The Adoption of Hyped Technologies: A Qualitative Study

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Abstract

The introduction of new consumer technology is often greeted with declarations that the way people conduct their lives will be changed instantly. In some cases, this might create hype surrounding a specific technology. This paper investigates the adoption of hyped technology, a special case that is absent in the adoption literature. The study employs a consumer research perspective, specifically the theory of consumption values (TCV) to understand the underlying motives for adopting the technology. In its original form, TCV entails five values that influence consumer behavior: functional, social, epistemic, emotional and conditional. The values catch the intrinsic and extrinsic motives influencing behavior. Using a qualitative approach that includes three focus groups and sixty one-on-one interviews, the results of the study show that emotional, epistemic and social values influence the adoption of hyped technologies. Contrary to expectations, functional value, which is similar to the widely used information system constructs of perceived usefulness and relative advantage, has little impact on the adoption of technologies

that are surrounded with significant hype. Using the findings of the study, this paper proposes a model for investigating and understanding the adoption of hyped technologies. This article contributes to the literature by 1) focusing on the phenomenon of hyped technology, 2) introducing TCV, a consumer research-based theoretical framework, to enhance the understanding of technology adoption, and 3) proposing a parsimonious model explaining the adoption of hyped technology.

KEYWORDS: Hype, technology adoption, qualitative field study, theory of consumption values, intrinsic motivation

1 Introduction

This paper addresses the adoption of hyped technology. Hyped technology artifacts are distinct from other innovations and product launches because they are surrounded by extravagant publicity, and much of the discourse surrounding the debut is based on speculation and incomplete information, which can blur the distinction between what the technology can actually do and what potential users imagine. Despite the internet speculation and media attention given to these technologies, little research has been conducted to understand the drivers of the wide-spread interest in such IT products. The iPhone is an example from the proverbial list of innovations such as airplanes, personal computers and the World Wide Web that ignited people's imagination. Exciting, but not unique in its effect, the launch of the iPhone offers researchers the chance to understand what drives people to adopt such hyped technological artifacts.

The starting point of this research begins with Steve Jobs' announcement in 2007: "We're going to make some history together today." He continues: "Every once in a while a revolutionary product comes along that changes everything..." This message was repeated later by countless blogs, magazines, TV shows and newspapers, all of which contributed to technological hype. A year passes before Europeans can get their hands on the new technology in July 2008. During this baited wait, the iPhone becomes a mythic subject of IT lore. The imminent release of the 3G version swirls in a vortex of unbridled promotion, speculation and anticipation [14].

Given the hype surrounding technology such as the iPhone, what drives people to adopt hyped technologies? Is it the perceived usefulness or the relative advantage over another technology? Is it a choice based on perceived enjoyment and playfulness? Why do people commit to a technology before they have an opportunity to try it? The literature on technology adoption gives us many different answers. The prevailing explanation is that people adopt technology based on extrinsic motives, such as whether users perceive it to be useful [22] or provide a relative advantage over other options [70]. The majority of this literature focuses on technologies that are used for productivity improvements in organizational context [1]. Hyped technologies, on the other hand, can be used both for business and personal use. This paper focuses on a consumer choice situation that may be driven by either intrinsic or extrinsic motives. The extant adoption literature provides limited understanding concerning acceptance by consumers and the motives that drive their adoption decisions. This paper researches the question: What are the underlying motives that drive consumer adoption of hyped technology?

Answering this question requires insight into how and why consumers adopt hyped technologies. Leading IT adoption scholars, including Ventaktesh et al. [83], Benbazat and Barki [8], and Bagozzi [6] have calls for new approaches that include why people find technology worth using. To answer the research question and the calls for new approaches, we borrow concepts from consumer research, specifically the *theory of consumption values* (TCV) [74; 75]. The TCV provides an integrated perspective that takes into consideration the theory of reasoned action (TRA) and diffusion of innovations (DOI), the two dominant IS adoption traditions. At the same time, TCV incorporates hedonic factors and other decision drivers that tie in strongly with hyped

technology. The TCV explains, describes and predicts discrete consumer decisions and entails five consumption values: functional, epistemic, emotional, social and conditional value. Each value may influence consumer decisions independently or in concert [74; 75]. The present qualitative study finds that epistemic, social and emotional values explain the adoption of the hyped technology featured in this study. Contrary to expectations, functional value has limited influence and conditional value is immaterial. In contrast to traditional studies, the findings suggest that different drivers motivate the adoption of hyped consumer technology. Drawing on the study findings, this paper proposes a model for explaining the adoption of hyped technology. This research contributes to the literature in three ways: firstly, it specifically looks at newly-launched technology that is surrounded by hype, and it explores the values that drive users' desire to adopt the technology. Secondly, the paper applies TCV to technology adoption studies in order to view IT adoption as consumption, driven by many factors rather than the traditional IT-as-tool paradigm. Thirdly, this paper draws upon the empirical findings to propose a parsimonious model for explaining the adoption of hyped technology, based on three underlying values: emotional, epistemic and social. As such, this paper answers to several calls beyond this special issue, such as the general calls for alternative perspectives of technology adoption [8; 63; 83] and the specific call by Blechar et al. [13] to seek the underlying motives or values that drive users to adopt and use technology.

This article proceeds as follows: the next section provides a review of previous research and the motivation for the study. The third section introduces the TCV. The fourth section details the

research approach. The fifth section presents the findings and the analysis. The sixth section discusses hyped technology as a research focus, the applicability of TCV for adoption research, suggests a modified framework for understanding the adoption of hyped technologies, and discusses implications for practice and the limitations of the study. Concluding remarks and avenues for further research appear in the final section.

2 Literature on adoption and hyped technology

This paper focuses specifically on the adoption of technology surrounded by hype. The literature about technology hype within information systems research is discussed in subsection 2.1, establishing the gap in understanding the phenomenon. Section 2.2 provides an overview to technology adoption research, including the limitations of the dominant research paradigms and the calls for new theoretical approaches to adoption research.

