THE NEED FOR COGNITION AND THE ADOPTION OF NEW TECHNOLOGY: A STUDY OF HOW THE ELABORATION LIKELIHOOD MODEL IMPACTS DIFFUSION OF INNOVATION

by

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ABSTRACT

The Elaboration Likelihood Model and Diffusion of Innovation are theories that
describe decision-making processes. Diffusion of innovation explains the time it takes for
individuals to learn about an innovation, try the innovation, and make the decision to adopt
or reject it. The ELM suggests individuals use a dual process of thinking. The route to
persuasion changes depending on how the person thinks. Each route targets different
levels of thinking. This thesis investigates the relationship between the ELM and diffusion
of innovation.
DEDICATION

I would like to dedicate this thesis to everyone who helped me make it to the end of this journey. This thesis was a test of endurance. There were times when I wanted to quit and move on to something else. No one who was involved let that happen. Dr. Gower, Dr. Lewis, Mr. Brown, and my Mom, Sharon Burks, thank you. This thesis is dedicated to you.
LIST OF ABBREVIATIONS AND SYMBOLS

ELM    Elaboration Likelihood Model
p      Significance
NCOG   Need for Cognition
ACKNOWLEDGMENTS

This thesis was one of the most difficult projects I’ve ever had to take on. Over the course of this year, I learned a lot about myself. This thesis tested me in so many ways, and thankfully its over. I would not have made it through this process without this help and guidance of my thesis committee. The people who helped me get through this thesis process didn't have to be involved, but they took on the added responsibility. That means a lot. Thank you.

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Dr. Lewis introduced me to the business approach to the research. I remember meeting Dr. Lewis when I first started studying at the University of Alabama, and being just impressed by her business experiences. The break down of my method was based on research she conducted some of her other projects.

Mr. Brown, the third person on my committee, was the teacher of one of my favorite classes at Alabama. While in his class we helped a business in my hometown produce a new product. We used principles of Diffusion of innovation first hand. The class and the research he provided made him the perfect choice to round out the committee.
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CHAPTER 1
INTRODUCTION

This thesis is a study of the relationship between Diffusion of Innovation and the Elaboration Likelihood Model (ELM). Studies have been conducted using both concepts, but not much research has put them together. This thesis contributes to the literature by exploring the relationship between the two theories.

The ELM has been around since the 1970s. It is a relatively complex theory describing how attitudes form and change. The ELM suggests that individuals process information via one of two routes: the central route and the peripheral route. The central route is for high levels of elaboration. Persuasion in this case will be effective if it uses issue relevant facts and arguments. The peripheral route requires less elaboration. Factors that do not directly affect the product, such as a celebrity endorsement or the color of the product, will hold more persuasive power (O'Keefe, 2002, p.140).
Diffusion of Innovation has been around since the 1960s. The theory explains the rate at which people learn and make a decision about a product, and how innovations spread throughout society. This thesis focuses on the adoption or decision making stage of the diffusion of innovation and the factors that may influence whether people choose to adopt.

Several studies have been conducted over the years that test one of the theories, but no studies were found that tested both together. These two theories need to be tested together because the ELM may affect the way people understand processes in the Diffusion of Innovation.

There are several different ways for people to learn about an innovation. If people are actively seeking information, they are elaborating about whether to adopt the product. The information early adopters receive will often be from the innovators themselves. Early adopters also form the first opinions about the innovation and pass those opinions on to others. These opinions the early adaptors form, could possibly affect the attitudes of people toward the innovation (Rodgers, 1996). For instance, if a person likes a celebrity and that celebrity uses a product, the person might react favorably towards that product without knowing all the facts about it. In that case, the reaction would not be because of the product, but because of something peripheral to the product.

Examples like these are the reason why these two theories need to be investigated together. The decision-making process is very complex. Understanding why some innovations catch on while others do not will help marketers develop strategies in the future and help predict future innovation trends. Since time is the dependent variable when testing diffusion of innovation, the reasons people adopt the innovation will change.
The message that made the early adopters adopt the innovation will not have the same leverage over laggards who will have different reasons for adoption.

This thesis will benefit future researchers and public relations practitioners because it will help them understand how to craft messages based on understanding the level of elaboration. That level of elaboration will lead to greater understanding of what and when the consumer will most likely adopt. If you match the correct message to the receiver's level of elaboration, the message will most likely produce a positive reaction.

The following chapter presents the relevant literature and theoretical framework for this study. That will be followed by a description of the method. Chapter 4 details the study's results, and Chapter 5 discusses the results and their implications.
CHAPTER 2

LITERATURE REVIEW

This literature review will review the literature on Diffusion of Innovation and the Elaboration Likelihood Model, the two theories that provide the framework for this thesis. Diffusion of Innovation will allow us to understand the thought process people use when they decide to adopt new products. The Elaboration Likelihood Model will provide levels at which people think about a particular topic. Together these two theories will help practitioners in the future predict when people will adopt new technologies.

Diffusion of Innovation

Diffusion of innovation is the process by which people decide to adopt a new product, practice, or design. Diffusion is defined as the process by which an innovation is communicated through certain channels over time among the members of a social system. Innovation is the new idea, process, or object that is up for adoption (Rogers, 1995 p. 11).

![Five Stages in the Decision Innovation Process](image)

Figure 2.1 Five Stages in the Decision Innovation process. This figure is chart depicting the
decision making portion of Diffusion of Innovation.

Innovation will always bring uncertainty. Relative advantage, compatibility, complexity, testability, and ability to observe the results are factors that influence the adoption of innovation (Rogers, 1995). Figure 2.1 is an illustration of the decision of innovation process. Relative advantage answers the question, how is this better than what I have or what I am doing now? If the innovation proves to deliver a better result, then the person will move to the next category, compatibility. The question, does this innovation work for me, will be answered. For example, a village in India was introduced to a new strain of corn. The corn yielded more per harvest and had a shorter harvest time, but the villagers decided not to adopt the new strain because they did not like the taste (Rodgers, 1995). Thus, although the corn had a relative advantage over the traditional strain of corn, it failed the compatibility test, and the people rejected it.

The third test is complexity. This test answers the question, is this way easier than what I am doing now? If the new way is more complex, but delivers a result that is not significantly better not only will it fail the complexity test, it will also reduce the advantage that is to be gained. The fourth test is, can I test it myself? Individuals are more likely to adopt a product they can try out themselves. That leads to the final test, observation. Can you observe the effects of the innovation? Understanding these characteristics helps explain the rate at which an innovation is adopted or rejected. An innovation that meets the adopter’s expectations in these areas is more likely to be adopted.

