

A Study of Customer Loyalty and Privacy on the Web by

James P. Lawler

Submitted in partial fulfillment
of the requirements for the degree of
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ABSTRACT

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This study examines from simulation the effects of the privacy sensitivity of customers, the personalization practices or standards of retailers and the difficulty in locating alternate favorable sites, on the loyalty of consumers to a Web site.

The key finding of the study is that customer privacy sensitivity is a critical success factor that significantly impacts loyalty to a retailer. Customers have higher loyalty to sites that request the least information, while they have lower loyalty to sites that request the most information. Web retailers considering expanded personalization of products or services to customers, through increased personal information from the customers, need to rethink their practices. The study also found that difficulty in locating a favorable site is a success factor that impacts retailer loyalty, and that customers have higher loyalty to difficult to locate favorable sites on the Web. These findings are important at a time when consumers are empowered with Web technology to immediately shop competitor sites.

For retailers, the study contributes insight into customer sensitivity to personalization practices on Web sites. The significance of privacy to loyalty is a factor that needs to be considered seriously by retailers, if they are to compete for loyal customers. For researchers, this study initiates a new paradigm on the dynamics of loyalty, personalization and privacy on the Web.

No known studies have examined loyalty in the manner of this study.

Overall, this study furnishes a living framework to effectively research consumer loyalty to a Web site.

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A. Summary and Detailed Descriptions of the CLPS LOYALTY Model Program

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DEFINITION OF TERMS

Customer Loyalty – the deeply held commitment [by the customer] to re-buy or re-patronize a preferred product or service [of the Web retailer] consistently in the future, despite situational influences and marketing efforts [of other Web retailers] having the potential to cause switching behavior [59].

Customer Privacy Sensitivity (CUSPRIV) – the sensitivity of the customer to his right to not share information with a Web retailer, that in turn uses the information to increasingly personalize its products and services to the customer through personalization techniques.

Retailer Personalization Standard (WEBPERS) – the practice or standard of the Web retailer in respecting the privacy of the customer when requesting information to personalize or tailor products and services to the customer.

Loyalty Model – the model of Bergeron that evaluates the loyalty of the customer to the Web retailer in (customer perceived product value of a Web retailer site + customer time investment in a Web retailer relationship) x customer emotional bond with the Web retailer – (number of affordable alternative Web sites selling equivalent products and services x customer frustration level with the Web retailer relationship) + difficulty locating the alternative [or favorable] Web sites [6].

Difficulty Locating Favorable Sites (DIF) – the factor in the Bergeron Loyalty Model that evaluates the difficulty that the customer encounters in locating favorable Web sites selling equivalent products and services.

Customer Loyalty and Privacy Synthesis Model (CLPS) – the model of the study that analyzes mathematically, through simulation and statistical analysis, the significance of how customer privacy sensitivity (CUSPRIV), retailer personalization standard (WEBPERS) and the Bergeron Loyalty Model (selected factors [DIF]) effect customer loyalty on Web retailer sites.

Simulation Modeling – the methodology of designing a model of an actual or theoretical physical process or system, executing the model on a computer, and analyzing the executed results of the model [27], which is the CLPS Model.

Simulation Graphical Modeling and Analysis System (SIGMA) – the modeling language in the CLPS Model that is intended to facilitate learning simulation of customer privacy sensitivity, retailer personalization standard and the Bergeron Loyalty Model, in a researcher friendly manner.

Statistical Programming Software System (SPSS) – the statistical software in the CLPS Model that analyzes through regression analysis the results of simulations of

customer privacy sensitivity, retailer personalization standard and the Bergeron Loyalty Model run in SIGMA.

Regression Analysis – the analysis of the relationship between customer privacy sensitivity, retailer personalization standard and the Bergeron Loyalty Model, that is empirically determined from the simulation results of the CLPS Model and used to predict their values in significance to loyalty.

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CHAPTER I

INTRODUCTION

“The world now runs on Internet time.” – Andrew S. Grove, in Downes and Mui, *Unleashing the Killer App: Digital Strategies for Market Dominance* [24, p.13]

1.1 Statement of the Problem

The topic of loyalty and privacy on the Web is one that can impact the well being of millions of consumers that shop on the Web. Consumers are empowered with Web technologies, are knowledgeable with numerous options and tools to buy products from retailers, and, with these technologies, tools and options, are the smartest shoppers ever known [56, p. 198]. The loyalty of consumers to a Web site is considered elusive and is a problem to retailers, because of fiercely innovative competitor sites that sell equivalent products and services [33]. Consumers are effectively disrupting older buying practices, where retailers controlled the relationship, and are transforming business models [6, p .ix]. Retailers are expected now to master enhanced competencies and methodologies to retain the loyalty of consumers [79, p. xvi].

Retailers need to be inventive and innovative in their loyalty methodologies when customers interact on their Web sites, so that loyalty is earned and re-earned when the customers transact again on the sites. Loyalty is recognized as the number one challenge and problem in retailing on the Web [6], as retailers are only a mouse click from their competitor sites. This option is evident in 65% customer abandonment of online shopping carts on the Web [9, p. 9]. Mouse clicking options were unknown, when research of customer complaining responses [38] by Singh [84] supported that silence was the typical option selected by customers when dissatisfied with retailers. Reichheld synthesizes that today the fundamental economics of the Web result in customer loyalty more critical in retailer strategy [71, p. 105].

This dissertation, hereafter defined as study, analyzes loyalty methodologies posited by Applix [2], Bergeron [6], Reichheld [70 - 72], Seybold [79 - 80] and Windham [104 - 105]. These methodologies consist of factors that include, in the main, the following: knowledge of product, product value, emotional bond, time investment in Web sites, compelling product presentations, superior customer service, on-time product delivery, ease in site interactions, competitive pricing, and fast response time of the Web sites. The problem in studying loyalty is that none of these Web loyalty theorists attempt to quantify their methodologies, except Bergeron, who introduces a Loyalty Model [6, p. 62]. The factors of the model include emotional bond, alternative Web sites, product value, frustration, difficulty locating alternate sites, and time investment. The Bergeron Loyalty Model is an ideal framework to study loyalty.

The framework of the Bergeron Loyalty Model is extended to include the study of the following:

Customer Privacy Sensitivity - the sensitivity of the customer to his right to not share information with a Web retailer, that in turn uses the information to increasingly personalize its products and services to the customer through personalization techniques;

Retailer Personalization Standard – the standard of the Web retailer in respecting the privacy of the customer when requesting information to personalize or tailor products and services to the customer.

Privacy sensitivity of the customer and personalization standard of the retailer are also problems, but considered critical in this study, inasmuch as typically retailers do not

know the customers themselves [23, p. 63] they are responding to the elusiveness of loyalty through one-to-one personalized and segmented sales strategies [61, p. 3, 59].

Personalization is perceived to enhance the loyalty and relationship of the customer to the retailer through the mass personal touch of Jeff Bezos, founder of Amazon.com [56, p.101].

Site personalization nevertheless necessitates the problem of applying increased demographic, personal and transactional information about the customers, that is perceived potentially intrusive to their privacy [40], and Federal Trade Commission statistics show that 92% of sites gather this information [81, p. 2], though only 3% of shoppers thoroughly review privacy policies of sites [106], and other statistics show that 75% of shoppers are sensitive that their information will be shared without their permission with other retailers and 69% sensitive that the information would be stolen by hackers [92].

Mismanagement of the information, especially sharing it with other retailers, is clearly a problem that excites customers and privacy activists [30, 95]. Sales techniques of retailers that result in unsolicited e-mail or spam and telemarketing are interpreted by customers as an invasion of privacy.

The criticality of privacy sensitivity and personalization as factors in Web site loyalty is not proven nor quantified in Applix, Bergeron, Reichheld, Seybold or Windham, and this non-quantification is again a problem in studying loyalty. Few retailers have statistics to support their loyalty practices on the Web. Studies were not found that showed loyalty success or non-success through personalization techniques, which is the focus of the study.

1.2 Focus of the Study

The focus of the study is to analyze the effects of privacy sensitivity of the customer and the personalization standard of the Web retailer on loyalty, extending the Bergeron Loyalty Model, which is the closest in a descriptive quantification of factors impacting loyalty on the Web. The inclusion of personalization and privacy enhances the Bergeron model in interpreting loyalty. If Web retailers request more personal information from customers sensitive to sharing this information with them, or with affiliated retailers, will the customers be less loyal to those retailer sites? If the retailers

request less information, will the customers be more loyal to the sites? The study focuses on the significance of privacy as a success factor in loyalty.

The study additionally initiates analysis of difficulty in locating favorable Web sites from the Bergeron model. Through the inclusion of this factor, in a non-original retailer site scenario, the study lays the groundwork to analyze the other Bergeron factors, of emotional bond, number of alternate sites, value, frustration and time investment, in subsequent studies of loyalty.

This study analyzes the significance of customer privacy sensitivity and retailer personalization standard to loyalty, and the significance of the Bergeron factor of the difficulty of locating a favorable site, in the new Customer Loyalty and Privacy Synthesis Model (CLPS), that simulates Web buying and interprets loyalty statistics. The CLPS Model further analyzes the collective significance of customer privacy sensitivity, retailer personalization standard and difficulty locating favorable sites, in contrast to the totality of Bergeron loyalty factors not analyzed in the current study. The study proves and quantifies the Bergeron model in its initial framework.

1.3 Methodologies of the Study

The study introduces the Customer Loyalty and Privacy Synthesis Model (CLPS), that employs simulation in SIGMA and statistical analysis in SPSS as research methodologies, in evaluating the effects of customer privacy sensitivity, retailer personalization standard and difficulty in locating favorable Web sites on loyalty. Simulation as a research methodology is most informative in an analysis of the scope and sensitivity of loyalty, personalization and privacy on the Web. Statistical analysis is helpful in interpreting the simulations in their effect, significance, and predictability.

Surveys of retailers and consumers on competitive loyalty practices and confidential privacy sensitivities are simple to compile by researchers, but difficult to

have comfortably completed by respondents. Simulation and statistical analysis from the study that are shared with retailers and consumers will potentially facilitate future timely response, inasmuch as minimally retailers are keen to evaluating the impact of loyalty and retention on profitability [12, p. 51; 70, 72].

1.4 Limitations of the Study

The scope of this study is limited, in order to analyze loyalty, personalization and privacy efficiently. The study focuses on retailers that market and sell durable products and services on the Web, such as apparel, appliances and electronics, through B2C consumer scenarios. Excluded are sites that sell non-durable products or services, such as food and information, through B2C scenarios, and sites that sell through B2B business partnership scenarios. The Web sites in the study are public Internet, not private intranet domains. Sites are assumed to be United States-based retailers, which market the highest concentration of durable products internationally.

Loyalty and privacy sensitivity are studied in the framework of the Bergeron Loyalty Model. Though Applix, Reichheld, Seybold and Windham are additional loyalty theorists, whose methodologies are synopsised in the study, and though there are other advocates referenced in the study, Bergeron is the most current in an attempted quantification of loyalty factors. The Bergeron model is enhanced to include customer privacy sensitivity and retailer personalization standard as critical loyalty factors, but only customer privacy sensitivity, retailer personalization standard and difficulty locating favorable sites are included as factors in the current study, excluding emotional bond, number of alternate Web sites, value, frustration and time investment. If the latter factors were included in the study, the analysis would be too lengthy to complete in the time constraints of the study. The study effects a framework, in the Customer Loyalty and Privacy Synthesis Model (CLPS), to study the full loyalty factors of the Bergeron model at a later time.

Excluded from the study is the impact of legislation pending or current on privacy policies of retailers. Interpretation of the myriad of legislation is unclear in the context of corporate personalization practices on Web sites. Research of programs that respect the privacy of consumers requires a separate study. The limitations allow for a more effective study of loyalty and privacy on the Web.

1.5 Summary and Organization of the Study

The study initiates in Chapter II in a comprehensive analysis of loyalty, personalization and privacy on the Web, analysis of the gaps in the literature, and the contribution of the study. The simulation methodology of the study and its importance in contrast to other research methodologies are introduced in Chapter III.

The experimental design and hypotheses of the Customer Loyalty and Privacy Synthesis Model (CLPS) of the study are defined in Chapter IV, while the implementation of the CLPS Model is discussed in Chapter V. The data from the simulations of the CLPS Model are statistically analyzed and hypotheses of the study confirmed in Chapter VI, and interpreted in their managerial implications in Chapter VII. Chapter VIII summarizes with research opportunities to further analyze loyalty and privacy sensitivity, and concludes that privacy sensitivity of the customer is a significant success factor in consumer loyalty on the Web.

CHAPTER II

FOUNDATIONS FOR LOYALTY ON THE WEB

“Fasten your seatbelts! ... We are in the midst of a ... revolution ... and it’s a bigger revolution ... Customers are voting with their loyalty.” – Patricia Seybold, *The Customer Revolution* [79, p. 1]

2.1 Introduction

The analysis of the literature on loyalty is organized around common themes that impact loyalty on the Web. This chapter introduces the historical background of the fast adoption of the Web by consumers, in contrast to the slow adoption of earlier technologies, as the initial theme. This consumer adoption of the Web leads to the theme of Web-empowered customers having e-Commerce control and informational options to buy conveniently from competitor Web sites. The impact of this empowerment is that Web retailers are challenged to effect loyalty to their sites and need to comprehend new loyalty factors. The theme of loyalty factors on the Web is challenging to retailers, in that loyalty on the Web is elusive.

The chapter discusses in its next theme the Loyalty Model introduced by Bergeron [6], as a new methodology to comprehend customer loyalty. This model is contrasted to the methodologies of other loyalty theorists. The themes of segmentation and personalization are further methodologies for effecting loyalty on the Web. The theme of personalization is however important to this study, in that personalization leads to the theme of privacy, in the sensitivity of customers sharing or not sharing personal information with Web retailers that practice product and service personalization on their sites. Personalization and privacy and their impact on loyalty are considered critical in this study.

The chapter concludes with the gaps in loyalty, personalization and privacy literature and the contribution of the study in analyzing loyalty and privacy on the Web.

2.2 Customer Loyalty: Historical Background

Consumers are adopting the Web in significantly faster time than earlier technologies. This availability of the Internet and the Web in 60 million United States households [107, p. 1] in only seven short years exceeds that of the telephone in households in four long decades [104, p. 3]. Through the Web, consumers are now empowered with innumerable product and service options, a consideration that impacts retailers in their marketing and sales strategies.

The empowerment of the consumer is facilitated by behavioral evolutions that also facilitated the Web.

One behavioral evolution is in consumers having ease in front of a television in their homes to having similar ease in front of the easily interfaced Web on a personal computer. The familiarity of consumers with multiple personal computers [107] in not only their houses, but in the offices, contributed to this evolution. Their buying style, credit cards, facilitated e-Commerce. Their increasing lack of time to do ever increasing personal and professional tasks contributed to the need of an efficient Web. Of interest in this study is the less personalized nature of retailing [104, p. 6], that led to consumer ease with self-service features of the Web.

High speed Web connectivity through broadband technology is now in seven million households in the United States [107, p. 1-2].

The consumer adoption of the Web is faster in the innovative processes posited by Rogers [75]. Instead of e-Commerce consumers in a mere Innovator or Early Adopter state, they are currently in Early Majority, soon to be in a Late Majority state [104, p.15].

Late Majority is when new consumers consist of those who adopt Web innovation when the initial e-Commerce majority has already adopted it, which is not surprising, since there are seven new consumers on the Web each second [56, p. 92].

Indicative of this adoption is the experience of consumers in shopping on the Web. 66% of consumers on the Web are already experienced from one to two plus years in shopping on retail Web sites [104, p. 17]. This experience enhances the confidence of consumers to continually surf to retailing and non-retailing sites that might optionally service them. Web shopping continues [104, p. 19; 105] and was undiminished into Christmas 2001. Further studies indicate that in the main most Web retailers will continue or increase their e-Commerce spending in 2002 in contrast to 2001 [22].

2.3 Web-Empowered Customers

Indeed, the confidence of empowered consumers on the Web is contributing to their increased control of e-Commerce [104,108]. Their shopping options, and knowledge about those options, are no longer in the sole control of the retailer, because of the informational sources of the Web. Bergeron states the following:

“Thanks to the Web, customers now have access to information that effects informed decisions [6, p. xvi, xvii]. Consumers ... are now using software to quickly identify the right [shopping] choices with the optional features and prices [6, p. x]. Customers are now in control [6, p. xvii].”

The assumption underlying the Web-empowered customer is the existence of meaningful competition among the retailers, not near monopolies, such as suppliers as Microsoft, in its operating system and software technologies. Government oversight may be needed to ensure competition in monopolistic scenarios. Retailers having large economies of scale in their businesses tend to effect natural monopolies.

Interestingly, Bergeron posits that if a consumer can:

“[surf] ... from a [retailer], and the retailer cannot, the side that can [surf to another retailer] controls the relationship. On the Web ... control of the relationship is clearly in the hands of the consumer [6, p. 6],” [and on- line shoppers are not] “terribly forgiving [48].”

Consumers are now not only controlling e-Commerce, but also demanding service and defining their preferred standards [79, p. xv]. Seybold states the following:

“ ... Consumer customers are challenging and disrupting the standard practices in virtually every industry ... They are demanding that [retailers] change [their] pricing structures, [their] distribution channels, and the [manner] in which [retailers] ... deliver products and services to them ... [Retailers] that do not ‘get it’ will be out of business soon [79, p. 3].”

Windham synthesizes the new rules of the empowered consumer:

- Do not waste my time;
- Give me what I want when I want it;
- Give me meaningful [information], not fluff;
- Do not exploit me;
- Do not disappoint me [104].

The control of e-Commerce interaction is shifted from the Web retailers to demanding [57] and empowered consumers, due to the Web.

2.4 Customer Empowerment and Loyalty

Important to this study is the impact of new consumer empowerment on customer loyalty. Loyalty is defined in Webster to be the below:

“the quality of being [faithful to ... a retailer]” or the binding ... [of the customer] to something [of the retailer] [100, p. 708].”

For this study, however, Oliver defines loyalty below:

Loyalty - “deeply held commitment [by the customer] to re-buy or re-patronize a preferred product or service [of the Web retailer] consistently in the future, despite situational influences and marketing efforts [of other Web retailers] having the potential to cause switching behavior [59].”

Loyalty is the key challenge in this new customer economy [6]. Customers are more diverse and knowledgeable, while, only a mouse click from the retailer [6, p. 21], the competition is more innovative but fierce [33]. Given that customers buy two-thirds more on the Web within three years from first buying from a Web retailer [5, p.15], and that increased loyalty by 5% contributes to profitability by 25% to 95% [71], the competitive edge is critical to the Web retailer.

