

A Preliminary Research on Product Design Strategies for Managing Customer Loyalty

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Abstract: Research findings point out that it takes more effort to develop new markets than to keep existing customers, and that existing customers tend to spend more money than new customers do. Repeat purchase behaviors occur after products are used. Hence, how to manage customer loyalty by means of product design becomes a critical issue to product designers and a key for company prosperity. From product design's perspective, this paper explores potential design strategies that serve to do so. Through literature survey, promotional information in markets, and professional discussion, twenty-five basic loyalty strategies are suggested. Through questionnaire investigations, deep interviews, and qualitative analyses, nineteen of which are verified effective to college student consumer groups characterized as rationalists. Further, any one single loyalty strategy along is incapable of handling long-term customer loyalty. Normally, an effective product design that can help "lock" customers consists of 2-4 kinds of loyalty strategies. Each loyalty strategy might possess a specific, relative level of strategic interplay. In different product adoption phases and to different customer groups, the effectiveness of a loyalty strategy may vary. Strategic centers shift in various product adoption phases. Each phase may have at least two core strategies.

Keywords: product design, design strategy, customer loyalty, product loyalty.

1. Introduction

In a highly competitive business environment, customers have become one of the most important strategic resources. Customers of a company are from three sources: existing customers, completely new customers, and new customers transferred from competing companies. Despite of the completely new ones, customers can be divided into two groups: those with high loyalty and those with low. Donna and Theodore [1] indicate that the expense for getting new customers is about six to ten times the cost for keeping existing ones. Reichheld and Sasser's research [2] point out that if a company can reduce 5% loss of existing customers then a 25-85% gain in profit is possible. In modern business environment, maintaining, enhancing, and developing customer loyalty is critical to corporate prosperity.

Products and services are two major tools for managing customer loyalty. Most loyalty programs are viewed as services, handled by marketing people. Most marketing people do not design products. Design of a product therefore has nothing to do with design of a loyalty program. As time goes, products and services are integrating into one. Many products have become vehicles for implementing services. The mobile phone product is a good example. In the beginning, it is purely a product for sale; currently, it is merely a lure for maintaining existing customers. The term "producers" - something that apparently looks like a product but actually functions as a service - proposed by Lester Wunderman [3] in 1996 describes it all. The boundaries between products and services are getting more and more indistinctive. "A product must become some kind of service," said Newell [3, p.341] in 2000, "in order to foster long-term relationship with its customers." For better competitive advantages, loyalty element should be

embedded into product design process, especially for those with prodices attributes.

Everyone along the new product development process contributes his or her share to customer loyalty effort. Being an essential member of a new product development team, product designers should take customer loyalty factors into account as an important design element, function and goal as well. However, concerned knowledge has never been part of their professional education. Product designers are trained to deal mainly with customer satisfaction. High customer satisfaction does not imply strong customer loyalty. It is merely a prerequisite for customer loyalty. Design competition is and will continue to be critical to business survival. To win at the outset, it is necessary to include customer loyalty skills into the design repertoire. From a product designer's viewpoint, this paper explores product design strategies that can help to manage customer loyalty.

2. Loyalty elements

Wang[3, p.64] defines buyers into two categories: transaction buyers and relationship buyers. The former care for price only and have least or no loyalty to any product, or brand; the latter, given proper handling, could be lifetime customers with great loyalty. Relationship buyers are focused in this paper.

The word "customer" has a root in "custom" which has three basic meanings - habitual buying of goods, long-established practice, and familiar acquaintance. [4] According to dictionaries, "customer" indicates "one who regularly or repeatedly makes purchases of a trader." Repetitive behavior (or habitual buying), long-term relationship, and product experience can thus be viewed as three fundamental components. In terms of cause and effect relationship, the first two are effects and the last one is a cause, which can be defined through design.

Reviewing concerned literature [2, 4-13], measures for customer loyalty vary in time. (Table 1) In this research, the ones proposed by Gronholdt et al. [13] are adopted, which consist of four elements - willingness for next purchase, customer's recommendation willingness, price tolerance, and willingness for cross adoption (purchasing other products under the same brand or made by the same company).

