Electricity Energy Saving In Indonesia Households: A Look at Communication Campaign Programs and the Importance of Environmental Attitudes to Help Address the Electricity Crisis

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Abstract

The objectives for electricity-saving in the household sector created by Government of Indonesia are quite demanding. This study was used to encourage households (n = 884) in Depok, Indonesia to reduce their direct electricity use to explore the potential for achieving those targets. The purpose of this analysis was to find out whether the environmental attitudes act as a moderator between mass media exposure and interpersonal communication on electricity-saving behavior. The preliminary finds that mass media exposure is not directly related to environmental attitudes. On the other hand, interpersonal communication has linkages to the environmental attitudes and electricity-saving behavior among households. However, environmental attitudes are also believed to be one of the important factors that do a major role. When assessing the importance of mass media exposure and interpersonal communication on electricity-saving behavior, this occurs because the environmental attitudes was not the role of moderator. We conclude that by discussing the implications for the targeting of policy measures to tap the electricity-saving potential in households, it is necessary to examine changes in electricity-saving behavioral determinants. Communications cultural context of Indonesian society to change environmental attitudes and their behavior can use a small group communication preceded the use of mass media in furthering the message of energy conservation and electricity-saving.

Keywords: Mass media exposure, Interpersonal communication, Environmental attitudes, Electricity-saving behavior

1. Introduction

In Indonesian society, electricity-saving has not become a habit, so the electricity-saving campaign for household members is the idea of reform. Reform ideas will penetrate the households step by step or even sooner, depending on the attributes of innovation that can be seen in terms of impact. Basically, socialization or campaign is a way for the government to establish the values or attitudes of people according to the program persuasion or government policy. Since we are adopting new behaviors that are the result of the promotion of the community-based social idea, it is necessary to use more than one communication channels to boost social diffusion (Darley & Beniger, 2010). It will result in people adopting energy efficient innovation because they have made a commitment to accept practices based on information campaigns, engage in discussing innovation, encourage others to do the same with their behavior and increase the commitment to maintain sustainable behavior (Rogers, 1995) according to the characteristics circumstances of the innovation and its context (Wejnert, 2002).

Campaign electricity-saving reforms can be said as an idea, as have the following characteristics: (1) The relative benefits attained by the society, which is reducing the monthly payment of electricity and ensuring a sustainable supply; (2) Save energy wisely to save the lives of people; (3) The electricity savings program is easy to understand; (4) The idea of saving electricity is not difficult to try; and (5) The idea of saving electricity is used and communicated to others. Campaign on energy saving targets households because of their role to control the electricity consumption. However, households also have different demographic characteristics and psychological. Demographic factors include various things such as socio-economic status (education, occupation, and income), whereas psychological factors include their environmental attitude towards saving electricity, and interpersonal communication within the family and beyond. The different characteristics of households led the way toward respond different campaigns. Most of the electricity-saving information to associate with beliefs, attitudes, and their values.

2. Problems Statement

The process of development of a country often associated with the the rate of economic growth is to ensure a society enjoy better life. Rapid development in Indonesia requires of energy supplies, especially electricity, which also contributed to the increase in pollution. Therefore, it is necessary to determine the public information campaign towards the understanding, awareness, skills household members about the importance of saving electricity Social engagement such as this is a way to build awareness of the importance of electricity and the community is ready to maintain electricity supply.

Public accessibility to the media and how a media message influence the public are considered important factors. (Busselle, 2001; Shrum, 2002). The society also processes information that they gather a different one mass media (Wyer & Radvansky, 1999). Information published by the mass media are not always strong, but the effect on the society is only moderate. This is caused by other factors such as accessibility (Busselle, 2001; Shapiro, 2002), and what society has done to the media (Rogers, 1995). The media can

provide a lot of information and ease of accessibility for the society, but more important is whether the information is intended to support the knowledge and competence for energy saving activities.

The audience is active and had assumed a specific purpose. The most audience can accurately be responsible for selecting the media since they know what they need and how to fulfill it. Media is recognized as a way to fulfill individual needs, and across its requirements through the media or some other means (Littlejohn, 2002).

Limited information conserves electricity released by the mass media to change the behavior of households due to the type and coverage. Public skeptic because of the credibility of the media and media content is also unconvincing. Public confidence is strengthened by the role of interpersonal communication to help disseminate the information available through mass media.

Rogers *et al*. (1999) suggests several reasons why individual attitudes, beliefs, values, and behaviors are influenced by the main group or its members, namely: (1) public benefit from sharing ideas, attitudes, and behavior of the resource; (2) The main group consists of groups of reference; (3) The audience depends on the reference group to validate interpretations and the results. Audiences do not evaluate media information solely of the benefits of the information; (4) The public relies on the reference group for instructions on how to do things. The information media tell audiences what to do, but rarely directions on how to do it. For instance, electricity-saving information to inform public to conserve electricity, but does not tell how to save electricity, and (5) the public found the guidelines of a normative reference group. Media information often made to affect beliefs, attitudes and ultimately behavior of audiences.

