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Fad-like Technology Adoption as a Social Action

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ABSTRACT

When technology adoption takes on fad-like characteristics it becomes critical to understand consumer behaviors due to the large swings in demand and expectations for the technology. Companies can see revenues skyrocket, only to fall just as fast without understanding the dynamics of the consumer adoption decision process. A model for fad-like technology adoption is described using the technology adoption lifecycle from Rogers adding the theory of information cascades and adopter thresholds. Adopter behavior in each stage of the lifecycle is described as individualistic or holistic utilizing the theories of Watkins and Durkheim. Adoption of the Apple iPhone™ is shown to illustrate the application of the model and the individual and holistic social actions of fad-like technology adoption.

Keywords

Technology adoption, fad, diffusion, information cascade, individualism, holism, iPhone™.

INTRODUCTION

Recent advances in technology have spurred the rapid adoption of new information technology at both the individual and organizational levels. Many times the adoption appears to be fad-like or irrational based on the short time to adopt and the magnitude of the adoption. Companies introducing new products need to understand this social behavior or they may be unable to meet consumer demand when the fad-like adoption starts, unable to adjust resources when the fad ceases and (worse yet) be severely hurt by a negative fad.

Numerous definitions exist for this type of social behavior. For the purposes of this paper fad-like technology adoption is defined as having the following characteristics.

- It contains **individual units** (the consumer) making a decision to adopt or not to adopt a technology. The unit can exist at any level, as a person, group (agency), company, or industry within a larger network of units.
- A unit's **private information** is information about the technology under consideration that is available only to the individual unit.
- There exists a **social network** of individual units all with a common purpose (for example, schools making a decision to adopt educational technology within a statewide association of schools). The network allows for the communication and observation of all member individual units. The number of individual units within the network can be as small as three but will typically be much larger.
- An **adoption rate** which measures the number of units adopting the new technology in a given time period. The rate will be very large and may show exponential growth in the number of individual units adopting the technology. A low adoption rate will indicate that fad-like technology adoption has not occurred.

LITERATURE REVIEW

Fad-like behavior has been studied for many years under group dynamics and collective intelligence. Trotter (1917) introduced the term "herd behavior" to describe the "gregarious" behavior of flocks or packs of animals. Beni and Wang (Beni and Wang, 1989) introduced the related concept of "swarm intelligence", a collective intelligence exhibited by a group but not necessarily by the individual.

Recent work includes (Abrahamson and Rosenkopf-Bartner, 1990) a description of "bandwagon pressures" indicating there are forces that compel the diffusion of innovation, among individual units, at high rates based on the number of units already employing the innovation. Extension of this work (Abrahamson and Rosenkopf, 1997) included the effect of the social networks on the units. They show the number of "linkages" will have a great impact on the technology adoption rate.

The concept of information cascades (Bikhchandani, Hirshleifer, and Welch, 1992) was developed to explain both the conformal behavior of individuals and the rapid spread of new behaviors. A process is defined whereby individual unit's actions are a function of previous unit decisions in their network, regardless of the unit's private information. This phenomenon is defined as an information cascade.

Walden and Browne (2002) supported and expanded the information cascades concept to an operational model that explained fad-like behavior as a rational managerial decision that sometimes led to systematic errors. They proposed that information cascades often result in firms adopting beneficial technologies reasoning that public information eventually causes incorrect cascades to die out.

An important aspect of information cascades is the initiation of the cascade. One view takes a holistic view of the initiation as a function of environmental factors impressed on the individual unit. Network externalities and communications channels are significant in the formation of information cascades (Song and Walden, 2003); modeling technology adoption as a function of positive feedback (positive network externality) and information externalities (private information) where these factors tend to enforce the legitimacy of information cascades for decision making.

A more individualistic view comprises the examination of learning in social networks as an explanation for technology adoption behaviors. Gale and Kariv (2003) propose a model where the individual makes rational choices based on only the observed actions of other individuals and extracts information necessary for decisions from these actions. Information causes additional actions leading to an information cascade and rapid technology adoption (rapid learning).

Walden and Browne (2009) extended their previous work to consider aspects of observational learning as it applies to technology adoption, providing a robust information cascade model that shows individuals follow one another (herd) but when an individual breaks from the herd it usually signifies important information that tends to reset the herding effect. They explain that individuals don't tend to ignore their own doubts about a technology but rather don't listen sufficiently to others and as such can make bad decisions leading to incorrect information cascades.