Diffusion is the communication of information about innovations through different channels. Even though mass media channels are more effective at reaching large numbers of people, an interpersonal exchange is more effective when it comes to persuading
someone to try a new product (Roger, 1995). Rogers also suggests that persuading someone to try a new product is a social process. People are more likely to adopt an idea from someone who has influenced them before.

People are also more likely to be persuaded by people who are like them. This makes communication easier for the people involved, and the message will be better perceived. The idea that people are attracted to people like them is called interpersonal attraction (Rogers, 1995). These people share a common bond such that the introduction of new ideas will likely have a greater chance of not being rejected.

The opposite occurs when the communication is between two people who do not share that interpersonal attraction. When people are distant for reasons such as social status or education, it makes it harder for people to communicate. This difference in communication will make the individuals involved feel uncomfortable and the exchange of ideas and persuasion will most likely end in failure. At the same time, however, innovations tend to come from an outside source as opposed to small inner-circles. Since most people are not as open to new ideas that are not theirs, the challenge lies in finding common ground so that all parties involved will feel comfortable and the exchange of ideas can be a success.

Time is a very important aspect of diffusion of innovation. Time is broken into three elements when it comes to the adoption of a new innovation. There is the time that passes from learning about the innovation until a decision regarding it is made; the point at which an individual decides to adopt in relation to other adopters; and the rate of adoption (Rogers, 1995; Effimova, Kuznetasova, & Ramanauskas, 2014). Using these criteria, the researcher can decide the rate at which the innovation was adopted.
The process by which a person learns of the innovation, forms an opinion, decides to adopt or reject, uses the innovation, and makes a confirmation of the decision is called the innovation-decision process (Rogers, 1995; Effimova, Kuznetasova, & Ramanauskas, 2014). There are five stages to this process: knowledge, persuasion, decision, implementation, and confirmation. During this process, people search for and comprehend the information about the new product in an attempt to decrease their uncertainty level about the innovation.

Researchers can use the time of adoption from the innovation-decision process and apply it to a timeline. This timeline puts consumers into a category based on time of adoption. It breaks down into five categories: innovators, early adopters, early majority, late majority, and laggards. Innovators tend to be risk takers and can cope with high levels of uncertainty, while laggards tend to rely heavily on personal relationships for adoption. In some cases, laggards are forced into adoption because the product they currently are using is phased out because of the innovation (Rogers, 1995). The figure below illustrates the products life cycle and adoption rates.
Figure 2.2 Product Life Cycle & Adoption Rate. This figure is chart depicting life cycle and adoption rate of Diffusion of Innovation.

The rate of adoption is usually placed on an “S” curve with time being the dependent variable and the adoption rate being the independent. Innovations that have characteristics that meet the public’s expectations tend to get adopted faster, resulting in a steeper curve. The rate of adoption usually slows down after the majority adopts it.

Social systems are heavy influencers over how diffusion of innovation works. Social groups are defined as an interrelated group that comes together to solve a problem and accomplish goals (Rogers, 1995). The presence of opinion leaders and change agents should be addressed when it comes to changing attitudes.

Understanding how the social structure is set up is important when it comes to how information is spread. If there is a hierarchical system in place, people tend to look to their superiors for information. As the organization gets broken down further, it becomes more common to run into smaller groups or cliques. Because these groups of like-minded people form, it is easier to study and predict behaviors (Rogers. 1995 p.24). Studies show that diffusion of innovation can be hindered or encouraged depending on the society surrounding the individuals. People who are in an area where they are exposed to certain technology are more likely to adopt; whereas, people whose surroundings do not use that innovation are less likely to adopt (Rogers, 1995).

Social norms can work as a barrier to innovation (Rogers, 1995 p.26). New ideas are likely to get rejected because they do not fit the social norm. Innovators are often perceived as different, and thus they are considered to have low credibility and little
persuasive power (Rogers, 1995). Opinion leaders, on the other hand, can become a very valuable asset when it comes to generating positive attitudes.

An opinion leader is someone who is able to influence other individuals’ attitudes or behavior patterns with relative frequency (Rogers, 1995 p.27). This position is usually earned by the person’s expertise in a certain area, social accessibility, and conformity with system norms (Rogers, 1995). When an opinion leader expresses interest, it is likely others will follow suit. Opinion leaders hold an “edge” over their followers for three reasons: they are more exposed to external forms of communication; they hold some degree of elevated social status; and they are more innovative (Rogers, 1995). For these reasons, when change needs to occur, they are prime candidates for expressing different ideas.

Before change occurs, there will be opposition to it, and there are certain circumstances where opinion leaders lose their “edge.” If the opinion leaders lose respect or credibility among the social network, if their ideals deviate too far from the social norms and followers start to feel alienated, or they are overused and become worn out, they may fall from prominence (Rogers, 1995 p.27). Followers might start to view them as working for the change agent and feel as though the opinion is being influenced by an outside presence. That in turn will cause the opinion leader to lose influence and credibility and hinder his or her ability to persuade.

In summary, when an innovation first comes into existence, the communicator needs to reduce the degree of uncertainty among people. With most innovations, there is some advantage to be gained from adoption. Understanding the limitations and how the innovation is different is essential when it comes to generating positive attitudes.
Decreasing the level of uncertainty closes the gap and helps people better understand the innovation. People have to first try the product in order to answer if the innovation possesses the five basic characteristics of innovation: relative advantage, compatibility, complexity, trialability, and observability, which act together closing the degree of uncertainty. Innovations that test well with the five characteristics of innovation tend to get adopted at a more rapid pace than innovations that do not.

The best way to get more people to adopt an innovation is to understand the social structures of the society. Each structure has opinion leaders and cliques of people who can be persuaded. Opinion leaders have the ability to sway opinions in the direction of change. They are thought to be experts in a particular area, and since they are still considered to be part of society, they are considered to be like minded as well.

Finally, understanding the decision to adopt or reject is crucial to this theory. People decide whether to adopt an innovation for numerous reasons. Attitudes towards the innovation have a direct effect on the rate at which the innovation gets adopted.

**Elaboration Likelihood Model**

The Elaboration Likelihood Model uses a dual process approach for understanding social information processing (Cacioppo, Petty, Kao, & Rodriguez, 1986). The two routes are central and peripheral. The routes vary in the level of elaboration. People who spend time elaborating on a topic are processing the information via the central route. Arguments that will prove to be persuasive for these people will deal directly with the topic at hand. Peripheral cues are things that affect the way the person feels about the issue but might not be directly associated with it. Things like presenter attractiveness or preconceived attitudes fall under this category (Cacioppo, Petty, Kao, & Rodriguez, 1986).
Elaboration occurs when someone engages in issue-relevant thinking. Generally, the more involved with a particular topic a person is, the more relevant the issue is to the person and the deeper his or her level of thinking about it is (Cacioppo, Petty, Kao, & Rodriguez, 1986). That means this person will have a higher level of involvement because that person spent more time elaborating on the topic. The message will vary depending on the person’s willingness and ability to elaborate on the topic. By matching the right message to the proper route of the ELM, persuaders will ensure the success of a positive response from the receiver (Cacioppo, Petty, Kao, & Rodriguez, 1986).