Web retailers need to comprehend new dynamics of loyalty and effect new management strategies [79, p. xvi], in order to thrive on the Web. Seybold notes that a loyal customer is a consumer that is reluctant to alter habits and posits the following:

“ ... Loyal customers have become the most precious commodity [79, p. 15]. Today, the hardest thing for a [retailer] is not investment capital ... it [is] customer loyalty [79, p. 4].”

Reichheld concurs in the preciousness of the customer, in positing that customers need to be loyal to a retailer site a minimum of two to three years, if the retailer is to recoup its initial customer acquisition costs [51]. He indicates however that up to half of new Web customers will not stay loyal to that original retailer to three years [51]. Reichheld stresses that preciousness of the customer is a consideration of long term relationship [71, p. 106].

Windham posits that customers are loyal to a Web retailer when its site satisfies their expectations of benefits [104, p. 43]. These benefits or components of Web brand loyalty include ease of navigation, familiarity / good experience, fast response time, relevant / updated content and competitive pricing [15]. Applix, Reichheld and Seybold suggest similar components, though Reichheld posits that privacy policies that are trusted further determine loyalty [71].¹

The experience of the retailer Web site is effectively the brand [104], in contrast to esoteric components of brick and mortar marketing strategies.

Important in a study of loyalty is the relationship of satisfaction. Kirby and Nelson at the Gartner Group state the following:

“Customer satisfaction [with retailers] is [declining] ... [and, since] increasing satisfaction to improve profitability is a basic tenet of customer relationship management, this is a [serious] trend ... This is happening at the same time [retailers] are investing ... in customer management [technologies] [49, p.1].”

However, Kirby and Nelson state that customer relationship management should result not merely in satisfied customers, but in loyal customers [49], which is further supported by Newell [56, p. 30].

Applix states the following:

“Loyal customers are those who are so pleased with the [brand and] products [of the

Web retailer] that they [will not] consider buying similar products elsewhere [on the Web]. Customer loyalty is almost never founded solely on price ... or quality of the products ... [but] on satisfaction with the 'package' – products, services, and price [2].”

Applix suggests that loyal customers buy incremental products from the original Web retailer, recommend the retailer to other potential customers, and share product and service suggestions often with the retailer [2].

Baker shows in a McKinsey survey that most on-line customers continue to buy from the same sites, such as 89% of book buyers, 84% toy buyers and 81% music buyers, though when questioned these consumers contend that lower price is their motivator [4].

Applix further suggests that loyalty is a subjective feeling [2]. The customer feels that he is receiving needed services from the retailer, feels that the retailer is anticipating his future needs, and that the retailer is in touch with him sooner than competitive retailers [2]. This feeling is a subtle but collaborative dynamic of loyalty.

Seybold states in support that one of the principles of the new customer economy is the following:

“Experience matters ... the feelings customers have when they interact with [the brand of the Web retailer] determines their loyalty [79, p. 10].”

This principle is further supported by Pine and Gilmore in their experience economy scenario [66]. Berry similarly supports the principle in his suggested total customer experience [8] required by shoppers.

Of interest to this theme, Godin suggests that in the collaborative interactivity of retailer Web sites, such as Land's End's *My Personal Shopper* [13, 44] and Nike's *Walk This Way* [52], customers feel included in the marketing strategy. Interactivity is stated to be collaborative, in that the retailer helps the customer buy the product, and the customer helps the retailer to sell it. This interactivity leads to loyalty, inasmuch as the customer feels involved in a collaborative partnership and is not likely to surf to competitor sites [31]. The collaborative theme in innovating with the customer is echoed in Cohan [16] and Pottruck and Pearce [67]. This interactivity is in contrast to the

oxymoronic loyalty strategies [5, p. 16] of retailers that lack the dynamics of the new Seybold customer economy.

Peppers and Rogers summarize that, in their interactivity of experience, Web sites epitomize the essence of immediate one-to-one marketing [61], an evolution highlighted later in this chapter.

2.5 Loyalty Factors on the Web

Delivering the benefits of loyalty, and making it easy for customers to buy from a Web retailer [104, p. 5, 44], are not enough to ensure customer loyalty on the Web. These components are only the price of entry [104, p. 44]. If a retailer is not delivering convenience, ease of interaction, product richness and lower pricing, the site will fail on the Web. Customers on the Web are changing in their demands too, sometimes through competitive differentials, so that they are expecting better, faster and more services [104, p. 45]. The customers expect a better but positive experience in each interaction with the Web retailer.

Retailers disappoint and lose loyal customers when they dissatisfy through negative experiences. These disappointed customers tell other prospective customers, and the retailer potentially loses those prospects.

For retailers effecting customer loyalty through positive experiences, Windham posits that their Web sites were the original ones on the Web [104, p. 50]. Most customers are currently loyal to branded sites, such as Amazon, on certain favored products, such as books, and to the convenience and time savings in buying the products at these sites [15]. Loyalty is elusive when other less favored products are sold on the sites, for customers motivated by lower pricing and product value that are searchable on competitor sites, though the latter customers will be more frequently the buyers on the Web than the former customers [104, p. 51-52].

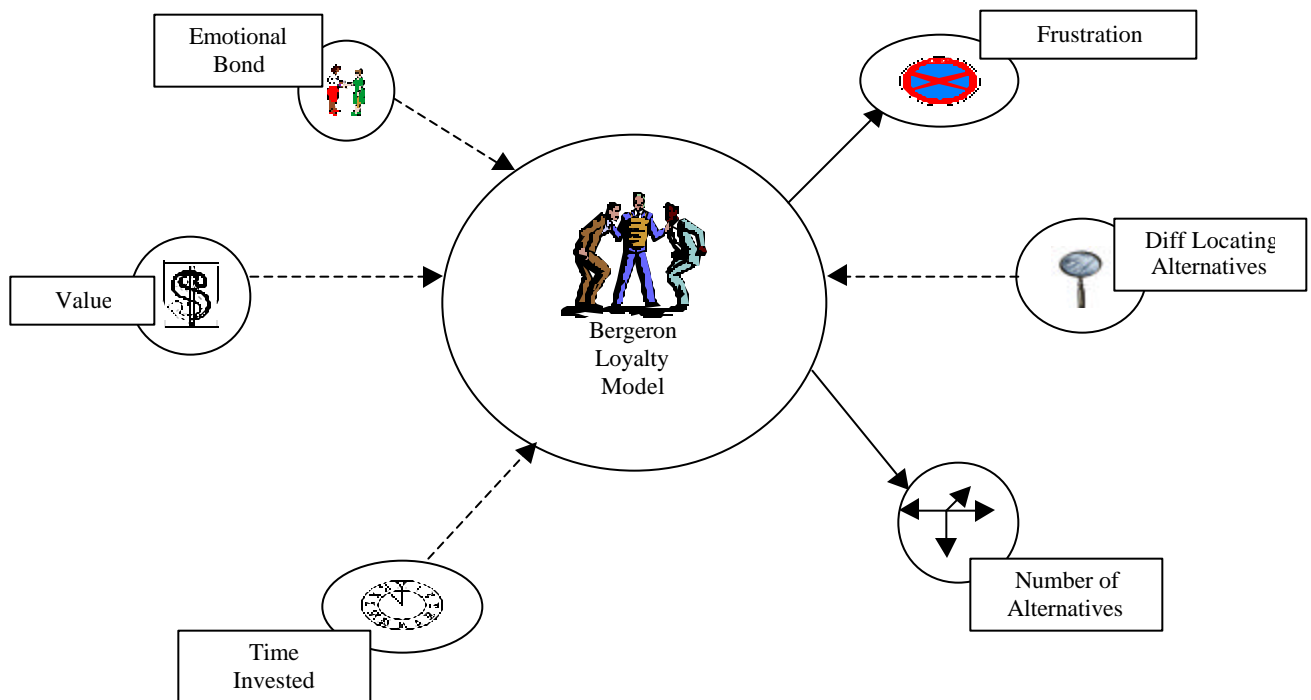
Reichheld and Windham posit that customers are more likely to be loyal to

retailer sites due to convenience and time savings, but will not be loyal if their site performance or product value is mediocre or poor [104, p. 55-56]. Loyalty on the Web is essentially ephemeral [104, p. 97].

2.6 Bergeron Loyalty Model

From a management consideration in comprehending loyalty on the Web, Bergeron introduces a more meaningful Loyalty Model [6, p. 62], that quantifies the components or factors, of emotional bond, number of alternate competitor sites, product value, frustration, difficulty locating alternative sites and time investment, that contribute to customer loyalty to a Web retailer site, defined and noted in Figure 2-1:

$$\text{Bergeron Loyalty Effect} = (\text{Value}_{(0-10)} + \text{Investment}_{(0-10)}) \times \text{EB}_{(1-5)} - (\text{Affordable Alternatives}_{(0-10)} \times \text{FL}_{(1-5)}) + \text{Difficulty Locating Alternatives}_{(0-10)}$$



Factors affecting the Bergeron Loyalty Model include the emotional bond of the customer with the retailer, the time investment of the customer in the relationship, the perceived value of the product of service that the retailer offers to the customer, the number of affordable alternatives available, ease of locating these alternatives, and level of frustration with the relationship. Factors with dashed arrows add to the loyalty effect; straight arrows lead to factors that diminish the loyalty effect.

Figure 2-1 Bergeron Loyalty Model

Source: Bergeron [6]

The Bergeron Loyalty Model, the focus of the Customer Loyalty and Privacy Synthesis Model (CLPS) in this study, is more descriptive in the quantification of customer experience impacting loyalty, in counterpoint to Windham, Seybold, Reichheld and Godin. Bergeron suggests that loyalty implies subjective emotional feeling, inasmuch as emotional instead of logical factors frequently effect customer behavior, irrespective of product or service value [6, p. 61]. Key to the Bergeron model is the emotional bond experienced by the customer in interaction with the retailer site.

The emotional bond factor employed in Bergeron is similar to Applix [2]. Loyalty is a qualitative and subjective feeling of relationship and trust with the retailer. The Bergeron model is effected by an emotional inner feeling in transaction with the retailer [6]. Sterne observes that loyalty, in contrast to satisfaction, is not only the objective feeling that customer needs are satisfied by the Web retailer, but the subjective feelings of their minds too. Though the retailer may give satisfaction without loyalty [87], the intent is not only satisfied but also loyal customers, which is supported by Van Boskirk in Forrester studies [96]. The essence of the Bergeron Loyalty Model is that Web retailers need to furnish not only product and service value to the customer, but also an emotionally personal touch that ensures the loyalty of the customer.

2.7 Summary of Web Customer Loyalty Research

A summary of the components of Web site loyalty, referenced as loyalty factors or similar to such factors, by Applix, Bergeron, Reichheld, Seybold and Windham, are summarized in Table 2.1 below.

Applix	Bergeron	Reichheld	Seybold	Windham
	Emotional Bond		Integrity	
	Number of Alternatives			
Knowledge of Products/Services	Value	Compelling Product Presentations Convenient and Reasonably Priced Shipping and Handling	Fulfillment Delivery and Reliable Support Value	Competitive Prices Relevant/Updated Content
Anticipation of Future Requirements Superior Quality Communications	Frustration	Quality Customer Support	Ease of Decision-Making Ease of Doing Business Ease of Interaction	Ease of Navigation/User Friendly Familiarity/ Good Experience
	Difficulty Locating Alternatives			
	Time Investment	On-time Delivery	Efficient Use of Customer Time	Fast Response Time
		Clear and Trustworthy Privacy Policies		

Table 2-1 Summary of Loyalty Components on the Web

Source: Applix, 2001 [2], Bergeron, 2001 [6], Reichheld, 2001 [70-72] Seybold, 2001 [79-80] and Windham, 2000 [104-105]

The Bergeron factors of Web site loyalty in Table 2.1 will be enhanced, extended and evaluated selectively through the new Customer Loyalty and Privacy Synthesis Model (CLPS) of this study.

2.8 Loyalty and Segmentation

Future expectations of discount conscious and otherwise demanding customers for the new sales stratagems [5] on the Web complicate the aforementioned factors of site loyalty. Free shipping, discounts and incentives are the most frequent expectation [15]. Successful retailers of the future are posited by Bergeron and other theorists, such as Sterne, to be those that strive for exceptional [6, p. 10; 87] service on the Web.

Retailers need to be not only inventive in their loyalty programs, but furthermore innovative in dynamically segmenting customers through interaction needs, so that loyalty is earned and re-earned when the customers transact on a Web site. Bergeron deposits that each interaction is an opportunity to learn the needs [110, 34] of the customer and improve the relationship with him [6, p. xiv, xxiv]. Peppers and Rogers propose that Web retailers initiate segmentation and learn from the interactions of their individual best

or most valued customers (MVC), not from their average type customers in the market [61, p. 3, 59]. A new Learning Relationship [61, p. 3], in which retailers are smarter in on-going MVC interactions and subsequent tailoring of products and services to most valued customers, is suggested to enhance loyalty. Such individual customers are likely to continue with the retailer, rather than risk the inconvenience of reinventing the relationship with competitor Web retailers.

“I know who you are. I remember you. I get you to talk to me. And then, because I know something about you my competitors do not know, I can do something for you my competitors cannot do at any price [56, p. xiv].”

Inherent in learning relationships is that the interactions are driven by preferences of convenience and product and service value to the customer and by value of the segmented customer to the retailer, so that the interactions are not retailer opportunities of random unsolicited telemarketing [61, p. 95]. Interactions lead to dialogue and engagement with the individual customers, information and knowledge of the product and service preferences, loyalty of the customers to the retailers, and profitability of the customer learning relationships, per Peppers and Rogers [61, p. 111,146]. Davenport, Harris and Kohli also propose MVC segmentation strategies [23].

Rigby, Reichheld and Schefter recommend customer-centric philosophies [74], and Seybold and Windham recommend customer relationship management strategies, in order to tailor products and services on the Web to segments of experienced customers and their shopping expectations.

Windham suggests strategies to segment the following customers:

- Brand Loyal Shoppers searching for trust in retailer brands;
- Comparison Shoppers searching for high quality products and services;
- Convenience Shoppers searching for familiarity and time savings;
- Focused Shoppers searching for specific product requirements;

- Price Sensitive Shoppers searching for low prices;
- Storefront-Adverse Shoppers searching for personal Web convenience [104, p.60].

Loyalty of these shoppers to Web retailers is subject to the motivating styles of their shopping.

Seybold states that segmentation is an outstanding technique to strengthen customer interactions [79, p. 57] and suggests strengthening loyalty through specific customer scenarios [80, p. 82, 86 - 89] that take advantage of the context in which a customer buys from a retailer.

The United Kingdom grocer Tesco, in its *Tesco Direct* Web stores, is an example of a retailer that is scenario thinking its customers. This retailer thinks of grocery hopper scenarios and support, through its shop on-line store scenarios. Tesco simulates the on-line real life experience of the customers by the running of shopping scenario robots [80, p. 84 - 86]. With Tesco profit margin from Web shoppers 10% to 12% [80], some of which is resulting from cross-selling and up selling to the shoppers, scenario thinking is improving the loyalty of customers to Tesco. Through initial relationship, scenario and segmentation, retailers are shifting to one-to-one personalized marketing and selling on the Web.

2.9 Personalization on the Web

Peppers and Rogers state that retailers shifting to one-to-one marketing and selling are so-called one-to-one enterprises [61, p. 2] that treat different customers specially [61, p. 1], having the right products to the right customers at the right time, further suggested by Swift [89], in order to strengthen the loyalty of the customers.

Downes and Mui state that a market segment of one in treating customers is the prerequisite to personalization of products and services that strengthens loyalty [24].

Personalization is focused on tailoring, selling, cross-selling and up selling, products and services to customers, through using known customer profiles, products bought, transaction history, site clickthroughs, and demographic and psychographic statistics.

Retailers personalize or tailor products through the following techniques:

- Name Recognition Personalization, that addresses customers by name, or limited demographic or biographic indicators, when they access and surf through the Web retailer site [60, 99];
- Check Box or Survey Personalization, that surveys customers on their personal preferences of the products and services of the Web retailer, or affiliated retailers, on-line or off-line, and then targets the preferred products and services to the customers, sometimes through customization tools provided to customers who set up personalized desktop space [17, 60, 99];
- Rule or Segmentation Personalization, that tailors products and services of the Web retailer, or affiliated retailers, on-line or off-line, to specific tiered types of customers, through relationship rules of customer profiles retained and updated by the Web retailer [17, 60, 99];
- Peer Preference Personalization, that targets products and services of the Web retailer, or affiliated retailers, on-line or off-line, to specific types of consumers, through collaborative community filtering, or contextual clickstream [37] and surf patterning [17], of similar types of consumers or peers [99].

Retailers employing these techniques are perceived to not only differentiate their products and services [67], but also effect eventual but larger customer share [109]. The retailers ought to know their most valued customers better than before personalization. Customers are marketed and sold the right products and services when they require them. These techniques, enhanced through recommender systems [45, 86], effect an improved experience that joins the customer to the retailer Web site [73].

Once customers invest their time sharing information about themselves to the retailer, they are furthermore not likely to surf to a competitor retailer site [6, p. 6; 56, p. 98], and the longer the customers are in this relationship, the more the customer buys from that retailer [12]. Personalization enhances not only loyalty, but also relationship, if effected sensibly.

Seybold reiterates the importance of relationship to loyalty, in stating that Web retailers are initiating inquiry into the effectiveness of their relationships, responding to the following questions:

“Are [the] customers truly in relationship with the [retailer], or are they [simply surfing]

to its Web site?;

Are the customers feeling ... a sense of loyalty to the [Web retailer site]?;

Are the customers showing sign[s] that they will continue their loyal [relationship to the Web retailer site]? [79, p. 79]"

Investors will be similarly evaluating the effectiveness of the retailers, suggests Seybold [79].

Cisco, Dell, Hewlett-Packard, Land's End and NCR are retailers surveyed by Seybold [79, p. 102 - 103, 239 - 242] that innovate in one-to-one customer relationship effectiveness, including indices such as customer numbers, retention, experience and spending [79, p. 245].

Other retailers need to innovate in relationship indices. Over 60% of Global 2000 enterprises, in a Meta survey cited by Brown, lack such indices and loyalty measurements [12, p. 3]. Retailers need to evaluate customer relationship indices, and not limit the evaluation to clickthroughs and products bought through their sites.

Kirby and Nelson (Gartner Group) evaluate the strength of the customer relationship in indices that include loyalty and satisfaction [49, p. 3].