Attitude has a critical influence on the decision to accept or reject an innovation. According to Berelson (1952); Macnamara (2005) the success of communication is influenced by past experience. If past experience shows positive signs, then it will affect the attitude and acceptance of people and build positive behaviors and vice versa. Attitude is an influential factor in relation to the use of the media. Concept Tripartite Model Attitude for an explanation of the underlying attitude (Rosenberg & Hovland, 1960). Basic assumptions of this model is to determine the level of knowledge, feelings or desires of households in electricity-saving. Sorolla (2001), argues attitude has three dimensions, namely: a cognitive dimension refers to the beliefs and thought to give an assessment of an object. Affective dimensions that affect people's feelings. As well, the attitude has dimensions that determine the behavior and habits of one's actions. Attitudes also have several characteristics, namely: tendency, intensity, breadth, consistency and spontaneity (Schwarz & Bohner, 2001).

Persuasion theory is used to underlying explanation audience behavior (Ajzen, 1998). The underlying assumption of this theory is the message given in the communication process can create a reaction that produces behavioral changes to enable the recipient to respond to the message. King and He (2006) proposed a study on the adoption of innovations that have used technology acceptance and the reason of action as theoretical models. Thus, the behavior of continuous electrical energy savings using combined the Technology Acceptance Model

(Davis, 1989), and the Theory Reason of Action (Fishbein, 1997).

In this study, the behavior of the audience is to respond to the energy savings program; can predict behavioral outcomes such as saving energy saving electricity costs and build a smart family life. In addition, the acceptance of electronic energy-saving products described using the Technology Acceptance Model was introduced by Davis (1989). Assuming this model is beliefs of a technology will affect the behavior of the society which in turn will trigger the desire and ultimately led to the use of electrical technology. This belief is related to the technology that is easy to use and very useful. Both of these factors determine an individual's attitude towards the acceptance of technologies. In connection with the formation of attitudes toward technology adoption, it is easier for the society to be affected by the attitudes and a social norms viewpoint (Al-Jeraisy, 2008). The households are not always rational. Therefore, the existence of technology acceptance are important to consider the social aspects. Decision adoption and use of technology is actually often done in a collaborative or with a view to how they fit with, or affecting others (Venkatesh *et al.*, 2003). Therefore, the study looks at environmental attitudes play a role as a moderator in the relationship between mass media exposure and interpersonal communication with an electricity-saving behavior of households. The moderator relationships can help to understand the impact of the relationship between the independent variables, namely, mass media exposure and interpersonal communication with household electricity-saving (Hayes, 2009). When all the variables significantly correlated mean environmental attitudes to be associated with electricity-saving behavior. The purpose of this research was to identify whether environmental attitudes serves as a moderator variable in the relationship between mass media exposure and interpersonal communication with electricity-saving behavior among households in Depok, Indonesia.

3. Literature Review

Few researchers would disagree that the foundation of media-effects research lies in the reliable and valid measurement of media exposure, in the extent to which audience members have encountered specific media messages or content (Slater, 2004). Despite the importance of media exposure measures to media effects research, there is still little consensus about how media exposure should be operationalized (Fishbein & Hornik, 2008). Similar observations, though on less systematic a different one, have been made in health communication (Romantan *et. al.*, 2008) and political communication (Prior, 2009). The problems that surround the measurement of self-reported media exposure are exacerbated by two recent changes in people's media environments. First, new media technologies have proliferated, and second, media have become increasingly mobile. In our view, the people are not only exposed to much more media content than ever before, but this exposure also happens nearly everywhere, anytime, and even simultaneously when they multi-task. For example, 80% of adolescents have been found to use other media while watching television (Roberts *et. al.*, 2005). Similarly, the majority of college students engage in multiple tasks when being on the Internet; they chat while playing games, or visit social network sites while emailing (Moreno *et al.*, 2012).

Basically, in terms of exposure to particular messages, researchers need to focus more

strongly on the advantages and disadvantages of recognition measures. Recognition is usually operationalized by asking respondents whether they have seen or read a particular message. Alternatively, a respondent could be presented with a verbal description of the message. Recognition measures are preferred to recall measures, both because their coding is less time-consuming than recall measures, and because they are less confounded with motivational factors, such as interest in a topic (Southwell & Langetau, 2008). Many mass media campaigns on electricity-saving have been implemented in the past decades. The goals of these campaigns are general to persuade individuals to either take personal steps to avoid excessive electricity consumption in households. Several aspects of mass media campaigns may influence their effectiveness. These can be categorized into variables related to message content and to message delivery. One important aspect of message content involves the themes used to motivate the desired behavior change. Some common motivational themes in mass media campaigns to reduce electricity-saving include the high cost of electricity bills; understand the use of electronic equipment in an efficient; provide an opportunity others utilize electricity; promotion of positive social norms. The actions promoted by the campaigns also vary, ranging from messages related to its needs or moderation to more specific behavioral recommendations. The degree of persuasion may be influenced by interactions between the message content and characteristics of the recipient (McGuire, 1989). For instance, motivating a response among household that initially do not view the problem addressed as being important or relevant to them. They may also be more persuasive to people who are already engaging in the desired behavior.