The type of people who would be persuaded by the central route are those who are more involved with the issue because they typically have a high level of elaboration. In order to persuade these people, messages need to encourage a deeper level of issue-relevant thinking. High-topic relevance is when the topic or issue affects that person directly. People who have high-topic relevance are more likely to have knowledge of the issue and be affected by the outcome of the decision. The quality of the arguments contained in the message will render more of a response from the receivers who will not be heavily influenced by the communicator’s expertise (O’Keefe, 2002, p.140).

When elaboration is low, the peripheral approach should be used. This occurs when the receiver uses a simple rule to make a decision. In other words, the receiver is relying on peripheral cues (O’Keefe, 2002, p.140). The importance of peripheral cues increases as the level of elaboration decreases. The person did not think about the product based on facts but on an attitude toward an outside factor. The decision was made with little elaboration. Other peripheral cues include preconceived attitudes, physical attractiveness, and feelings
towards the topic. In these cases, the receiver used a peripheral cue such as an attitude and belief rather than issue-relevant thinking (O'Keefe, 2002).

There is a trade off in the process, however. When the thought process is high, strong arguments hold more persuasive power. The person’s expertise does not matter, but the messages do. If the messages hold up against strong counterarguments, then the receiver with a high level of elaboration will react positively towards the messages (O'Keefe, 2002). As the elaboration levels decrease so does the persuasive power of argument strength. In that case, communicator expertise is more of a persuasive factor. The person using peripheral cues does not care about the facts but cares more about the source. If the source is deemed credible, the receiver will not argue and will be more likely to be persuaded by information from the source.

Understanding the level of involvement is a very important concept when moving on to the rest of the ELM theory. Two factors affect the degree to which people elaborate when making a decision. Those factors are personal relevance and need for cognition (O'Keefe, 2002). Personal relevance plays a role in the motivation levels of the person, because if a person is involved with the topic he or she will be more willing to elaborate on that issue. By answering the question, “Is this issue relevant to the receiver?” the person communicating the message will learn how relevant this topic is to the person (O'Keefe, 2002, p.141). Most of the time, if the topic is relevant to the receiver, he or she will spend more time elaborating. The more time spent elaborating, the more relevant the topic. This allows for a more centralized approach with the messages. But it is not always true. A person could have an issue that is relevant to him or her, but not important. Since the level of importance is relatively low, he or she may not take a stand on the issue. This means the
elaboration level could be low (O'Keefe, 2002, p.141). The person may not want to put the effort in to argue the point because the outcome may not be worth the time spent arguing it.

A person’s ability to elaborate can be affected by distraction and prior knowledge. Distractions are any stimulus that can draw the viewers’ attention away from the persuasive message. (O'Keefe, 2002, p. 143) This can work positively or negatively depending on the perspective. If the receiver would normally act favorably towards the message but cannot get the full effect of the messages because of the distraction, the likelihood that the persuasion will be successful is significantly reduced. This means that the distraction was a success because the attention was drawn away from the original message (O'Keefe, 2002; Kupor & Tormala, 2015). Distractions also can work negatively. They tend to decrease the effectiveness of counter-attitudinal messages containing strong arguments and increase the effectiveness of counter-attitudinal messages in weak arguments (O'Keefe, 2002; Kupor & Tormala, 2015).

Prior knowledge is what someone knows before they are exposed to the message. The more they know about the issue, the more they will be able to engage in issue-relevant thinking (O'Keefe, 2002, p. 144, 145). In such cases, the effectiveness of peripheral cues is decreased.

In summary, a person who engages in high elaboration will more likely be persuaded by the central approach. Elaboration valence plays a critical role in this process. When elaboration is high, persuasive effects will depend on the predominant valence, whether positive or negative, of the receiver’s issue-relevant thoughts (O’Keefe, 2002, p. 145). If the person receives a message and he or she thinks in a positive way about the
issue, the person will more likely react favorably. This message can be considered successful.

Valance elaboration is influenced by the strength of the message and the attitudinal direction. The receiver’s initial attitude and the message’s advocated position, considered jointly, will surely influence the valence of elaboration (O’Keefe, 2002, p. 146). The message is considered pro-attitudinal if the receiver already supports the position being presented, in which case, he or she will be more likely to act favorably towards the position. The opposite happens when a message is counter-attitudinal. In most cases, this style of messaging provokes a negative reaction; however, there are some occasions when a person can be persuaded by a counter-attitudinal message.

Argument strength is very important when it comes to elaboration. How this works is when a supported position can withstand criticism. The receiver will react favorably if the argument holds (O’Keefe, 2002; Kwon & Nayakankuppam, 2015). Heavy elaboration must occur for this to take effect, because the receiver has to engage in issue-relevant thinking. The argument must contain powerful supporting arguments and facts. If the quality of the supported position is strong, it will serve its purpose. If the argument is weak, it will be counterproductive.

When the elaboration level is low, the peripheral route should be targeted. Instead of using issue-relevant thinking, peripheral cues are used to make decisions. These are processes that require little thinking. O’Keefe says “The influence of peripheral cues should be greater under conditions of low elaboration likelihood or under conditions in which the cue is relatively more silent” (O’Keefe, 2002, p.148). If the receiver does less thinking, the importance of peripheral cues grows.
Credibility, liking, and consensus are the three main types of heuristic principals or “decision rules” (O'Keefe, 2002, p.148). The first is credibility. This is how trustworthy the source is believed to be. The persuasive power in this principle comes from when the communicator is someone who is believed to be an expert or a trusted source for that particular position. People who are receiving this message start to form their opinion based on someone else’s opinion rather than elaborating on the topic themselves. The communicator formed, or was a big influence on, the receiver’s opinion (O'Keefe, 2002, p.148). Thus the individuals receiving the message made their decision based on how much they trusted the communicator. In this case, the credibility of the communicator holds the persuasive power.

The second type of heuristic is liking. The receivers are persuaded into a belief based on whether they like the communicator. The fact that they like a certain communicator over another will cause the receivers to show favoritism. Ideas and arguments coming from a disliked source will likely get discarded or ignored (O’Keefe, 2002).

The belief that “if other people believe it, then it is probably true” (O’Keefe, 2002, p.150) is a prime example of consensus heuristics. If the crowd shows disapproval of a topic, it is less likely that an individual will step up and show approval. In each case of heuristics, the receivers do not engage in issue relevant thinking. Instead they rely on an outside source to make a decision.