Gartner segments customers into the following, further exemplified through the earlier Windham segmentation:

- Advocates, that are Brand Loyal, Convenience or Focused Shoppers, satisfied with the products and services of the retailer and loyal to that retailer;
- Mercenaries, that are Comparison, Price Sensitive or Storefront-Adverse Shoppers, satisfied and loyal to the retailer until equivalent products and services are sold by other retailers;
- Hostages, that are Focused Shoppers, satisfied and loyal to the retailer until specific products and services in superior quality are sold by other retailers;
- Rebels, that are Comparison, Focused, Price Sensitive or Storefront-Adverse Shoppers, not satisfied or loyal to the retailer [104].

Subsequent steps in Gartner integrate retailer performance indices [49, p. 4, 5].

Reichheld suggests that indices of relationship and loyalty, such as the aforementioned,

are more indicative of retailer success than financial measurements [72]. Personalization techniques are not measurable in these indices and measurements, though are perceived to enhance loyalty and one-to-one relationship and projected to be employed by most retailer sites by 2003 [97].

2.10 Privacy and Personalization

Important to the Customer Loyalty and Privacy Synthesis Model (CLPS) of the study is the impact of customer privacy sensitivity and retailer personalization standard on loyalty. Privacy is defined in Webster to be the below:

“the quality ... of being apart from ... observation [of the retailer]” and “freedom [of the customer] from unauthorized intrusion [of the retailer] [100, p. 936].”

In this study, however, customer privacy sensitivity, introduced in Chapter I, is defined below:

Customer Privacy Sensitivity - sensitivity of the customer to his right to not share information with a Web retailer, that in turn uses the information to increasingly personalize its products and services to the customer, through the aforementioned personalization techniques.

In contrast to customer privacy sensitivity, retailer personalization standard, also introduced in Chapter I, is defined below:

Retailer Personalization Standard -standard of the Web retailer in respecting the privacy of the customer when requesting information to personalize or tailor products and services to the customer.

The personalization techniques impacting the privacy sensitivity of the customer were defined earlier in this chapter.

The issue in privacy is that personalization of Web sites is effected through ever increasing personal information on customers controlled by the retailers and is expected to grow from under \$400 million invested in the techniques in 2001 to over \$1 billion in 2006 [102]. Customers are concerned about this control and the use of the information [40]. Privacy policies on Web sites are not perceived to be trustworthy or understandable [21, 68, 69, 92, 94]. Mismanagement of information, evident in prior missteps of DoubleClick and Toy “R” Us that shared information on its customers with retailers as well as recently in the Microsoft Windows XP Media Player issue [101], excites the media, further exciting customers and privacy advocates [30, 95]. Personalization techniques require information considered private to customers, though tempting to Web retailers in that the information, such as clicked product or service selections, is easier and faster to monitor than in a brick and mortar setting [71, p. 110 - 111].

If done correctly, personalization is capable of strengthening loyalty, but if done incorrectly, it can be akin to inappropriate telemarketing campaigns [37, p. 61].”

Privacy issues of consumers on the Web include selectiveness about what information to share and which sites to share with as well as simply not providing personal information [104, p. 107].

A supporting Harris Interactive for Privacy and American Business survey, shared through Vaas, states that 57% of customers are sensitive in sharing private information to retailer Web sites, and their sensitivity in personal privacy is stronger than in health care (54%), crime (53%) or taxes (52%) [94]. Other surveys, such as AT&T Labs in Infoworld, tell us that customers are strongly sensitive about personalization and privacy on the Web, particularly personal information. The AT&T survey shows the following:

- 93% of customers sensitive about sites collecting information from children;
- 87% sensitive about sites monitoring other surfed sites;
- 87% sensitive about privacy intrusions while on sites;
- 80% sensitive about sites compiling e-mail addresses without consent;
- 52% sensitive about unsolicited mail when on the Web [111].

Though only 19% in the AT&T survey state that they were victims of a privacy invasion [111], the United States General Accounting Office heightens consumer concern in statistics that show a 36% increase in identity theft from 1999 to 2000 [92], while the Gallup Organization shows sensitivity in 80% of consumers concerned about misuse of credit card information on the Web [92]. Jupiter Media Metrix Inc. contributes to the concern in statistics showing that retailers sent 700 unsolicited e-mail spam in 2001, and that these statistics are supposed to double in only a few years [92].

Relating to the privacy issue is a Yahoo survey that shows the following:

[Retailers with] “only a few bucks” [are capable of learning more about their customers than] “Stalin or Hitler ever learned about the inhabitants of their totalitarian states [76].”

The statement is legitimate, though lurid, in that retailers have substantial history about customers that conduct transactions on the Web. Those retailers that affiliate with other retailers have information about customers that transact on the affiliate retailer sites. Pew surveys show that the Web is the following:

[a potentially] “insensitive and manipulative marketplace, in which [customers] may feel trapped and victimized by [retailers] ... skimming over the fundamentals of [customer] relationship [management] in [their] rush to cashier on ... rewards [62].”

Surprising are Pew statistics showing that 54% of customers on the Web think that retailer monitoring is harmful, while only 27% think the monitoring helpful if the retailer Web products are personalized to them [62].

Web retailers, such as Amazon, are perceived to be responding slowly to the issue of privacy [95]. Their response may be insensitive. This insensitivity was reflected when Amazon revised its privacy policy, to state that information on its customers is

sharable with other retailers, or sellable to a new retailer if it bought Amazon. Still, retailers contend that customer information is their asset, that their privacy policy is fair practice, and that, in a free market, customers may decide not to transact with them.

The essence of the privacy issue is this friction between potential mismanagement and beneficial application of customer information [47]. Customers give retailers information on the explicit understanding that the Web retailers will give personalized products and services on the sites, but not on an implicit understanding that the retailers will give the information to other retailers, in order to target the customers with other personalized services. Retailers are requested to manage this information, in order to benefit the customers, not mismanage it to compete on the Web. The impact is that the sales techniques of retailers are interpreted by customers as an invasion of privacy [28]. Retailer insensitivity to privacy contributes to the issues noted in Figure 2-10. Other Forrester surveys show that these issues are precluding \$15 billion of Web shopping [54].

Retailers need to respect customer privacy, if they are to enhance customer loyalty and competitive advantage [46] through personalization. Bergeron states that customers have to:

“feel that information extracted from their interactions ... will not be used in a [manner] that [infringes] an implicit trust ... [6, p. xv],” [such as sharing information to other retailers]. “Trust rules the Web [6],” [not the lowest price or product and service options].

Relationship marketing is ill-founded if trust is not factored into it [71]. Reichheld and Schefter surveys reveal that a trusted Web site is integral to a relationship with a Web retailer [71, p. 107]. Eric Schmidt, Chairman and Chief Executive Officer of Google, states in Pottruck and Pearce that the success of the Web retailer is through a supporting trusted relationship with the customer [67, p. 276].

Surveys through Jupiter show that retailers selling consumer personal

information to other retailers is one of the top reasons preventing shopping on the Web [36], and that 65% of consumers will have trust in retailer site management and personalization of their information if the retailer guarantees non-mismanagement [30]. Surveys show that 58% of the consumers will require this guarantee in a privacy statement prior to sharing information, and that 51% will read the statement prior to sharing. Only 15% of consumers would be unwilling to share information whatsoever [20].

Though Bergeron states that personalization is expected by customers on the Web, and is not an option [6, p. 10-11], privacy sensitivity and trust are expected of the retailers too.

2.11 Gaps in Loyalty, Personalization and Privacy Literature

Given the elusive and ephemeral manner of customer loyalty on the Web, this study researched the methodologies of loyalty theorists, such as Applix, Bergeron, Reichheld, Seybold and Windham, in quantifying components or factors in a loyalty model. None of the methodologies have proven and quantifiable practices, other than indices, that would be helpful to retailers evaluating enhanced customer loyalty on their Web sites. Reichheld notes this issue in interpreting loyalty dimensions of customer types [71]. Few retailers have loyalty or relationship statistics that support the methodologies. Only Bergeron quantifies a Loyalty Model in Figure 2.8, in the most up-to-date methodologies of the loyalty theorists, but the results of this equation are not known nor proven quantitatively.

Other research into the methodologies of the theorists, including Bergeron, revealed limited inclusion of customer personalization and privacy sensitivity dynamics or techniques as critical success factors in evaluating customer loyalty on the Web. Bergeron, in the Loyalty Model, includes emotional bond, and Seybold includes integrity, as generic indices of trust, but not specific factors of privacy sensitivity. Only Reichheld includes privacy policies as a success factor in loyalty.

Though surveys show increased sensitivity of customers to retailers who personalize their sites through requested information [94,111], only some show that the sensitivity or non-sensitivity is decreasing or increasing loyalty to personalized sites, such as a Price-WaterhouseCoopers survey showing that the non-protection of personal information is the most typical event that decreases loyalty [43]. The significance of privacy sensitivity to customer loyalty is not clear in the research.

Research into the issues of personalization and privacy sensitivity on the Web is limited, due to evolving practices and frequently implemented and pending legislation. Standards of personalization practices in a privacy policy continue to be lacking, and privacy lacks a legal definition [7, p. 132; 1]. There are only a limited number of retailers that illustrate personalization and privacy sensitivity success practices and standards, and few retailers are measuring resultant revenues [37, p. 72], so that retailers in the main are uncertain as to the ideal but economical practices.

To date then, the dynamics of loyalty, personalization and privacy on the Web have not been analyzed by researchers in the manner initiated in this study. Neither the factors of customer privacy sensitivity and retailer personalization standard nor those of emotional bond, number of alternatives, value, frustration, difficulty locating alternatives and time investment defined by Bergeron have been analyzed by him quantitatively. Analysis of privacy sensitivity in collective or individual context of Bergeron or similar factors is not known to this researcher, other than through non-academic citations. Scholarly studies have not systematically evaluated loyalty and privacy.

Seybold states the following:

“Few [retailers] have bothered to look carefully at the broad context in which customers buy products and services ... and have routinely missed chances to expand sales and ... loyalty [80, p. 81].”

This study will therefore focus in the next chapters on the new Customer Loyalty

and Privacy Synthesis Model (CLPS), that will evaluate the Bergeron Loyalty Model, but will include customer privacy sensitivity and retailer personalization standard as further critical loyalty factors, in order to expand the Bergeron model. Specific focus will be on studying privacy sensitivity in the collective context of both the less customer controlled but more potentially intrusive and sensitive rule and peer preference personalization techniques and the more customer controlled and less intrusive and sensitive check box and name recognition techniques. The CLPS Model will be timely and valuable to Web retailers and researchers in understanding loyalty and privacy in the new era of customer led transformation.

2.12 Contribution of the Study

This study on customer loyalty, personalization and privacy on the Web serves the interests of both retailers and researchers. Retailers will be helped by the study, in learning the significance of customer privacy sensitivity and retailer personalization standard in their marketing and sales strategies on the Web, at a time when concern on privacy and security is becoming a more serious customer issue [79]. Those retailers effecting personalization of their Web sites through ever increasing inclusion of personal information about their customers will be hesitant in allocating their budgets to these practices, if such practices contribute to disloyalty. Retailers will be helped too in learning the effects of Bergeron loyalty factors, which are similar to components introduced in Applix, Reichheld, Seybold and Windham, and the loyalty methodologies of these theorists are also conveniently integrated in this one study. The study serves as a framework for retailers to seriously integrate customer privacy as a critical success factor in Web site strategy.

Researchers will be equally helped in the framework of the CLPS Model. In this

study, the model analyzes the factors of customer privacy sensitivity, retailer personalization standard and the selective factor of difficulty in locating a favorable Web site. CLPS is capable in the future of analyzing insightfully not only the Bergeron factors of emotional bond, number of alternate sites, value, frustration and time investment, but also similar or dissimilar factors noted by other loyalty theorists. The model will be helpful in predicting customer loyalty in conjunction with numerous and diverse factors. Surveys of governmental or research organizations will be potentially supported through the framework of the CLPS Model.

In short, this study shows privacy sensitivity and personalization standard as significant success factors in loyalty to retailers selling to Web empowered customers and to researchers further analyzing loyalty. Reichheld synthesizes that Web technologies applied properly strengthen the loyalty of customers [71, p.106]. This study of loyalty, personalization and privacy on the Web is opportune.

2.13 Summary

Consumers continue to adopt the Web faster than earlier technological innovations. The control of e-Commerce is effectively shifted from retailers to demanding customers empowered with numerous product and service options on the Web. Loyalty of consumers to a Web retailer is elusive and ephemeral.

Applix, Bergeron, Reichheld, Seybold and Windham posit the new dynamics of customer loyalty on the Web and propose factors for retailers to effect loyalty. Segmentation and personalization are generically suggested strategies. Of the loyalty theorists, only Bergeron quantifies loyalty factors in a specific Loyalty Model most meaningful to the topic, but the results of the equation are not known nor proven quantitatively.

Important to this study on customer loyalty on the Web is the impact of privacy

sensitivity as a loyalty factor. Though Seybold includes integrity, and Bergeron includes emotional bond, as generic success factors, only Reichheld includes privacy as a specific success factor. The issue in loyalty is that customer sensitivity is heightening when retailers mismanage private information of their customers.

Inasmuch as the literature on loyalty is noted in this study to be limited in evaluating loyalty quantitatively, this study introduces a CLPS Model that will evaluate the current Bergeron Loyalty Model factors selectively and will include further loyalty factors of customer privacy sensitivity and retailer personalization standard. The fundamental precept of the CLPS Model is that privacy sensitivity is a critical success factor in customer loyalty on the Web. Researchers have not studied loyalty and privacy in this manner.

This study will contribute to insight into the importance of privacy sensitivity to customer loyalty that will be invaluable to Web retailers.

CHAPTER III

LOYALTY RESEARCH METHODOLOGY

“Simulations can tell us things we do not already know.” – H. A. Simon, *The Sciences of the Artificial* [83]

3.1 Introduction

To analyze how the privacy sensitivities of customers effect loyalty on retailer Web sites, the study introduces the Customer Loyalty and Privacy Synthesis Model (CLPS). Methodologies employed in attempting to understand the significance of customer privacy sensitivity and retailer personalization standard to loyalty include simulation through the Simulation Graphical Modeling and Analysis System (SIGMA) and statistical interpretation of the simulation through the Statistical Programming Software System (SPSS). Simulation as a research methodology is most revealing in the results analyzed in a study of the scope and sensitivity of loyalty and privacy sensitivity on Web sites.

3.2 Simulation as a Research Methodology

Computer simulation is the methodology of designing a model of an actual or theoretical physical process or system, executing the model on a computer, and analyzing the executed results of the model [27, p. 1].

Webster defines a model in the below:

“A description or analogy used to help visualize something ... that cannot be directly observed ... [or] a system of postulates, data, and inferences presented as a mathematical description of an entity or state of affairs [100, p. 762].”

Modeling gives the effects of features of reality [77, p. 1]. A model is something that a researcher studies in lieu of the real thing, in order to understand something about that thing [27, p. 2].

Models are studied instead of real systems when it is cheaper, faster, and / or safer to do so [10]. As an example, in order to learn how to prevent explosions of a

nuclear power reactor, it is preferable to explore the explosions in a simulation model, not in reality. This is not only faster and cheaper, but, importantly, safer in not losing lives. Simulation of the significance of personalization and privacy to loyalty may not save lives, but is cheaper and faster than experimenting in real time. Models will surely prevent upsetting customers who may be subjects, possibly without their informed consent, in a study.

The disadvantage of a simulation model, compared to studying a real system, is that a model is inevitably a simplification that may exclude important variables. Only from case to case is it decided if the advantages outweigh the disadvantages. Simulation is not a panacea.

Models are mathematical in order to run on a digital computer.

Mach states the following:

“The communication of scientific knowledge always involves description ... a mimetic reproduction of facts in thought, the objective of which is to replace and save the trouble of new experience. To save the labor of instruction and of acquisition, concise, abridged description is sought. This is ... natural law [53].”

Such economy in natural law extends to the simplification of system modeling.

Modeling is illustrated when an architect constructs a three-dimensional model of an office. The model is an imitation of the office. Easier, faster and less expensive to construct, or enhance due to design changes or errors, than the actual office, the model furnishes numerous insights to the architect.

The office model illustrates physical, three-dimensional, static simulation, but dynamic simulation is illustrated in an office elevator model. This is when a manufacturer prepares a model of an elevator system, in which elevators move up and down the office floors. The manufacturer selects the number of elevators for the floors, selects the rates at which employees on the floors take the elevators, selects the floors on which employees wish to take the elevators, selects the rules for which the elevators stop at specific floors, and sets up the elevator model.

Through the office elevator model, and its information as the variables of the model, the manufacturer observes the simulated employees while they wait on their floors to take the elevators to other floors in the office, also obtaining statistics from the model, such as average waiting time. This model furnishes various experimental options

on the number of elevators, employees and floors to the manufacturer. This information helps the manufacturer to select the optimal number of elevators prior to when they are prepared by him, at substantial cost savings. The cost of additional elevators can be balanced against the expected costs of time wasted by employees waiting for elevators. At the optimum, those two costs are equal.

The office elevator model involves not only physical, but also logical simulation, in providing informational options, that the model integrates computationally and logically in order to imitate the actual operation of the elevator system.

Some dynamic simulation models perform deterministically, such as when the time required for the elevators to travel between floors is determined to be specific, such as one second. Other models perform probabilistically, such as when the elevators stop at the lobby prior to 8 A.M. on a business day, but the employees taking the elevators change randomly day to day. Probabilistic measures, such as the aforementioned example, are important to simulations, since it is frequently feasible to define the frequency connected to a dynamical process; however, it is not feasible to define a precise relationship among state variables in a simple graphical model. Additionally, probabilistic models can function as abstract models for processes. Random variables are the critical elements in probability. It is important to note that computer simulations need not be physical in the sense of three-dimensional architectural models, but in the sense that scenarios of symbolic or mathematical models are frequently represented graphically on two-dimensional screens. Simulations are important analytical models that provide interesting and challenging interplay to the researcher and the Web retailer managers of this study.

3.3 Importance of Simulation in Research

Simulation is defined in the following:

“An experiment in which [the researcher] attempts to [learn] how something ... behaves in reality by imitating its behavior in an artificial environment that approximates reality as closely as [feasible] [82, p. 8].”

It at least reflects the most pertinent relations and variables needed to answer a set of questions the researcher seeks to illuminate in a study. Albert Einstein once stated:

“Everything should be made as simple as possible, but not simpler.”

Simulation includes neither experimentation on an actual system nor mathematical modeling, but experimenting with an alternative description to the actual system [77, p. 5]. To model is to abstract from reality a description of a dynamic system, in that simulation serves as a language for describing systems at a level of abstraction.

Simulation furnishes a representation in diagrams, equations and graphs that is simple to

apply in describing an actual system in a mathematically and symbolically consistent manner.

The importance of simulation in research is noted in the experimental control of models. That is, the researcher is concerned only about those variables under study, and not the effect of uncontrolled variables, which is an issue in modeling an actual system. Time too is shortened in simulations, in that models are effected frequently in minutes or less, in contrast to days or longer in experimenting actual systems, contributing to a faster and larger number of modeling analyses.