2.1 Technology hype

The introduction of new technological innovation occurs at an exceptional rate. Some of these technologies and products become hyped, including video game systems (ATARI 2600 and Wii), computers (Apple II and IBM PC) and mobile phones. As the hype declines, the products

become part of the normal everyday landscape. The literature about technology hype covers a range of topics and technologies such as business process re-engineering [21; 27], e-commerce [10; 78] and knowledge management [12; 19; 49]. The literature focuses on topics such as overcoming the hype by clarifying the differences between the "buzz" and the actual results delivered by the technology, or by discussing how the hype obscures other issues that need to be addressed. Few articles address the acceptance or adoption of hyped technologies. Gill [31] did a retrospective analysis of expert systems, which did not gain the acceptance that analysts originally forecast. The article specifically looks at the ways in which the systems were used, rather than focusing on the drivers of adoption. Another example is Spaulding's [77] study of the role that trust and social contracts play in the willingness of consumers to accept certain business activity within virtual communities, but the role that hype plays in these decisions is not explored. The introduction of XML language motivates Warwick and Pritchard [88] to emphasize the importance of hype. They state: "The more hype that is generated, the more people will hear of XML, the more XML will be implemented." However, they do not provide theoretical insight into the adoption of such innovations. This paper seeks to fill this gap.

2.2 Technology adoption

Much of the literature regarding technology acceptance follows the diffusion of innovations (DOI) and theory of reasoned action (TRA) traditions. DOI [69; 70] explains diffusion in two ways. First it considers the innovativeness of the potential user. Second, it considers the

attributes of the innovation, such as its relative advantage, compatibility, complexity, trialability and observability. Relative advantage is the perception that an innovation is better than the currently used technology. Complexity is the perceived difficulty in using an innovation. Compatibility refers to how consistent a new technology is with the needs, values and experiences of the potential user. Low compatibility will bias the user against adoption. Trialability is the ability to experiment with an innovation before fully committing to it. Observability reflects the degree to which a potential adopter can see others using the technology and thus the ability to vicariously evaluate it [70]. Moore and Benbasat [65] build upon DOI with the innovation diffusion theory (IDT). IDT respecifies compatibility as ease-of-use, referring to how easy or difficult it is for a user to learn a new technology. It also adds two additional constructs: perceived voluntariness and (social) image. Perceived voluntariness measures the degree to which a person perceives usage to be optional. Image is the perceived gain in social status one experiences by using an innovation. Even though DOI and IDT are widely accepted and have been proven useful in explaining the diffusion of innovations, they face limitations [45; 59; 63].

TRA [30] uses two primary constructs to predict behavior: a person's attitude towards the behavior and the subjective norm, which is the person's perception whether the behavior will meet with the approval of others. Ajzen furthered the TRA by developing the theory of planned behavior [2; 3], which adds perceived behavior control to the TRA's two constructs. The perceived behavioral control construct incorporates the level of perceived ease (or difficulty) that a person faces when deciding what action to take, and also includes the pressure the person feels

that may inhibit a given behavior. The technology acceptance model (TAM) [22] argues that TRA's reliance on indirect influence of attitudes should be replaced by two more specific constructs: perceived usefulness and perceived ease-of-use. Davis defines perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance" and refers to perceived ease of use as "the degree to which a person believes that using a particular system would enhance his or her job performance." The unified theory of acceptance and use of technology (UTAUT) [84] borrows from the TPB, TRA, TAM, IDT and four other frameworks to propose an approach that integrates the most relevant constructs from each. The UTAUT uses four criteria to predict technology adoption: performance expectancy, or the degree to which a potential adopter believes a technology will improve job performance; effort expectancy, which is the perceived ease-of-use; social influence, which is the perception that "important others" want the decision-maker to use the technology; and facilitating conditions, which represent a person's belief that the organization will support his or her use of the new technology.

Researchers continue to employ the IDT, TRA, TPB, TAM or UTAUT in their research. For example, researchers recently used the innovation diffusion theory to analyze the diffusion of a bio-terror surveillance system [29]. The theory of reasoned action has been employed to examine the acceptance of blog usage [43], to explore the adoption of mobile internet services [44], and to explain the intention to use internet-based stock trading [68]. The theory of planned behavior has been expanded to new types of IT systems [24], the acceptance of broadband among different groups [42], and mobile commerce adoption [46]. Other studies use UTAUT

for studying computer applications in non-Western countries [4], adopting e-commerce in developing nations [80], and investigating the role of social influence in workplace adoption decisions [26].

TAM, which has become the most often employed and most influential IS theory [8; 28; 55; 63; 86], continues to make contributions to the literature. Recent applications include wireless data networks [89], mobile communications [90] and SMS service [58]. Despite greatly advancing IS research by focusing a formerly scattered field of study [55]; however, some argue "TAM has fulfilled its original purpose and that it is time researchers moved outside its confines" [8]. Others argue that the constructs of TAM provide do not provide much actionable guidance to practitioners [9].

While TAM is appropriate in an organizational context, some argue that it lacks other vital considerations necessary to explain user behavior outside the workplace [57]. Perceived usefulness and ease of use may not be sufficient criteria to study new, emerging services, because the impact on everyday routine may be more influential than the technology itself [15]. TAM is binary, considering only the choice whether to adopt or not adopt one technology in isolation. It ignores context and contingency. Therefore, it does not adequately consider the complexity of the actors' decision [15; 63]. Additionally, some argue that TAM is too generic to provide a realistic understanding regarding the adoption of modern wireless technology [16]. Similarly, UTUAT has proven useful, but is subject to its own limitations. Bagozzi [6] has

criticized UTUAT for its lack of parsimony. Benbasat and Barki [8] argue that through the constructs selected to make it comprehensive, UTAUT comes full circle back to its origins by capturing the same information as the TRA.

Given the history of mainstream adoption research, there are strong calls for the introduction of a new approach within adoption research. Venkatash et al. [83] call for an end to the "replication and minor extensions" of the dominant theories used in IS research. Bagozzi [6] and Benbasat and Barki [8] argue for a deepening of adoption research by providing variables that can explain what makes technology useful to end-users. They argue that research should include "why" people find technology worth using.

IS adoption research includes alternatives to the TRA and DOI traditions, although they represent much smaller paradigms within the literature. Task-technology fit (TTF) [33], for example, accounts for the presence of different choices in the IT landscape by taking into account the specific attributes of the IT artifact and argues that the "fit" between the task to be completed and a given technology determines whether the technology will be used. TTF has been used to extend TAM [25; 61] and to explore task fitness as an antecedent to IT usage [54; 56].

Other research argues that because not all technology is used as a means to accomplish a goal, both instrumental and hedonic reasons should also be considered in adoption research [60; 81;

82]. The argumentation draws upon the work of Hirschman and Holbrook [36], who identify the emotive aspects of product usage as being distinct from utilitarian motivation. Accordingly, "hedonic consumption refers to consumers' multisensory images, fantasies and emotional arousal" [36]. A product needs not be a means to something; but it can also be a fulfilling end in and of itself. Thus, the research approach focuses on what the product symbolizes to the user and the emotional responses it elicits. Examples of topics researched using hedonic (intrinsic) motivation include the adoption of home computers [82], mobile technology [23; 41; 86], social network sites [76], and broadband [18].