CONTRIBUTION

Although prior work is robust and extensive it almost entirely focuses on the operational aspects of fad-like technology adoption, explaining behavior as a function of information flow, access to information, environmental measures and behavior outcomes as applied to the concept of information cascades. This paper will re-examine the concept of fad-like technology adoption from the perspective of the decisions made by the individual units and the relation to their social network. Specifically, for fad-like technology adoption, we will answer the question, when do individual units appear to act alone and when do they act as a whole?

Roger's Technology Adoption Bell Curve (1962) model will be used as a starting point to illustrate the adoption of technology. The theory of information cascades will be added to the theory to extend it to include fad-like adoption. Then the underlying behavior of the individual unit will be examined from a holistic and individualist viewpoint as an underlying mechanism for fad-like adoption. The resulting theory for fad-like technology adoption will then be tested in a general sense against the adoption of the Apple iPhone™. A concluding section describes how an understanding of fad-like technology adoption can benefit technology companies and suggests future research directions

THE TECHNOLOGY ADOPTION LIFECYCLE MODEL

Rogers (Rogers, 1962) introduced a widely accepted model for the spread of ideas and technology. His technology adoption lifecycle model describes the adoption of a new product or innovation, according to the psychological characteristics of defined adopter groups. The model indicates that the first group of people to use a new product is called "innovators," followed by "early adopters". Next come the "early and late majority", and the last group to adopt a product are called "laggards".

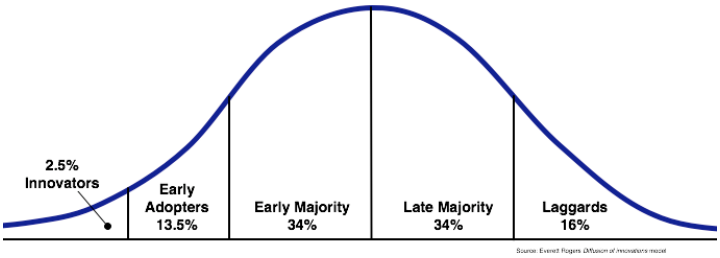

Figure 1 - The Roger's Technology Adoption Lifecycle Bell Curve (Rogers, 1962)

INFORMATION CASCADES

As defined (Bikhchandani, et al., 1992),

> *"An informational cascade occurs when it is optimal for an individual, having observed the actions of those ahead of him, to follow the behavior of the preceding individual without regard to his own information."*

This definition can be applied to a simple game where three individuals make a technology decision based on private information they received regarding the technology and the decisions made by individuals preceding them (they only know the decision and must infer the private information of the preceding individual). Each decision is made in sequence (each individual can only observe the choices of the individuals before them).

The first individual makes a decision about the technology based on their private information. The second individual makes a decision based on the first individual's decision and his private information. Assuming they both decide to adopt a new technology the third individual then has his own private information and two adoption decisions to base his decision. Very simplistically the third individual has two positive (previous) inputs and even if its private information is against adoption will adopt anyway! All decision makers after the third all follow a similar decision process. This results in fad-like behavior because once the information cascade starts all subsequent decisions are made disregarding any information outside the system (each individual's private information is disregarded).

Although this model is very useful in modeling fad-like technology adoption it is very binary in its description of an individual unit's adoption decision. As Walden and Browne (2009) state, there is a vast amount of information available to the individual unit which is utilized to make their adoption decision. Therefore modeling the information cascade on a simple rule, whereby personal information is disregarded when two previous adoptions are observed (by the individual unit), is too coarse.

Instead the decision to adopt and disregard personal information is more accurately modeled as a threshold effect (Valente, 1996). In fad-like technology adoption, an individual unit, based on their personal information and position within their social network, will have a threshold amount of previous adopters (adopter threshold) necessary to have already adopted before they will adopt the technology. Once the adopter threshold is met or exceeded the individual unit adopts the technology disregarding any personal information relevant to the decision to adopt.

If the adopter threshold is not met then the individual unit may still decide to adopt the technology based on the combination of its private information and previous adopters. Therefore the adopter threshold defines the condition when the individual unit is making decisions based only on other individual units and is exhibiting fad-like technology adoption behavior.