Further, the contrast in alternate analyses is facilitated in simulations consisting of variables that exhibit random but statistically predictable characteristics, in that it is feasible to replicate random events identically in sequences of pseudo-random numbers that, though perfectly predictable due to the pseudo-randomness, can otherwise exhibit the characteristics of truly random numbers [77, p. 8].

That is, simulation, in contrast to mathematical modeling, will not require the researcher to be more mathematically sophisticated in modeling, while Web retailer managers will be more receptive to the analyses and conclusions of simulation than that of mathematical modeling methodology.

3.4 Simulation Importance in Contrast to Other Methodologies

Simulation is one of a number of management science and operations research methodologies [35; 77, p. 5]. The methodologies have similar objectives in applying scientific methods that facilitate complex decision-making in firms, such as customer loyalty, personalization standard and privacy sensitivity in this study. Interestingly, simulation ranks high in importance of research methodology and continues to rank high in 2002 [35].

Studies by Turban, note simulation as a methodology in 25% of operation research methodologies in selected firms [93]. Cook and Russell note in a survey of

Fortune 500 firms that only 11% of the firms have not applied simulation in decision-making scenarios [18]. Wagner notes in his studies that the number of applications employing simulation is higher than mathematical programming by a 10 to 1 factor [98].

The high importance of simulation in operations research and management science methodologies indicates its applicability in helping researchers and the Web retailer managers of this study solve realistic problems.

3.5 Steps in a Simulation Study

The steps in a simulation study are shown in Figure 3-1:

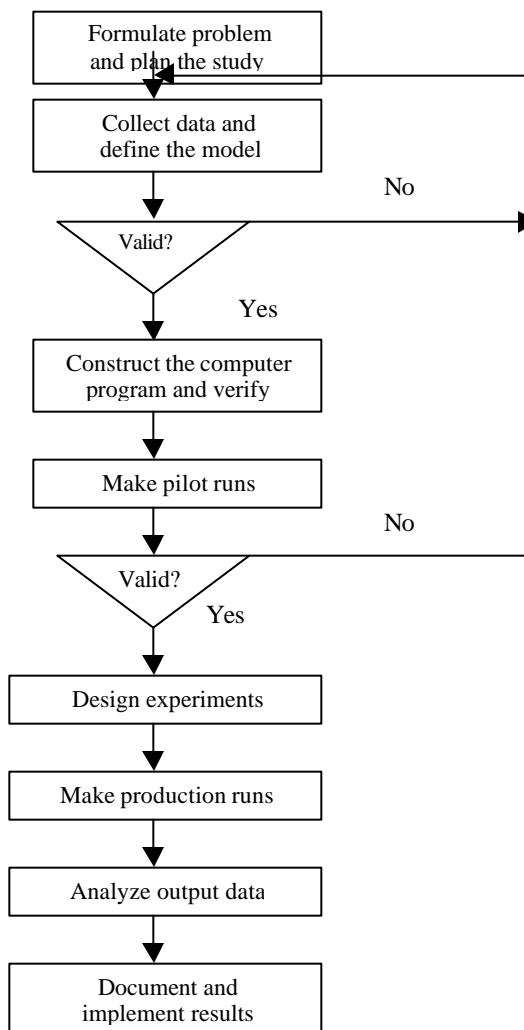


Figure 3-1 Steps in a Simulation

Source: Law [51]

In the initial step of simulation, it is important that not only the researcher, but also the client, formulate the problem of the system and the plan of the study. The researcher needs to be educated on the business context and objective of the model, and must inquire

of what series of questions the model is expected of being capable of answering in the study. The client, or manager in the firm, needs to be informed on the performance expectations of the model.

In the collection of data and definition of the model, the researcher needs to consider limiting the data to only that which is critical to the study, simplifying the model, in that too much data hinders efficiency, and the essence of an ideal model is simplicity and validity [78, p. 14]. In the Customer Loyalty and Privacy Synthesis Model (CLPS), the variables are limited to the factors of the Bergeron Loyalty Model and the extension of customer privacy sensitivity and retailer personalization standard factors.

Important to studies, such as Customer Loyalty and Privacy on the Web, are the validation and verification steps in Figure 3-2. In validation the researcher attempts to answer the question: Am I constructing the right model?, whereas in verification the researcher is attempting to answer the question: Am I constructing the model right? [77, p. 13]. Validation ensures that the results of the model correlates to the initial relationships of the actual system, and verification ensures that the computer program corresponds specifically to the algorithmic logic or mathematics of the model.

The validation and verification steps are answered yes in the CLPS Model, in that CLPS is a representation of the extended Bergeron Loyalty Model, and therefore a suitable simulation model.

The pilot runs in Figure 3-2 are the preliminary simulations performed by the researcher, that increases experience in the model and enhances future expectations from the model, qualitatively and quantitatively.

In the design experiment step, the researcher reviews the number of runs to be performed for alternative simulations to output specific results.

In the analysis of output step, the researcher analyzes statistically the results of the production runs in the prior production run step, in order to evaluate the qualitative performance of the model. SPSS is the statistical tool in the CLPS Model of this study.

The last step of documenting the simulation is important, in that if the model continues to live in the future, the intent of CLPS, and is enhanced too, new researchers and clients need the insights of the original researcher and client. Documentation of the model is actually a step that needs to accompany the earlier steps too.

The steps overall in Figure 3-2 are similar to those in the CLPS Model.

3.6 Limitations of Simulation

Limitations of simulation methodology include the consideration that in the main the results of simulations apply only to the scenarios simulated in the model and are not extendable to generalizations.

However, regression analysis can be applied to regression equation to the results generated in simulations that are performed for a series of alternative system conditions. Applied in interpolation, the resulting equation can then be evaluated to estimate the results corresponding to system conditions for which simulations were not performed by the researcher. Limited generalizations can be applied in this manner, but not generalizations of the type that result when cause-and-effect relationships are applied in mathematical modeling [77, p. 9].

Other limitations of simulation include the consideration that simulations generate only estimates, not exact results. Simulation is additionally not a solution-generating optimization methodology, only an evaluating what if technique. Also, the time to prepare a simulation model may be extensive in months, in contrast to only minutes to run the typical model. Furthermore, firms may need to substantially budget staffing, technology and training to support initiatives in simulation, which may not be affordable by the smaller Web retailers in this study. A last limitation is that the simulation study may be performed by researchers whose training may not have prepared them sufficiently to be bona fide practitioners [77, p. 10].

Still, these limitations are lessened in importance with continued improvements in performance technology, tools and training.

3.7 SIGMA as a Simulation Language

The modeling language in the CLPS Model is the Simulation Graphical Modeling and Analysis System (SIGMA). This language is intended to facilitate learning simulation in a researcher friendly manner. SIGMA models discrete event simulations.

Components important in discrete event simulations and in SIGMA are listed below:

- system, which is the actual or hypothetical system that is the subject of the simulation study;
- state, which is the description of the system and its characteristics for an interval of time and for future considerations;
- input, which is the state of controlling influence on the system;
- parameter, which is the input that is constant and non-time changing;
- event, which is the location in time designating a change in state;
- time, which is the instant in time connected to an event;
- output, which is the result of the state of the system and of the input.

These components, which also include the data values of the model, are joined through declarative and functional statements to set up the model, and the model can be joined into multi-models, each of which consists of a set of models.

Discrete event simulations in SIGMA consist of event graphs, a method of structuring the variables of the simulation, including the source code of the computer simulation program, and future events lists, a method of scheduling the events in the simulation.

Discrete event programs are distinguished from non-discrete simulations, in that discrete simulations have the logic for representing the passage of time, which is dynamic not static, and the logic for representing randomness, which is stochastic not deterministic, and SIGMA computes model time and randomness.

Further description of the state of a discrete event system in SIGMA includes values for its numeric attributes and the schedule for the future. The changes in the state

are the events. The construction steps of the program are the event procedures. The procedures effect changes in the state of the system and may initiate other events to be scheduled in the future. Event procedures describing the discrete system is executed through a main control program that operates on the aforementioned future events list [78, p. 16].

The control program advances the simulated time to the next scheduled event. The event procedure is executed through the program, typically changing the state of the system and sometimes changing future events. Once this event procedure finishes execution, the event is deleted from the future events list. Then the control program again advances time to the next event and executes the event procedure. The simulation functions in this manner, executing the next scheduled event procedures until a condition for stopping the run is met by the program [78, p. 16-17].

The elements of a model of a discrete event system in SIGMA are essentially the state variables, the events that change the values of the state variables, and the relationships between the events. The aforementioned event graph structures sets of these elements into the model. The graph represents events as vertices (nodes) and the relationships as edges (arrows), connecting pairs of event vertices and depicting the conditions in which events cause other events to initiate in the model [78, p. 20].

Helpful to the researcher, SIGMA includes a verbal description of the system, in a verbal event graph, that conceptualizes the aforementioned components of the system, determines the critical events and their interrelationships, and identifies the state variables, edge conditions, and the time delays needed in the model. The graph of the CLPS LOYALTY Model in SIGMA is in Chapter V.

Other functionality in SIGMA includes a run control menu, which itemizes run options, run mode, which illustrates the logic of the model in color graphics, and output file, which generates results on charts, diagrams and plots.

Not to be understated is the functionality of SIGMA to generate the source code of the simulation, from the graphical model, fast enough and immediate to be more competitive, if not faster, than most commercial simulation languages. Other competitive functionality in SIGMA is its ease in the verification of the code of the simulation, since in SIGMA the code is the model. In short, SIGMA is a suitable and time saving language to simulate the CLPS Model of this study.

3.8 Statistical Analysis and Interpretation in SPSS

The analysis of the CLPS Model is done in the Statistical Programming Software

System (SPSS), a comprehensive system helpful to this researcher in interpreting the results of the simulations. In Chapter VI the statistical analysis includes Least Squares Analysis, Hypothesis Testing, Means Testing, Analysis of Variance (ANOVA), One Predictor Analysis, Dual Predictor Analysis, Coefficient Analysis – All Predictors, and AVOVA One Way Testing and tables to clarify the analysis. SPSS has been employed for a long time [58] in analyzing simulations similar to those in the CLPS Model.

Least Squares Analysis shows the power of the CLPS Model to predict customer loyalty on the Web. Hypothesis Testing shows the significance of the relationship between loyalty and the customer privacy sensitivity, retailer personalization standard and difficulty in locating favorable site factors, and Means Testing shows the reasonableness of the sampling size of the simulations. Analysis of Variance (ANOVA) compares averages, computes the goodness of fit of the CLPS Model, and shows the predictor creditability of the model. One Predictor Analysis shows the strength of the predictive power of the CLPS Model if only one of the loyalty factors is included in the model, Dual Predictor Analysis shows the strength if only two of the factors are in the model, and Coefficient Analysis – All Predictors shows the relationship and strength of the three loyalty factors in the model to loyalty. AVOVA One Way Testing shows the significance of collectively and individually grouping the loyalty factors of the model.

The intent of the analysis is to determine what conclusions of effect, significance and predictability are justified from the simulations. SPSS is conveniently suitable to the task.

3.9 Summary

The Customer Loyalty and Privacy Synthesis Model (CLPS) employs simulation methodology and the SIGMA language in analyzing how customer privacy sensitivities effect loyalty on the Web. Simulation is a methodology that describes the characteristics of a complex process or system, applying a mathematical or symbolic model. Modeling is an iterative developmental procedure, in which the researcher analyzes hypotheses

about what process variables and what data are important to support or not support the hypotheses.

The power of statistical thinking through SPSS further develops the model so that it improves processes. Simulation methodology is employed to evaluate current or new systems or processes, circumventing the expense or risk of physical systems, prototypes or pilot studies.

The strategy of the study is to implement the CLPS Model. The model relates process outputs to process variables, so that the researcher comprehends the process of buying on the Web, controls the process, and predicts future Web buying performance. The researcher reviews the effects of changes to this process, in order to improve it.

Though it would be satisfying to the researcher if the model not only runs successfully, but the recommendations of the simulation study are implemented by receptive retailers, the study will still be helpful to the retailers if they are not immediately receptive to the results. The model will help them reason and think through their practice of personalization and the sensitivity of privacy.

The CLPS Model, through simulation, SIGMA and the subsequent results in Chapter VI, will thus be insightful to Web retailer managers in analyzing customer loyalty and privacy sensitivity on their sites.

CHAPTER IV

CUSTOMER LOYALTY AND PRIVACY SYNTHESIS MODEL (CLPS)

“Experiment, make it your motto day and night.” – Cole Porter, in Hoerl and Snee, Statistical Thinking: Improving Business Performance [39, p. 284]

4.1 Introduction

The Customer Loyalty and Privacy Synthesis Model (CLPS) analyzes the effects of customer privacy sensitivity, retailer personalization standard and difficulty in locating a favorable site, on customer loyalty to a Web site, and is conceptually diagrammed below:

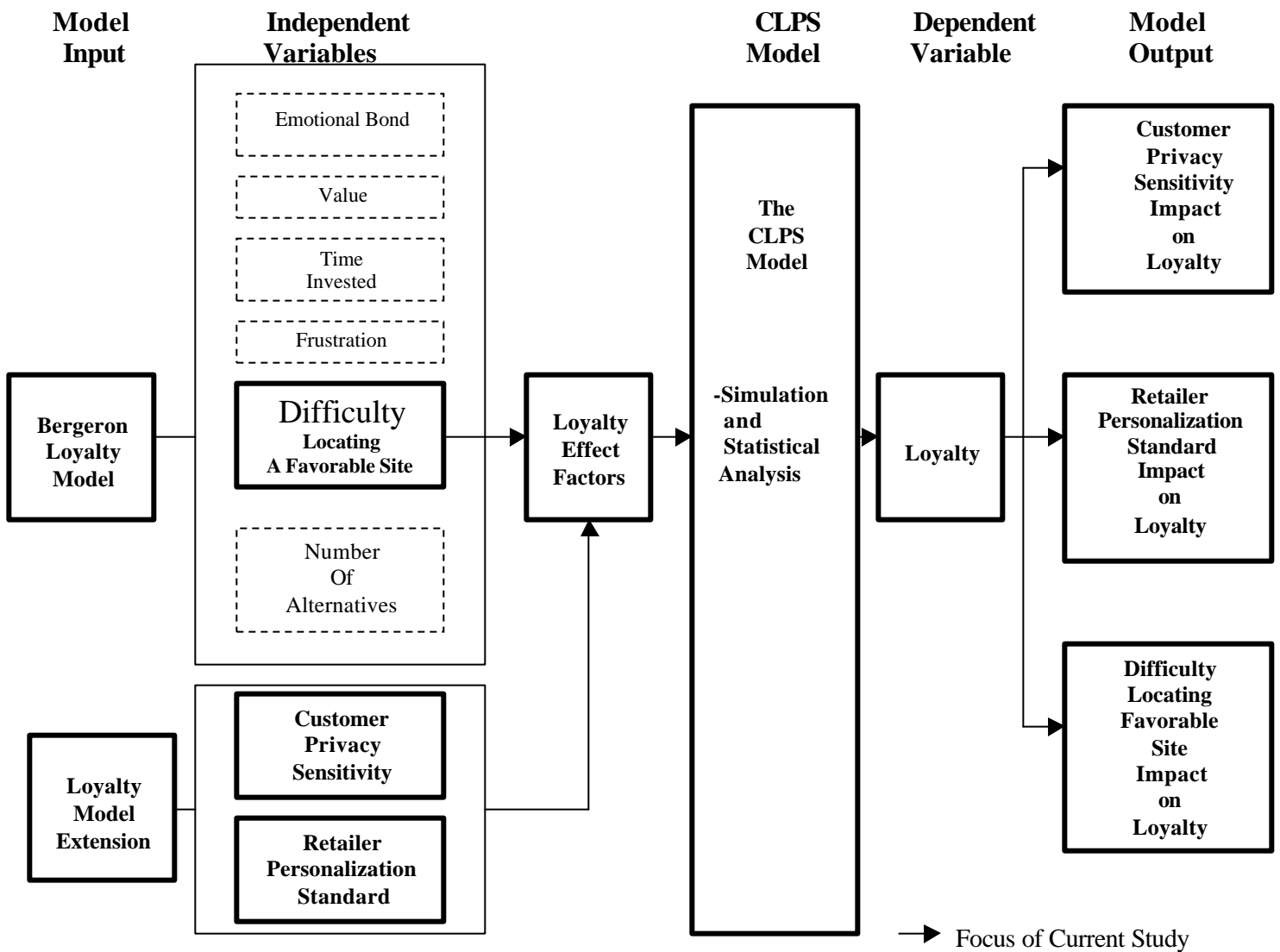


Figure 4-1 Customer Loyalty and Privacy Synthesis Model (CLPS)

To initiate analysis, an experimental design consisting of the following steps is employed in this chapter:

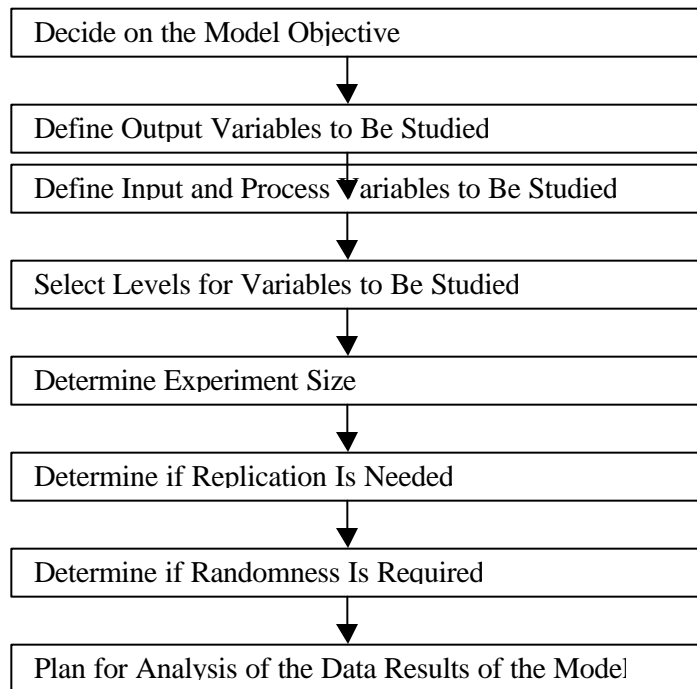


Figure 4-2 Steps in an Experimental Design [39, p. 297 – 299]

The research methodology of the CLPS Model was discussed in Chapter III.

Of the theorists researched in the study, none have a design methodology in analyzing loyalty on the Web similar to the CLPS Model.

