

Aspects of Information Tailoring in the 21st Century

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INTRODUCTION

Decades have passed since the emergence of the World Wide Web, wherein institutes, companies, and people around the world have been posting their information on the Web in a one-way manner. There are billions of new social posts (on weblogs, Facebook, Twitter, etc.), ads, tutorials, and Web pages that aim to deliver messages to some known and unknown users. Luckily, the Web's original language and protocols (html and http) have been defined and optimized to facilitate this one-way composition, presentation, and transfer of information. This is now as simple as a few taps/clicks and keystrokes and then it is all globally posted. The story is no different from when a fast food company advertises a new burger or when a professional medical authority promotes a new flu shot vaccine; they are all one-way parcels, dropped off at the user's door, whether the user is or is not at home, or whether she or he needs or wants such information, or whether she or he understands the content. However, nowadays, the idea of design for effectiveness in information provision is changing this trend.

Now, in the 21st century, which is the time for a new generation of information provision, the design language has changed. Modern technologies of information provision such as Web 3.0 (Hendler, 2009) and Web 4.0 (Aghaei, Nematbakhsh, & Farsani, 2012) are emerging and advanced methods of Web mining and user profiling are appearing more often. Common to all of the above, are global interests and attempts toward effective information provision based on the fact that the right information is powerful enough to change people's beliefs and behaviors. Design for effective information provision, referred to as *information tailoring*, is the main theme of this article.

Within the next section, we walk through a research project of ours and share the series of research questions we asked throughout the process, and discuss the

action/s taken in each step to answer those questions. Using this research scenario, we will discuss what constitutes information tailoring, evidence to support its effectiveness, the typology and models we came up with, and the framework we designed to practice information tailoring.

BACKGROUND

In 2007, as part of a research project called Campus-HITS (Campus Health Information Tailoring System) (Tara, 2007), we decided to build a model to use it later as basis to design a health information portal and a health information search engine. These two health information applications were particularly destined to reach the students at the University of Victoria (www.uvic.ca). Very early in the process, we encountered one substantial question, as our first research question: How far we should go within the tailoring process? In other words, how close we should get to the students' set of needs and wants and, how much would the degree of this tailoredness affect the effectiveness of the information provision attempt?

To answer the above question, we reviewed literature for evidence supporting the effectiveness of information tailoring activities, as explained below.

Foundations of Information Tailoring

Coming from a Latin origin (*talea* means 'to cut'), Oxford Dictionary defines "tailoring" as "*to make or adapt for a particular purpose or person.*" Krueter et al. takes the definition one step further and define tailoring as:

Any combination of information or change strategies intended to reach one specific person, based on char-

acteristics that are unique to that person, related to the outcome of interest, and have been derived from an individual assessment.

Information tailoring as a term can also be considered as equivalent to *infomediation* which refers to any mediation activities that reshape an original information package for maximum usability and influence on the destined users. The definition could also be compared to “*information provision*” as the common term in today’s information world, wherein the information is provided to the users or users’ community without any individualization of content or purpose-specialization of the information delivery process. In other words, the information provision is mostly a passive one-way process in which the delivery of information itself is the main purpose.

Various theories of belief-behavior support the potential effectiveness of tailored information over non-tailored information. These theories elaborate on the fact that *beliefs* (or what we target in user-targeted information tailoring) and *behavior* change (the target in goal-oriented information tailoring) are all parts of a human internal chain effect that begins with the composition of brain knowledge (basis for beliefs and attitudes) and ends in behavior change. Below, we have summarized our findings from our research in five principles that support the effectiveness of information tailoring:

1. “The Hierarchy of Effects” (Lavidge & Steiner, 1961; Palda, 1966). According to which, the right knowledge may cause the right attitude, intention and finally right behavior.
2. “The Elaboration Likelihood Model” (Petty & Cacioppo, 1986). According to which, people are believed to process and absorb information/knowledge better when they find them tailored to their personal needs,
3. “The theory of tailored messages” (Kreuter & Holt, 2001). According to which, it is expected that tailored information elicits:
 - a. Greater attention,
 - b. Greater comprehension,
 - c. Greater likelihood of discussing the content with other people, and
 - d. Greater intention to change the behaviors addressed by the content, and greater likelihood of behavior change.

4. “The Theory of Persuasion” (Petty, Cacioppo, Strathman, & Priester, 1994), based on which Kreuter and Holt believe that tailored information is more likely to stay longer in the memory and to cause more permanent behavior change.
5. “The Theory of Reasoned Action” (Fishbein, 1979) and “the Theory of Planned Behavior” (Fishbein & Ajzen, 1975) as the most cited supporting theories (more than 20,000 citations): According to these two theories, a combination of an individual’s beliefs and attitudes toward a behavior, plus the subjective norm of a community could together predict the individual’s volitional behavior.

Summarizing all of the above, we have concluded that to increase the effectiveness of any information provision process, it has to be tailored to the individual/s receiving that information. These theories support the fact that the closer the information content is designed according to the person’s needs and wants and her level of understanding, the better that information is absorbed and translated into positive attitudes towards the intended new behavior in that particular person.

The next research question we asked was how such act of tailoring should be framed in terms of an action research.

MODELING INFORMATION PROVISION

To model the information tailoring process, we primarily needed to build an information provision model as the basis. To make this happen, we primarily built a semi-generic scenario of the information provision process, and then translated it into a generic model for information provision.

Adam is a UVic student attending BSc program in computer science. To provide Adam with the right health information, we first need to know what might interest Adam in terms of his health information needs; or what UVic health professionals would like to advocate as advantageous health information for university students like Adam. After we figure out about the topics, we should compose the content consulting the UVic health professionals or using the resources of their reference. For instance, if flu and flu shots are

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