FAD-LIKE TECHNOLOGY ADOPTION

Considering the theory of information cascades and the adopter threshold criteria, the Roger's Technology Adoption Individual Unit descriptions are modified as follows.

- *Innovators* – Initial adopters of the technology with their decision to adopt based on their individual characteristics. As Demirci and Ersoy (2008) have shown these individual units tend to be innovators and have high optimism towards technology. Their adopter threshold is irrelevant as there are potentially no previous adopters and their decision is based totally on their private information and individual characteristics.
- *Early adopters* – Include individual units that exhibit the characteristics of innovators but with very low adopter thresholds. These individual units start adopting the technology after only a very few innovators have already adopted.
- *Early majority* – Include individual units with the characteristics of innovators and early adopters. These individual units have higher adopter thresholds than early innovators but since more previous adopters have occurred more of these units have their threshold met and adopt.

Technology adoption increases based on individual units obtaining information on the increasing numbers of previous adopters and with the increase in numbers of adopters more individual units meet their adoption threshold and start adopting the technology. As a result a very high adoption rate is achieved based mainly on,

> *having observed the actions of those ahead …, to follow the behavior of the preceding individual without regard to his own information."* (Bikhchandani, et al., 1992).

Adoption starts to ebb as the lifecycle reaches the late majority and laggard individual units, defined as follows.

- *Late majority* – These units will have high adopter thresholds. As a result they appear to adopt only when almost "everyone" else has already adopted.

- *Laggards* – These units have extremely high adoption thresholds such that their threshold is most likely never met.

The addition of information cascades and adopter threshold effects modifies the shape of the Roger's Technology Adoption Lifecycle Curve. Due to the multiplicative effects in the innovator and early adopter stages there is a very high initial adoption rate followed by a decline in adoptions. Abrahamson and Bartner (1990) have simulated a similar model to the proposed model and achieved similar results. The resulting fad-like technology adoption life-cycle curve is shown in figure 2.

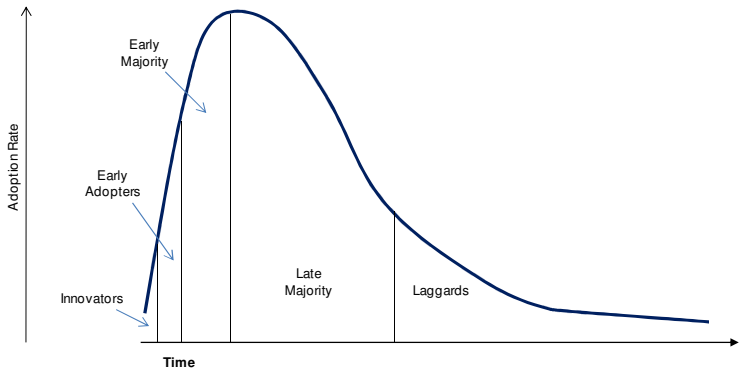

Figure 2 - Fad-like Technology Adoption Lifecycle

Although the fad-like technology adoption lifecycle curve shows the change in adoption rates there still needs to be an understanding of the social actions taken by the individual units. It is important to understand when, and if, individual units act in a holistic or individual manner.

HOLISM AND INDIVIDUALISM

Martin Hollis (1934) introduces a useful heuristic for organizing social theory:

	Explanation	**Understanding**
Holism	Systems (Structure)	Games "Culture"
Individualism	Agents (Action)	Actors (Role players)

Table 1- The Hollis Heuristic (Hollis, 1994)

According to Hollis, Holists seek to understand the social world at a level onto itself. Individual action is an outcome resulting from systematic behavior. In contrast, Individualists argue that anything that is social must, in some way or another, be reduced to properties of individuals. He defines the terms in his heuristic as follows,

- **Systems** refer to theories at a macro level, top-down, approaches to explaining social action solely as a function of itself, not as a reference to lower level (individual) behaviors.
- **Games** also refer to the macro level, but from the viewpoint of understanding behavior instead of explanation. This includes rules for behavior and norms that guide individual's actions and inter-actions.
- **Agents** refer to a micro, bottom up, approach to explaining the social action.
- **Actors** also refer to the micro level of analysis, taking as primary the actions of individuals.