4.2 Experimental Design of the Customer Loyalty and Privacy Synthesis Model (CLPS)

The CLPS Model is a discrete event simulation based on randomness. The model is built, coded and designed to generate output of simulations that test the loyalty hypotheses of the study. The hypotheses are formed in the plan of the study, the factors or variables of customer privacy sensitivity, retailer personalization standard and difficulty in finding favorable sites are defined by the researcher, and the information limited to these factors. The relationships in the model are validated by the researcher, the model is programmed, and the results verified to its logic. The researcher then runs pilots, tests results of experimental pilots and runs the production simulations.

The objective of the CLPS Model is to analyze the effects of customer privacy sensitivity, retailer personalization standard and difficulty in locating a favorable site on loyalty to a Web site, and the experiment in the model is limited to these variables. Hypotheses are formulated in the study, in order to test the significance of these variables in effecting loyalty. The significance of privacy, personalization and difficulty in locating favorable sites to loyalty is the focus of the model.

Hypotheses 1a and 1b test how customer privacy sensitivity and Web retailer personalization standard, not cited by Bergeron [6], predict loyalty to Web retailer sites, and are stated below:

H1a. Customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer.

H1b. Customers tend to have increased loyalty to a Web retailer site that has a high personalization or less requested information standard.

The further hypothesis in H2 tests how one selective factor, cited by Bergeron, effects and predicts loyalty to Web retailers, and is stated below:

H2. Higher difficulty in locating a favorable Web retailer site, offering similar value in product or service, tends to contribute to increased loyalty effect.

The hypotheses matched to the variables of the study are stated in the below table:

<u>CLPS Variables Hypotheses</u>	<u>Bergeron Loyalty Factor</u>	<u>CLPS</u>
<u>Independent Variables -</u>		
Customer Privacy Sensitivity	-	H1a
Retailer Personalization Standard	-	H1b
Difficulty in Locating a Favorable Site	Difficulty in Locating Alternative Sites	H2
<u>Dependent Variable -</u>		
Loyalty	Loyalty Effect	H1a, H1b, H2

Table 4-1 CLPS Hypotheses and Variables

In this experiment, in order to evaluate the significance of customer privacy sensitivity, retailer personalization standard and difficulty in locating a favorable Web site, the variables are

studied at two levels of loyalty (high and low), stated in the below table:

<u>CLPS Loyalty Variables</u>	<u>CLPS Loyalty Levels</u>	
	<u>High Loyalty</u>	<u>Low Loyalty</u>
Customer Privacy Sensitivity	Low Sensitivity	High Sensitivity
Retailer Personalization Standard	High Standard	Low Standard
Difficulty in Locating a Favorable Site	High Difficulty	Low Difficulty

Table 4-2 CLPS Loyalty Variables and Levels

The three variables, each at two levels, contribute in $2 \times 2 \times 2 = 8$ combinations of

variables to be tested in the experiment. The test is defined as a $2 \times 2 \times 2$ factorial design. The experiment with these combinations of variables is stated in the below Table 4-3.

<u>Privacy Sensitivity</u>	<u>CLPS Independent Variables</u>		<u>CLPS Dependent Variable</u>
	<u>Personalization Standard</u>	<u>Difficulty</u>	<u>Loyalty</u>
High Sensitivity	High Standard Low Standard	High Difficulty Low Difficulty	Low Loyal
Low Sensitivity			High Loyal
			High Loyal
			Low Loyal
			High Loyal
			Low Loyal

Each of the variables contributes to an equation predicting loyalty, that is explained in the Coefficient Analysis –All Predictor Variables section in Chapter VI.

Table 4-3 CLPS Loyalty Experiment

The variables are tested in 544 cases of simulations of customers buying or not buying on a site. That is, customers considering the buying of a consumer durable product or service search the Web for a favorable site, identify the favorable site, and, if satisfied with privacy sensitivity and personalization standard, buy from the site; if a favorable site is not identified, or if privacy or personalization is not satisfied, the customers continue to search for the favorable site from a limitation of sites. The simulations of the customers identifying a favorable Web site, Web site personalization standard and difficulty identifying a favorable Web site, or

interacting with an identified Web site, are completely random.

The effects of the experiments are evident or implied in the relevant research, but elusive is the significance of the effects. Confirmatory interpretation is attempted to evaluate the significance, in contrast to the Loyalty Model of Bergeron, a methodology similar to current theories of customer loyalty, but not supported by a quantitative model, which is the objective of the study. The significance of the effects is explained in the analysis of data output generated by the simulations in Chapter VI.

Underlying the Customer Loyalty and Privacy Synthesis Model (CLPS) is the assumption that the loyalty of customers to a favorite Web retailer site is derived from the product or service value of the site to the customers and the satisfaction level of the customers with their retailer relationship, and that such value and satisfaction are determined by the customers, but personalization standard is determined by the retailers.

4.3 Summary

The Customer Loyalty and Privacy Synthesis Model (CLPS) employs an experimental design to analyze the effects of customer privacy sensitivity, retailer personalization standard and difficulty locating a favorite site. Hypotheses test how these factors effect and predict loyalty, and the variables are tested in a loyalty experiment that includes 544 cases of simulations of customers buying or not buying on a Web site. The study in the next chapter will focus on the implementation of the CLPS Model. CLPS will demonstrate or not demonstrate, through simulation, statistical analysis and interpretation of the model, the significance of customer privacy sensitivity, retailer personalization standard and difficulty in locating favorable sites, to loyalty on the Web. The CLPS Model will contribute to an understanding of customer loyalty on the Web not only for researchers in the field, but also for Web retailers.

CHAPTER V

IMPLEMENTATION OF THE MODEL

“Experiment, and it will lead you to the light.” – Cole Porter [39, p. 483]

5.1 Introduction

The Customer Loyalty and Privacy Synthesis Model (CLPS) is a discrete event simulation based on randomness. The model is built, coded and experimentally designed to generate simulation output, that tests the loyalty hypotheses of the study introduced in Chapter IV. The implementation of the simulations conforms to the steps in a simulation study discussed in Chapter III. That is, the loyalty hypotheses are formulated in the plan of the study, the variables of customer privacy sensitivity (CUSPRIV), retailer personalization standard (WEBPERS) and difficulty in locating favorable Web sites (DIF) are defined in the study, relationships in the CLPS Model are validated by the researcher, the model is programmed and verified to the logic of the experimental design, and the researcher pilots and runs the production simulations. Implementation of the CLPS Model is thorough.

5.2 Building of the CLPS Simulation Model

The CLPS Model is a discrete event simulation that defines 14 state variables, 9 vertices and 11 edges. These objects are defined in the description of model generated by the simulations and detailed in the Appendix. The state variables employed in this current study to test the hypotheses introduced in Chapter IV are summarized in the below table:

Hypotheses:	Customer Privacy Sensitivity / Retailer Personalization Standard -
CUSPRIV:	Customer Privacy Sensitivity Level
WEBPERS:	Retailer Personalization Standard
<u>Hypothesis:</u>	<u>Difficulty Locating a Favorable Site -</u>
DIF:	Difficulty in Locating a Favorable Site

LOY: Customer Loyalty Level

Table 5-1 Summary of CLPS State Variables

From these variables, the CLPS Model is built to simulate customers searching and entering retailer Web sites. Customers entering the sites are generated randomly by the model. In searching and entering a site, the criteria for the customer to buy or not buy from a site is based in this study on customer privacy sensitivity (CUSPRIV), retailer personalization standard (WEBPERS) and difficulty in locating a favorable site (DIF). The model includes high to low conditions of these variables that effect the buying decisions of the customers, and the searching and buying conditions are generated randomly by the model. The result of the simulations in the CLPS Model is that if the customers buy high, they are considered high loyal, and if they buy low, they are considered low loyal.

A diagram of the CLPS LOYALTY Model is in the below:

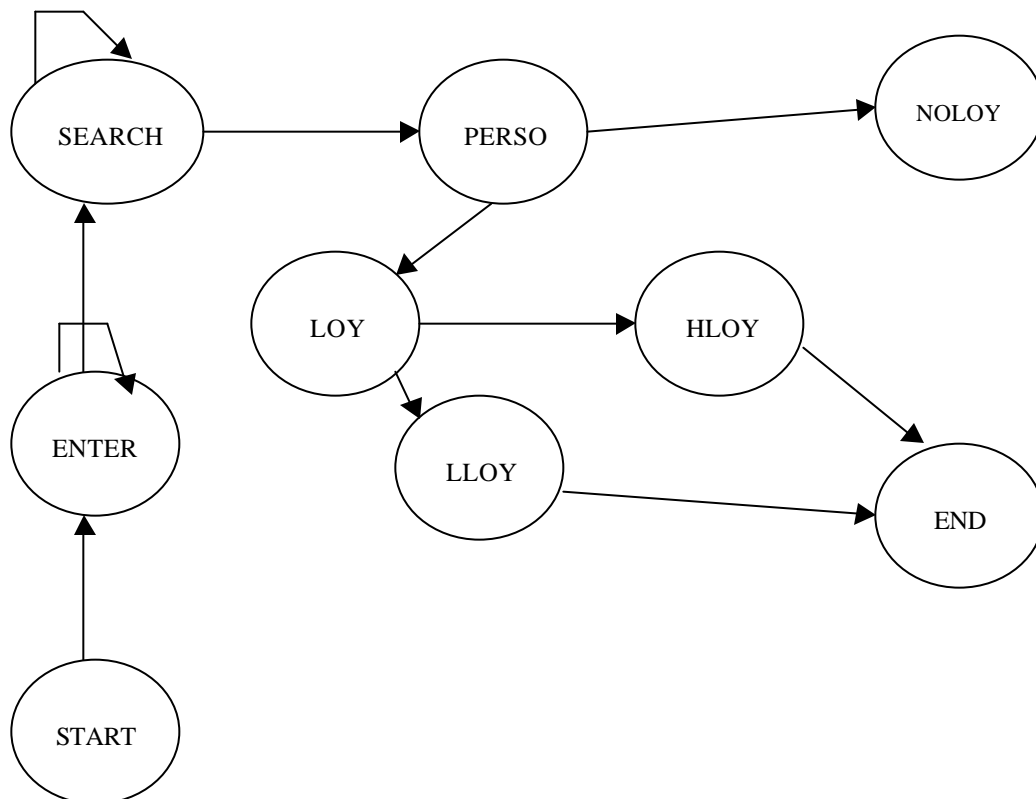


Figure 5-1 CLPS LOYALTY Model

5.3 Coding of the CLPS Simulation Model

The CLPS Model is programmed in SIGMA.

The summarized and detailed descriptions of the CLPS Model Program is in the Appendix.

Customer sensitivity to privacy is defined in the state variable called CUSPRIV.

CUSPRIV is also defined by the following sensitivity levels:

CUSPRIV = 3 (High Customer Privacy Sensitivity)

CUSPRIV = 2 (Low Customer Privacy Sensitivity)

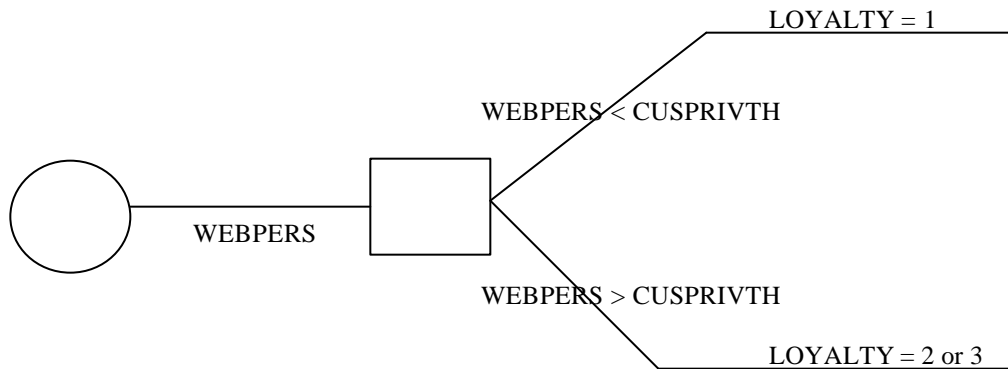
CUSPRIV = 1 (No Customer Privacy Sensitivity)

One should note that, without any loss of generality, low and no sensitivity are combined in this simulation into one CUSPRIV = 2 level.

The simulation employs a threshold variable called CUSPRIVTH, the threshold beyond which customer sensitivity to privacy is defined to be high. That is, customers will buy products or services of a Web site if the retailer personalization standard, defined in the state variable called WEBPERS, contains a higher value than the threshold CUSPRIVTH, and they will not buy if WEBPERS contains a lower value than this threshold. The simulation sets arbitrary CUSPRIVTH values for both high and low privacy sensitivity.

For example, in a high privacy sensitivity customer (CUSPRIV = 3), the threshold variable is set high, such as CUSPRIVTH = 0.75, indicating that this customer will only buy the product or service and be loyal if WEBPERS contains a higher value than CUSPRIVTH = 0.75, while in a low sensitivity customer (CUSPRIV = 2), the threshold is set low, such as CUSPRIVTH = 0.25, indicating that this customer will only buy and be loyal if WEBPERS contains a value higher than CUSPRIV = 0.25.

This example of CUSPRIV / WEBPERS is diagrammed in the figure below:



- Change Node
- Certainty Node

Note: Simulation state changes are represented by event vertices (nodes or balls) in a SIGMA graph.

Figure 5-2 CUSPRIV/WEBPERS Decision Tree

The conditions of the CUSPRIV / WEBPERS program are summarized in the table below:

<u>Customer Privacy Sensitivity</u>			<u>Retailer Personalization Standard</u>	<u>Site Loyalty</u>
<u>CUSPRIV</u> <u>Level</u>	<u>CUSPRIV</u> <u>Condition</u>	<u>CUSPRIVTH</u> <u>Value</u>	<u>WEBPERS</u> <u>Value</u> <u>Example</u>	<u>LOY</u> <u>Event</u>
3	High Privacy Sensitivity	.75	> .75	Buy High - Loyal
			< .75	Buy Low – Not Loyal
2	Low Privacy Sensitivity	.25	> .25	Buy High – Loyal
			< .25	Buy Low – Not Loyal

Table 5-2 Summary of CUSPRIV / WEBPERS

Difficulty in locating a favorable site is defined in the state variable called DIF.

DIF is additionally defined in the following state variables:

DIFTH - threshold beyond which anxious customers finding difficulty in locating a favorable site identify an ostensibly favorable site

NSITE - number of sites searched in locating a favorable site

FAV - probability customer identifies a favorable Web site

Loyalty is defined in the DIF simulation by the following values:

LOY = 3 (High Customer Loyalty)

LOY = 2 (Low Customer Loyalty)

LOY = 1 (No Customer Loyalty)

This simulation employs the DIFTH state variable in the customer search for a favorable site from a limitation of 10 sites. That is, if the number of sites identified prior to a favorable site is high, difficulty to locate the favorable site is considered high, and if the site is found by the customer, and privacy and personalization conditions are satisfied by the site, the customer will buy from that site; if the number of sites prior to the favorable site is low, difficulty is considered low. If the favorable site is not identified in the first nine sites, the simulation sets the tenth to be the favorable site. The simulation sets arbitrary DIFTH values for high and low loyalty and also the arbitrary limitation to 10 sites. When the other Bergeron Loyalty Model factors of emotional bond, number of alternative sites, product value, frustration and time investment are included in the CLPS Model in a further research study, the simulation will set the limitation to 100 sites. The DIFTH state variable now employed is similar to the Bergeron Difficulty factor in a non-original retailer site scenario.

For example, the DIFTH variable is arbitrarily set high to greater than or equal to .66, which corresponds to 7 or greater searches to identify the favorable site, indicating that if this customer identifies the ostensibly favorable site following a search where NSITE is greater than or equal to 7, the customer will buy from the site, and the loyalty effect will be considered high (LOY = 3), while conversely the loyalty effect will be considered low (LOY = 2).

This equation is diagrammed in the below figure:

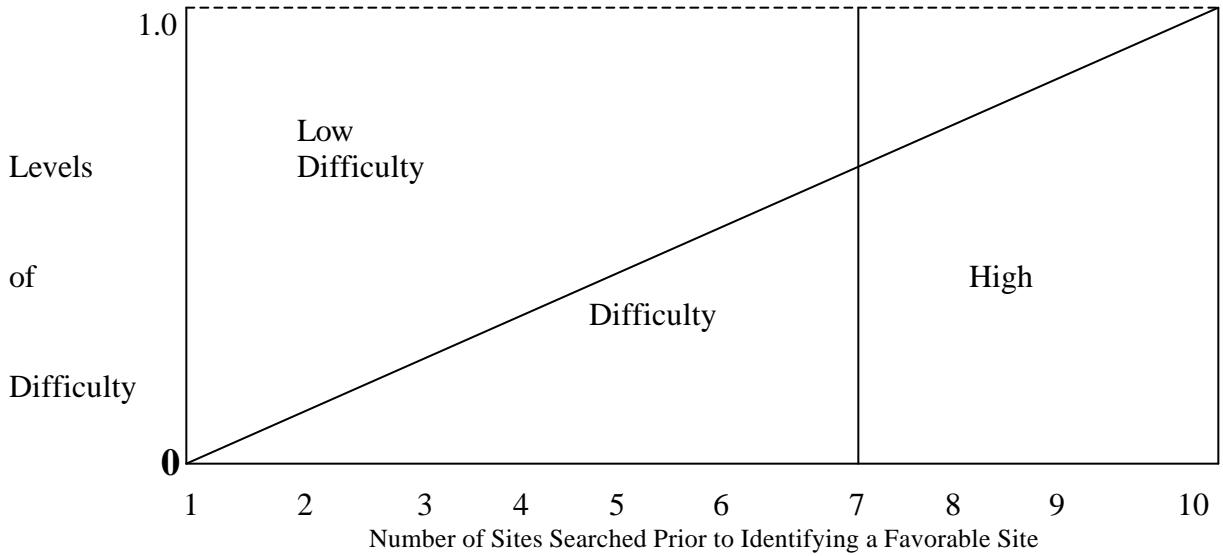


Figure 5-3 DIF Simulation Equation

The example of DIF is diagrammed in the below figure:

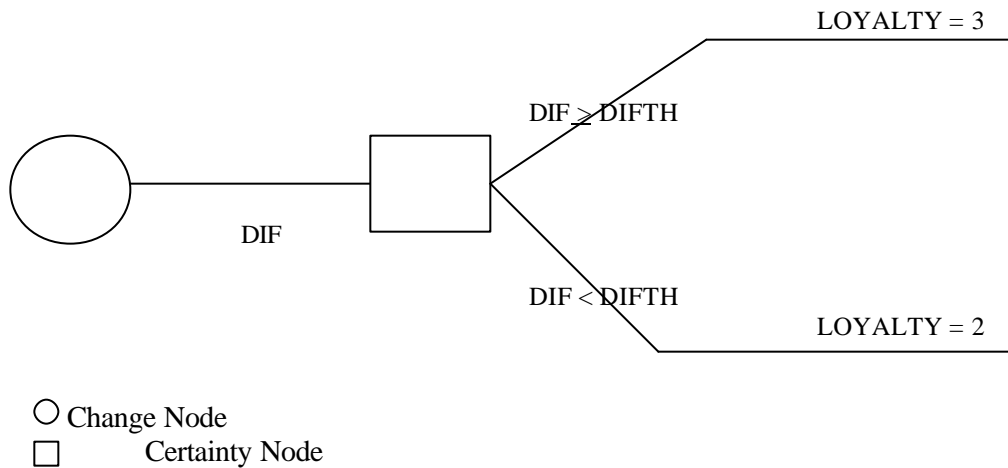


Figure 5-4 DIF Decision Tree

The conditions of the DIF program are summarized in the table below:

<u>Number of Sites</u>		<u>Difficulty in Locating Sites</u>		<u>Site Loyalty</u>
<u>NSITE</u>	<u>Search</u>	<u>DIFTH</u>	<u>DIF</u>	<u>LOY</u>
<u>Search</u>	<u>Condition</u>	<u>Value</u>	<u>Example</u>	<u>Event</u>
7 – 10 Sites	High Difficulty	.66	> .66	Buy – High Loyal if Privacy and Personalization Satisfied
1 - 6 Sites	Low Difficulty	.66	< .66	Buy – Low Loyal if Privacy and Personalization Satisfied

Table 5-3 Summary of DIF

The customer privacy sensitivity (CUSPRIV), retailer personalization standard (WEBPERS) and difficulty in locating favorable site (DIF) simulations defined in this section and the earlier section are considered by this researcher as effective representation of customer searching and buying on the Web inherent in the CLPS Model. The study contends no issue in defining the coding to be error free. The model is founded on clearly plausible loyalty assumptions. Such assumptions effect efficiency in the simulations without impacting validity, which is the essence of modeling. Loyalty research methodology was discussed in depth in Chapter III.