Table 1: Customer Loyalty Measures Proposed by Various Scholars

Scholars	Customer loyalty factors or measures
Reynold et al. (1974)	Lifestyle and demographics
Reichheld et al. (1990)	Interactions among customers, employees and investors
Fornell (1992)	Next purchase willingness (NPW) and price tolerance (PT)
Dick & Basu (1994)	Personal attitude and next purchase behavior (NPB)
Jones & Sasser (1995)	NPW (categorized into long- and short-term customer loyalty)
Fredericks & Salter (1995)	Value package (price, newness, image, product, and service quality)
Bhote (1996)	Customer satisfaction and recommendation willingness (CRW)
Oliver (1997)	Promise for next purchase
Schneider & Bowen (1999)	Probability for next purchase, and willingness to become part of the company
Shoemaker & Lewis (1999)	Loyalty triangle (service process, value creation, and database management)
Gronholdt et al. (2000)	NPW, CRW, PT, and willingness for cross adoption

Based on the measures by various scholars, a loyalty model from a product designer's perspective is proposed. (Figure 1) Establishment of a long-term customer loyalty relationship undergoes three essential phases: initial adoption, continuous adoption, and cross adoption. Initial adoption phase is the stage when first product experience is established. Both the use of the product and all associated services employed in the product adoption process

construct a user's product experience. Positive experience may result in high customer satisfaction and foster repetitive purchase behavior and long-term customer relationship. With satisfactory product experience, customer's willingness (or probability) for next purchase grows, which makes

possible a series of subsequent activities, including habitual buying behavior, word-of-mouth system (customer's recommendation or willingness being part of the company), product loyalty relationship, willingness for cross adoption, etc.

Continuous adoption is defined as an action of buying part, or whole, of the same product previously purchased. A continuous adoption phase comes into effect when product price remains tolerable. So does it for cross adoption phase to be brought into existence. In term of the 4Ps in marketing combination, price and product are two independent variables. Although the price tolerance factor is a critical threshold for occurrence of next purchase behavior, it is less significant in building customer loyalty and practicing product design work. Hence, it requires no special emphasis. Customer loyalty is based on satisfactory product experience or sufficient customer satisfaction. Concerned issues have been discussed to a great extent by scholars in marketing and industrial design fields, requiring no further investigation. While the element of customer's recommendation willingness is one important index for customer loyalty, it has great influence on other customers' purchase willingness, not on oneself nor on product design. It thus needs no additional exploration. Cross adoption and continuous adoption are different in essence. The former focuses on brand loyalty and the latter on product loyalty. Product loyalty directly relates to product design works and the continuous adoption phase is therefore centered.

According to Engel, Blackwell, and Miniard (1995) [14], purchase behavior is a series of actions. It consists of five major steps (Figure 2): (1) identifying need or problem, (2) searching for feasible solutions, (3) comparison analysis on available solutions, (4) make purchase decision, and (5) subsequent behavior after using of the product. Whether the last step can be viewed as a next purchase behavior depends on the design of product loyalty strategies embedded in the product, if any.

For first adoption of a new product, most consumers go through the whole process. With adequate product satisfaction and appropriate product loyalty design strategies, customer's willingness for next purchase of the same product, or of other products under the same brand, enhances. The best strategy for continuous adoption is able to concentrate customer's attention on the purchase and use actions only. A capable one should at least make comparison of available solutions less meaningful or incomparable. The essence of cross adoption and that of initial adoption are similar in many aspects. In a cross adoption process, customers may go through the whole process as