This research uses the theory of consumption values (TCV) [74; 75] to investigate the adoption of hyped technologies. The TCV is a parsimonious model, containing five constructs, which are detailed in the next section. The theory establishes value constructs that can be used to understand and predict consumer behavior, including the adoption of technology. The introduction of the theory answers the calls for alternative research perspectives. At the same time, the construction of TCV specifically drew upon the TRA and DOI [74], and thus incorporates the foundational concepts of the dominant IS adoption traditions. It also explicitly incorporates the work of Hirschman and Holbrook [36] that inspired the calls for IS research to consider hedonic motivations. It also includes context, answering the criticism that IS adoption ignores context and contingency [15; 63] by providing a conditional value based on contextual "fit." Finally, TCV has been used for many kinds of purchase decisions as well as abstract decision processes, such as voting and church attendance [74]. The theory was designed specifically for the use of practitioners to understand specific factors that drive decisions and so

that they can develop actionable strategies. Therefore, using a practice-focused theory such as TCV for IS adoption research answers the calls for using theories of relevance to practice.

3 Theory of consumption values

Rather than viewing a technology adoption as a tool to achieve a performance goal, this study views technology adoption as an individual decision to begin consuming a technology. Consumption values address extrinsic and intrinsic reasons and motives that drive decisions such as to buy or not to buy; and they help form the cornerstone of consumer research. After motivation research reached its height in the 1950s [74], the more rigorous academic discipline of consumer research emerged in the 1960s [39]. A number of models, frameworks and theories have emerged that explain and describe consumer choices, including TCV [74; 75], experiential value [62] and Holbrook value typology [39]. In the past, consumers were considered rational economic decision-makers who process information in order to maximize value [73], and consumer value was primarily conceptualized as a trade-off between price and quality [39]. In the early 1980s, however, researchers began to question the assumption of the economically rational person and the belief that consumers evaluate purchase and usage decisions with a calculator-like approach [39]. Holbrook and Hirschman [40] proposed the experiential approach and introduced new concepts such as feelings, fantasies and fun [39]. Since its introduction, consumer research has evolved from simplistic assumptions about the consumer decision process to embrace more complex motivation that includes both intrinsic and extrinsic values [38; 39].

Sheth et al. [74; 75] proposed TCV to integrate different consumption models and frameworks. The TCV is based on the synthesis of literature from many research traditions. It includes five different types of values that underlie consumer choice, providing an encompassing understanding of the consumer experience. A particular choice may be determined by one value or influenced by several values. The values are as follows: 1) *Functional value* stems from an alternative's perceived utility for accomplishing a specified task or achieving a practical goal. It follows economic utility theory and assumes economic rationalism (the trade-off between cost and performance). Consumer decisions to buy or use a product or service are based on the attributes of the focal object and how well they fulfill the consumers' utilitarian needs. 2) *Social value* involves highly visible products and services or objects to be shared with others (such as gifts). According to the theory, such an item may be chosen more for the perceived social image it conveys than for functional performance. Essentially, social value is derived from the symbolic importance of an artifact. 3) *Epistemic value* applies when consuming or experiencing new products or services, such as buying a new computer or mobile phone. Epistemic value stems from curiosity, the desire to learn, or the urge to experiment with something new. 4) *Emotional value* influences decisions because of a product's potential to arouse emotions that are believed to accompany the use of a product. Aesthetics, such as beauty and artistry, can add emotional value to a product. 5) *Conditional value* applies to products or services of which the value is strongly tied to use in a specific context. A temporary functional or social value arises when the circumstances create a need. For example, a winter coat may have significant value during a winter snowstorm, but no value during a hot summer day. According to TCV, the five values

make differential contributions to the decision process. The weight of each value can be different, and not all values will drive every decision.

Figure 1. Five values that influence consumer choice, based on Sheth et al. [74; 75]

The application of TCV has been demonstrated in technology decisions. An early technological application from Alpert [5] appeared in marketing literature and analyzed the decline in value of software over time. At present, TCV's appearance within information systems literature is limited, appearing as non-focal arguments [47; 48], or else selected values have been used to research internet banking [37] and ringtones as hedonic IT artifacts [79]. There is a gap because no information systems research has addressed all five values of the TCV. This paper fills this gap by introducing the entire TCV framework as an analytic tool for information systems research.

4 Methodology

This study is part of a larger research project on future mobile technologies and services that includes universities, government agencies and private firms. In order to address the research

question, we applied a qualitative field study approach inspired by explorative and interpretative information systems research tradition [51; 67; 87]. Following this tradition, the view taken on the technology is broad and includes the physical artifact and its embedded features, as well as the different services and applications that can be downloaded or accessed via the technology.

4.1 Subject selection

The six-month field study, called iUSE (iPhone Use) commenced in September 2008, shortly after the European product launch, and initially involved 16 participants (one dropped out due to hardware failure). The participants were each equipped with a new 3G iPhone and the basic voice, SMS and data plan for a six-month period (September 2008 to March 2009). Participants were recruited from a graduate-level e-business course. The group, consisting of mixed gender (seven males and eight females) and nationality (five different nationalities) ranged in age from 22 to 51 and all were working full- or part-time. They had diverse undergraduate degrees and practiced a variety of professions. We sought a balance of commonality (enrolled at the same master program) and diversity (age, gender, nationality, professional background and technology expertise) when selecting the participants, in order to ensure richness in data collection [7; 50; 52; 66]. The participants committed to data-reporting obligations, such as answering surveys, participating in focus groups and granting interviews. At the end of the study, the participants had to return their phones as required by government regulations.

Unlike the participants, the iPhone was not chosen based on its balance of commonality and diversity. On the contrary, the object of study was chosen because of the storm of global hype surrounding it. The iPhone also targeted the consumer segment, whose motivation and discretion in the adoption decision may be different from business users, who were the target of many competing smart phones, such as the Blackberry, Nokia N95, Sony Ericsson X1 and Palm Treo.

4.2 Data collection

To ensure a rich dataset, data were collected through 60 interviews, three focus groups and three self-reported usage surveys (in the beginning, middle and end of the study). The surveys, which collected basic usage information, were used to provide a gauge for understanding trends in individual usage and were used to help formulate individual interview questions. The surveys were not intended for statistical analysis.