There are three main difficulties that can be experienced when dealing with the ELM. The first is that there are two routes that can be taken. The choice of route depends on the receiver. With high elaboration, the central route would prove to be more
persuasive, and with low elaboration, the peripheral route would be the proper approach. That point leads to the second complexity, which is the exchange between elaboration valence and peripheral cues as influences on persuasion. Understanding that trade-off is a very complicated process. As a person elaborates more, the effects of peripheral cues decline. This means the centralized approach would start to have a greater effect because people will pay more attention to arguments and facts dealing with the issue (O'Keefe, 2002, p. 151). On the other hand, when the person is not elaborating as much, the techniques used in a more centralized approach will have less of an effect. Peripheral cues such as communicator expertise, if they like the communicator, and if the audience as a whole likes the issue, will do more to persuade the receivers.

The third complication would be that variables could play multiple roles in persuasion. The ELM suggests that a variable might influence persuasion in three ways by possibly influencing the degree of elaboration. In addition the variables could serve as a peripheral cue when intended to be a central cue, and it might influence the valence of elaboration. (O'Keefe, 2002, p. 151-152). For example, the message length could play a role in how the message comes across. Some ideas are complicated and need a longer explanation. In these cases, if the message were not as long, some people would not take the message as seriously as they should and discard it. The second example O'Keefe (2002) uses is about attractiveness. If the speaker is attractive, that can serve as a distraction and take away from the message. It also can trigger more peripheral cues by increasing the level at which the receivers like the communicator. This could work as an advantage because this could help encourage a favorable opinion towards the issue (O'Keefe, 2002, p.
These factors are relatively unpredictable because of the broad range of ways the communicator and the message can be received.

There are consequences to the different routes of persuasion, as well. The ELM suggests that with variations in the amount of elaboration there are corresponding variations in the character of the persuasive outcomes affected (O'Keefe, 2002, p.153). According to O'Keefe (2002), when attitudes are formed using high elaboration, they “will display greater temporal persistence, be more predictive of intentions and subsequent behaviors, and be more resistant to counterproductive behaviors” (p.153). Similarly, Cacioppo and Petty (1986) found that intentions and attitudes were strongly correlated when they were formed in situations where there was a high level of personal relevance.

O'Keefe (2002) reinforces the importance of argument strength. He acknowledges that there are some conflicts with the ELM but notes that it still proves consistent when it comes to high levels of elaboration. When argument quality is operationalized as the ELM has defined it, argument quality variations can be thought of as providing nothing more than a means of indirectly assessing the amount of elaboration that has occurred (O'Keefe, 2002). Arguments with high-argument strength should be designed to withstand criticism. When people elaborate on the issue, they will more likely question the arguments. When rebuttals are made towards a supported position, a strong argument will hold. When a high-level argument holds, it proves to be more persuasive.

Over the years, several researchers have tested ELM. Most of the research has been consistent with Cacioppo & Petty's. For a message to achieve the desired effect, the person’s level of elaboration needs to be determined. People can have different levels of elaboration. The idea is to try to match the message to the level of elaboration. If a person
cares about the topic but hard facts are too intense for them, this might not render the desired reaction. The same person could care about the same topic enough to where peripheral cues will not be effective.

Chen and Lee (2008) conducted research that investigated personality traits and online shopping. According to their research, beliefs are formed when the person accumulates knowledge about the attributes or capabilities of the object. They found three components to the central route of ELM: cognition, affect, and behavior (Chen & Lee, 2008). They went on to state that peripheral routes would be better served if the order of the components were rearranged to attitude, behavior, and cognition (Chen & Lee, 2008). This suggests that peripheral cues are stimulated by emotion and action rather than reason.

Chen and Lee also investigated three components believed to influence attitudes toward the product in a computer-mediated setting. The first component was the attractiveness of the website, speed and function of the site; and availability of information on the product such as size, color and inventory (Chen & Lee, 2008). This component is targeted to a central approach. The next two components are targeted more towards peripheral cues. The shopping value perceived by the customer is the second component (Chen & Lee, 2008). This answers the question, did the customers achieve their goals of the shopping trip (Chen & Lee, 2008). The final component was, did they enjoy the shopping process (Chen & Lee, 2008). Some consumers purchase products because it makes them happy, and they have fun acquiring new things. The researchers believed there would be a correlation between how the messages from the website are received and the emotional arousal each receiver gets while online shopping. They wrote, “consumers who perceived higher levels of hedonic and experiential messages on the website tend to have higher
levels of affective responses and perceived higher levels of hedonic value” (Chen & Lee, 2008).

In their investigations, Chen and Lee (2008) found the results to be consistent with previous studies. They suggested that utilitarian values, how useful or practical they found the website to be, assisted with the planning to purchase. They also mentioned that websites should offer products that complement each other for function (Chen & Lee, 2008). In other words, if the user found the website easy to navigate, it was easy to plan future purchases. Content that targeted peripheral cues on the website had a significantly positive impact on the hedonic values, how pleasurable the consumer found the shopping experience to be (Chen & Lee, 2008). The impact of preconceived beliefs did not have a significant impact on attitudes towards the website. However, peripheral cues might have indirectly influenced attitudes and trust through the customer’s perceived hedonic value (Chen & Lee, 2008). Both utilitarian and hedonic values significantly impacted attitudes towards the website but did not have any influence on how much customers trusted online shopping (Chen & Lee, 2008). When it came to the issue of trust levels of online shopping, they found that it significantly affected the way customers approached the website in a positive direction (Chen & Lee, 2008). In conclusion, it was a combination of things that contributed to influence consumer attitudes toward websites.

**Contribution to the literature.**

This thesis will use principles from the Elaboration Likelihood Model and apply it to Diffusion of Innovation Theory. After reading the literature on both the theory and the model, it is safe to say that when people choose to adopt a new innovation, they adopt because their needs are met. Persuasion occurs on many levels in the ELM. By
understanding the degree to which a person elaborates on a topic, communicators will be able to choose the correct form of communication at the right time for the person who will potentially adopt their innovation.

This thesis will contribute to the literature on both ELM and diffusion of innovation. Each level of the decision process of diffusion of innovation requires some level of involvement from the potential adopter. Level one of diffusion of innovation is knowledge. How do people learn about the product? Where did they hear about it first? Is the innovation important to them? If people are actively looking for that product and want to find out more information about it, they will have a relatively high level of involvement when making a decision about that product. For example, if people want to improve their movie-watching experience, they will actively search for new products that will improve their home-movie experience. They will find a product like Blu-ray and want to read more about it. They will first discover that Blu-ray will improve their home-theater experience by allowing them to have a high definition picture. They may actively look at videos of experts explaining the innovation, in addition to reading articles about the innovation. If these people put that much effort into learning about the product, they will most likely have a high level of involvement. This leads to the idea that if individuals are willing to do research into a new innovation, they will have a higher level of elaboration. If, on the other hand, people learn about the innovation from peers, their level of elaboration will be lower.