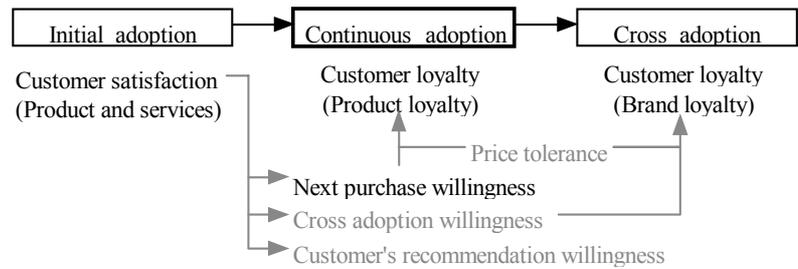


Figure 1: Adoption Phases and Loyalty Elements

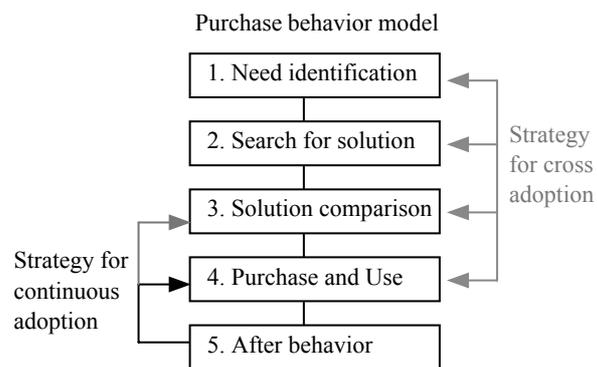


Figure 2: Purchase Behavior Model and Loyalty Design Strategies

well with one major difference - customers search for feasible solutions within the brand name, which should be discussed in a separate paper.

From marketing's point of view, Shoemaker and Lewis [12] suggest a loyalty triangle, which has three components - service process, value creation, and database management. In terms of product design and focusing on product loyalty, a product loyalty model is proposed: need creation, product design, and design strategy. (Figure 3)

The word "loyal" means "remaining faithful to somebody or something" and loyalty indicates the condition of being closely tied to somebody or something. To generate a tied condition, a need status has to be created. For designers, product is an effective tool for need manipulation. To guide customer needs to intended directions, strategies are necessary. Of the three elements, design strategy is most critical, for it is a key to manage need and to define product experience.



Figure 3: Product Loyalty Triangle

3. Product loyalty strategies

Designers are trained to be user-centric or consumer-centered. The design strategy for product loyalty (briefed as "loyalty strategy") explored herein should be meaningful from customers' perspective. To investigate potential loyalty strategies, the following research works were undertaken:

3.1 Collecting product cases and action strategies

Three sources of evidences pertaining relevant cases and strategies were collected and analyzed, outlined as follows:

(1) Literature review: From concerned books and journals published within the last five years, associated cases and actions for new product adoption or customer loyalty were surveyed. A total of 32 product cases and 12 action strategies were obtained. An action strategy indicates a method employed for initial adoption, continuous adoption, or cross adoption. A product case represents a commercial product that has been consecutively purchased by the same customer at least twice in a row

(2) Marketing information: Promotional pamphlets, advertisements, and commercials within a time frame of six months (April to September of 2002) were collected and analyzed. Additional 44 product cases and 14 action strategies were gained.

(3) Professional discussion: Provided with the product cases and action strategies obtained above for reference, nine graduate students with various product design backgrounds were invited for discussion. They were asked to think of as many cases as possible in accordance with their own life experiences and then to analyze and synthesize the underlying strategies in these cases. A number of 42 product cases and 19 action strategies were resulted.

By comparing the action strategies obtained from the first two approaches, it is found that no unidentified action strategies were seen from the profession discussion approach. It can be asserted that the action strategies obtained above are stable in kinds, ready for further analysis.

3.1 Defining basic product loyalty strategies

From above approaches, a total of 116 product cases and 45 action strategies were collected. Each case is unique, i.e. no identical products. For future analysis, product attributes of all product cases were examined and categorized based on various classification systems, durables/ non-durables as an example and convenient/ shopping/ specialty/ unsought goods as another.

Applying KJ method and based on the collected product cases, action strategies were grouped. The ones with similarities in strategic essences were integrated. As a result, twenty-five basic action strategies, or “loyalty strategies,” were defined. (Table 2) The name of each loyalty strategy essentially reflects its underlying mechanism for managing customer loyalty or product adoption. Due to limited article space, definition details are omitted.