Early in the study, participants were divided into focus groups in which they discussed their adoption and use of the devices. The research followed established protocols for group interviews and was facilitated by one researcher, while another video recorded each focus group and took field notes [7; 50; 52; 66]. In order to be able to analyze data across groups to find patterns and themes, this study conducted three focus groups. An objective of the multiple groups was to reduce the effect of individual group dynamics on the overall dataset [52; 66]. The sessions concentrated on the role that the five consumption values played in the participants'

initial interest and subsequent behavior (see Appendix 1 for focus group script). The first question was a general topic for conversation and was structured so that everyone had to answer, as a way to deter "groupthink," which is the phenomenon in which people of different opinions stay quiet in order to maintain an ideological consensus [66]. During the opening instructions people were encouraged to speak to each other, sharing their reactions to others' comments and to discuss items of interest that were raised by other participants [50]. Each focus group session lasted no more than two hours. The focus groups were recorded following privacy guidelines that were explained prior to the group discussions [52]. Participants were informed that recordings would be used for transcription and research but not released to the public and that they would not be identified by name in the presentation of the data.

Following the focus groups, a total of 60 structured and semi-structured interviews were carried out with each participant interviewing in four settings (A-D). (The focus and key questions of the interviews are summarized in Table 1.) Interviews A lasted for 30 minutes and were conducted by one researcher focusing on the most important values for adopting technologies. Interviews B also lasted for 30 minutes and were carried out by two researchers, one taking notes and one asking questions exploring the usefulness and limitations of the artifact. Interviews C took approximately 60 minutes and were done over Skype with one researcher addressing changes in use over time. Interviews D took 60 minutes with two researchers focusing on the use of the iPhone and its relationship to other technologies, such as how the use of the iPhone affects the use of other technologies. Interviews A and C used data from the survey to develop individual questions for each participant.

Table 1. Interview focus and main questions

	Main focus of interview	Key questions posed
Interview setting		
A	Exploration of usage behavior	What are the five most important things when picking out/buying a new phone? In the survey at the beginning of the study, we asked "What would you like to do with a mobile phone that your current phone cannot?" You indicated… [different answers from each participant]. Since the iPhone can do all of those, please let me know how much you use those features and how that compares to what you expected? In what ways has the iPhone significantly changed the way you do things in your daily life?
B	Probing of the device's usefulness	What makes it useful? How come? Why is that aspect of the phone perceived as being useful?
C	Changes in adoption and usage behavior	Participants were asked different questions based on changing patterns in self-reported use. They were also asked to reflect upon the attitudes and reasons that resulted in their behavioral changes.
D	Usage in relation to other technologies	How has the iPhone changed your use of other technologies? Why do you prefer to use it instead of other technologies?

The iterative structure of the surveys, focus groups and interviews is illustrated in Figure 2. The results of the first usage survey and the focus groups were explored in interview setting A. The data from all three surveys and the focus groups were further discussed in interview C. Similarly, the data from the focus groups were used to inform interviews B and D.

Figure 2. Structure of data collection

4.3 Data analysis

Data were coded and analyzed in conjunction with the iterative data collection process (focus groups and interviews A-D). Data coding was done jointly by the researchers to create a shared understanding of the empirical phenomena as suggest by [72] and [34]. Leveraging the opportunities available in the field study, answers during one round of data collection were analyzed, compared with previous answers, and inconsistencies were identified and explicitly addressed during the next interview round. The first iteration of coding the qualitative data assigned one of the five consumption values to each pertinent datum. Because data were collected throughout the study and since subsequent interviews were used to clarify extant data, the coding used the time period referenced by the participant rather than the point at which the data were collected. Participant statements were coded by participant, consumption value and point of time within the study. Data were segmented into component parts. Actions were defined. Tacit assumptions of the participants were analyzed. The actions and intentions stated by participants were explicated. The significant point of statements and comments was clarified when possible. The data were compared with other participant data. Gaps and ambiguities in the data were identified and questions for subsequent interviews were created to close the gaps [17].

The final analysis focused on the relationships among data. The researchers identified ambiguous participant comments in which the interviewees specified values, but the context of their statements implied that different values were driving a given action. Such issues were clarified

during subsequent interviews. This occurred most frequently with statements relating to the iPhone's functional value at the beginning of the study. For example, when participants indicated that downloading applications from the App Store was a driver of their interest in adopting the iPhone, subsequent discussions dug deeper into the meaning. For some participants, the App Store was not a functional value; rather, the participants were driven by their curiosity to learn more about the App Store; therefore they were driven by epistemic value, not functional value.

5 Adoption of a hyped technology

The iPhone 3G was launched world-wide on July 11, 2008. The launch in Europe was not just a quiet introduction to the market, but was heralded by a plethora of pre-release rumors and hearsay on pricing, calling and data plans, etc. Much of this took place on internet blogs that discussed Apple products or the iPhone specifically, as well as general smart phone blogs. It is within this context that this section presents the findings based on the participants' view on their initial adoption of the iPhone. The presentation is organized by the value constructs of the TCV framework.

5.1 Functional value

During the focus groups and interviews, participants discussed the values that drove their interest in the iPhone. Much of the discussion about functional value focused on what the participants perceived to be drawbacks that they would encounter when they replaced their current phones with the iPhone. Heavy SMS users were familiar with the T9 phone keypad, which they could use without focusing their attention. These users believed that the virtual QWERTY keyboard would require much more effort and be disruptive because they would have to look at the keyboard while typing. One participant succinctly framed the foreseen drawback: "*You cannot walk and SMS at the same time*." While the web browser option elicited the interest of the participants, many expected poor performance because they knew 3G coverage was unavailable in many parts of the city. Unlike the mobile phones of some of the participants and many competing smart phones on the market, the 3G iPhone could not be used as a video camera. The still camera had lower resolution than other mobile phones, including older basic models. Regarding the photographic attributes, the participants expressed their wonder that the iPhone offered specifications lower than many other phones on the market.

While the participants expressed reservations about some of the features of the iPhone, they did express functional attributes that they expected to be both positive and important. The attribute that universally drove the utility value was the phone feature. While important in modern life, this did not differentiate the iPhone from other phones. Many predicted value from the MP3 player; however, all participants already had portable MP3 players, and many already used their phones to listen to MP3 files. Not everyone saw the MP3 player as a primary driver of the phone.

Participants #6, 10 and 11 did not view it as an important smart phone feature. Participant #6 also expressed his concern that the iPhone would be delicate to use as an MP3 player when he was jogging or when it was raining. Participant #12 preferred to keep her music player separate. She was afraid that if she carried it with her at all times, she was more likely to lose it; and thus lose her music library. Participant #4 remarked that 8GB of storage was not enough and therefore was not attracted by the iPhone's MP3 feature. During the study, the participants who indicated that they found the MP3 player valuable, elaborated that the music features of the phone were attractive not for their usefulness, but for the emotions that music elicits. During this initial adoption decision stage, the iPhone derived negligible value from its perceived functional usefulness.