Sirius XM radio and traditional AM/FM radio are examples of this. With Sirius XM radio, the person can listen to the same station across the United States and Canada. With traditional radio, the listener has to change the station depending on location. Two arguments that can be made for Sirius XM is that listeners can have the same radio stations
no matter how far they travel. The second argument would be, there are very few or no commercials. For people who spend a lot of time in their vehicle, these arguments could persuade them because they point out two solutions to complaints about traditional radio. A peripheral approach to persuasion would be if people adopt this service because it comes with the vehicle. They tried the service because it was free. The level of elaboration is very low because the decision to adopt was already made for them.

For the purpose of this thesis, I will test the decision stage. The decision stage is the most important stage because this is where the innovation gets adopted or rejected. Referring back to the XM radio example, the person might like the service but chooses to reject the innovation because of the subscription fee. This stage is the result of the previous two stages. This thesis will add to the literature by seeking to better understand the route of persuasion used for adoption and the platform for understanding levels of elaboration.

**Research questions**

Because investigation is needed to understand the relationship between the ELM and diffusion of innovation, research questions have been developed. Note that research questions are used rather than hypotheses because there is a lack of literature that addresses these two theories together. The first issue is the need for cognition and product ownership. The literature suggests that people who have a higher need for cognition will tend to be persuaded by hard facts. Their need for greater mental stimulation when making a decision about a product will lead them to identify with arguments based on facts. These people will actively research these products and will be more likely to purchase new technologies. The understanding of how people are expected to react to central cues provides the first research question:
RQ1: Are the participants who identify themselves as having a high need for cognition more likely to purchase products first and be considered early adopters?

The literature suggests that participants whose levels of cognition are not as high will not react favorably towards messages directed towards the central route. A factor that is not directly associated with the innovation, such as what peers or reviews of the products say, holds persuasive power, but not as much as information gathered from personal research. Thus, the early majority may have a high need for cognition but not as high as early adopters. Research question two can be formed thus:

RQ2: Will participants who identify themselves as having a lower need for cognition than the early adopters adopt products on the first half of the diffusion curve and likely be considered the early majority?

The literature suggests that the later people choose to adopt a new innovation the more they are persuaded by peripheral cues. These people will do some research, but most of the knowledge collected will be from sources such as peers. Also at this point in the innovation curve more outside variables, such as variation and price, will affect the decision-making process. If the participants identify themselves as having a low need for cognition, they are more likely to adopt the product on the second half of the diffusion curve. Thus, the following research question is put forward:

RQ3: Will participants who identify themselves as having a low need for cognition adopt products on the second half of the diffusion curve and more likely be considered late majority?

The people who test the lowest on the need for cognition scale, will tend to be laggards. These people usually adopt the product because they have to. The central route is
not used at all. Reasons such as the discontinuation of their current product or service or an innovation being deemed obsolete are the most persuasive. Thus, the following research question can be identified:

RQ4: Will the participants who identify themselves as having the lowest need for cognition be the last to adopt new products?
CHAPTER 3

METHOD

The purpose of this thesis is to classify people based on principles of diffusion of innovation in combination with principles of the ELM. The goal is to figure out whether people with a high need for cognition adopt products earlier than those who do not have a high need for cognition. An online survey was used to answer the research questions. An online survey was the most appropriate method to use in this study, because it allowed the researcher to match levels of need for cognition (elaboration) and technologies adopted to measure the results.

Population and Sample

The participants were students from The University Alabama between the ages of 19 and 25. The average level of education were some college education to a completed bachelor’s degree.

Questionnaire

The questionnaire consisted of 18 personality questions, followed by a technology ownership survey. The first section of the questionnaire was the 18-item need-for-cognition scale. The Efficient Assessment of Need for Cognition is a questionnaire designed by Cacioppo, Petty, and Kao (1984), which assesses the levels at which people think about topics. The participants were asked to respond to statements on a 7-point likert scale, ranging from (-3) strongly disagree to (+3) strongly agree. This scale is used to measure the degree to which participants like to elaborate before making a decision. The questions are listed in Appendix A.
After the participants answered the need for cognition questions, they were asked a series of questions about technology product ownership. The three categories asked about were smart phones, tablets, and gaming consoles. These three categories were chosen because the time frame between each technological advancement gives us a realistic time frame with which to measure adoption rates. While the phones and tablets upgrade and change each year, gaming consoles do not. In the gaming industry the advancements are marked by generations. Each generation begins when one of the top manufacturers (Nintendo, Microsoft, or Sony) releases a new console. Each generation lasts four to eight years. There is a time frame that consumers have to transition before being forced to buy the current generation.

The answers to the questions were grouped into categories. The versions of each device were coded in reverse chronological order with the newest version coded 1.00 and the oldest coded 4.00. That number represented where each participant fell on the innovation curve. A 1.00 represented early adopters, while a 4.00 represented laggards.

People adopt a product in each category at different rates and for different reasons, for the purposes of this thesis their need for cognition and device ownership were investigated. If the results matched the literature, the participants would have made their decision to adopt or reject based on principles already established by the ELM and diffusion of innovation.

**Answering the RQs**

The research questions were answered with an ANOVA. An ANOVA was the best test to use, because it allows the researchers to test multiple groups at once for statistical differences. Having each of the devices coded 1.00-4.00 allows us to test each group’s need
for cognition. In the event the person does not own a device in the category, they were coded a 5.00.

The maximum score for the Need for Cognition was a +54. This meant the person had an extremely high need for cognition. The minimum score was a -54. This meant the person had an extremely low need for cognition. These parameters were obtained by asking all 18 need for cognition questions on a 1-7 scale, and then recoding the responses to a +3 to -3 scale. The score from this portion of the survey were used to test the ANOVA.
CHAPTER 4

RESULTS

The purpose of this thesis was to match levels of elaboration with technology owned. This thesis was an investigation of the Elaboration Likelihood Model and Diffusion of Innovation theory. The two theories help explain why people decide to purchase new items. Pairing these two theories gives future researchers a better understanding of the roles elaboration levels play in the adoption of innovation. Each participant’s Need For Cognition Test was scored. The scores were used as the dependent variable for each test. The range in scores was between -9 and +30. The mean score was +8.5. A total of 375 participants took the questionnaire. Of those, 360 were deemed usable for this research.

Participant Demographics

The participants were students at The University of Alabama. All of the were enrolled in communication courses at the 200 and 300 level. Students ranged from ages 19-25. The education levels of the students were from freshman to seniors.