Table 2: Loyalty Strategies for Managing Customer Loyalty or Product Adoption

Product related	Service related	Price related	Others
Unique appealing (UA)	Honorable membership (HM)	Installment (IS)	Consumptive material (CM)
Technological paradigm (TP)	Advertising (AD)	Bonus reward (BR)	Asymmetrical quantity (AQ)
Tailor made (TM)	Product demonstration (PD)	Discount card (DC)	Word-of-mouth system (WS)
Habitual using (HU)	Service process (SP)	Trade-in (TI)	Hint of next purchase (HP)
Limited collectible (LC)	Extra service (ES)	Attached trial product (AT)	
System compatibility (SC)	After-sale service (AS)	Attached gift product (AG)	
Package sale (PS)	Customer storage (CS)	Free trial product (FT)	

4. Verification analysis

It is the customers who define viability of a loyalty strategy. To verify the effectiveness of the suggested loyalty strategies, subject customers were carefully selected. Kids, new mankind, single working people, and gray hair elderlies are four star markets. People aging from 20 to 30 have strong motivation for new products. For research convenience, the new mankind market is targeted. Seven groups of college students with various backgrounds (design, engineering, business, medical, education, social science, and literature) were chosen. Each group consisted of six students, ranging from sophomore to graduate. All groups shared similar background combination in sex, age, education, living expense, and life experience (growing in urban/rural environment before college). Major steps of the verification work are illustrated as follows:

4.1 Identifying representative product cases and test subjects

After brief introduction of the research intend and process, subject customers in each group were asked to provide as many product cases (without discussion with each other) that they have shown great customer loyalty as possible. A product case indicates a product, or a part of a product, that has or had been purchased repetitively by a subject customer. Only the products of which purchase decisions were made by the subject customers counted. Each subject customer was required to give at least 12 product cases with preliminary background scenarios or adoption reasons. After expressing individual opinions, group discussion followed and more product cases were generated. Each subject customer received a gift as reward and his or her willingness for further deep interview was asked. Personal information was collected afterwards. From above investigations, more than 400 product cases were obtained.

These product cases were analyzed in accordance with the provided reasons for adoption and further categorized based on the 25 loyalty strategies previously proposed. Products most frequently mentioned and with greater diversification in terms of the kinds of loyalty strategies used in each product case were marked as candidates. As a result, the top 21 candidates were chosen as test products.

Two subject customers from each group, who mentioned the test products most and showed willingness for deep interview, were selected as test subjects. In a deep interview, six products (four from the test product list ever mentioned by the test subject and two from the list provided by the test subject in previous investigation work) were assigned to each test subject. Each deep interview spanned 60-90 minutes. Based on their own personal experience,

test subjects were separately asked to recall and to give authentic answers concerning histories in adopting the assigned test products. Primary questions included, but not limited to, "why and how the product was purchased initially," "why did you purchased the product again," "why is it that you show greater product loyalty," "what are the requirements for continuous adoption," "what are the probability and the prerequisites for cross adoption and why," "in what circumstance, you may consider to adopt competing products," to name the most important ones. The goal was to recognize underlying strategic mechanisms for initial adoption, continuous adoption, and cross adoption.

4.2 Verifying effectiveness of the suggested loyalty strategies

Based on the descriptions on consumer groups by Beah [15], characteristics of the test subjects were analyzed. It is found that most test subjects are essentially "rationalists" - eight of the 14 test subjects can be categorized as "prudentialists," three as "hedonists," one as "nostalgist," one as "optimist," and one as "pessimist." Rational consumers are characterized by suspicious attitude to any advertisements with expert recommendation, diligent intelligence agent acquiring product information through large volume of books and magazines, cautious purchaser who carefully compares product features, and smart buyer caring for price reasonableness.

According to the responses gained from deep interviews, 19 out of the 25 loyalty strategies proposed are verified effective. (Table 3) The ones without any statistics are basically characterized by high price (such as Tailor made, Customer storage, Installment and Trade-in) or non-urgent need (Asymmetrical quantity, and Hint of next purchase). These strategies are less attractive, or applicable, to college students consumers. Noticeably, some elements do not fit into the framework, which can be attributed to three factors: affordable price, promotional discount, and brand name. None of these factors directly deal with product design. Affordability is a prerequisite for product adoption. While it involves with product positioning, once a price is set for a product, its strategic effect pales. Promotional discounts are occasional events and have nothing to do with design of a product. Brand name relates to personal preference and product status. It is a goal for product design to achieve, not a strategic resource which can be used by design.