5.4 Generation of the CLPS Model Simulation Outputs

The CLPS Model is designed to generate the output of the state variables tested in the below table:

<u>Hypotheses: Customer Privacy Sensitivity / Retailer Personalization Standard –</u>	
CUSPRIV:	Customer Privacy Sensitivity Level
WEBPERS:	Customer Satisfaction with Retailer Personalization Standard
<u>Hypothesis: Difficulty in Locating a Favorable Site –</u>	
DIF:	Customer Difficulty in Locating a Favorable Site
LOY:	Customer Loyalty Level

Table 5-4 Summary of CLPS Simulation Outputs

The model generated 544 events in 1000 minutes (simulation time units), and its output is summarized in the below tables:

<u>Privacy Sensitivity</u>				
<u>Loyalty Level</u>	<u>Less</u>	<u>Moderate</u>	<u>More</u>	<u>Total</u>
No	34	1	103	138
Low	130	132	33	295
High	108	3	0	111
Total	272	136	136	544

Table 5-5 Summary of CLPS CUSPRIV Simulations

<u>Personalization Standard</u>						
	<u>.00 - .19</u>	<u>.20 - .39</u>	<u>.40 - .59</u>	<u>.60 - .79</u>	<u>.80 - 1.00</u>	<u>Total</u>
No	54	32	30	22	0	138
Low	27	46	65	62	95	295
High	23	22	25	20	21	111
Total	104	100	120	104	116	544

Table 5-6 Summary of CLPS WEBPERS Simulations

<u>Difficulty</u>						
	<u>.00 - .50</u>	<u>.67 - .75</u>	<u>.80 - .83</u>	<u>.86 - .88</u>	<u>.89 - .91</u>	<u>Total</u>
No	58	55	14	8	3	138
Low	175	93	19	8	0	295
High	39	48	11	8	5	111
Total	272	196	44	24	8	544

Table 5-7 Summary of CLPS DIF Simulations

The output generated from the simulations is analyzed for all its performance parameters, applying the Statistical Processing Software System (SPSS), as discussed in

5.5 Summary

The Customer Loyalty and Privacy Synthesis Model (CLPS) is built, coded and implemented to generate the simulations that test the loyalty hypotheses of the study. The events in the model run randomly simulate customer privacy sensitivity (CUSPRIV), retailer personalization standard (WEBPERS) and difficulty in locating favorable Web sites (DIF). Simulation run time of 1000 minutes is sufficient to test the hypotheses. In Chapter VI the output of the simulations is statistically analyzed and further documented by this researcher, the last steps in a simulation study, in order to evaluate the qualitative performance of the CLPS Model. The analysis will show full support for the hypotheses of the study.

CHAPTER VI

ANALYSIS OF THE MODEL

“Statistical thinking will one day be as necessary for efficient citizenship as the ability to read or write.” – H.G. Wells [39, p. 23]

6.1 Introduction

The Customer Loyalty and Privacy Synthesis Model (CLPS) employs regression analysis to analyze the data generated by the simulations in SIGMA discussed in Chapter V. This analysis is sometimes known as a mathematical French curve, because it helps the researcher in smoothing variation and identifying predictive relationships in predictor variables [39, p. 235]. Regression analysis in the CLPS Model is done in the Statistical Programming Software System (SPSS).

The methodology in this chapter follows the steps in Figure 6-1 below:

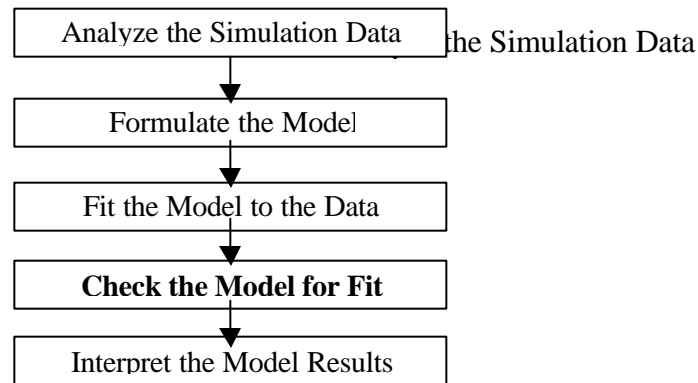


Figure 6-1 Steps in a Regression Study [39, p. 240]

The hypotheses of the study cited in Chapter IV are that customer loyalty to a Web site is negatively related to customer privacy sensitivity (CUSPRIV) [lower customer loyalty with more customer privacy sensitivity], positively related to retailer personalization standard (WEBPERS) [higher customer loyalty with high retailer personalization or less requested information standard], and positively related to difficulty locating a favorable Web site (DIF) [higher loyalty effect with more difficult to locate favorable sites]. To test these hypotheses, the simulations introduced in Chapter V

were run in the study. The resultant data of the simulations is in this chapter formulated

in the following regression equation:

$$LOYALTY = B_0 + B_1 * CUSPRIV + B_2 * WEBPERS + B_3 * DIF + e \text{ (Error Term)},$$

Where $B_1 = CUSPRIV$, $B_2 = WEBPERS$, $B_3 = DIF$

The objectives of employing the regression analysis are to firstly furnish estimates of the marginal effects of the independent variables CUSPRIV, WEBPERS and DIF on the dependent variable LOYALTY. Secondly, the objective is to test the aforementioned hypotheses of the study, through testing the significance of the individual coefficients (t-test) and also testing the significance of the entire specified model (F-test). Thirdly, the objective of the regression analysis is to employ the estimated model to predict LOYALTY to a Web site, given the values assumed by the independent variables CUSPRIV, WEBPERS and DIF.

This statistical method of studying loyalty on the Web improves the current model of analyzing loyalty and the future models that will continue further study of loyalty. The success rate for studying statistically designed experimental models is 90% or higher, whereas the success rate for analyzing non-experimental processes is 50% or lower [39, p. 286]. The statistical method has higher success in this study, because the experiments on CUSPRIV, WEBPERS and DIF are designed to generate the statistics needed to analyze the significance of the loyalty, personalization and privacy dynamics. When interpreting process statistics, the researcher is limited to statistics gathered that are not interfering in the on-going processes. The method of statistical analysis is efficient and effective, especially in this study, with retailers frequently reluctant to share their loyalty practices and customers hesitant to be surveyed on their personal privacy sensitivities.

6.2 Summary of Simulations

The Customer Loyalty and Privacy Synthesis Model (CLPS) generated 544

simulations to test loyalty hypotheses that included the CUSPRIV, WEBPERS and DIF variables noted in Table 6-1:

CLPS Variable	Valid Cases		Missing Cases		Total Cases	
	N	%	N	%	N	%
CUSPRIV	544	100%	0	0%	544	100%
WEBPERS	544	100%	0	0%	544	100%
DIFF	544	100%	0	0%	544	100%

Table 6-1 Case Simulation Summary

From these simulations, Table 6-2 below notes CUSPRIV generating no LOYALTY cases ($34 + 1 + 103 = 138$), low LOYALTY cases ($130 + 132 + 33 = 295$), and high LOYALTY cases ($108 + 3 + 0 = 111$).

<u>Privacy Sensitivity</u>				
<u>Loyalty Level</u>	<u>Less</u>	<u>Moderate</u>	<u>More</u>	
	<u>1.00</u>	<u>2.00</u>	<u>3.00</u>	<u>Total</u>
No	34	1	103	138
Low	130	132	33	295
High	108	3	0	111
Total	272	136	136	544

Table 6-2 CUSPRIV Simulations

The *higher* number of privacy sensitive customers, in contrast to the *lower* number of sensitive customers, contributing to *lower* loyalty, supports Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer.

Table 6-3 notes WEBPERS generating no LOYALTY cases ($54 + 32 + 30 + 22 + 0 = 138$), low LOYALTY cases ($27 + 46 + 65 + 62 + 95 = 295$), and high LOYALTY

cases (23 + 22 + 23 + 20 + 21 = 111).

	<u>Personalization Standard</u>					<u>Total</u>
	<u>.00 - .19</u>	<u>.20 - .39</u>	<u>.40 - .59</u>	<u>.60 - .79</u>	<u>.80 - 1.00</u>	
No	54	32	30	22	0	138
Low	27	46	65	62	95	295
High	23	22	25	20	21	111
Total	104	100	120	104	116	544

Table 6-3 WEBPERS Simulations

The *higher* number of customers having a *lower* retailer personalization standard, in contrast to the *lower* number of customers having a *higher* personalization standard, contributing to *lower* loyalty, supports Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization or less requested information standard.

Table 6-4 notes DIF generating no LOYALTY cases (58 + 55 + 14 + 8 + 3 = 138), low LOYALTY cases (175 + 93 + 19 + 8 + 0 = 295), and high LOYALTY cases (39 + 48 + 11 + 8 + 5 = 111).

	<u>Difficulty</u>					<u>Total</u>
	<u>.00 - .50</u>	<u>.67 - .75</u>	<u>.80 - .83</u>	<u>.86 - .88</u>	<u>.89 - .91</u>	
No	58	55	14	8	3	138
Low	175	93	19	8	0	295
High	39	48	11	8	5	111
Total	272	196	44	24	8	544

Table 6-4 DIF Simulations

The *higher* number of customers having *lower* difficulty, in contrast to the *lower* number of customers having *higher* difficulty, contributing to *lower* loyalty, supports Hypothesis H2, that higher difficulty in locating a favorable Web retailer site, offering similar value in product or service, tends to contribute to increased loyalty effect.

The results of the CUSPRIV, WEBPERS and DIF simulations support the hypotheses of the CLPS Model introduced in Chapter IV.

6.3 Least Squares Analysis

Through interpretation of the simulations, in the SPSS statistical tool, the Least Squares Analysis of the data generated by the simulations describing CUSPRIV, WEBPERS and DIF shows strength in the power of the model to predict customer loyalty on the Web. In Table 6-5 below, the R Squared value of .436, the coefficient of determination, implies that 43.6% of the variability in LOYALTY is accounted for by the independent variables CUSPRIV, WEBPERS and DIF included in the regression equation, which measures the percentage of variability or performance of the regression. The Adjusted R Squared value of .433, which measures the fit of the CLPS Model, is close to the .436 R Squared value, reflecting the strong performance of the model and the sufficiency in the number of simulations observed in the model.

Though the .436 R Squared value is low, and 56.4% of the variability in customer loyalty is not accounted for in the model, an important research direction would be when the other Bergeron loyalty variables of emotional bond, number of alternate sites, frustration, time investment and value [6, p. 61-62] are included in the model, the .436 will get nearer to 1.000.

The Standard Error of Estimate, which measures the accuracy of the predicted values from the regression equation, is as low as .509, which implies that the predicted values will vary slightly around their mean predicted value, improving the accuracy of the CLPS Model with a high level of confidence.

R Squared	Adjusted R Squared	Standard Error of Estimate
.436	.433	.509

Table 6-5 Least Squares Analysis

The R Squared value of .436 supports hypotheses H1a, H1b and H2, in their inclusion of the independent CUSPRIV, WEBPERS and DIF variables that account for the strong dependent LOYALTY variability in this Least Squares Analysis. CUSPRIV is the variable that tests Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer, WEBPERS tests Hypothesis H1b, that customers tend to have increased loyalty to a Web site that has a high personalization standard, and DIF tests Hypothesis H2, that higher difficulty in locating a favorable Web retailer site tends to contribute to increased loyalty effect. The variables regressed in Least Squares Analysis strengthen the predictability of each of the loyalty hypotheses.

The Least Squares clearly shows that the predictability strength of the Customer Loyalty and Privacy Synthesis Model (CLPS) is high in this study.

6.4 Hypothesis Testing

The regression analysis of the CLPS Model employs the following steps in Hypothesis Testing, noted in Figure 6-2:

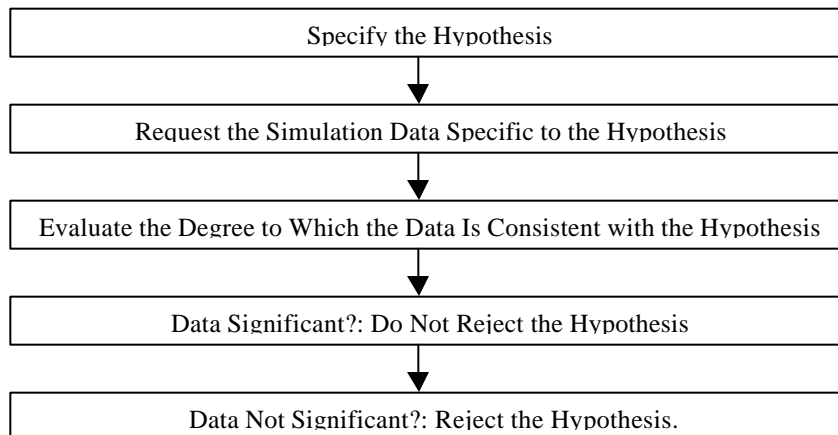


Figure 6-2 Steps in Hypothesis Testing [28, p. 350]

This testing is similar to estimating a confidence level interval and evaluating if the null

hypothesis value of coefficients equal to zero is in the interval. That is, if the value of the hypothesis is inside the interval, the hypothesis is not rejected by the researcher, and if the value is outside the interval, the hypothesis is rejected by the researcher. The test of the CLPS Model is a one-sample t test that compares a sample average to the hypothesized value.

Table 6-13, in the Coefficient Analysis – All Predictor Variables section of this chapter, shows low p -values, the probability of accepting the null hypothesis of no significant relationship between the dependent and any given independent variable. A p -value = .000 for the CUSPRIV, WEBPERS and DIF variables of the model implies a statistically significant relationship. The model sample t values are -18.683 , 7.731 and 4.317 for the variables. Since the significance values are .000, this implies that the slope coefficients for the independent variables are significantly different from zero. Sample t -values in absolute value are greater than table or critical t , $t(0.05, 540) = 1.645$. The relationship between the dependent LOYALTY variable and each of the independent CUSPRIV, WEBPERS and DIF variables is as predicted and statistically significant.

In Table 6-13 the -18.683 CUSPRIV and 7.731 WEBPERS t values support the relationship of CUSPRIV and WEBPERS to LOYALTY, supporting Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer, and Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization standard. The 4.317 DIF t value supports the relationship of this variable to LOYALTY, supporting Hypothesis H2, that higher difficulty in locating a favorable Web retailer site tends to contribute to increased loyalty effect. The relationships of the variables in the loyalty hypotheses are statistically significant.

6.5 Means Testing

An additional Means Test is employed in the study to ensure that the data generated by the simulations consists of a reasonable sampling size. Shown in this test are standard deviations of .675 on 544 simulations, which are a measurement of data variance about the average, for the CUSPRIV, WEBPERS and DIF variables, which are sufficient for the finite sample of the model and the high confidence levels shown in the tables of this chapter.

Shown through Means Testing, the sample size of the simulations is sufficient to study hypotheses H1a, H1b and H2 of the CLPS Model.

6.6 Analysis of Variance (ANOVA)

The subsequent Table 6-6 shows Analysis of Variance (ANOVA), which compares averages. The explained Sum of Squares regression value of 108.002 is sufficiently high to study loyalty, though the unexplained Sum of Squares residual value of 139.658 indicates the ideal of including the other Bergeron loyalty variables [6] not in the current CLPS Model, in order to fully study LOYALTY. The positive F ratio of 139.200, which measures the overall fit of the model, shows a strong goodness of fit in the data of the model, and the Significance value of .000 shows an earlier indicated 1.000 confidence in the predictor creditability of the CLPS Model, when including CUSPRIV, WEBPERS and DIF.

The F-test, goodness-of-fit-test, enables statistical testing of the entire model. The null hypothesis states no significant relationship between loyalty and all of the independent variables in the model. The table or critical F_{3,540} at 5% significance is 2.60.

	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
Regression	108.002	3	36.001	139.2000	.000
Residual	139.658	540	.259		
Total	247.660	543*			

*544 – 1 = 543

Table 6-6 Analysis of Variance (ANOVA)

Since sample $F = 139.2$ is greater than 2.60, the null is rejected in the model,

implying that the relationship and functional form estimate are significant.

Analysis of Variance shows strong goodness of fit in the data and strong predictor creditability of Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer, Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization standard, and Hypothesis H2, that higher difficulty in locating a favorable Web retailer site tends to contribute to increased loyalty effect, of the Customer Loyalty and Privacy Synthesis Model (CLPS).

6.7 One Predictor Variables

Of interest in this study is the statistical interpretation showing that if only one of the CUSPRIV, WEBPERS and DIF variables is included in LOYALTY, and the other two variables are constant, the predictive power of the CLPS Model is shown to be not as strong as when all of these variables are included in LOYALTY.