A mass media campaign cannot be effective unless the target audience is exposed to, attends to, and comprehends its message. Two important aspects of message delivery are control over message placement and production quality (Keller, 1999). Control over message placement helps to ensure that the intended audience is exposed to the messages with sufficient frequency to exceed some threshold for effectiveness. It also allows for the optimal timing and placement of those messages. This control can only be assured with paid campaigns. Those that rely solely on donated public service time may attain adequate exposure,but message placement and frequency are ultimately left to media schedulers and station management; paid advertising time always gets preferential placement. Assuming that the target audience is adequately exposed, the high production quality of the campaign messages may maximize the probability that the audience will pay attention to them. High production quality may also improve the chances of eliciting the intended emotional impact.

Most contemporary media-effects theories are in accord with both of these famous quotations, such as Klapper (1960) and McQuail (2010). Contemporary media-effects theories recognize that effects of media use on outcomes are conditional - that is, they do not hold equally for different individuals. Most media-effects theories, whether they focus on informational (McLeod *et. al*., 2009); the reinforcing spiral model (Slater, 2007), or persuasive media or messages (Petty & Cacioppo, 1986), acknowledge that certain conditional variables (also named moderating variables) increase or reduce the effects of media on individuals. Conditional media effects are also recognized in the critical perspective, although a different terminology is used to express this notion. In the critical perspective (Sternheimer, 2003), it

has often been emphasized that media effects research is unduly influenced by across-the-board effects. Audiences differ in their interpretations of media content (Livingstone, 1998), and these interpretations partly depend on gender, class, and age (Kim, 2004). The factors that helped shape the new attitude is the credibility of the source and content of media information. McQuail (1994) said that the role of the mass media to disseminate information quickly and widely, to draw public attention directly, forming opinions and beliefs, influence behavior, sort of reality, shaping the status and legitimacy. Added by Kosicki and McLeod (1990) that readers, listeners, and viewers of the media have an underlying personal or common sense about media and its products, due to his experience with the media.

Mass media exposure is based on the theories of media influence (Zillmann & Brosius, 2000; Zillmann, 2002; Shrum, 2002), basically viewed from the standpoint of processing see what the mass media to the community, not enough to know someone affected by media content. The study to see what people do with the media when receiving an idea, practice, or object that is delivered through communication through a social system (Rogers, 1995), incorporating a fundamental part of exemplification (Zillmann, 2002), and processing (Gerbner, 1998, Shrum, 2002) to study the relationship between mass media exposure with continuous energy saving behavior. Studies on promoting the most effective behavioral change mainly carried in the community. The diffusion process is proving to be an effective process to promote sustainable behavior (Bender et al., 2002). The relationship between media exposure and the admissibility of information to change behavior among social community demonstrated a moderate effect (Busselle, 2001). Thus, the mass media can be used as agents of the development of a society (Rogers, 1995). Dissemination of information related to the process of social change, which consists of the discovery of the reform, diffusion, and its consequences. Pervasive innovation into the community groups as communicated constantly by the media development for a long time (Rogers, 1995).

Selection of energy savings information through mass media audience due preference to obtain information relevant to their needs. This is confirmed by Severin and Tankard (2000) that the selection of the exposure as a person wishes to reveal himself, agreed with relevant information as to modify their behavior and avoid any inappropriate communication and relevant to the interests and attitudes (Baran & Davis, 2003). Members of the audience can choose any of the media that will be read, heard and seen, as well as to assess the content of the information it receives. While different audiences receive the same information, they will focus on specific issues that differ from it. The information selection of mass communication will be effective if the current public information received can strengthen its position (Taylor *et al*. 1990). The flow of information may take place in two stages, the information received by the audience and received through channels of interpersonal communication in groups, such as family, neighbors, close friends, and members of other groups (DeFleur & Ball Rokeach, 1989; Severin & Tankard, 2000). In the context of this research, the energy savings campaign is the idea of reform, has four key elements, namely: innovation, channel, time, and communication (Rogers, 1995), as closely associated with the level of consciousness, orientation, whether the household electricity savings can be brought into harmony in everyday life, these attempts to save electricity and use of fully electronic goods that save electricity in their life.

The research takes into account interpersonal communication as empirically role as the assistant disseminator of information to mass media campaigns. To understand this, Wood (2002) defines interpersonal communication is one way of selective, systemic, unique, and processes that reflect the interaction between people and build a personal knowledge of each other and create shared meaning and DeVito (1998) with some type of impact and some sort of immediate feedback. In this context, researchers have been able to test the strength of indirect exposure assumed that households receiving energy savings information from the mass media will pass it on to others. Through indirect exposure, people discuss the information received from mass media campaigns with other people and a wealth of knowledge, attitudes, and behaviours related to the campaign can indirectly channel. This study uses interpersonal communication effectiveness as a driver for (a) building confidence and (b), to develop familiarity to enable communicators to maintain and improve the perception-communicant communicant for his services. The important role of communication affects the confidence and commitment that there is no previous relationship (Duncan & Moriarty, 1998; Sharma & Patterson, 1999). Therefore, communication plays an important role in building confidence, to facilitate the sharing of information, signs, and signals. Someone who can be trusted if he conveys information accurately. Credibility is believed most of the evidence from a source of trust than distrust of the evidence (Reinard, 1988). Thus, according to Ganesan (1994); Ganesan & Hess (1997); Che Su (2007), interpersonal communication can be explained through social communication frequency; provision of information; the credibility of the trust; efficiency and effectiveness; charitable trust; and familiarity.