With this heuristic in place we can examine fad-like technology adoption in more detail.

INDIVIDUALISM AND FAD-LIKE TECHNOLOGY ADOPTION BEHAVIOR

A good starting point for viewing fad-like technology adoption as an individualist behavior is the works of Watkins (1957) on Methodological Individualism.

> *. . . members of some social system (that is, a collection of people whose activities disturb and influence each other) mutually adjust themselves to situations created by others in a way which, without direction from above, conduces to the equilibrium or preservation or development of the system.*

He states that individual action is based on an individual's disposition and situation. Given individuals in a certain situation and with similar disposition they will generate a regularity or process.

As applied to fad-like technology adoption, Watkins would describe both the *innovators* and *laggards* as individual social units in a situation to decide on a technology with individual predispositions as previously defined (Demirci and Ersoy, 2008). Each group makes the decision to adopt a technology (or not adopt) in opposition to the actions of their social network. For the innovator the decision is made to adopt, contrary to the fact that very little previous adoption has occurred in the social network. In the case of the laggard the decision to not adopt runs contrary to the fact that most of their social network has already adopted the technology.

Since these situations can occur for multiple individual units with shared predispositions (for example based on their environment) fad-like behavior would occur many times and in many places triggered by the individual unit. Although individuals share disposition they derive the predisposition from the own individual experience.

Hollis' heuristic would define actors and agents, for the *innovator* and *laggard* lifecycle stages, for fad-like technology as follows.

- Individual unit's technology adoption decisions can be explained by viewing them as "singular **agents**" (Gilbert, 1990) existing in some state that predisposes them to adopting or not adopting the technology. The predisposition is based on private knowledge they receive about the technology.
- To understand the individual unit's action they are viewed as **actors** enacting the role of an *innovator* or *laggard.* They exhibit certain role characteristics (Demirci & Ersoy, 2008) that cause unique action when interacting within their social network.

From an individualistic viewpoint, the initiation of the information cascade is a bottom-up event caused by the actions of individuals in unique circumstances.

HOLISM AND FAD-LIKE TECHNOLOGY ADOPTION

A holistic viewpoint of fad-like technology adoption would consider this phenomenon as a group practice as stated by Emile Durkheim (1938).

> *It is, however, the collective aspects of the beliefs, tendencies, and practices of a group that characterize social phenomena. As for the forms that the collective states assume when refracted in the individual, these are things of another sort.*

Therefore we could view rapid adoption of a technology as simply a form of collective agreement.

Similarly information cascades can be viewed as the rules that the system applies to the individuals. This idea passes Hollis' (page 108) level-of-analysis problem as we can view individuals as units of the household system or groups as units of an agency or companies as units in an industry, all held accountable by the rule of information cascades. Each unit, although having private information relevant to their adoption decision, will still decide based on collective rules.

The analysis becomes more complicated when adopter thresholds of the individual units are added to the holistic view. Information cascades fit Durkheim's "tendencies and practices of a group", but it is the adopter threshold for the technology that defines the collective "beliefs". Although an individual unit may act counter to its personal information if there is no adopter threshold (for the technology adoption) no fad-like action can proceed. In fad-like technology adoption there must exist some large number of individual units with surmountable adopter thresholds that all share a collective "belief" that when their threshold is met they will adopt the technology, irrespective of any other information.

Hollis' heuristic would define systems and games, for fad-like technology as follows.

- The *early adopter*, *early majority* and *late majority* individual units define a **system** that societal units work within to make technology adoption decisions.
- The system, to the individual unit, looks like a **game** that has a rule specifying the adoption decision as a function of previous decisions and private information.

During the *early adopter*, *early majority* and *late majority* stages of the technology adoption lifecycle, fad-like technology adoption has an extreme holistic view with each individual unit acting within a prescribed set of rules. The adopter threshold, which would appear to be very much an individual trait can be viewed as just another rule when considering that large numbers of individual units must have surmountable thresholds.

This view is somewhat harsh and can be moderated by looking at the individual unit as containing an unpredictable behavior that adds to the holistic model as per Kinkaid (1989). He states that a full explanation of a social event cannot be explained without involving individuals. This involvement is not the strict adherence to a role, as per the extreme holist view, but that there is unpredictable individual action. Within fad-like technology adoption he would see the adopter threshold or the unit that breaks from the collective behavior to be not a rule of the extent of private information, as do Walden and Browne (2009), but rather an unpredictable action of an individual.