Table 3: Effective Loyalty Strategies on the Test Subjects in Various Product Adoption Phases

Loyalty strategy	Product Adoption phase			Loyalty strategy	Product Adoption phase		
	Initial	Continuous	Cross		Initial	Continuous	Cross
Unique appealing	32	61	4	Customer storage			
Technological paradigm	6	4	1	Installment			
Tailor made				Bonus reward	3	5	
Habitual using	13	24	1	Discount card	3	3	
Limited collectible	1	2	1	Trade-in			
System compatibility		8	3	Attached trial product	1	1	
Package sale	8	4	1	Attached gift product	4	1	
Honorable membership	2	3		Free trial product	2	2	
Advertising	7	1		Consumptive material	7	9	
Product demonstration	4	1	1	Asymmetrical quantity			
Service process	1	1	1	Word-of-mouth system	18	3	1
Trial use	2		1	Hint of next purchase			
After-sale service	1	2	1	Others	11	23	2

Noticeably, some product cases employ multiple loyalty strategies. According to the amount of loyalty strategies applied in a product case (Table 4), some important findings are uncovered. Examining the ones without using any loyalty strategy (inclusive strategy amount =0), they are either the cases that products were received by surprise (such as prize, award, or gift from relatives and friends), or the cases that test subject has blurry memory or simply

without any reason ("I don't know why, I just simply bought it"). The numbers shown in the initial and the continuous product adoption phases indicate that most test subjects can clearly remember their motivations and backgrounds adopting the test products. The numbers under the cross and the transfer columns reveal that most test subjects possess high product loyalty. They think of no reason for cross adoption or switching to other brands. From above discussions, it can be asserted that the data are reliable for further inference.

Table 4: The amount of loyalty strategies applied in a product case in various adoption phases

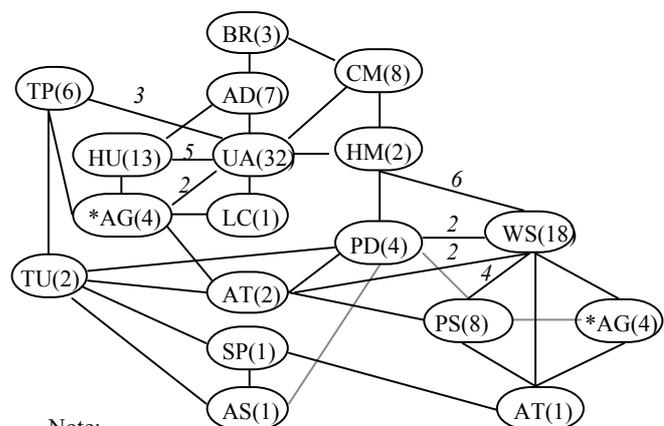
Inclusive strategy amount	Number of product cases in various product adoption phases			
	Initial	Continuous	Cross	Transfer
0	6	2	72	51
1	38	26	4	24
2	29	36	4	5
3	6	13	0	1
4	1	2	0	0
5	1	2	1	0
Sum	81	81	81	81

The statistics of product cases applying singular strategy (amount =1) show that many test subjects perceive one loyalty strategy in the initial phase (the transfer phase can also be viewed as an initial phase), suggesting that strategic focus is crucial in introduction stage for any new product.

Examining the loyalty strategies applied in each product case, it is found that no one single strategy can be used through out the first three phases, revealing that any one loyalty strategy along is incapable of managing long-term customer loyalty. Additionally, the kinds of loyalty strategies used in various product adoption phases show that 9 strategies (please see Table 2, UA, TP, HU, LC, PS, CM, BR, WS, AD) are introduced in the initial adoption phase, 6 (UA, TP, HU, SC, CM, WS) are used in the continuous adoption phase, and only 3 (UA, TP, and SC) are applied in the cross adoption phase, suggesting that effective strategies change as phases shift. Noticeably that there are two strategies (UA and TP) appear in all three phases, implying that they might be core strategies and that in practice, strategies should be in form of combination.