Communication skills, such as self-assertiveness are considered conducive to the perception of the efficiency of interpersonal communication. It is taken from the view of Western culture. For the people of the East such as Japan, assertiveness is associated with the ability to provide customized responses to natural and social environments. In collectivist societies such as Japan and Indonesia too, the expression is at risk of harmony and community members are difficult communication behavior practiced (Barnlund & Yoshioka, 1990; Gudykunst & Nishida, 1993; Hirokawa & Miyahara, 1986). Gudykunst and Nishida (1993) assert himself out of personal motive is not an appropriate thing to do in a situation of interpersonal collectivist society. On the other hand, does not state clearly what you have in mind is a sign of strength, maturity and social competence in Asian cultures. To study the dimensions of interpersonal communication, researcher tried to take the understanding of the integration of the relationship (Knapp, 1984), relations with (Barnes, 2001), the effectiveness of interpersonal communication (Duncan & Moriarty, 1998; Sharma & Patterson, 1999; Takai & Ota, 1994), credibility (Reinard, 1988), trust (Ganesan, 1994; Ganesan & Hess, 1997); Statement sense of refinement and sensitivity (Barnlund & Yoshioka, 1990; Gudykunst & Nishida, 1993, 1994; Hamaguchi, 1990).

Many Scholars defines that attitude is a consistent tendency of things (ideas, objects, people, situations), either positive or negative, which involves cognitive, affective and conative. Attitude is closely related to the opinions, beliefs and is based on their experiences. Despite substantial evidence that construct cognitive affects how people attitude toward objects, communication effects have received relatively little attention within social psychology. Regardless of whether or not change the physical or social world, the attitude derived through

experience and affect a person's behavior is widely accepted within the field of psychology. According to Fishbein (1997), attitude is a complex system and consists of the beliefs to object, feelings towards the object and a tendency to act closely linked to objects. Overall experience was to the attitude that involves cognitive, affective and behavioral. Hogg and Vaughan (2004), argues feeling or attitude as positive or negative evaluation of people, objects or issues, whereas, De Matos *et al*. (2007) argues that attitude contribution variation toward intention to act is influenced by the variation belief change of subjective norm.

Attitude is an important factor that will affect individual decisions. Formation of attitude describes the relationship between beliefs, attitudes and behaviors. Individual belief is knowledge of an object, attributes and benefits. Knowledge is useful in communicating an object attribute on the individual. Basically, Rosenberg and Hovland (1960); Sorolla (2001), argued that attitude founded three components, i.e.: affective, cognitive and behavioral. The affective component includes positive and negative individual emotions toward an object, which is how feeling someone against it. Cognitive component refers to beliefs and ideas that was held by someone with something object. Whereas component behavior consists of tendency or intends to act on specific behavior that related to attitude. Based on their findings, Berelson (1952 argue that success of communication is actually influenced by experience. Therefore, attitude is the most important element in relation to use media.

There are two different views about attitude, which is the tripartite view and one-dimensional view (Lutz, 1991). In the view, tripartite attitude is seen as a construct that has three components, i.e. knowledge or cognitive, feelings or affective, and actions or conative. Cognitive component refers to the faith or one's belief to object. Affective component also related to emotional reaction to objects. Meanwhile, conative describe intentions or behavior of the object. The three components of attitude is an integral part of an attitude.

One-dimensional view holds that, the three components (cognitive attitude, affective, and konatif) is one-dimensional components that is self. In one-dimensional views, each component has a distinctive dimension (Fazio, 1990; Manstead, 1996), where cognitive components (think) affect to affective (feeling) and affective components influences to conative components (actions), conative components or intention behave not influenced by affective components only, but also by other attributes (Ilfeld & Winer, 2002). According to Manstead (1996), to maximize the relationship between attitudes and behaviors, it is important to follow the principle of compatibility. It can be said that they are correlated with each other if they are compatible to action performed, object at which the action is directed, context in which the action takes place and time at when it takes place. For example, in Theory of Planned Behavior, factors affecting intention to behave, in addition, affective component of attitude, is also influenced by subjective norms and perceived behavioral control (Ajzen, 1991). Meanwhile, intention behave in accordance with the assumption in Technology Acceptance Model, while influenced by the affective component of attitude, is also influenced by the perception of the usefulness (Davis *et al*., 1989).

