., « How consumers learn form and about products : The impact of direct experience », Advances in Consumer Research, vol. 25, 1998, PP. 318 – 323.
- Novak, T.P., Hoffman D.L., Yung Y.F. , « Measuring the Customer Experience in Online Environments: A Structural Modeling Approach », Marketing Science,19(1), 2000, PP. 22 – 42..
- Petty R.E., Cacioppo J.T., « Attitude and Persuasion : Classic and Contemporary Approaches », Dubuque, IA:Wm, C.Brown, 1981.
- Petty R.E., Cacioppo J.T., « Central and peripheral routes to advertising effectiveness : The moderating role of involvement », Journal of Consumer Research, vol. 10, 1983, PP. 135-146.
- Petty R.E., Cacioppo J.T., « The effect of involvement on responses to argument quantity and quality : Central and peripheral routes to persuasion », Journal of Personality and Social Psychology, vol. 46, 1984, PP. 69-81.
- Petty R.E., Cacioppo J.T., « Communication and Persuasion – Central and Peripheral Routes to Attitude Change », Springer-Verlag, New York, 1986.
- Potter S.M., « Charting presence in virtual environments and its effects on performance », unpublished doctoral dissertation, Virginia Polytechnic Institute and State University, 1996.
- Reeves B., Nass C., « The Media Equation – How people treat computers, television, and new media like real people and places », Cambridge University Press, Cambridge, USA, 1996.
- Regan D.T., Fazio R., « On the Consistency between Attitudes and Behavior : Look to the Method of Attitude Formation », Journal of Experimental Social Psychology, 13, 1977, PP. 28-45.
- Steuer J., « Defining virtual reality : Dimensions determining telepresence », Journal of Communication, 4(2), 1992, PP. 73-93.