Test of Hypotheses and Research Questions

The first research question asked about the need for cognition of the early adopters. This research question stated:

RQ1: Are the participants who identify themselves as having a high need for cognition more likely to purchase products first and be considered early adopters?

An ANOVA was performed in three categories in order to answer this question. The one-way ANOVA for smartphone ownership proved to have results of significant value, F(3,
356) = 2.621, p = .051. The significant difference was between group 1.00 and 3.00. The mean difference was -/+ 2.67161, p = .042.

**Table 4.1**

*Smartphone ownership*

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Range Low</th>
<th>Range High</th>
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</thead>
<tbody>
<tr>
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<td>9.2966</td>
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<td>-8.00</td>
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<tr>
<td>3.00</td>
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<td>.63833</td>
<td>5.3408</td>
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<td>16.00</td>
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<tr>
<td>4.00</td>
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<td>1.43203</td>
<td>4.5954</td>
<td>10.5351</td>
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<td>17.00</td>
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<tr>
<td>Total</td>
<td>360</td>
<td>8.5778</td>
<td>.31305</td>
<td>7.9621</td>
<td>9.1934</td>
<td>-9.00</td>
<td>30.00</td>
</tr>
</tbody>
</table>

**Table 4.2**

*ANOVA for smartphone ownership*

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<tr>
<th></th>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significant</th>
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<td>.051</td>
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<tr>
<td>Within Groups</td>
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<td>34.809</td>
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<td></td>
</tr>
<tr>
<td>Totals</td>
<td>12665.822</td>
<td>359</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A one-way ANOVA analysis was used to calculate the participant usage of tablets. There was a significant value to report, F(4, 355) = 2.631, p = .034. This significant
difference was between groups 3.00 and 4.00. The mean difference was -/+ 3.16269, p = .042.

**Table 4.3**

*Tablet Ownership*

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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<tr>
<td>Total</td>
<td>360</td>
<td>8.5778</td>
<td>5.93977</td>
<td>.31305</td>
<td>7.9621</td>
<td>9.1934</td>
<td>-9.00</td>
<td>30.00</td>
</tr>
</tbody>
</table>

**Table 4.4**

*Smartphone ANOVA*

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<th>Mean</th>
<th>F</th>
<th>Significant</th>
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<tbody>
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<td>34.651</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>12665.822</td>
<td>359</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The one-way ANOVA for videogame ownership had no significant findings to report (F(3, 356) = 1.837, p = .140).
Based on the findings of the one-way ANOVAs using smartphones, we reject the null hypothesis for research question 1. The significant findings on the smartphone usage matched what we expected to find in the first research question. The significant difference in cognition was between groups one (the early adopters) and three (late majority).

There was a significant finding in cognition between groups three and four for tablet ownership. Group three had the highest need for cognition, but it was not consistent with the research question. Research shows that people in the late majority have the highest need for cognition for tablet ownership. There were no significant findings for videogame console ownership.

Research question two deals with the early majority. The second research question stated:

RQ2: Will participants who identify themselves as having a lower need for cognition than the early adopters adopt products on the first half of the diffusion curve and likely be considered the early majority?

Based on the information gathered from the one-way ANOVA, we have no significant finding to report for research question two. The participants in the smartphone ownership did have a higher need for cognition than the late majorities, but lower than the early adopters. The difference was of no significance. The early majority for tablet ownership had a higher need for cognition than the early adopters, but lower than the late majority. This is not of significant value.

The results for the late majority proved to be the most interesting. The late majority had the most significant findings. Research question three stated:
RQ3: Will participants who identify themselves as having a low need for cognition adopt products on the second half of the diffusion curve and more likely be considered late majority?

This group’s need for cognition, late majority, was significantly lower than the early adopters in smartphone ownership, but there were no significant findings to report other than between the early adopters and the late majority.

The results for the late majority for the tablet ownership showed a significant difference in need for cognition between group three, late majority, and group four, laggards. The late majority’s need for cognition was significantly higher than the laggards. There were no significant findings to report with the videogame ownership.

The final research question dealt with the laggards and their need for cognition. The research question stated:

RQ4: Will the participants who identify themselves as having the lowest need for cognition be the last to adopt new products?

After conducting a series of one-way ANOVAs, there were no significant findings in smartphone and videogame ownership. There were significant findings for the tablet ownership. The significant difference in the tablet ownership was between the laggards and late majority. The results were significantly lower than the late majority. Because of these findings, the laggard, did not have the lowest need for cognition.

For this research we performed three ANOVA tests. Two of the three tests had significant findings. The third test with videogame ownership had no significant findings to report.
CHAPTER 5

DISCUSSION

The purpose of this thesis was to match the need for cognition with the technology owned by the participants. Significant differences were found in each category—smartphone, tablet, videogame console—but one. The videogame console score showed no significant difference between the console owners. The numbers appeared to be very similar. Of the 360 participants, only 117 answered that they did own a gaming console. This category did not include gaming computers or the accessories that go with the consoles.

The first research question explored whether people with the highest need for cognition would be the first to adopt new technology. After conducting the ANOVA test, the results show that the people with the highest need for cognition tended to buy the newest smartphone. There was a significant difference between groups one, the early adopters, and three, the late majority. Thus, those with the highest need for cognition did buy smartphones earlier than those with a lower need for cognition.

This group was very interesting because the person who had the highest need for cognition (+30) was in the early adopters category, and the person who scored the lowest on the need for cognition test (-9) also was in this category. This is interesting because overall this is consistent with diffusion of innovation. The theory mentions the level of uncertainty and ways it is reduced. The easiest way to reduce the level of uncertainty is just to research before adopting. Another way to reduce that uncertainty is just to try the innovation. Yes, most people in this category had a high need for cognition, but this also
take into account the people who do not research before they buy new products. The ELM states that most people that are peripheral cues are influenced by factors that may not affect how the product works. The person with the lowest cognition in this category likely had a high need of uncertainty with purchasing the latest smartphone. If the factor of persuasion was that the participant wanted to be the first to own the product would suggest that they have a peripheral way of thinking. Even though this group had the highest overall need for cognition, there was no significant difference between group one, group two and group four. Since the significant difference was between groups one and three, this suggests people with a higher need for cognition were more likely to adopt new technology.

When looking at the data for the tablet ownership, group three had the highest need for cognition. This group would be considered the late majority on the innovation curve. What was interesting about the results of this test was that there was a significant difference between groups three and four (p= .042). These findings could be attributed to the lack of information available on the first generation of tablets. The people who bought tablets in the first generation did not have much information available or have anything to compare it to as they did for later generations. After the first generation tablets, there was more information available for people to read and compare it to. Also, there is not a need to update this product as often as the smartphone. This might explain why this group had the highest need for cognition.