4.3 Exploring relationships and interplay among loyalty strategies

From Table 4, it can also be noticed that two loyalty strategies are more commonly employed in the continuous adoption phase, meaning that it takes more effort to keep existing customers or to maintain product loyalty. Product cases applying multiple strategies are analyzed and their relationships (Figure 4) are explored. For simplicity, loyalty strategies are represented by their abbreviations (see Table 1 for full titles). The number within a pair of parentheses immediately after an abbreviation indicates the total number of



Note:
 (n), n= number of times being mentioned by test subjects.
 m= amount of strategy pairs in cases using multiple strategies.
 *= strategy appears more than once (only one in this figure).

Figure 4: Loyalty Strategy Relationships in Initial Phase Using All Product Samples

times that a loyalty strategy was mentioned by the test subjects. The number above a connection line between two abbreviations refers the total amount of product cases in which the two associated strategies are applied. Should there exists the situation that more than three strategies (X, Y, Z, for example) are adopted in a product case, the strategies would be deconstructed into pairs (XY, YZ, ZX) for analysis. Table 4 indicates that such situations are insignificant, inadequate to affect analytical results. The relationships among loyalty strategies in various product adoption phases using all product case samples, and those applying merely cases in durable and consumptive product natures, are drawn respectively. Due to limited space, only one figure is shown herein.

Basically, the amount of lines connecting to a loyalty strategy is positively related to its strategic interplay. Focusing on the analyses using all product case samples, it is found that the loyalty strategies of Unique appealing (with 9 connecting lines) and Technological paradigm (8 lines) can be viewed as core strategies in initial product adoption phase with greater strategic interplay (in comparison with the rest strategies which mostly with 3-4 connecting lines). In the continuous adoption phase, Unique appealing (14 lines) remains its status but Technological paradigm (2 lines) is replaced by Habitual using (11 lines). Instead, Unique appealing (UA) and Habitual using (HU) become strategic centers (comparing with the rest strategies largely with 2-3 connecting lines). Noticeably that System compatibility (SC) emerges and Trail use (TU) fades, which obey product life cycle (PLC) rules. In the cross adoption phase, due to limited case samples, only 2 individual strategies (TP and WS) and 2 strategy combinations (SC + PS, and UA + AG + AD + LC + WS, the later of which centers on UA as well) can be identified.

By comparing the orderings of each loyalty strategies, in terms of their strategic interplay, or the amount of lines connected, in various product adoption phases, it is found that the relative sequences as a whole remain, suggesting that each loyalty strategy may possess a specific, relative level of strategic interplay. Examining the changes of core strategies in various product adoption phases, the evolutionary pattern basically follows marketing principles.

5. Conclusions and suggestions

In highly competing business environments, maintaining existing markets should be equally important than developing new markets. Product designers should take customer loyalty elements into account in their design works. From above analyses and discussions, and based on the responses provided by 14 test subjects, the following conclusions can be drawn:

(1) Twenty-five loyalty strategies are suggested, namely: Unique appealing, Technological paradigm, Tailor made, Habitual using, Limited collectible, System compatibility, Package sale, Honorable membership, Advertising, Product demonstration, Service process, Trial use, After-sale service, Customer storage, Installment, Bonus reward, Discount card, Trade-in, Attached trial product, Attached gift product, Free trial product, Consumptive material, Asymmetrical quantity, Word-of-mouth system, and Hint of next purchase.

(2) Nineteen of the 25 loyalty strategies are verified effective on college students consumer groups characterized as rationalists. The loyalty strategy framework should be integral.

(3) Any one single loyalty strategy along is incapable of handling long-term customer loyalty. To be effective, loyalty strategies are often in form of combinations.

(4) Normally, an effective product design that can help "lock" customers consists of 2-4 kinds of loyalty strategies. Each loyalty strategy might possess a specific, relative level of strategic interplay.

(5) In different product adoption phases and to different customer groups, effectiveness of a loyalty strategy may

vary. So do strategy combinations.

(6) Strategic center changes as product adoption phase shifts. Each phase may have at least two core strategies.

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