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Develop habit-forming products based on the Axiomatic Design Theory

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Abstract

It is every manufacturer's desire to drive its target customers to form a long-term habit of regularly using its product. Previous studies indicate that the habit of using a certain product can indeed be formed in a systemic manner, once the right sequence is followed. Against such a background, an existing habit-forming product model, namely the Hook Model, is reviewed with respect to its key components of trigger, action, reward, and investment. Essences of the Hook Model, together with its missing pieces, are reformulated, repositioned, and resynthesized based on the Axiomatic Design Theory. It results in an adapted Axiomatic Design process, which is intended to develop the habit-forming products. The step-by-step design process is explained, and an illustrate example is presented.

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1. Introduction

Habit means a tendency of repeatedly performing a certain behavior that is difficult, if not impossible, to be resisted by a person or organization. Habit-driven behaviors consume a great amount of most people's daily lives, and they are performed with little, if any at all, consciousness, thinking and reasoning [1]. Furthermore, a large number of routine decisions within organizations are made based on various underlining institutional habits [1]. To date, many efforts have been devoted to investigating how and in what ways a positive/desirable habit can be formed from scratch, as well as how and in what ways a negative/undesirable habit can be corrected, if not replaced by another good habit. The habit-forming process has been explored in the context of, for example, addictive drug/alcohol usage [2], organizational management [3], software design [4], etc. It has been repeatedly validated that, following a closed loop of trigger-action-reward [1], a desirable habit can indeed be "imposed" on a person, team, and even organization. The above outlines the background against which this design study is conducted.

A vast majority of, if not all, habits are associated with a certain product. From manufacturer's perspective, there are a

number of benefits of driving its target customers to develop a regular, long-term, and self-reinforcing habit of using its product. On one hand, the more frequently a product is used as a result of habit, the more likely that the customers would develop a special dependency on the product, which could eventually evolve towards brand loyalty to the manufacturer's other products. On the other hand, in particular for those Internet-based product/service, the frequent usage leads to Internet traffic, and hence creating advertising opportunities for the online business. In addition, as the global economy becomes increasingly over-supplied and the competition continues to intensify in many industry sectors, gradually, the key of market success hinges on whether and to what extent a product can successfully win customers' time. In other words, the more time customers are willing to spend on a particular product, the more likely that the product will distinguish itself and hence win the market competition in the long term. As it happens, ordinary people spend more than 40% of his/her time on various habit-driven behaviors [1].

To date, very few research efforts have been devoted to investigating the distinguishing features of those habit-forming products. Even fewer efforts have been invested to develop sound design methodologies, which can guide

designing the habit-forming products in a systemic manner. Therefore, we are motivated to prescribe a systemic design process to guide creation of the habit-forming products, based on a synergy of validated habit studies and sound design methodologies. The rest of this paper is organized as following. Section 2 reviews a habit-forming product model, namely the Hook Model, which is a descriptive model that characterizes the typical habit-forming product. Section 3 reviews relevant studies of the Axiomatic Design Theory. Section 4 presents an adapted Axiomatic Design process that is intended to guide creation and evaluation of the habit-forming products. Section 5 draws conclusions and outlines future works.

2. Hook Model of habit-forming products

2.1. Overview of Hook Model

The Hook Model was developed by Nir Eyal based on his rich knowledge and abundant observations obtained from the online advertising and video-gaming industries [4]. The model consists of four sequential but interrelated phases:

- 1) Trigger phase: an external and/or internal trigger informs the user what to do next and how to act accordingly.
- 2) Action phase: the user conducts a behavior according to the information provided by the trigger.
- 3) Reward phase: the user receives variable rewards as a result of conducting the above triggered behavior.
- 4) Investment phase: as the user's time and efforts of using the product increases, so does the values of the product to the user.

Above all, any habit begins with a trigger, which means a specific piece of information that explicitly "tells the user what to do next" [4]. Generally speaking, there are two types of triggers: external trigger and internal trigger. The former is a part-of or contained-in the product. Figure 2 illustrates some real-world examples of external triggers, for instance, "check engine light", "play video button", "mailbox icon", "one-click purchase button", etc. In contrast, internal trigger refers to the inexplicit information that resides in the user's mind in the form of, for example, memory, reflection, association, heuristics, and most importantly emotion. Unlike the external trigger that is visible, the internal trigger is invisible. Compared to the external triggers, internal trigger plays a more important role of inspiring, driving the users to develop a long-term habit of using a product. It is discovered that those negative emotions play an even more important role of forming the long-term habits [4]. Examples of negative emotions include: uncertainty, loneliness, fear, confusion, depression, feeling of lost, feeling of being excluded, etc. It is often observed that customers attempt to get rid of the negative emotions by using a certain product. For example, with little if any thinking, people tend to check their Facebook page (i.e., an online social networking site) when feeling lonely, to search information through Google (i.e., an online



Fig.1. Real-world examples of external triggers

search engine) when feeling uncertain, to use Wikipedia (i.e., an online encyclopedia service) when feeling unknown.

Next, the user conducts a behavior as a response of being triggered. For example, people can conveniently play a video on YouTube by clicking the "play" button (i.e., a certain kind of external trigger), check Facebook when they feeling bored (i.e., a particular type of internal trigger), etc. According to the Fogg Behavior Model [5], the likelihood that a behavior will be conducted is influenced by three necessary factors: motivation, ability, and trigger. Motivation means the extent to which the user desires to perform an action, ability measures the degree of difficulty/convenience associated with the user's ability to perform the action, and finally a trigger (either internal or external trigger) must be present to remind/activate the action. Unlike motivation that is by nature personal, subjective, and hence difficult to manipulate, designers could and should always endeavor to enhance the user's ability to perform an action by making the product simpler to use. Any action occurs and only occurs when the three components are put together, no more and no less. In other words, the user conducts a certain behavior if and only if there are sufficient motivation, adequate ability, and an active trigger. Note that, the action phase is an important transitional phase. On one hand, a behavior is directly activated by a trigger and systemically guided by the information contained in or associated with the trigger. On the other hand, the action is purposefully performed by the users by an anticipation of variable rewards.

Next, after a certain behavior is performed as instructed by the trigger, the user must be rewarded accordingly. The key of designing a reward is to make it variable every time the product is used. In other words, depending on different efforts and time devoted by the user to performing the triggered behavior, the amounts of reward should vary every time. According to the Hook Model, various rewards can be classified into three categories: reward of tribe, reward of hunt, and reward of self [4]. Firstly, "reward of tribe" refers to the sense of satisfaction gained as a result of effectively communicating, collaborating, and networking with other users, for example, through social networking sites (Facebook), video sharing sites (YouTube), photo sharing applications (Instagram), etc. Secondly, "reward of hunt" means the sense of satisfaction the users gain from searching, publishing, and exploring desirable resources, for instance, by means of search engine (e.g., Google), blogging service (e.g., Twitter), and online encyclopedia (e.g., Wikipedia). Thirdly, "reward of self" refers to the sense of satisfaction coming from successfully solving a problem, completing an unfinished task, enhancing a competency, etc., for example, thorough playing video games, responding emails, and learning online (e.g., Massive Open Online Courseware).

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