Table 6-7 shows in Least Squares Analysis a low R value of .096 and a R Squared value of .009 when only the DIF variable is included in the LOYALTY model. A substantial .991 value of other loyalty variables is excluded from the regression analysis and unexplained when only DIF is included in the model. The Standard Error of Estimate is a higher .673 that limits the predictive strength of the CLPS Model.

Table 6-7 also shows the DIF AVOVA regression value to be a low 2.265, and the residual value to be a high and unexplained 245.395. The positive 5.003 in F ratio shows the model is functional, but limited again in its predictive strength. The Coefficient Analysis indicating a .222 value, and a weak positive .099 value, shows a relationship of DIF to LOYALTY, but not sufficient without WEBPERS and CUSPRIV.

The R Squared value of .009 in DIF supports Hypothesis H2, that higher difficulty in locating a favorable Web retailer site tends to contribute to increased loyalty effect, but not the strongest predictability of loyalty without WEBPERS and CUSPRIV.

<u>R</u>	<u>R Squared</u>	<u>Adjusted R Squared</u>		<u>Standard Error of Estimate</u>		
.096	.009			.007		.673
	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>	
Regression	2.265	1	2.265	5.003	.026	
Residual	245.395	542	.453			
Total	247.660	543				
<u>Estimated Coefficients</u>						
	<u>B</u>	<u>Standard Error</u>		<u>t</u>	<u>Significance</u>	
LOYALTY	1.836	.059		31.367	.000	

Table 6-7 DIF as an Independent Simulation Variable

Table 6-8 shows in Least Squares Analysis a higher R value of .228 and a R Squared value of .052 when only WEBPERS is included in the LOYALTY model, implying a higher WEBPERS impact than DIF. The Standard Error of Estimate is .658, limiting the predictive strength of the CLPS Model.

Table 6-8 further shows the WEBPERS ANOVA regression value to be a slightly higher 12.904, and the residual value to be a still high and unexplained 234.756. The positive 29.793 in F ratio shows model functionality, but limited in its predictive strength. The Coefficient Analysis indicating a .525 value, and a weak positive .096, shows the relationship of WEBPERS to LOYALTY, but not sufficient without DIF and CUSPRIV.

The R Squared value of .052 in WEBPERS supports Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization standard, but not the stronger predictability of loyalty without DIF and CUSPRIV.

<u>R</u>	<u>R Squared</u>	<u>Adjusted R Squared</u>	<u>Standard Error of Estimate</u>			
.228	.052	.050	.658			
		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
Regression		12.904	1	12.904	29.793	.000
Residual		234.756	542	.433		
Total		247.660	543			
<u>Estimated Coefficients</u>						
		<u>B</u>	<u>Standard Error</u>	<u>t</u>	<u>Significance</u>	
LOYALTY	1.687	.056	30.149	.000		
WEBPERS	.525	.096	5.458	.000		

Table 6-8 WEBPERS as an Independent Simulation Variable

CUSPRIV, in contrast to DIF and WEBPERS, is shown in the Least Squares Analysis in Table 6-9 to be significantly higher in R and R Squared values of .604 and .365 when CUSPRIV is the only variable in LOYALTY, and DIF and WEBPERS are constant. Still, a substantial .635 value of other loyalty variables is excluded and unexplained in the CLPS Model.

The CUSPRIV ANOVA regression value shows additionally a higher 90.278, and the residual shows a lower and unexplained 157.382, while the positive 310.905 in F ratio, and a negative -.491 in coefficient value, is more functional than DIF and WEBPERS, but limiting again in the predictive power of the model.

The R Squared value of .365 in CUSPRIV supports Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer, but not the strong predictability of loyalty without DIFF and WEBPERS.

<u>R</u>	<u>R Squared</u>	<u>Adjusted R Squared</u>		<u>Standard Error of Estimate</u>		
.604	.365	.363		.539		
	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>	
Regression	90.278	1	90.278	310.905	.000	
Residual	157.382	542	.290			
Total	247.660	543				
<u>Estimated Coefficients</u>						
	<u>B</u>	<u>Standard Error</u>	<u>t</u>	<u>Significance</u>		
LOYALTY	2.810	.054	52.080	.000		
CUSPRIV	-.491	.028	-17.633	.000		

Table 6-9 CUSPRIV as an Independent Simulation Variable

CUSPRIV is nevertheless notably higher in regression values than DIF and WEBPERS, implying the higher relationship of CUSPRIV to LOYALTY in the CLPS Model.

6.8 Dual Predictor Variables

Of further interest is the statistical interpretation showing that if only dual predictor variables are included in LOYALTY, and the other loyalty variable is constant, the predictive power of the CLPS Model is shown to be stronger than the One Predictor Variables analyzed in the prior section, but still not as strong as when all of the variables are included in LOYALTY.

Table 6-10 shows in Least Squares Analysis a lower R value of .268 and a R Squared value of .072 when only DIF and WEBPERS are included in the model. A substantial .928 value of other loyalty variables is excluded from the analysis and unexplained when only DIF and WEBPERS are included in the model. The Standard Error of Estimate is a high .652 that limits the predictive strength of the model.

Table 6-10 shows the DIF and WEBPERS ANOVA regression value to be 8.862, and the residual value to be a high and unexplained 229.936. The positive 20.851 in F

ratio shows model functionality, but limitation in predictive strength. The Coefficient Analysis indicates .330 and .585 DIF and WEBPERS values and a positive .268, showing the relationship of DIF and WEBPERS to LOYALTY, but not the strongest without CUSPRIV.

The R Squared value of .072 in DIF and WEBPERS supports the predictability of Hypothesis H2, that higher difficulty in locating a favorable retailer site tends to contribute to increased loyalty effect, which includes the DIF variable, and Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization standard, which includes the WEBPERS variable, but not the strongest predictability of loyalty without the CUSPRIV variable.

<u>R Squared</u>	<u>Adjusted R Squared</u>		<u>Standard Error of Estimate</u>		
.268	.072		.068		
	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
Regression	17.724	2	8.862	20.851	.000
Residual	229.936	541	.425		
Total	247.660	543			
<u>Estimated Coefficients</u>					
	<u>B</u>	<u>Standard Error</u>	<u>t</u>	<u>Significance</u>	
+					
LOYALTY	1.488	.081	18.372	.000	
DIF	.330	.098	3.367	.000	
WEBPERS	.585	.097	6.031	.000	

Table 6-10 DIF and WEBPERS as Dual Simulation Variables

Table 6-11 shows in Least Squares Analysis a significantly higher R value of .611 and a R Squared value of .374 when only DIF and CUSPRIV are included in the model, implying a higher CUSPRIV impact than WEBPERS. In contrast to DIF and WEBPERS, a lower .626 value of other loyalty variables is excluded from the analysis

and unexplained with only DIF and CUSPRIV included in the model. The Standard Error of Estimate is .535 and is still limiting in the predictive strength of the model.

Table 6-11 also shows the DIF and CUSPRIV ANOVA regression value to be 46.272, and the residual value to be an unexplained 155.116, lower than DIF and WEBPERS. The positive 161.382 in F ratio shows model functionality, but limitation in predictive strength again. The Coefficient Analysis indicating .222 and -.491 in DIF and CUSPRIV values and a positive .611 shows the stronger relationship of DIF and CUSPRIV to LOYALTY, in contrast to DIF and WEBPERS, but not the stronger without WEBPERS.

The R Squared value of .374 in DIF and CUSPRIV supports again Hypothesis H2, that higher difficulty in locating a favorable retailer site tends to contribute to increased loyalty, which includes the DIF variable, and Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer, which includes the CUSPRIV variable, but not the stronger predictability of loyalty without the WEBPERS variable.

<u>R</u>	<u>R Squared</u>	<u>Adjusted R Squared</u>		<u>Standard Error of Estimate</u>		
.611	.374		.371		.535	
		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F Significance</u>	
Regression		92.543	2	46.272	161.382	.000
Residual		155.116	541	.287		
Total		247.660	543			
<u>Estimated Coefficients</u>						
	<u>B</u>	<u>Standard Error</u>	<u>t</u>	<u>Significance</u>		
LOYALTY	2.696	.067	40.110	.000		
DIF	.222	.079	2.811	.005		
CUSPRIV	-.491	.028	-17.744	.000		

Table 6-11 DIF and CUSPRIV as Dual Simulation Variables

Table 6-12 shows in Least Squares Analysis a high R value of .645 and a R Squared value of .417 when only the WEBPERS and CUSPRIV privacy variables are included in the CLPS Model, implying the higher WEBPERS and CUSPRIV impact than DIF. A .583 value of other loyalty variables is excluded from the analysis and unexplained when only WEBPERS and CUSPRIV are included in the model, lower than the .626 DIF and CUSPRIV value, but substantially lower than the .928 DIF and WEBPERS value. The Standard Error of Estimate is .517 and limits the predictive strength of the model.

Table 6-12 shows the WEBPERS and CUSPRIV ANOVA regression value to be 51.591, and the residual value to be 144.477, lower than DIF and CUSPRIV. The positive 193.185 in F ratio shows higher model functionality than in DIF and WEBPERS and in DIF and CUSPRIV, but limitation in predictive strength. The Coefficient Analysis indicates a $-.491$ in CUSPRIV and a $.525$ in WEBPERS, and a positive $.645$, showing the strongest relationship of the dual predictor CUSPRIV and WEBPERS variables to LOYALTY, but not stronger without DIF.

The R Squared of .417 in WEBPERS and CUSPRIV supports Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization standard, which includes the WEBPERS variable, and again Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer, which includes the CUSPRIV variable, but not the strong predictability of loyalty without DIF.

<u>R</u>	<u>R Squared</u>	<u>Adjusted R Squared</u>	<u>Standard Error of Estimate</u>			
.645	.417	.414	.517			
		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
Regression		103.183	2	51.591	193.185	.000
Residual		144.477	541	.267		
Total		247.660	543			
<u>Estimated Coefficients</u>						
	<u>B</u>	<u>Standard Error</u>	<u>t</u>	<u>Significance</u>		
LOYALTY	2.546	.064	39.689	.000		
WEBPERS	.525	.076	6.951	.000		
CUSPRIV	-.491	.027	-18.386	.000		

Table 6-12 WEBPERS and CUSPRIV as Dual Simulation Variables

CUSPRIV and WEBPERS are higher in regression values than CUSPRIV and

DIF, but notably higher than WEBPERS and DIF, implying a higher relationship of CUSPRIV to LOYALTY in the model.

6.9 Coefficient Analysis – All Predictor Variables

Of final interest is the interpretation when all of the predictor variables are included in LOYALTY, the predictive power of the CLPS Model is shown to be the strongest.

Table 6-13 shows the coefficients of strong negative CUSPRIV and strong positive WEBPERS and DIF variable values

<u>Estimated Coefficients</u>				
	<u>B</u>	<u>Standard Errors</u>	<u>t</u>	<u>Significance</u>
LOYALTY	2.348	.078	30.037	.000
CUSPRIV	-.491	.026	-18.683	.000
WEBPERS	.585	.076	7.731	.000
DIF	.330	.076	4.317	.000

Table 6-13 Coefficient Analysis

The coefficients in Table 6-13 contribute to the following LOYALTY regression

equation:

LOYALTY = 2.348 (average of LOYALTY with CUSPRIV, WEBPERS and DIF constant at zero) - .491 CUSPRIV (lower LOYALTY with more customer privacy sensitivity) + .585 WEBPERS (higher LOYALTY with high retailer personalization standard [less requested information]) + .330 DIF (higher LOYALTY effect with more difficult to locate favorable sites).

The negative -.491 coefficient in CUSPRIV in the equation supports the negative relationship to loyalty stated in Hypothesis H1a, that customers with higher privacy sensitivity tend to have decreased loyalty to a Web retailer. The positive .585 coefficient in WEBPERS supports the positive relationship to loyalty stated in Hypothesis H1b, that customers tend to have increased loyalty to a Web retailer site that has a high personalization standard. Both hypotheses were tested earlier, where customers bought products or services of a Web site if the retailer personalization standard, defined in WEBPERS, contained a higher value than the threshold CUSPRIVTH, and did not buy if WEBPERS contained a lower value than this threshold.

The positive .330 coefficient in DIF supports the positive relationship to loyalty stated in Hypothesis H2, that higher difficulty in locating a favorable Web retailer tends to contribute to increased loyalty effect. This hypothesis was also tested in simulations earlier, where if the number of sites identified prior to a favorable site was high, difficulty to locate the favorable site was considered high, and if the site was found by the customer, and the customer was satisfied with privacy and personalization conditions, the customer would buy from the site; if the number of sites prior to the favorable site was low, difficulty was considered low.

The strong CUSPRIV, WEBPERS and DIF coefficients in the LOYALTY regression equation show the strength in the relationship of these independent predictor variables to the dependent LOYALTY variable and support the hypotheses of the study.

6.10 ANOVA One Way Testing

The last interpretation of the simulations of the Customer Loyalty and Privacy Synthesis Model (CLPS) shows the importance of collectively grouping the CUSPRIV, WEBPERS and DIF variables in studying loyalty. Table 6-14 shows One Way ANOVA interpretation of each variable grouped individually, while the other variables are constant.

	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
Between Groups (CUSPRIV)	96.829	2	48.415	173.653	.000
Within Groups (All Variables)	150.831	541	.279		
Total	247.660	543			
Between Groups (WEBPERS)	6.042	9	.671	1.484	.151
Within Groups	241.618	534	.452		
Total	247.660	543			
Between Groups (DIF)	24.785	129	.192	.357	1.000
Within Groups	222.875	414	.538		
Total	247.660	543			

Table 6-14 ANOVA One Way Testing of Simulation Variables

Between groups, the CUSPRIV, WEBPERS and DIF variables individually show low 96.829, 6.042 and 24.785 Sum of Square values, with 150.831, 241.618 and 222.875 unexplained values, showing once again the importance of not only including the CUSPRIV, WEBPERS and DIF variables collectively, but further including the emotional bond, number of alternate sites, frustration, time investment and value variables of the Bergeron Loyalty Model [6], in order to study LOYALTY.

6.11 Summary

Normal Least Squares Analysis employing SPSS software in regression analysis generates estimates and tests the hypotheses of the SIGMA simulation statistics of the Customer Loyalty and Privacy Synthesis Model (CLPS).

From 544 simulations, CUSPRIV shows significantly lower LOYALTY to sites that have customers with more privacy sensitivity. WEBPERS is shown to have higher LOYALTY to sites that request the least information from the customers, while DIF is shown to have higher LOYALTY effect on difficult to locate favorable sites.

Least Squares Analysis shows sufficiency in the number of simulations, and therefore strength in the power of the CLPS Model to predict loyalty on the Web. Hypothesis Testing shows high confidence in the values of the CUSPRIV, WEBPERS and DIF variables, rejecting the null hypothesis, and Means Testing shows sufficiently high standard deviations for the finite sample of the model. ANOVA supports a strong goodness of fit in the data of the model, further strengthening predictive creditability of the model.

Though in the Least Squares Analysis CUSPRIV is shown to have a high value as the only variable of LOYALTY, its predictive strength is limited until the WEBPERS and DIF variables are also included in the model. The analysis additionally shows the feasibility that the inclusion of other Bergeron loyalty variables, such as emotional bond, number of alternative sites, frustration, time investment and value [6], strengthens the predictive creditability of the model. Grouping of the CUSPRIV, WEBPERS and DIF variables is however still shown to be important in studying loyalty.

In summary, this researcher interprets in this regression analysis employing SPSS that the statistics of the simulations of the model are supportive of the hypotheses of this study of customer loyalty, personalization and privacy on the Web.

CHAPTER VII

INTERPRETATION OF THE MODEL AND MANAGERIAL IMPLICATIONS

“Figure as far as you can, then add judgment.” Hoerl [39, p. 374]

7.1 Introduction

The Customer Loyalty and Privacy Synthesis Model (CLPS) interpreted loyalty in the context of customer privacy sensitivity, retailer personalization standard and difficulty in locating a favorable Web site. The research concerns focused on the significance of these factors and the Loyalty Model of Bergeron to loyalty. The analysis disclosed customer privacy sensitivity and retailer personalization standard to be collectively and individually significant in loyalty to a Web site and difficulty in locating a favorable Web site to be individually significant in loyalty. The analysis indicated that the studied factors only partially explain loyalty, but when other Bergeron factors of emotional bond, alternative Web sites, product value, frustration and time investment are integrated in later studies, a fuller explanation will be feasible. Interpretation of the CLPS Model is clear in the implication that Web retailer management needs to include privacy as a significant consideration in customer loyalty strategy.

7.2 Importance of Customer Privacy Sensitivity and Retailer Personalization Standard

Though the non-academic sources cited in Chapter II of the study note that customers on the Web are increasingly more sensitive to personalization technologies that intrude upon privacy [111], other sources contend that they may be more passive, less sensitive and potentially more loyal to retailers that practice personalization techniques on their sites. Gordon observes that consumers strongly opposed to personalization techniques are only a small vocal segment of Internet customers [32, p.

372]. Findings from Gordon on Web site advertising personalized to customers indicate that, based on clickstream studies, such advertising is not intrusive if the retailers employ objective rule or segmentation instead of subjective peer preference personalization [32, p. 371].

Alan Westin, President of the Center for Social and Legal Research, posits that consumers are pragmatists, who are open to providing information to third party retailers, in order to obtain personal benefits [32, p. 372]. Robert Wientzen, President of the Direct Marketing Association, suggests unsurprisingly that consumers share personal information on the Web if they receive a service [32]. Such statements on the surface imply that since consumers are currently comfortable providing information to retailers, privacy is not a significant consideration in loyalty.

The Customer Loyalty and Privacy Synthesis Model (CLPS) however indicated and confirmed the more documented sources in Chapter II of the study that customer privacy sensitivity and retailer personalization standard are significant factors in loyalty on the Web. The regression analysis of the CLPS Model from Chapter VI, summarized below in Table 7- 1, indicated clearly that customers fundamentally sensitive to their right to not share information with a Web retailer have lower loyalty to the retailer, while conversely those not sensitive to their right have higher loyalty to the site. Loyalty was further impacted in the analysis that indicated customers have lower loyalty to a retailer that requests the most information, while having higher loyalty to a retailer requesting the least information. The joint impact of the analysis indicated customer privacy sensitivity and retailer personalization standard as significant factors effecting or not effecting loyalty to a Web site, supporting Hypotheses H1a and H1b in Chapter IV of the study. The implication is that consumers in the main are not trusting of the privacy standards of Web retailers.

LOYALTY = 2.348 (average of LOYALTY with CUSPRIV, WEBPERS and DIF constant at zero) - .491 CUSPRIV (lower LOYALTY with more customer privacy sensitivity) + .585 WEBPERS (higher LOYALTY with high retailer personalization standard [less requested information]) + .330 DIF (higher LOYALTY effect with more difficult to locate favorable sites).