According to Fishben (1997) to understand and predict relationship between attitude and behavior is in line with describing relationship between belief, attitude and behavior. Belief

was found influenced by the attitude towards behavior; subjective norm; and perceived behavioral control. All three of these components affect intention to behave. Previous studies show a relationship between subjective norms and intentions (Teo & Lee, 2010), while others found that subjective norms are predictors of intention in different areas (Chan & Lu, 2004; Koklic & Vida, 2011). Subjective norms also involve (a) trust behavior - what determines the default, which is behavior that is expected by others, and (b) motivation to obey behavior expected. Therefore, measurement attitude needs to take into account three aspects to describe a complete picture about attitudes to subject.

Behavior is determined by the specific motives. Behavior components were directed behavior attitude, subjective norm, and intention to behave. An action will be performed when the benefit itself, social norms applicable give a favorable attitude and behavioral control are appreciated. In adopting innovations both internal factors, such as attitudes and intentions, and external factors, such as the reference group, an important factors influence behavior (Koklic & Vida, 2011). According to Ajzen (1998) intention is affect by attitude directs behavior, subjective norms, and acceptance control behavior. Belief components interact that determine also motives to behave. Other factors that determine behavior is behavior control.

Energy saving behavior did not come true, if household receive enough information from mass media do not have positive attitude toward saving electricity. Attitude also identified can influence individual behavior, if attitude to provide benefits for themselves and instead negative when harm them. To identify various factors, which simplifies relationship between attitude and behavior, factors that can be found to improve consistency of attitude and behavior, for instance, is direct experience related to attitude object (Fazio & Olson, 2003), and accessibility attitude (Fazio, 1990). Previous research assumed indirect effects of behavior is mediated by values, attitudes, and beliefs. In fact, empirical research study reported the results of which are not always consistent between attitudes and behavior (Van Liere & Dunlap, 1981). This situation draws attention to put environmental attitudes as the moderator in the relationship between mass media exposure and interpersonal communication with electricity-saving behavior among households. Therefore, the moderator relationship helps to understand when there is a certain effect. Fazio and Williams (1986) believe that high consistency of group more accessible is a function of attitude stability. Accessibility can be achieved through quick reaction as rated by respondents. Attitude is accessible linked to process selected information and even selective attention (Fazio, 1990; Roskos Ewoldson & Fazio, 1992).

In studies on issues such as electricity energy saving, environmental psychology research previously mainly focuses attention to the environment as a predictor of behavior or attitude towards environment (Van Liere & Dunlap, 1981; Chan & Holzer, 1990; Grob, 1995). Unfortunately, there are some types of ecological behaviour without such relationship (e.g., Auhagen & Neuberger, 1994; Fuhrer & Wolfing, 1997), and at least two studies show that the relation is rather small (Van Liere & Dunlap, 1981, Dunlap *et. al*., 2000). The assumption that changes in attitudes and beliefs done by educating and provide enough information to change behavior of households to save electricity.

Information quality is measured from it helps to be reminded (Rholes & Pryor, 1982; Morris & Peng, 1994). An important factor in attitude and opinion is accessibility concept. Grant, Mockabee and Monson (2010) viewed idea campaign and accessibility and result of effect these ideas. Availability attitude interpreted as a possible attitude would instantly be activated from memory when object is found (Fazio, 1990). Accessibility statement can be seen from the effects of attitudes and opinions. It can be said that accessibility refers to short-term contextual factors or basis only. The difference of attitude according to Fazio *et. al*., (1986), because attitude affects to behavior with information filtering and create the perception, whereas strengthening attitude or neutralise effects of attitude toward behavior (Petty & Krosnick, 1995).

Fazio (1990) suggest a different perspective to understand process of technology adoption through strength attitude effect. This perspective can explain role attitude in order to use the system in process of adoption and to obtain a logical explanation why many previous studies on technology adoption often failed to find a role attitude in technology used. One more important thing, it was found that attitudes important role and attitude strength in technology adoption. Investigation proceeds could begin to consider factors that affect strength of attitude with purpose of avoiding a situation where technology is accepted but not used.

Rosenberg and Hovland (1960) introduce attitude approach through Tripartite model. This model put components affective, cognitive, and conative in sequential hierarchy factors of first stage to next level to establish concept of attitude. Attitudes towards an object serves as an intermediary between response and object. Response consists of a response to cognitive, affective, and connative closely related to three components of attitude. Sympathetic response is individual activities to respond to emotional situations and emotional behavior symptoms. Perceptual response is individual responses to certain stimuli that strong intensity. This response begins from past experience and belief that belongs to.

Tripartite Attitude Model (Rosenberg & Hovland, 1960) is applied in this study, which is households with cognitive feeling and positive attitude to object, and then would tend to support attitude object. Degree of support to attitude object among households varies between one another. Individual cognitive component can indicate strongly agree, agree or neutral against saving electricity idea. Similarly, individual feeling shows vary rate. Individual actions undertaken in a spirit different from one individual to the other. A positive attitude toward household electrical energy saving has a different between one another. This condition affect degree households energy saving behavior.

Application Model Rosenberg and Hovland (1960) and Model Process Attitude - Behavior Fazio (1990) can be described that households have cognitive feelings and positive attitude to object, and it will be likely to support attitude object. The degree of attitude support of varying each other. Individual cognitive component individuals can show strongly agree, agree or neutral against saving electricity energy idea. Similarly, feeling individual shows the rate to vary. This situation also impact to degree electricity-saving behavior.