Therefore the early and late stages of the fad-like technology adoption lifecycle can be seen as predominately actions defined by the individual. The middle stages, during which the information cascade is present, actions are dominated by holistic rules but there is always an element of individual action that can moderate the adoption rate within the information cascade or in the extreme terminate the cascade.

THE APPLE, INC. IPHONE™ AS AN EXAMPLE OF FAD-LIKE TECHNOLOGY ADOPTION

The Apple iPhone™ is an advanced communications device incorporating a mobile phone, a widescreen iPod® with touch controls, and internet communications. Introduced in June, 2007, by the end 2008 the product was marketed in over 70 countries accounting for $1.8 billion in net annual sales (Apple, 2008).

When introduced in June, 2007, consumers were "already lining up in front of the Apple store in downtown Manhattan — a full three days in advance" (Block, 2007). Irrational adoption of the new product was not a surprise as stated by Microsoft CEO Steve Balmer.

> *When the iPhone launched with a $500 price, Microsoft CEO Steve Ballmer said his first reaction was "that is the most expensive phone in the world and it doesn't appeal to business customers because it doesn't have a keyboard." Later he said, "it may sell very well."* (Needle, 2009)

Figure 3 shows the adoption rate for the iPhone™, as compared to previous successful product introduction, and as can be seen, the product has progressed from the *innovator* stage and is somewhere in the *early adopter* to *late majority* stage (since the adoption rate shows no sign of peaking it is impossible to determine exactly which stage is current).

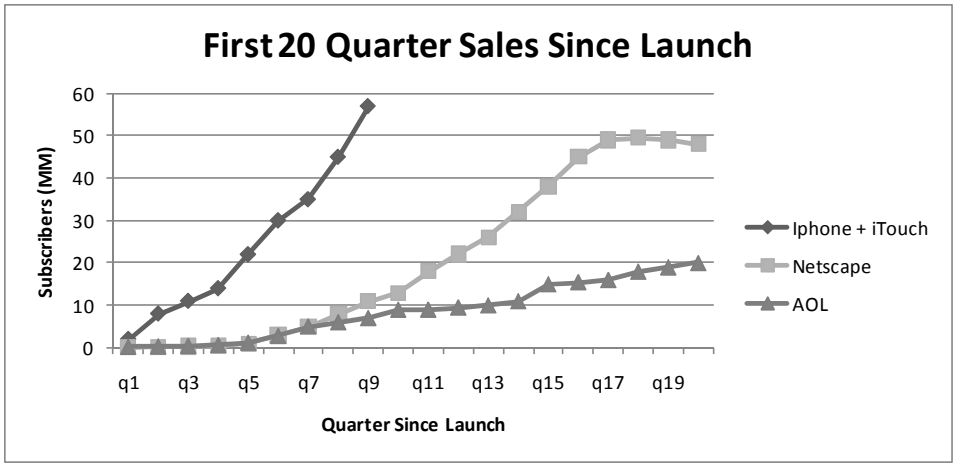

Figure 3 - iPhone™ Quarterly Subscribers Since Launch Compared to Netscape and AOL (Meeker, Develin, & Wu, 2009)

Analysis of iPhone™ adoption rates has shown that there are a large number of innovators that purchase the product based on their private information (technical and utility data) but that Apple has manipulated adopter thresholds to create a scenario where adoption decisions have been made prior to the actual release of the device. As stated by industry analyst Mike Schram (2009),

> *So the real story here isn't necessarily that Apple masterfully created a smartphone that revolutionized the industry and made tons of money doing it, but that they coordinated a hype machine that marched to their tune whenever they wanted. There's nothing like the excitement and hype that shoots up around a big Apple event. The iPhone is a feat of engineering in itself, but the hype machine behind it is pretty well-built, too.*

Using the perspective of individualism and holism for fad-like technology adoption Apple's marketing efforts has two effects. First they reduce the individual's decision thresholds, by generation of product excitement, causing an information cascade prior to introduction of the product. Second, by pre-introducing the product they can create private information that will cause individuals with higher decision thresholds to be exceeded and thwart any negative information cascades that may begin at actual introduction. Individuals that feel the product does not meet expectation will be overwhelmed by the numbers that are adopting, thus stopping any negative cascades.