5.2 Epistemic value

The individual's desire to learn and explore new things, or epistemic value [74; 75], is an important driver of using the hyped technology. The manufacturer's announcement of the product and the subsequent newspaper reports, articles, blog comments, etc. created much curiosity. Apple Inc. created a perception among its potential customers that adopting the new device would make them part of an historical shift in ICT. This perception stimulated an interest to learn about the new technological innovation. The curiosity among participants indicates that technologies are important, not only for what outcomes can be achieved by using the technology, but also for the act of learning about new technology. Technology is important by itself. The

adoption of hyped technologies involves a strong desire to explore and discover the artifact. This is not driven by the functionality of the different applications, but based more on the individual's desire to understand the advantages and limitations of the device.

The novelty value of the phone was a key driver of adoption. The artifact itself inspired curiosity and generated strong epistemic value. People wanted to explore the new technology, learn how to use the new device, and experience a cutting-edge GUI. As such, the device itself provided a "cool factor" and appealed to those who sought to satisfy their curiosity.

For instance, the iPhone derived epistemic value through the availability of downloadable applications and various media. Thousands of programs were available for download, many of which were available at no charge. Access to websites like YouTube also provided a constant stream of novelty. Participant #12 explained his fascination with researching what the applications programmers were releasing for the new iPhone. Likewise, Participant #6 indulged his intellectual curiosity by finding out about the latest programs: *"I read a lot on the web, new ways to use it. How to make your everyday easier with new applications…"* Participant #11 added a creative component to the epistemic attraction. He studied development tools so that he could learn to program his own iPhone apps. Participant #10 elaborates: *"It can awaken creativity. I'm a musician as well. I can come up with new ideas. Music puts me in different mindset– thinking in a different way when you work."* Others wanted to explore the World Wide Web from the palm of their hands. They sought to satisfy their curiosity and cure confusion

through 24/7 access to Wikipedia and search engines. Curiosity, especially given the speculation surrounding the details of the phone's features, created an intrinsic desire to get the iPhone.

For many, the satisfaction of learning first-hand about the device was a direct objective. Prior to getting their phones, several participants followed the hype by reading blogs and news articles. They focused on the experience of learning about this object. The iPhone was an experiential good, and the process of learning how to use it and discovering its nuances drove their interest. Upon receiving their phones, many specifically avoided instructions, preferring to figure it out on their own, learning and satisfying their curiosity about the novel device in the process. They were focused not on what the artifact could do or how it worked, but on the potential for exploration and discovery.

5.3 Social value

Hyped technologies can be an ice breaker. Because the user possesses and has explored the artifact, the individual can talk about something that is perceived as "cool" and gain conversational currency few others may possess. The heavy promotion and media attention raised the social value by associating a symbolic importance with the device. As a result, significant social value was conveyed through the iPhone itself. The artifact generated conversations as people asked questions and they struck up conversations about it. It served as an icebreaker for users to begin talking to other users, thereby facilitating social interaction and

forming new relationships. The early hype turned the iPhone into a discussion point at social events (dinner, pubs or on the street). The hyped artifact bestowed upon the possessor social prestige because others wanted to know about, touch and experience the technology.

The iPhone also provided social value by helping the owner convey an image to others in a way similar to many fashion items. Participant #10 explained how the iPhone would project his personality: *"It must be high tech, cutting edge and fashionably designed. This is important because it tells my surroundings about me, my interests and my preferences."* It served to announce that its owners have style: that they are leaders at the forefront of the latest trends. Participant #8 compared the device to wardrobe choices because it is a type of personal branding that sends a message to affect friendships and relationships. In addition to style, the high price of ownership lent the device a special caché. Participant #11 describes the iPhone's social value as being "*like golden chains or expensive cars. It's a fashion icon. Look, I can afford this iPhone. I have money."*

5.4 Emotional value

Emotional value, a product's potential to arouse emotions [74; 75], heavily influences the adoption and use of hyped technologies. This particular artifact clearly possessed some unique aesthetic properties, such as the large touch screen and the smooth, elegant tactile feel. However,

emotional value exists prior to adoption. The hype surrounding the iPhone in the press and on the net created a desire to possess, own and explore the device. This created positive feeling towards the iPhone that was illustrated by numerous positive expressions towards it, such as "*I love it*," "*It feels good to hold*," and "*It is beautiful*."

The iPhone was an exciting device that elicited strong passion and emotions among the participants. Part of the emotional draw stemmed from an emotional need to be connected to others. Participant #13 explains how strong this feeling was to some of the participants: *"Connections to other people. It is obvious that whenever we switch off our phones we are not important anymore."* As such, the prospect of constant connectivity filled many participants with strong feelings and created an emotional attachment to the phone – even before they held one in their hands.

Some integrated tools also hit an emotional chord. Several were drawn to the MP3 capabilities because music can elicit desired emotional states. At the same time, some wanted the emotional rewards that come with carrying a portable photo album. According to Participant #7: *"I like to always have my pictures with me - reminds me that a situation was fun, and I get in a better mood."* Participant #8, who stores her photo albums on her phone, describes the familiar feeling enabled by her iPhone: *"You can take a little bit of home with you. It makes you feel secure."* In addition to the emotion-enabling features, some participants enjoyed the aesthetics of the design

– the appearance and feel of the phone. Participant #15 explains: "*it's also beautiful, the aesthetic feeling*." Going beyond aesthetic appreciation into a strong emotional attraction, Participant #9 says: "*It's like being in love."* Participant #16 paints a similar picture: "*It's like a girlfriend. In the beginning, it's fun and sexy…*"

Before and at the time of adoption, the communication features often carried emotional value, not a relative advantage over other devices. Likewise, the music capabilities drew their influence from emotional implications rather than from facilitating the attainment of a goal.

5.5 Conditional value

Sheth et al. [74; 75] define conditional value as a temporary functional or social value that is strongly tied to use in a specific context. According to TCV, conditional value is an antecedent to the decision to purchase or consume. In the case of the iPhone, however, the participants did not have experience with the iPhone, which made it difficult to understand its conditional value. Similarly, precious few details about the artifact's specifications were available from confirmed sources prior to the release, again limiting the participants' ability to predict contexts in which the iPhone would offer value specific to a given circumstance. According to the TCV, not all

values must drive the consumption decision. In this study, conditional value was not a driver of the users' desire to adopt the artifact.