The context study of behavior for saving electricity assumed by Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), and Theory of Planned Behavior (TPB).

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Over the past decade, researchers have been using TAM for investigation in technology adoption. This model sequence from a pioneer Ajzen and Fishbein who introduced TRA. TAM has been trying to predict and explain the functions of a system that puts perceived usefulness / PU and perceived ease-of-use / PEOU as two important components in technology adoption.

Theory of Reasoned Action was adapted from Fishbein's legacy (Fishbein, 1997; Ajzen, 2012) . This theory is designed to take fundamental attitude predict all forms of behavior. In TRA, behavior is influenced by attitudes and subjective norms. The focus of TRA base on the three-stage process, which is: beliefs, intentions and actions of their components along with. TRA have added perceived behavioral control as determine to individual behavioral intention.

Theory of Planned Behavior (Ajzen, 1991) assumes that behavior is determined by behavioral beliefs, normative beliefs, control beliefs, attitudes guide behavior, subjective norms, acceptance control behavior, intention towards behavior and indirectly by power factor control. TPB has been applied and validated in a large number of studies (refer to e.g., Chang, 1998; Hansen *et al*., 2004) but has also been subject to criticism. TPB assumes that individuals actively develop an attitude towards the considered behavior. Therefore, according to Ajzen (1991), that relationship of intentions in performing a behavior can be understood through the TPB. TRA and TPB have been practiced and valid in most learning (Ajzen, 1991; Chang, 1998). TRA is fundamental to the relationship between the two components, namely perceived usefulness, perceived ease of use, attitude, intention and behavior using technology (Ajzen & Fishbein, 1980, 2004).

Researchers such as Davis (1989) have used the Technology Acceptance Model to investigate technology adoption, particularly information systems. TAM main goal is to provide a basis for studying external factors effect on beliefs, attitudes, and goals of users. The TAM main strength is its relationship: intentions to use a technology influence usage behavior, and perceived usefulness (PU) and perceived ease of use (PEOU) determine intentions to use.

Technology Acceptance Model has received considerable attention of researchers in the technology acceptance field over the past decade. In the Technology Acceptance Model, there are two determinants including perceived usefulness and perceived ease of use (Davis, 1989). Perception usefulness is to what extent someone to believe that using certain system will improve its work performance and perceived ease of use as "degrees that use technology will be free of effort. Both perception it will affect individual attitudes toward technology adoption whereas attitudes and perceptions usefulness will predict intention to direct individuals behavior. Perceived usefulness is main factor whereas perception easy of use is second factor that determines technology adoption. Perception ease of use has a positive effect on the perception of technology adoption through perceived usefulness.

Study Szajna (1996) also find that all empirical study related to technology adoption has supported hypothesis perceived usefulness is directly related to technology adoption. A critique of a number of shortcomings with the TAM and points to specific remedies in each case. Bagozzi (2007) describes that a model for the purposes of providing a principle for a paradigm shift, a decision-making core (goal desire, goal intention, action desire, action

intention) that is grounded in basic decision making processes of a universal nature. The decision core also contains a mechanism for self-regulation that moderates the effects of desires on intentions. the decision-making core are a number of causes and effects of decisions and self-regulatory reasoning, with the purpose of introducing potential contingent, contextual for understanding decision-making.

Study Venkatesh *et al*. (2003) against technology adoption can be achieved if the role group or social aspects are not ignored. Benefits of human behavior characterized by individual act. Decision on acceptance and use of technology is often done in a collaborative or with purpose to how they fit. TRA has become advanced theory of TAM. Fishbein and Ajzen (1975) has been researched relationship between belief, attitude and behavior which in turn has developed a structural model attitude. According to TRA, decision is best treatment to predict intention and intention is to refer to attitude and subjective norm. In summary, TRA proposes that individual beliefs affect individual attitude and intention form which will develop behavior. TRA model based on two main factors determine behavior intentions, which is attitude toward behavior and subjective norm. Attitude toward behavioral refers to whether assessment of a behavior is good or bad. Subjective norms shows social influence whether affect someone either implement a behavior or not.

Based on TRA model, the attitude was a function of belief. In general, a person who believe that implementation of behavior will bring positive results and this will lead to have a good attitude leads behavior or vice versa. For example, a person who believe that save electricity will be give good in day-to-day lives, they will form a positive attitude and so on influence to save energy electricity. Whereas subjective norms also is a function of normative beliefs. In other words, the individual who is affected by social conditions around it so that implement something behavior, they will carry out such behavior and vice versa. For example, a person will be ready for save energy electricity if social conditions, such as household round about, were the best friends and relatives says that save energy electricity will bring goodness. According to TRA model, subjective norms are determined by the reference group and motivation someone according to own beliefs. Intention is a key determinant of behavior. Intentions is considered to describe attitude direct behavior and subjective norms. TRA concern about rational, feelings and systematic behavior (Chang, 1998). A behavior is determined by specific motives through a logical way (Fishbein & Ajzen, 1975). A critical issue in the behavior saving electricity energy research is a household can take decisions on consumption of electricity not only from the point of view that beneficial economic and family welfare but also the environment. Meanwhile, diffusion of information tend to be voluntary, and communicative to engage in the behaviors (Held, 1993; Kim & Choi, 2005).