At product release the holistic nature of fad-like technology adoption takes over and the adoption rate soars. Individual units buy based solely by rule, driven by the previous adoption of other units. By creating a sales environment where private information becomes almost irrelevant, iPhone™ adoption follows holistic rules and individual behaviors do not come into play.

Also, Apple has created fad-like technology adoption for the iPhone™ by creating a highly functional device that appeals to the innovators and a "cult of celebrity" of a type of A-list celebrity (of which Steve Jobs would be the example) that all adopt the iPhone™, and as such individual units must have the device (Murphy, 2008). As such the adoption rate for the iPhone™, upon announcement almost instantaneously moves into the early adopter and early majority stages of the fad-like technology adoption lifecycle

An illustrative example of how fad-like adoption occurs at the individual level in these stages is shown in Table 2. It details a series of Facebook™ communications between friends over a one day period. The initiator of the messages (BG) starts the conversation by asking for advice on the purchase of a new cell phone. BG receives comments regarding phones, travels to a store to try the phones, then returns for a second round of advice. BG eventual decides to purchase the iPhone™.

Person	Time	Message
BG	**9:24am**	**I need a new phone. I've had a Blackberry 8830 through Verizon for 2 1/2 years and have really liked it but its on the fritz now. Any suggestions out there on what I should look at and why?**
Friend_1	9:31am	iPhone need I say more?
Friend_2	9:23am	A friend of mine has the Palm Pre. Its pretty cool. I heard the iPhone was going to be on Verizon by the end of the year if you can wait that long.
Friend_3	9:44am	I have a couple of friends with the Droid who are very happy with it. I'm and iPhone kind of gal myself.
Friend_3	9:49am	And if you stick with a Blackberry there are several newer ones you might like. :)
Friend_4	10:02am	I like my BB too, but the iPhone rocks! It has so many capabilities beyond a phone and email.
Friend_5	10:09am	iPhone all the way! Ull loove it:)
Friend_6	10:31am	I'm having an affair with my iPhone, I love it so…
Friend_7	10:49am	I love my BB World Tour
Friend_8	11:04am	iPhone. Easily the best.
BG	11:19am	Thanks for all your input everyone. I am definitely debating between the iPhone, Droid and a newer Blackberry. Does anyone care to admit any problems they have had with their phones, or what they wish their phones did that it doesn't do (aside from make you dinner)?
Friend_8	11:27am	I wish my iPhone had video so I could film the craziness of my kids. The phone is OK - not great bu not bad. Otherwise I think its great.
Friend_7	12:01pm	The new BB World Tour has both video and 3.2 megapixel camaera…as I said before, I love it!
Friend_9	12:10pm	There is an iPhone video application available now. My vote goes for iPhone as well. Definitely a lot more durable than I imagined, my iPhone has gone through hell and still works. It has been in the pool, cracked, dropped numerous times so it has taken quite a beating. I refuse to get a 3G until this phone has given me all its got.
Friend_10	12:22pm	iPhone baby!!!!! Although my friend likes his new BB.
Friend_11	12:45pm	I have the iPhone and the new BB curve with the touch pad instead of the roller bar. (I know…. one's for work, one's for play). If you stay with BB the touch pad is totally the way to go. If you want I have my old (less than a year) BB curve w/ verizon you can have if you want to hold out until they get the iPhone. BBs are way better on e-mail, but iPhone is wal better w/ fun stuff like apps and internet.
Friend_12	1:52pm	I have the BB Tour and I love it.
Friend_13	2:10pm	I have the BB Storm. Some people don't like it, but I haven't had any issues. I like the qwerty keyboard!
BG	2:17pm	Thanks for the additional info peeps! I think the lack of qwerty keyboard on iPhone is my biggest issues with picking it. Nothing's ruled out though. I'm going to play with my narrowed down list now.
BG goes phone shopping and returns later in the day.		
BG	6:16pm	**I looked at phones today. Didn't like the way the Droid felt or the keyboard. The store couldn't get either of their Palm Pre's to work (bad sign). I liked the BB Storm bettwr than the Tour (I think). But, right now, I'm leaning towards the iPhone. Yes, that's where I'm leaning. Will sleep on it. Thanks for all your help FB friends**
Friend_3	6:18pm	Had I known the iPhone was a consideration for you (I thought you wanted to stay with Verizon) I wouldn't have even mentioned the others 'cause there's no comparison. You will LOVE the iPhone!
BG	6:27pm	As I said I currently have Verizon and their discounts on phones are very good for returning customers which is still a small draw for staying with them. AT&T has a 15% discount on service so if I go with the iPhone I will be adding on to my husband's plan and will make that much cheaper. I'm up for a change.
Friend_14	6:56pm	I switched from Verizon to an iPhone in November. Beyond glad that I did.
Friend_3	6:57pm	I made the switch in May and haven't looked back. :)
Friend_14	6:58pm	So basically the iPhone has my approval!
BG	7:00pm	Haha! So it seems! Glad to hear from people who have switched and are happy. I've been with Verizon for so long I feel like I'm breaking up with a boyfriend!
Friend_15	7:05pm	Just in case you need some more influence. I love the iPhone and use it more than my computer.
BG	7:08pm	Now I'm beginning to feel like a ***bandwagon*** fan and ins't in my vocabulary! But hopefully if I do chose the iPhone it won't fail me like the Bills….or Orioles!
Friend_16	9:48pm	There is a new iPhone coming out in June, I think. I have 3gs and I love it!! I am actually addicted to it. I have not turned on my computer in weeks. Go iPhone.
BG	10:47pm	Thanks. I think I'm convinced.