Under normal circumstances in which a new technology is previewed and many details about the product are available from official sources, conditional value may play a bigger part in the adoption decision. In this case, and perhaps for the category of hyped technology in general, lack of product knowledge may prevent users from predicting specific situations when temporary value might arise. After all, in order to experience conditional value a user needs to understand what the device is capable of, relative to other technologies and specific contexts.

6 Discussion

This paper adds the adoption of technology surrounded by hype to the literature. In doing so, this paper introduces a specific context that influences the adoption decision. The study data suggest that a hyped environment does impact technology adoption decisions. The data suggest that using approaches to studying adoption that focus on the utilitarian aspects may not capture the salient drivers of adoption and that other analytical lenses may be advisable. This discussion section addresses the following: 1) the use of TCV to study technology adoption, 2) the use of

the study findings to propose a new model for understanding the adoption of hyped technology, and 3) a discussion on the limitations and implications of the study.

6.1 Theory of consumption values

The empirical data from this study supports the argument that the TCV can make a significant contribution toward understanding the adoption of ICT by consumers. All five values were investigated; however, only three exerted a material influence on the desire to adopt the iPhone.

Emotional value seems to heavily influence the adoption of hyped technologies. This particular artifact clearly possessed some unique aesthetic properties, such as the large touch screen and the smooth, elegant tactile feel of holding it. Emotional value exists prior to adoption. The hype surrounding the iPhone, in the press and on the net, creates a desire to possess, own and explore the device. This creates a positive feeling towards the iPhone, which was illustrated by numerous positive expressions towards it.

Epistemic value is another important driver of using the hyped technology. People want to learn about new technological innovation. For many people technologies are important, not for what can be achieved with the assistance of the technology, but just to learn about technology. Technology is important by itself. The adoption of hyped technologies also involves a high

degree of exploration of the artifact, i.e. using GPS-based maps, internet access for surfing and downloading of applications. This is driven more by the individual's desire to understand the advantages and limitations of the device than by the functionality of the different applications. The exploration process does not occur in a vacuum or black box. It is done by comparison to existing technologies, so there is always a reference point, be it the computer, TV, newspaper or radio.

Social value is the third factor influencing adoption. Social value emerges in two ways. Firstly, participants believed they would gain social prestige because they possessed a rare and expensive artifact. Owning an iPhone would make them "cool." They envisioned the iPhone as an object of conversational currency at social events (or at a bar or on the street). They believed the technology has the capacity to become the centerpiece of conversation. They believed the hyped iPhone would serve as an ice-breaker, enabling them to start or join conversations. The participants also believed they would be viewed positively by their peers because they had insider knowledge about a phenomenon the others wanted to know more about. Participants believed this expertise would raise their profile and project a positive image.

The importance that hedonic values (emotional, epistemic and social) play in creating the desire to adopt the iPhone supports the arguments that individual behavior is driven by intrinsic motivation [36; 60]. As such, it provides a richer understanding of the decision-making process than theoretical perspectives that focus on instrumental motivation. By applying a theory that

prominently factors hedonic considerations into the decision-making process, adding TCV to the technology adoption literature answers calls for research approaches that include hedonic factors [60; 81; 82].

Contrary to expectations, conditional and functional values were not significant drivers of adoption. Conditional value, which considers how specific contexts create value, was an immaterial adoption driver among the participants in this study. While much publicity surrounded the launch of the iPhone, few specifications and concrete details were available prior to the launch. Therefore, participants in the study were unable to envision circumstances when the "fit" of the iPhone would add value to it. As a result, conditional value played little part in motivating the adoption of the hyped artifact in this study.

Prior to and at the time of adoption, the participants seemed to perceive many of the instrumental features of the phone as less useful than their current devices or other products on the market. Ironically, the participants in the study wanted iPhones despite the functional drawbacks. While this qualitative study cannot make a specific comparison regarding the relative effectiveness of TAM to TCV, the analogous relationship between TAM's perceived usefulness construct and TCV's functional value suggest that TAM would not be as suitable for studying the adoption of hyped technologies as the TCV. The TCV offers a more robust understanding of technology adoption than TAM and can help overcome the limitation of using TAM outside of the workplace setting, as pointed out by [16; 57]. Similarly, the TCV offers an alternative to the DOI

and IDT, which offer a broader understanding than TAM, but still place heavy emphasis on the instrumental traits of a technology. In this study, relative advantage should have had a chilling effect on the intention to adopt; however, the desire for the artifact was high.

The TCV provides a deep understanding of what motivates the adoption of a hyped technology. Originally designed to predict consumer behavior and to uncover the reasons that underlie purchase and use decisions, TCV offers practitioners a tool to gather an understanding of the determinants of consumer behavior, including whether people will use a new technology. Equally important, it can be used not just to understand the adoption of a technology, but to inform product design and marketing strategy. As such, the TCV provides a framework that can be used to inform practitioners regarding design, marketing, strategic issues and other concerns relevant to industry. Furthermore, TCV provides a useful tool in answer to the calls for theoretical perspectives that are relevant to practice [9; 20; 53; 64; 71].

6.2 Adoption of hyped technology

The findings suggest that utilitarian attributes (functional and conditional values) may not be the primary drivers of consumer interest in hyped technology. Rather, other factors drive the interest, such as curiosity about the novelty of the technology (epistemic value), the passion it ignites (emotional value), and the social image attached to the device (social value). Because only three

of the five values provided a material impact on the decision to adopt the iPhone, this paper proposes a specific model explaining the adoption of hyped technology. The model has its roots in the TCV, but is modified according to the findings of the field study to focus specifically on the adoption of hyped technologies.

Social, emotional and epistemic values play a pivotal role in the adoption decision; whereas neither functional nor conditional value played an important role in motivating the intention to adopt a hyped technology. This finding challenges previous findings on technology adoption, for instance studies employing TAM or DOI/IDT, where adoption is predicted by an artifact's usefulness, ease-of-use, relative advantage or the possibility to observe its use and try the artifact. Therefore the proposed adoption of hyped technology (AHT) model incorporates three out of the five consumption values. The first is epistemic value, which explains people's curiosity and desire to learn and experiment with new technologies. The second is the social value attached to an artifact. The technology is perceived to be a topic of discussion and a showpiece in different social contexts. These two values seem to reinforce each other. The higher the social value, the greater the increase in prestige gained by mastering the device. This gives the possessor higher social status because the person and his or her technology becomes the talk of the evening. The third value of the AHT is the emotional value that some individuals attach to an artifact. The values and their relationships are depicted in Figure 3.