Table 7-1 LOYALTY Regression Equation of the CLPS Model

This analysis is important to Web retail management in its implementation of personalization practices. If customers are sensitive and not initially trusting of the personalization practices and privacy standards of the retailers, they will not be loyal to the Web site. Though the retailer practices may be only annoying and not always intrusive or frightening, the threat will be high, due to the simple Web empowered option to surf to other sites perceived to be trusting.

Westin suggests that customers will furnish more information to retailers when they trust in privacy policies displayed and easily readable on sites [32], while Jason Catlett, President of Junkbusters, a privacy advocacy organization, suggests that customers will be satisfied when they have control over their information [32], such as enabling them to opt out of information sharing and necessitating them to opt in for personalization services [65]. These statements are similar to those cited in Chapter II.

Implementation of practices, in addition to that of giving customers onsite control, include educating employees about the privacy sensitivity of customers, educating customers on privacy policies, having independent audits to ensure practice conformity to privacy standards, having privacy seal certification and joining a privacy organization and having a privacy officer [65]. Sometimes the practice may be simply requesting less information from customers, such as vacuum cleaner retailer Royal Appliance Manufacturing Company in Ohio, which requests only minimal customer information on its redesigned Web site [92]. Privacy practices that include only needed

information will be a competitive differential for retailers [92].

The implementation of sensitive personalization standards is encouraged in initiatives noted in industry. Forward looking retailers are perceiving privacy to be not only a social or legal consideration, but a financial one [42]. The Royal Bank Financial Group in Toronto, Canada, whose employees educate customers on privacy concerns, such as on Web cookies and encryptions, is initiating privacy and loyalty policies in the design of its customer relationship management systems [91, p. 46]. Peter Cullen, Chief Privacy Officer at Royal Bank, states the following:

“[Privacy ... is one of the key drivers of a customer’s ... commitment[,] a significant contribution to overall demand, ... plays a measurable [role] in how customers decide to [buy] products and services from us [,] and [provides] more share of the customer’s wallet [91].”

Though the inclusion of sensitive standards requires systems suited to privacy controls, such as when the customer opts out of information sharing the retailers process the request throughout data bases that provide uniformly a single view of that customer, state-of-art customer relationship management technologies facilitate this requirement [91, p. 47].

The privacy sensitivity of the customer is clearly addressable in innovative personalization and privacy standards and systems that respect loyalty and profitability.

7.3 Importance of Difficulty Locating a Favorable Web Site

The Customer Loyalty and Privacy Synthesis Model (CLPS) disclosed in Chapter VI that the external Bergeron factor of difficulty in locating a favorable site selling equivalent products and services in a non-original retailer site scenario is a significant factor in loyalty. The analysis indicated in Table 7-1 that customers have lower loyalty to less difficult to locate favorable sites, and higher loyalty to more difficult to locate favorable sites. The impact of the analysis indicated difficulty in locating sites as a significant factor effecting loyalty to a Web site, supporting Hypothesis H2 in Chapter IV.

This analysis is also important to Web retailer management, but limited in benefit in a study of loyalty. Clearly, if customers are highly sensitive to the privacy standards of a retailer, and there are competitive retailers selling equivalent products and services, the customers will surf to these sites if they are not difficult to locate on the Web. If these sites have privacy practices or standards not intrusive to the customers, these customers may then be loyal to the sites, excluding other external and internal loyalty factors.

However, what if these sites subsequently alter their privacy standards to be competitive in personalization techniques, but insensitive to highly sensitive customers, will these customers now surf to other retailer sites, reconcile themselves to their newly found insensitive privacy sites or return to the initial insensitive retailer site? Such customers will be elusive in their loyalty, irrespective of their selected sites, and the retailers would be misled if they thought these customers to be truly loyal to them.

Conversely, if customers are highly sensitive to privacy practices or standards of a retailer, and there are competitive retailer sites, the customers may not surf to these sites if they are difficult to locate or navigate on the Web. What if the initial site still does not change its privacy standards to be sensitive to the highly sensitive customers, will these customers continue to stay with this site and be loyal to it, excluding other loyalty factors? Such customers will still be elusive in their loyalty, and retailers would be misled again if they trusted these customers to be loyal to them.

Sheehan states that consumers effected by retailer sites with limited competitor sites will respond negatively towards:

“unwarranted communications and clandestine information-gathering practices ... [such that they will] choose behaviors that are the opposite of those desired by [the retailers] [58, p. 2].” [As consumers have higher privacy sensitivity, they furnish] “incomplete information to Web sites, ... notify Internet Service Providers about unsolicited e-mail, ... request removal from mailing lists, and ... send a ‘flame’ to online entities sending unsolicited e-mail [81, p. 1].”

Clearly then, retailers need to consider that customers will not be loyal to their

sites only because competitive sites were difficult to navigate on the Web. Once the competitor sites effect ease of location, the consumers will surf to them, supporting the theme of the study noted in Chapter II that loyalty is elusive on the Web.

Though the Customer Loyalty and Privacy Synthesis Model (CLPS) indicated that privacy sensitivity of customers and personalization standard of the retailer are more significant than difficulty in locating a favorable site, the inclusion of the other factors of emotional bonding, alternative sites, value, frustration and time investment, noted by Bergeron, is important to fully analyze loyalty. Certain factors may be analyzed to be less or more significant than retailer personalization standard and / or customer privacy sensitivity. The argument is for continual analysis of loyalty through the Bergeron Loyalty Model.

7.4 Importance of the Bergeron Loyalty Model

The contention of the study is that the Bergeron Loyalty Model introduced in Chapter II is an ideal framework to analyze loyalty on the Web. The external factor of difficulty finding favorable sites, noted by Bergeron, is posited to be the issue customers have locating alternatives to a Web retailer [6, p. 68]. The CLPS Model indicated that though number of alternate favorable sites potentially effects disloyalty to a retailer, difficulty in locating such sites typically effects loyalty, demonstrating the correctness quantitatively of the Bergeron factor impact [6, p. 62], but excluding other Bergeron model factors.

CLPS indicated nevertheless that the inclusion of customer privacy sensitivity and retailer personalization standard is significant in loyalty impact, but noted in Table 7-1 the subsequent need to not only include difficulty in locating favorable sites, but also, individually and collectively, emotional bond, number of affordable alternatives, product value, frustration with retailer relationship and time investment.

The initial analysis of Bergeron factors in the CLPS Model is important to retail management in the competitive positioning of its Web sites. Hofacker notes the substantial growth in direct marketing and selling of products and services on the Web [40, p. 4]. Though certain products, such as commodity convenience goods [40] where price may be the only loyalty factor, may not be aggressively searched by customers, other products, such as brand specialty goods, including bicycles, and shopping goods, including electronic appliances [40], will be searched throughout the Web.

In time, retailers will be potentially indistinguishable in improved navigation and ease to their sites, so that it is feasible that difficulty in locating competitor sites will be less significant in loyalty impact, and other loyalty factors in the Bergeron model will be more significant. Inasmuch as Bergeron suggests that though the Web effects further transactions but tends to decrease loyalty [6, p. 69], retail management will surely benefit from further quantification of loyalty factors in his model.

7.5 Summary

The Customer Loyalty and Privacy Synthesis Model (CLPS) clarifies the need to include customer privacy sensitivity, retailer personalization practice as well as difficulty in locating a favorable Web site as factors significantly impacting loyalty. Bergeron states the following:

“As e-Businesses become smarter, the metrics of success are less about hits [to Web sites] and more about transactions. Having [customers] drop by an e-Business is necessary but ultimately not the crucial condition for a thriving e-Business. What is important is [the number] of ... customers [that] actually complete a transaction [6, p. 8].”

Smart retailers navigating in this new paradigm of the Web, taking advantage of its opportunities without being overwhelmed by its challenges, will be confronted with the ever continuing issue of ephemeral loyalty. Quantitative analysis of the Bergeron factors of emotional bond, alternative Web sites, product value, frustration and time investment will facilitate the retailer task. The managerial implication of the study is not to overlook the significance of customer privacy sensitivity and retailer personalization standard as critical success factors in loyalty on the Web.

CHAPTER VIII

CONCLUSION

“The battle for customers in the future will be won by marketers who understand how and why their customers individually buy their products ...” – Rob Jackson and Paul Wang, Strategic Database Marketing [41]

8.1 Conclusion of the Study

The Study of Customer Loyalty and Privacy on the Web concludes with findings important to retailers competing on the Web and to researchers studying the topic. The Loyalty Model posited by Bergeron is a convenient framework, in which to analyze the factors or components that contribute to customer loyalty to a Web retailer site. The factors of emotional bond, number of alternate competitor sites, value, frustration, difficulty locating alternative sites, and time investment are descriptive in the quantification of customer experience that impacts loyalty. The Bergeron model is more effective in illustrating loyalty impact, than the Applix, Reichheld, Seybold and Windham methodologies. The Bergeron Loyalty Model is essentially an ideal beginning to study loyalty on the Web.

The only factors considered lacking in the Bergeron model are privacy sensitivity of the customer and personalization standard of the retailer. The intent of the Customer Loyalty and Privacy Synthesis Model (CLPS) is to initiate a study of loyalty focusing on privacy sensitivity, but also including selective Bergeron factors, in order to take advantage of the Loyalty Model framework. The Bergeron factor selected in the study is difficulty locating a favorable site. The other Bergeron factors will be studied in the future. The CLPS Model will serve as a living study of loyalty.

The key finding of the study is that the privacy sensitivity of the customer is a critical success factor that significantly impacts loyalty to a retailer. Customers have higher loyalty to sites that request the least information, while they have lower loyalty to

sites that request the most information. Web retailers considering expanded personalization of products or services to customers, through increased personal information from their customers, need to re-think their strategy. Clearly, the CLPS Model confirms studies in non-academic sources that show customers increasingly sensitive to personalization techniques that intrude upon their privacy. Inasmuch as most retailers personalize their sites, but only half of them rate their personalization practices as poor to fair in satisfying their customers [64], insensitivity to this issue will erode the loyalty of the customer to the Web site.

Fournier, Dobscha and Mick observe that retailer performance will fail unless it is oriented to the customer [28]. This orientation need not preclude retailer invention in customized marketing and selling that respect the privacy sensitivity of the customer. For example, Langheinrich introduces constraint based learning methodology. This methodology effects context sensitive advertising bannering [50]. Such methodology enhances Web clickthrough rates of the retailer in personalized marketing that still respects privacy sensitivities of the customer.

At the same time, the study shows the finding that the enhanced Bergeron Loyalty Model component of the difficulty in finding a favorable site is a critical success factor that impacts retailer loyalty. Customers have higher loyalty to difficult to locate favorable sites on the Web. This finding is important, in that the Bergeron Loyalty Model in this initial factor is shown to be a quantitatively supportive tool for researchers and retailers to study loyalty.

A further overall finding in studying loyalty through the CLPS Model is that although customer privacy sensitivity, retailer personalization standard and difficulty finding favorable sites contribute individually to loyalty, none contribute solely to loyalty. Only when these factors are included collectively is the model initially creditable in explaining loyalty on the Web. Feasibility is high that when the other Bergeron factors

of emotional bond, number of alternative sites, value, frustration and time investment are included in the model, the Bergeron Loyalty Model will be a substantially creditable framework to study loyalty on the Web. Though it is not clear if these subsequent Bergeron factors will be higher in criticality than privacy sensitivity, the CLPS Model shows in the least that privacy sensitivity is not a negligible factor in loyalty. Inclusion of privacy sensitivity of the customer and related personalization standard of the retailer as critical success factors in loyalty enhances the Bergeron model.

In short, the Customer Loyalty and Privacy Synthesis Model (CLPS) is meaningful to researchers and Web retailers who will study loyalty and privacy in the framework of the Bergeron Loyalty Model, in this Seybold defined era of customer led Web transformation [79].

8.2 Limitations of the Customer Loyalty and Privacy Synthesis Model (CLPS)

The Customer Loyalty and Privacy Synthesis Model (CLPS) is currently limited in its analysis of customer loyalty factors on the Web. Not included in the analysis are the factors of emotional bond, number of alternate sites, value, frustration and time investment, described in the Bergeron Loyalty Model. Inclusion of these factors, individually and collectively, is deferred due to the time constraints of the study. In time, since loyalty is an on-going strategy [56, p. 304], inclusion of these factors and their hypotheses in subsequent studies will contribute factor by factor insight in the formulation of Web loyalty research and strategy. Then, the Bergeron model will be demonstrated fully in a quantitative sense.

Another limitation of the CLPS Model is that its framework is the Bergeron Loyalty Model, inasmuch as it is the best in its description of loyalty scenarios on the Web. Other methodologies, such as those of Applix, Reichheld, Seybold and Windham, cited in the study, will eventually contribute further insight to the loyalty theme and will

be optional frameworks to study loyalty quantitatively. Until then, the Bergeron model is the best methodology.

A final limitation of note is the employment in the CLPS Model of simulation and statistical analysis as research methodologies. These methods disclose meaningful findings for both researchers and Web retailers. More meaningful will be confirmation of the findings through surveys of retailers and consumers, when the Bergeron factors are fully simulated and interpreted in future studies. Edwards states the following:

“Norms of privacy ... are so strong that they serve as obstacles to research” [and consumers are] “hesitant to [share] effects of intrusions into [their] privacy ... because the intrusions [that] occur in [their homes] ... are considered fundamentally private [25].”

Nevertheless, responses of surveyed consumers and retailers over time will contribute tangible input, in tandem with a completely demonstrated CLPS Model. The resultant insight from a fully grounded theory will contribute significantly in the customer loyalty plans of Web retailer management.

None of the limitations of the current study have precluded findings important to retailers and researchers in initiating new loyalty strategies.

8.3 Future Opportunities in Research

Research opportunities to enhance this study include the earlier noted analysis and integration of the emotional bond, number of alternative sites, value, frustration and time investment factors of the Bergeron Loyalty Model, possible review of other factors, such as security of site transactions, and the subsequent survey of Web retailers and consumers. Betts observes that this type of effort will result in browsers becoming buyers [9, p. 9].” Surveys that segment consumers into older and younger customers could be analyzed to discern if demographic focused marketing strategies are effecting loyalty on the Web. Surveys that analyze psychographic segments could be analyzed similarly. These efforts in analyzing loyalty factors and in surveying will be extensive, but will contribute further insight in effective loyalty strategizing.

Other opportunities include analysis of loyalty and privacy in the context of B2C retailing and service sites that sell non-durable products on the Web. An additional opportunity is in the complex analysis of trust and security of B2B vendors and sites that sell through partnership scenarios. Alf observes the transactional impact of intermediaries that guarantee e-Commerce services through the Web [3]. Wilson further observes that in B2B relationships self-service and sophisticated marketing may outweigh privacy issues [103]. Though the Bergeron model is suitable to analyze B2C scenarios, it may not be a sufficient framework to study the B2B scenario.

Partnership with the State University of New York – New Paltz on a Model of On-Line Shopper Trust [14], that equates trust and loyalty in Web retailers, is an immediate and potential research opportunity. Other partnerships on e-Commerce consumer trust are possible too [26].

Another research opportunity is the analysis of the customer service functions of retailers and the impact of the marketing, sales and service training of customer service representatives, in satisfying and retaining loyal customers, since few retailers are perceived to be customer-centric organizations [19]. Reichheld observes the importance of high employee loyalty to high customer loyalty [70, p. 78]. Influential in a potential analysis is the Reichheld observation on the importance of the integrity of senior management [70, p. 84].

Of further loyalty research opportunity is the impact of technological innovation, such as the “hypernet” [90] consisting of broadband, mobile computing and technology embedded in household devices, that is envisioned to effect behaviors of customer control and exacerbate issues of privacy [85]. Bergeron states that intelligent agent tools that are customer-centric in effecting marketing and sales transactions will be the criteria in loyalty on the Web [6, p. 11]. Schmidt synthesizes that success in innovation is when

the customer is in control [56, p. 275].

Furthermore, analysis of the impact of future retailer privacy policies, as well as governmental privacy rules, on personalization practices and standards of Web sites, is a consideration for research. Such analysis could focus on the openness of consumers to share increased information with retailers that conform to increasingly ethical practices, either through legislated rules or voluntary policies [104, p. 286]. Impact on loyalty is potentially alterable from the findings of this study.

Lastly, the analysis of the impact of the World-Wide Web Consortium (W3C) Platform for Privacy Preferences Project (P3P), in which consumers exercise privacy preferences at Web sites [69], is an opportunity for new research. New software, such as Orby and SmartSense from You Powered Inc., maps retailer privacy policies to P3P standards [13, p. 28], and technology vendors are selling customer-controlled permission marketing tools [21, p. 292], since surveys show that 74% of Web sites lack privacy preference tools [65]. Trust in the retailer in formulating meaningful service options will be the key criteria in the success of these initiatives.

Overall, this study provides a living framework to research loyalty and privacy on the Web productively.

8.4 Summary of the Study

This study analyzes the loyalty methodologies of key theorists. Highlighted in the study is the framework of the Bergeron Loyalty Model, that includes emotional bond, number of alternate sites, product value, customer frustration, difficulty locating alternative sites, and time investment, as the factors that contribute to customer loyalty to retailer Web sites. Further factors not included in the Bergeron model but integrated in the Customer Loyalty and Privacy Synthesis Model (CLPS) of the study are personalization and privacy.

Through simulation and statistical interpretation, the study shows definitely that

privacy sensitivity of customers to sharing information with Web retailers is a significant factor in the loyalty of the customers to a Web site, and also shown demonstratively, in the selective loyalty factor of difficulty finding favorable sites, is the quantification of the Bergeron model. The Bergeron model is concluded to be an effective framework for initiating a study of loyalty on the Web.

For retailers, the study contributes meaningful insight into customer sensitivity to personalization practices on Web sites. The significance of privacy to loyalty is a factor that is to be considered seriously by retailers, if they are to compete for loyal customers. Strategies that effect loyalty will be helped in light of this study.

For researchers, this study initiates a new paradigm on the dynamics of loyalty, personalization and privacy on the Web. No known studies have examined loyalty in the manner of this study. Further studies will be helped in the framework of the Bergeron Loyalty Model and the inclusion of the CLPS Model.

The study is a needed addition to the literature, at a time when current consumers will be further empowered with Web technology to immediately shop competitor sites, and future segments of early and late majority consumers [104, p. 286] will be similarly enabled by the Web. Loyalty of consumers will be further ephemeral. Learning the new dynamics of loyalty and privacy as well as the Bergeron factors is key to success on the Web.

Seybold states succinctly that retailers need to be in the shoes of their customers [80, p. 88]. A Study of Loyalty and Privacy on the Web is timely.

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