Table 2 - - Transcript of a Facebook™ communication regarding the adoption of the iPhone™

A close examination of the communications shows that there is very little discussion regarding the actual features of the iPhone™. Most of the information BG is obtaining is not device specific but rather just the number of other individual units (friends) that have already adopted the iPhone™. At one point BG even admits to falling on the iPhone™ "bandwagon"! Clearly whatever private information BG received from the store visit (except possibly the negative information on the iPhone™ competitor phone) has been disregarded and, by rule, BG makes the adoption decision based on other unit's adoption, solely. This exemplifies the application of holism to fad-like technology adoption.

CONCLUSION

Fad-like technology adoption refers the rapid adoption of technology by individual units that act in what appears to be an irrational manner. Rather than deciding to adopt technology based on a decision based on utility, quality and functionality of the technology they adopt based on the number of individual units previously adopting the technology.

Individual units each have an adoption threshold. This threshold is the number of individual units that must have previously adopted the technology before they will adopt the technology based only on the number previous adopter and no other information. When this occurs an information cascade is said to have started.

Comparing this to accepted theory for technology adoption lifecycle (Rogers, 1962) the early adopters of the technology act as individuals and make the decision to adopt the technology based on rational decision processes. In the middle stages of the adoption lifecycle, when an information cascade is present, the individual units act in a holistic manner following an adoption rule based on adopter thresholds. In the final stages of the lifecycle the individual units act as individuals return to individualistic behavior either by breaking from the cascade or finally making the decision to adopt.

If technology companies were to use this perspective two actions are suggested. First, during early introduction of a product it is essential to target the needs and expectation of the individual units most likely to adopt the technology. These units will require private information to make the decision and will not adopt without that information. Second, as adoption of the technology begins, the company must make sure that individual units are aware of each other's actions. It is important to invest time and effort, early on, to get information on adoption rates out in the open so that an information cascade can commence. Individual units need to know other units are adopting, so the company must make this information available through press releases, reviews, blogs, or whatever medium is applicable.

As shown, Apple with the introduction of the iPhone™, has done a masterful job controlling this type of social action. By extensive pre-product introduction marketing Apple was able to move device sales almost instantly through the individualist behavior into the holistic fad-like adoption behavior garnering massive sales.

Although the view of fad-like technology adoption as individual and holistic social behaviors, as presented, is compelling additional research is required. The current work only looks at one case of fad-like technology adoption and requires more detailed analysis across other technologies. Since analysis of this behavior requires monitoring adoption behaviors in "real-time" future analysis may lend itself to case studies. Additionally the consideration of alternate theory needs to be addressed in comparison to the viewpoint presented.

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