Figure 3. Adoption framework for hyped technologies

The proposed AHT model highlights the difference between decision-making under hyped conditions versus a more rational context. It also strives to increase theoretical parsimony by distilling the model from five encompassing values into three salient ones. The applicability of the AHT model can be assessed by three particular properties: the integration of the model (logical coherence), its practical and theoretical relevance, and its relative explanatory power [32]. These assessment principles are derived from Glaser's [32] work on theoretical sensitivity and have been applied in previous research [35; 85].

Logical coherence refers to the extent to which theoretical constructs are interrelated [32]. In the case of AHT model, the constructs show aspects of independence as well as interrelationship. For example, much of the epistemic value is derived from curiosity rather than the facilitation of a task. The curiosity of non-users raises the social value to the user, because the user becomes an expert who can answer questions, explain the new technology, and thus can gain conversational currency. In this case, curiosity and novelty raised the social value of the artifact so that the device served as an ice breaker and focal point at social events. Unlike the TCV, which assumes independence of its five constructs, the AHT proposes an interrelationship between epistemic and social value. Emotional value remains independent in the AHT, drawing its strength from the aesthetics of the device and the emotions attributed directly to the artifact.

There is both practical and theoretical relevance of the AHT model. Even though the study focuses on one technology, the AHT model may be used to understand other hyped technologies or service that either exist in the market today or someday may emerge. As technology becomes more ubiquitous, the distinctions blur between the concepts of innovation, technology and consumer products. The AHT model provides a useful tool for examining both technological innovation adoption as well as the decision to use new technology-oriented consumer goods. Such technology goods may be viewed as consumer products by potential users, and therefore will require a more encompassing approach to understanding adoption. While affording researchers the ability to research a diverse range of artifacts, the AHT model encompasses potential value drivers with three parsimonious constructs. The AHT model is also useful to practitioners who are developing or marketing new technology goods. Instead of just focusing on technical features, designers need to consider how to create emotional, epistemic and social value for the user. Perhaps to counter-position a hyped technology, competing firms can employ a campaign stressing functional or conditional value.

Finally, the explanatory power of the AHT model provides explanations absent from other models. The AHT is developed to explain the adoption hyped technologies, whereas competing models are more generic. TAM is a general model that explains technology adoption decisions and DOI/IDT are models developed to explain the diffusion of innovations. TAM in its original form does not include any of the three drivers included in the AHT. IDT and UTAUT include social aspects, articulated as image, but do not view people's desire to learn and explore technology or feelings as factors explaining the adoption of this type of technology.

6.3 Implications and limitations

This study provides important implications for business. Firstly, by introducing the TCV, this paper provides a new tool for use by practitioners as they study the consumer technology market. In doing so, it emphasizes the distinction between technology as a tool and technology as a hedonic end in itself. It also provides information useful for launching high-tech consumer goods. If a technology will be launched with significant hype, designers and marketers should pay attention to the focal attributes of the product. If the hyped artifact offers primarily utilitarian benefits, it may not find its place in the hearts of the potential users who are more likely to buy it out of curiosity, for social prestige or for emotional reasons. Also, the product positioning will affect adoption. An expensive, hard-to-find, or otherwise unique technology may have more social value than one that is more easily attainable. Emotional marketing might provide a bigger impact than stressing the functional benefits. Shrouding details in secrecy may foster more novelty value than pre-announcing all of the technical specifications. At the same time, a company might counter-position its products by competing on the basis of functional value. Such a strategy may appeal to the potential users who are not caught up in the hype surrounding the competing technology. Secondly, a strategic implication involves product development. A company that relies on repeat purchases for each product iteration may want to limit the functionality of an offering and instead focus on promotion that emphasizes social, emotional, and epistemic value. Emphasizing these values can drive interest, while planned obsolescence of

the functional attributes will promote future repurchase. The subsequent offering can again target the non-utilitarian consumption values, leading to a cycle of hyped launches and more frequent repeat purchases.

While practitioners and researchers may draw some conclusions from the result presented in this paper, the study does have limitations that warrant discussion. While the artifact studied was the subject of much hype and heavy promotion, it was packaged with a service network. The focus was on the artifact but the device could not be completely decoupled from the service provider. Furthermore, there is a potential sample bias. A small sample, all of whom are students of a graduate course, was chosen for practical reasons. The lack of a random or representative sample may threaten the internal validity of the study. The external validity and generalizability likewise face limitations. Although the sample included a range of technical savvy and wide range of technological experience, as students in an e-business course, the participants may have a greater affinity toward technology than the population at large. Such an affect may have impacted their perceived value of the artifact in this study. Likewise, while the "halo effect" of Apple Inc.'s brand image contributed to the hype that drove the interest in the iPhone artifact, no measure was taken to establish the participants' loyalty to the brand, and therefore no systematic analysis was performed to control for the participants' pro-, neutral or anti-Apple brand bias. The iterative interview process enabled the researchers to gain deeper insights than with single interviews, but it required that all participants' responses be associated with the corresponding person. Because responses were identified with each participant, there is potential for a social desirability bias within the data.

7 Conclusion

This paper explores the applicability of TCV in a qualitative study for understanding the adoption of hyped technologies and develops the parsimonious AHT model to explain the adoption of hyped artifacts. The results of the study demonstrate that the adoption of hyped technologies is driven by emotional, epistemic and social value. Emotional value was derived both from the hype surrounding the iPhone itself (the aesthetic appearance and tactile characteristics) as well as by software and associated services. The artifact itself provided epistemic value, as did the third-party applications and websites. The novelty value inherent in the iPhone fostered a general desire to learn and explore. Social value was a third influential factor driving adoption. This stemmed from both the artifact which becomes an ice breaker for discussion and from the prestige the adopters expect to receive because they have intimate knowledge of the new technologies. Surprisingly, functional value, similar to the widely used IS constructs of perceived usefulness and relative advantage, had little impact on people's intention to adopt technology launched amid significant hype.

The findings of this study motivated the proposed framework for the adoption of hyped technologies. This framework is grounded in TCV and offers a more parsimonious approach to conceptualize, understand and measure adoption from a consumer perspective. The framework provides technology adoption researchers with an alternative that complements the utility-centric

frameworks such as TAM and IDT. The framework offers researchers the opportunity to identify refinements, extensions and improvements. The proposed framework may enable researchers to understand the adoption of hyped technologies as well as technology in general. For practitioners who are interested in developing new technologies, it provides insight into how users determine the value of new technology. Developers should take into consideration emotional, epistemic and social values, and design products that appeal to these drivers as well as functional values.