Behavioral reasons is not only emphasized on rational behavior, but also an action under cognition control. It can be argued that household members attitude will affect their behavior. Positive attitude to use electricity taken through process of rational decision. Energy saving behavior influenced also by subjective norms, i.e. belief that action performed in with society norms. An attitude leads to behavior and subjective norms that arouse electricity-saving intentions. Intention is a function of attitude towards behavior and perception against social pressure to do or not to do actions. Someone will take action if it is believed to act positively,

and other people assume that act to be done.

It is known that control behavior distinct individuals one another. Consequently, that TRA (Fishbein & Ajzen, 1975) and later modified by Ajzen (1991) became TPB, which considers concept of desire. TPB is an extension of TRA, which is with addition variable *perceived behavioral control*. According to Chau *et. al*., (2001) besides behavioral and subjective norm, to describe situations where individuals have no control over behavior. Even Chau and Hu (2002) TPB integrates with TAM, and recommended behavior is measured by three indicators, namely the ability, knowledge, and resources available. In comparison with TRA, TPB has added perceived behavioral control/PBC) to determine individual behavioral intention. TRA and TPB have been put into practice and valid in most learning (Ajzen, 1991; Chang, 1998). TRA is basis on relationship between two components which is perceived usefulness, perceived ease of use, attitudes, intentions and behavior using technology (Ajzen & Fishbein, 1980).

Perception refers to control behavior response someone against internal or external obstacles during do something behavior (Ajzen, 1998). Ajzen and Madden (1986) has distinguished internal perception control and perception external control behavior. Internal control is a factor related to carriage individuals, including information held by a person such as skills, ability, emotions and behavior concerns imposition something specific (Ajzen, 1988). External control factor is to determine how far situation makes it easier for or interfere with their performance of behavior (Ajzen, 1988), because this specification is critical to achievement TPB and distinction behavior will be influenced by a set control factors (Flannery & May, 2000). In addition, Ajzen and Madden (1986) also noted perception behavioral control as individual perception of the presence or lack of the necessary resources or opportunity, is required to perform a behavior.

TPB has become one of the foundations of the TRA to prove success in predicting human behavior across various information technology (Ajzen, 1991, 2001). Personality has become moderators to TPB. Referred to differences personality dimensions with a tendency to show a consistent way of thinking, feeling and action and thus be hypothesized to represent an influence on the cultural phenomenon, behavior and life (Allik & McCrae, 2004; McCrae *et al.*, 2004).
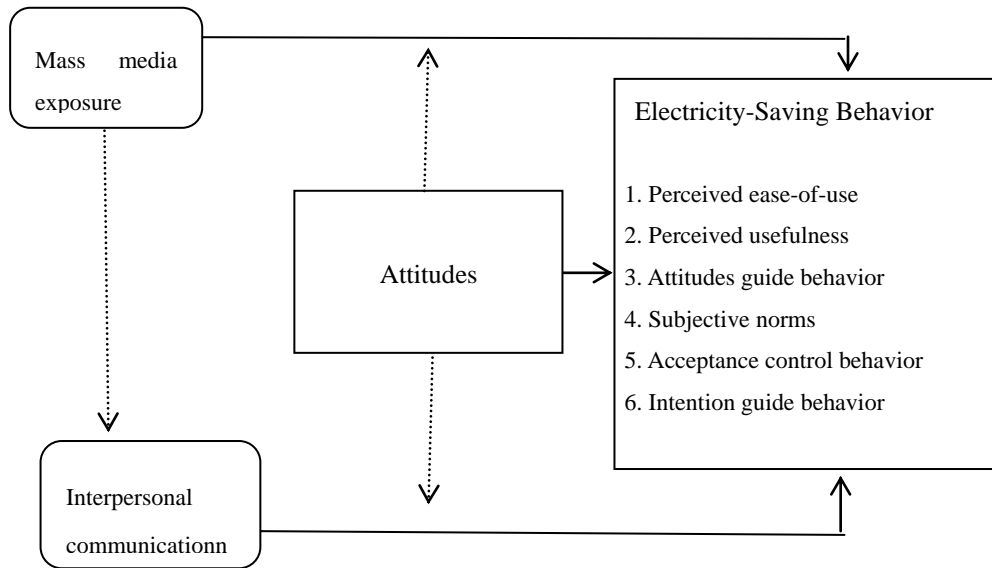
Conceptual Framework

Figure 1. Integration Theory of Planned Behavior and Technology Acceptance Model for Research on Electricity-Saving Behavior