From a public relations perspective, this is important because it suggests that information holds heavy persuasive power for new innovations. Articles from the company with details about the new product should be encouraged when trying to inform and build
excitement surrounding new products. As time goes on, more information will become available. The results of the ANOVA with the smartphone and tablets back this up.

The second research question investigated the relationship between the early majority and the people with the second highest need for cognition. Although this group did have a lower need for cognition than the first group, there were no significant differences in any of the groups. Neither the smartphone nor the tablet showed any significant findings.

The third research question asked if the people who fall into the late majority have a lower need for cognition than the first two groups but higher than the laggards. This group tested the lowest of any group in the smartphone category. There was a statistical difference between the late majority and the early adopters when it came to purchasing smart phones (sig. .042). There also was a significant difference between the late majority and the laggards when it came to the adoption of tablets (sig. .042). Based on the findings of the ANOVA, we reject the findings of the null hypothesis. There is significant difference between the levels of cognition when it comes to purchasing smartphones and tablets.

As mentioned earlier, this shows that the late majority in the case of the smartphone had the lowest collective need for cognition. So much so that there was a significant difference between the early adopters and the late majority. This finding suggests that the late majority is more persuaded by peripheral cues when it comes to smartphone use. These people are possibly hearing about the product from others or waiting for the reduction in price with the release of a new smart phone. The late majority in the case of smartphone ownership are less likely to purchase the newest smart phone, as it is released.
When it comes to the results for tablet use, the late majority had the highest need for cognition. There was also a significant difference in the need for cognition between the late majority and the laggards. As mentioned earlier this could be because there was not much information available for the first generation tablets. This needs to be investigated further.

The final research question asked if the people with the lowest need for cognition were laggards. There were no significant differences in need for cognition when it came to purchasing a smart phone. The laggards actually had a slightly higher need for cognition in the smart phone category, but not of any significance. But there was a significant difference when it came to the laggards and tablet ownership. The laggards’ need for cognition was significantly lower than that of the late majority. As mentioned earlier, the possible cause of this could be the lack of information available about the first generation tablets. Because of this new technology, the participants who purchased it did not research and possibly bought it with little knowledge of the technology.
CHAPTER 6

LIMITATIONS

There are many limitations in this thesis, but the main limitation is the fact that the sample consisted of college students in a particular department at The University of Alabama. These students are very similar in many ways, and it could have possibly skewed the responses in a particular direction. Diffusion of innovation indicates that social norms are a heavy influencer of persuasion. Because the students are so similar, the research shows a social norm for one demographic.

Our sample was students between the ages of 18 and 24. Most of which were in 200-level classes. If we gave the need for cognition test to people who were not in college, there is a better possibility that the results would have been more spread out making the results more representative to a national sample.

Another limitation is that we did not ask why they purchased the products. We understand the need for cognition, but that may or may not be the reason people decided to adopt the product. If the person were an early adopter because his or her old phone did not work anymore and he or she was forced to upgrade, he or she would have been using the peripheral route, according to the ELM. On the opposite side, if the person decided to reject the tablets because he or she did not believe the innovation was worth adopting right away based on research about the product, he or she would have been using centralized processing.

The tablet ownership brought up a lot of questions. Another limitation was the advances in technology, and the number of people who chose to reject the innovation.
During the questionnaire, we did not ask why participants rejected the product. More qualitative research could be done to better understand why they did not adopt the technology. Also research needs to be done on how to change their attitudes towards adopting.

We are looking at technology
CHAPTER 7

CONCLUSION

The goal of this thesis was to learn more about the decision-making process when it comes to the diffusion of innovation. The theory that was used to pair with Diffusion of Innovation was the Elaboration Likelihood Model (ELM). These two theories were used as the framework for this research. What we wanted to investigate was need for cognition and device ownership and the relationship between these two theories.

The first theory was diffusion of innovation. This theory explains the process of how innovation spreads through society. This study took a closer look at people in the categories of the life of the technology: early adopters, early majority, late majority, and laggards. Each group has specific characteristics. The main difference the cognition test results. There where two significant findings.

The ELM is a dual route of persuasion. The two routes are central and peripheral. The central route is for the people who are more persuaded by strong facts and heavy arguments. These people tend to research items for information. On the other hand, the peripheral routes are more passive ways of gathering information. These people tend to be more persuaded by peripheral cues such as a famous person or peer pressure. This was gauged in this study by the need for cognition test.

The findings from the survey were that when it came to smartphone ownership, there were significant differences in cognition levels. The significant difference was between the early adaptors and the late majority. When it came to tablet ownership the
significant difference was between the late majority and the laggards. There were no
significant findings when it came to videogame console ownership.

The purpose of this thesis was to lay the groundwork for more research for
investigating the relationship of the ELM and diffusion of innovation. The findings here will
contribute to future research.
REFERENCES


APPENDIX A

Survey questions

A: Need for Cognition scale –

1. I would prefer complex to simple problems.

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<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
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<tr>
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<tr>
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<td>5</td>
<td>6</td>
</tr>
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<td>7</td>
<td></td>
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2. I like to have the responsibility of handling a situation that requires a lot of thinking

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<th>Strongly Agree</th>
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</thead>
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<td>5</td>
<td>6</td>
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3. Thinking is not my idea of fun.

<table>
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<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities

<table>
<thead>
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<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
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</tr>
</tbody>
</table>

5. I try to anticipate and avoid situations where there is likely a chance I will have to think in depth about something.

<table>
<thead>
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<th>Strongly Agree</th>
</tr>
</thead>
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<td>5</td>
<td>6</td>
</tr>
<tr>
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<td></td>
</tr>
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</table>

6. I find satisfaction in deliberating hard and for long hours

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
7. I only think as hard as I have to.
   Strongly Disagree  Strongly Agree
   1  2  3  4  5  6  7

8. I prefer to think about small, daily projects to long-term ones.
   Strongly Disagree  Strongly Agree
   1  2  3  4  5  6  7

9. I like tasks that require little thought once I've learned them.
   Strongly Disagree  Strongly Agree
   1  2  3  4  5  6  7

10. The idea of relying on thought to make my way to the top appeals to me.
    Strongly Disagree  Strongly Agree
    1  2  3  4  5  6  7

11. I really enjoy a task that involves coming up with new solutions to problems.
    Strongly Disagree  Strongly Agree
    1  2  3  4  5  6  7

12. Learning new ways to think doesn't excite me very much.
    Strongly Disagree  Strongly Agree
    1  2  3  4  5  6  7

13. I prefer my life to be filled with puzzles that I must solve.
    Strongly Disagree  Strongly Agree
    1  2  3  4  5  6  7

14. The notion of thinking abstractly is appealing to me.
    Strongly
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.