This paper's use of the unaltered TCV within IT literature and the introduction of the AHT model provide many avenues for further research. Because investigation into hyped technologies is new to technology adoption studies, further research is needed to explore new emerging hyped technologies from different theoretical approaches. Future research can expand beyond technology artifacts to include technology-based services. Another way to broaden the understanding of hyped technology is to include larger groups of users with different background. Organizational adoption and assimilation of hyped technology provides another setting which would enhance our understanding of this type of technologies. Furthermore, future research should include both causal theories and process theories.

To the authors' knowledge, this is the first time that the entire TCV is brought into technology adoption research. Future research may test TCV's validity in other empirical contexts, including other consumer technologies and work environment technologies. The explanatory limits of the TCV can be tested by expanding the research context beyond voluntary decisions to mandatory

use situations. Future research can also explore whether TCV is limited to consumer choices or whether it can be applied to group and organizational contexts.

The AHT model for adoption of hyped technologies was developed through one empirical study with 15 participants. Future research is needed to empirically verify the model with larger respondent samples and a diverse sample of technologies. This can be done through both qualitative and quantitative approaches. Qualitative approaches will help uncover new insights into the decision process and to gain a deeper understanding of the casual relationships proposed in this paper. This type of research could also apply a longitudinal approach in order to discover whether the TCV and AHT models are only applicable for initial adoption or whether it is suitable for studying continuance as well. This will answer calls for a longitudinal understanding of technology adoption [8; 11; 55]. For quantitative studies it is necessary to develop questionnaire items and thereby operationalize the TCV and AHT constructs. By building a questionnaire that includes all five consumption values, researchers can compare the explanatory power of the AHT relative to the TCV. Future qualitative studies should not only focus on the adoption, but try to following the technology over its hype cycle. This will enable us to develop a stage model of how values change over the hype cycle.

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Appendix 1 Focus group script

1) Could everyone take one minute or so and let me know what they think of the study thus far?

2) I want to know about what values/motives/reasons are important to you when deciding to use a mobile device or to use a new feature on it? What is important to you? What characteristics give it value?

3) There are 5 specific types of values I'd like to explore. The first is functional value. What makes a smart phone useful to you?

4) What make a smart phone useful and valuable to you socially?

5) What kinds of emotions are satisfied or aroused by having and using a smart phone?

6) How is a smart phone useful to you to get knowledge, arouse curiosity, or to aid in some kind of learning?

7) Are there certain situations in which a smart phone gains value that it usually doesn't have? What are specific situations that make a smart phone more useful (or less useful) than an alternative…? An alternative could be a regular mobile phone, a laptop computer, or anything else you might want to compare it to.

8) Look at the 5 values you've written down. Rank them in order from 1 to 5, with 1 being the most important. Write it down.

9) Are there any other important values that we should have discussed but didn't?

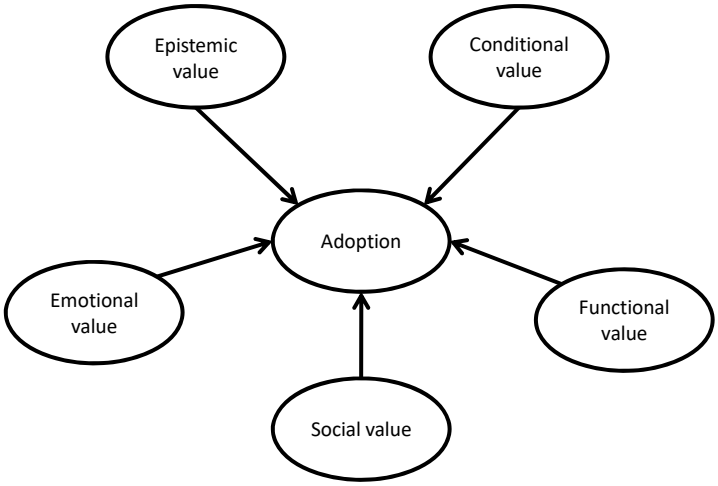

Figure 1. Five values that influence consumer choice

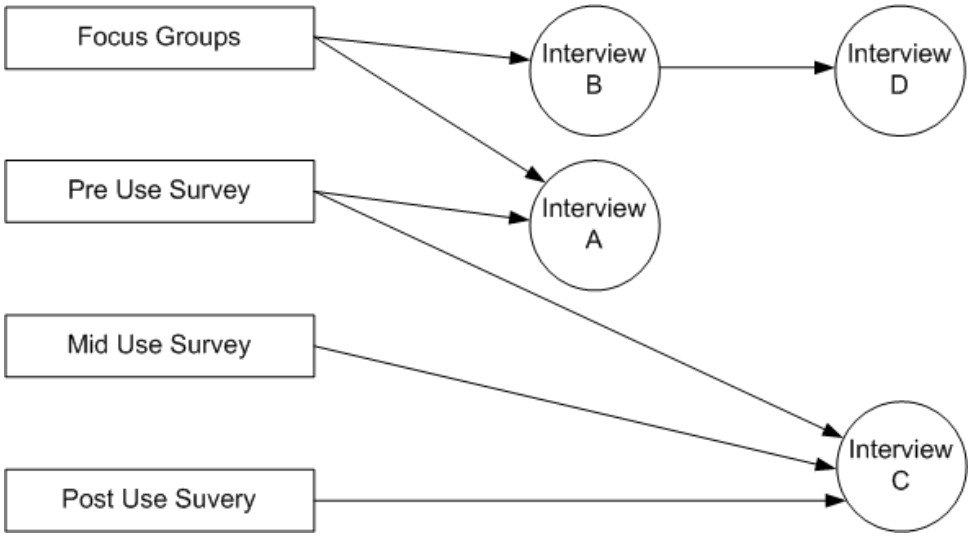

Figure 2. Structure of data collection

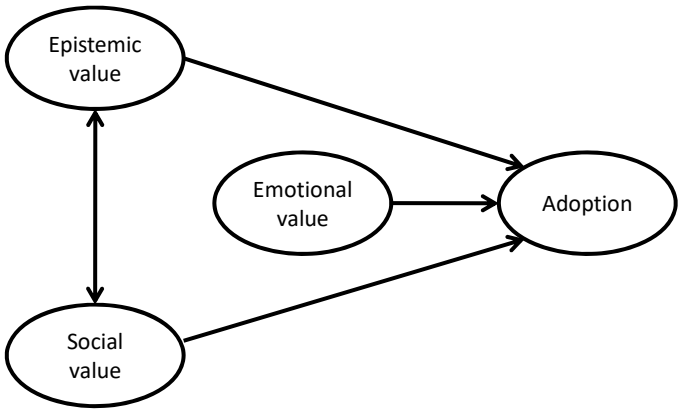

Figure 3. Adoption model for hyped technologies