17. It’s enough for me that something gets the job done; I don’t care how or why it works.

18. I usually end up deliberating about issues even when they do not affect me personally.
APPENDIX B

Device Ownership Questionnaire

Which console is the most recent console that you own?

Eighth Generation Consoles
- PlayStation 4
- Wii U
- Xbox One

Seventh Generation Consoles
- PlayStation 3
- Wii
- Xbox 360
- Nintendo DS
- Sony PSP

Sixth Generation Consoles
- Sega Dreamcast
- GameCube
- PlayStation 2
- Xbox
- Gameboy Advance
- N-Gage

Fifth Generation Consoles
- 3DO
- Atari Jaguar
- Sega Saturn
- PlayStation
- Nintendo 64
- Gameboy Color
- Sega Nomad

Fourth Generation Consoles
- Sega Genesis
- Super Nintendo
- Gameboy
- Game Gear
Smartphone Ownership

What type of phone do you currently own and personally use?

- Samsung Galaxy Note 5
- Samsung Galaxy Note 4
- Samsung Galaxy Note III
- Samsung Galaxy Note II
- Samsung Galaxy Note
- Samsung Galaxy Mega
- Samsung Galaxy S6 Edge
- Samsung Galaxy S6
- Samsung Galaxy S5
- Samsung Galaxy S4
- Samsung Galaxy S3
- Apple iPhone 6s Plus
- Apple iPhone 6s
- Apple iPhone 6 Plus
- Apple iPhone 6
- Apple iPhone 5s
- Apple iPhone 5c
- Apple iPhone 5
- Apple iPhone 4s
- Apple iPhone 4
- Apple iPhone 3g
- HTC One (M9)
- HTC One (M8)
- HTC One
- HTC One X
- HTC Butterfly/Droid DNA
- Windows Phone 10
- Windows Phone 8.1
- Windows Phone 8
- Windows Phone 7
- Other
- I do not own a smartphone.
Do you own a tablet?

If not. Reason.

What type of tablet do you currently own and personally use?

- iPad
- iPad 2
- iPad 3
- iPad 4
- iPad Air
- iPad Air 2
- iPad Mini
- iPad Mini 2
- iPad Mini 3
- iPad Mini 4
- Samsung Galaxy Tab S
- Samsung Galaxy Tab Pro
- Samsung Galaxy Tab 4
- Samsung Galaxy Tab 3
- Samsung Galaxy Tab 2
- Samsung Galaxy Tab
- Samsung Galaxy Tab Plus
- Nook
- Nook Simple Touch
- Nook Color
- Nook Tablet
- Nook HD
- Nook HD+
- Nook Glowlight
- Nexus 7 (gen 1)
- Nexus 7 (gen 2)
- Nexus 10
- Nexus 9
- Kindle Fire
- Kindle Fire HD
- Kindle Fire HD (gen 2)
- Kindle Fire HD (gen 3)
- Kindle Fire HD (gen 4)
- Kindle Fire HDX (gen 3)
- Kindle Fire HDX (gen 4)
- Microsoft Surface
- Microsoft Surface 2
- Microsoft Surface 3
- Microsoft Surface Pro
- Microsoft Surface Pro 2
- Microsoft Surface Pro 3
- Microsoft Surface Hub
Appendix C

December 2, 2015

Jeffrey Lewis
Department of Advertising & Public Relations
College of Communication & Information Sciences
Box 870172


Dear Mr. Lewis:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on November 30, 2016. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

[Signature]

Carpanata T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama
UNIVERSITY OF ALABAMA
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying Information

Names: Principal Investigator
Jeffrey Lewis
Second Investigator
Karla Gower
Third Investigator
Department:
Advertising & Public Relations
Communication & Information Sciences
University: UA
Address: 609 38th Street, #209
Birmingham, AL 35222
Telephone: 334-763-0608
FAX:
E-mail: jdewis1@crimson.ua.edu
gower@apr.ua.edu

Title of Research Project: The Need for Cognition and the Adoption of New Technology: A Study of How the Elaboration Likelihood Model Impacts Diffusion of Innovation

Date Submitted: Nov. 5, 2015
Funding Source: na

Type of Proposal
☐ New
☐ Revision
 ☐ Renewal
☐ Completed
☐ Exempt

Please attach a continuing review of studies form
Please attach a renewal application

UA faculty or staff member signature:

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):
Type of Review: _______ Full board _______ Expedited

IRB Action:
☐ Rejected Date: ____________________________
☐ Tabled Pending Revisions Date: ____________________________
☐ Approved Pending Revisions Date: ____________________________
☐ Approved-this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date: 11-30-15
Items approved: ☑ Research protocol (dated 12-1-15)
☐ Informed consent (dated 12-1-15)
☑ Recruitment materials (dated 12-1-15)
☐ Other (dated)

Approval signature: ____________________________ Date: 12/2/2015

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Online Survey Invitation

Dear Respondent:

"You are invited to participate in a research study on product ownership and the need for cognition. The study is being conducted by Jeffrey Lewis, a master's student at the University of Alabama, with supervision by Dr. Karla K. Gower, a professor at the University of Alabama. I wish to better understand whether need for cognition influences an individual's purchase of new technology.

Taking part in this study involves completing an online survey that will take approximately 10 minutes to complete. The information you provide will be kept completely confidential. Only the principal investigator will have access to the data. The data will be password protected. Only summarized data will be presented at meetings or in publications.

Of course, your participation in this study is completely voluntary; you may skip any question you do not wish to answer. You may choose not to participate or you may withdraw from the study at any time without penalty. I would appreciate it very much if you could help us by completing the survey.

There will be no direct benefits to you, but the findings will be useful to marketers and public relations practitioners for understanding the factors influencing the adoption of new technologies.

Risks of Being in this Study
There will be minimal risks involved in this study. You will be asked about your ownership of technological products and your need for cognition. These questions are not expected to cause any feelings of embarrassment or discomfort for you.

Contact:
If you have any questions at any time, please feel free to contact Dr. Karla Gower, at 205-348-0132, or Jeffrey Lewis, at 334-763-0608. If you have questions, concerns, or complaints about your rights as a participant in a research study, you may contact Ms. Tanta Myles, the Research Compliance Officer at UA, at 205-348-8461 or toll-free at 1-877-820-3066.

You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email us at participantoutreach@bama.ua.edu. After you participate, you are encouraged to complete the survey for research participants that is online at the Outreach website or you may ask the investigator for a copy of it and mail it to the
IRB Project #

University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

If you understand the statements above, are at least 18 years old, and freely consent to be in this study, please click on the link to the survey to begin.

UA IRB Approved Document
Approval date: 12/1/15
Expiration date: 11/30/16