4. Research Method

The quantitative method used in this research. A set of questionnaires used to collect data on the diffusion of electricity-savings innovations among households in Depok Municipality, Indonesia. The instruments used to measure the constructs in this research are adapted from the previous study to ensure the content validity. Six indicators were used measure mass media exposure, namely (i) the frequency of the information published media; (ii) credibility and the credibility of the information content communicators / media; (iii) the accessibility of reading newspapers, listening to radio and watching television; (iv) the selection information; (v) the diffusion of information; and (vi) the effectiveness. Five indicators were used to measure interpersonal communication, namely (i) frequency; (ii) familiarity; (iii) trust; (iv) efficiency; and (v) the effectiveness. Three indicators used to measure environmental attitude, namely (i) cognitive, including knowledge; thoughts; trust; ideas and facts; (ii) affective includes motivations and feelings. Feeling it contains elements of respect, appreciate or sympathetic, contempt, fear; and (iii) connative, direction to act in a certain way, so that its behavior in line with attitudes. Whereas six indicators were used measure electricity-savings behavior, namely (i) the perception of the usefulness; (ii) perceived ease of use; (iii) attitudes directed behavior; (iv) subjective norms; (v) control the behavior of the people indulging in the practice; and (vi) the intention of saving electricity. All items were measured using a Likert scale. A pilot study using a sample of 60 households in Depok, Indonesia, from 14 to 16 January 2009. The reliability of the test pilots ranged from .81 to .94 which are sufficient for research purposes (Sekaran, 2005). The number of population (N) in this study is 37,257 units. To obtain a sample size, the researcher used the Schedule Herbert & Colton (Creswell, 2003), at 99.7% degree of confidence and p: q = 0.5:0.5 and scale samples in the standard error ±5%. Obtained a total sample was 884 people. A survey was carried out by taking one month, from July 15 until August 13, 2009, in the District of

Cimanggis, Depok, Indonesia.

5. Analysis and Results

5.1 Demographic Characteristics

The study was based on data collected through questionnaires answered by 884 respondents. A total of 87.7% of households were male and 12.1% female. As many as 73.9% of respondents who graduated senior high school, while 9.5% junior high school. There is a total of 18% holds the diploma, 10.2% graduated with a Bachelor's degree. A total of 2.1% post graduate degrees and 1.0% have a doctoral degree.

A total of 50.8% respondents is private sector employees, while 15.4% is their own business. There is a total of 12.6 percent were merchants, a total of 10.7% government employees, 7.7% corporate officers and 2.8% rest of the army / police. It was found that the majority (66.2%) respondents chose television as the most source of information, while 24.5% respondents chose newspapers and 9.3% for radio as a source of information.

5.2 Model Relationship Mass Media Exposure, Interpersonal Communication, Environmental Attitudes and Electricity-Saving Behavior

The hypotheses were tested using Structural Equation Modeling (SEM). SEM methods chosen to confirm the relationship of independent variables on the dependent variables simultaneously. Hypothesis testing using SEM to determine suitability of the models and items used in the study through an absolute test of goodness-of-fit. According to Hair *et al.* (2006) there are six tests that need to be done and the model that should be considered to reach the stage of absolute goodness-of-fit, when four of the six tests indicate that the model has reached the stage of absolute goodness-of-fit.

The results of SEM methods showed that the absolute goodness-of-fit test six of the good and meets the suitability of the model, namely: the value of the likelihood ratio chi-square statistic 3.18 (df = 7, p = .07); GFI = 1; RMSEA = .05; AGFI = .98; CFI = .97 and NFI = 0.95. Therefore, this model is declared eligible to be used as a tool to confirm the theory that has been formed based on observational data (see Table 1).

Table 1. Goodness-of-Fit Structural Equation Modeling of the practice Mass media exposure, Interpersonal communication, Environmental attitudes between Electricity- Saving Behavior

Model	Df	X^2 (p)	GFI	RMSEA	AGFI	CFI	NFI
Mass media exposure, Interpersonal communication, Environmental attitudes and Electricity-saving behavior	7	3.18 (.07)	1	.05	.98	.97	.95

Note: GFI= Goodness-of-fit index, RMSEA= Root mean square error of approximation, AGFI= Adjusted goodness of fit index, CFI= Comparative fit index, NFI= normed fit index

**p < .05

Next, to determine the structural relationship between mass media exposure, interpersonal communication, environmental attitude and electricity-saving behavior can be seen from the

path coefficient between dependent variables used in this study. The relationship between mass media exposure to electricity-saving behavior is not significant, as indicated by the value of p is .13> .05. Furthermore, there is a positive relationship between interpersonal communication with electricity-saving behavior indicated by the value of p is .00 <.05. The relationship between environmental attitudes and electricity-saving behavior and environmental attitudes to interpersonal communication with the .00 p <.05, two relationships are significant, The correlation between environmental attitudes and mass media exposure was not significant (p-value of .09> .05). Therefore, the relationship between mass media exposure and interpersonal communication is significant (p .09 <.05).

Referring to Figure 2, the coefficient between the mass media exposure and electricity-saving behavior, is -.05, between interpersonal communication and electricity-saving behavior is .18, between environmental attitudes and electricity-saving behavior is .20, between environmental attitudes and mass media exposure is .04, between environmental attitudes and interpersonal communication is .08 and mass media exposure and interpersonal communication is .16. All ties are used to test the hypothesis established in this study.
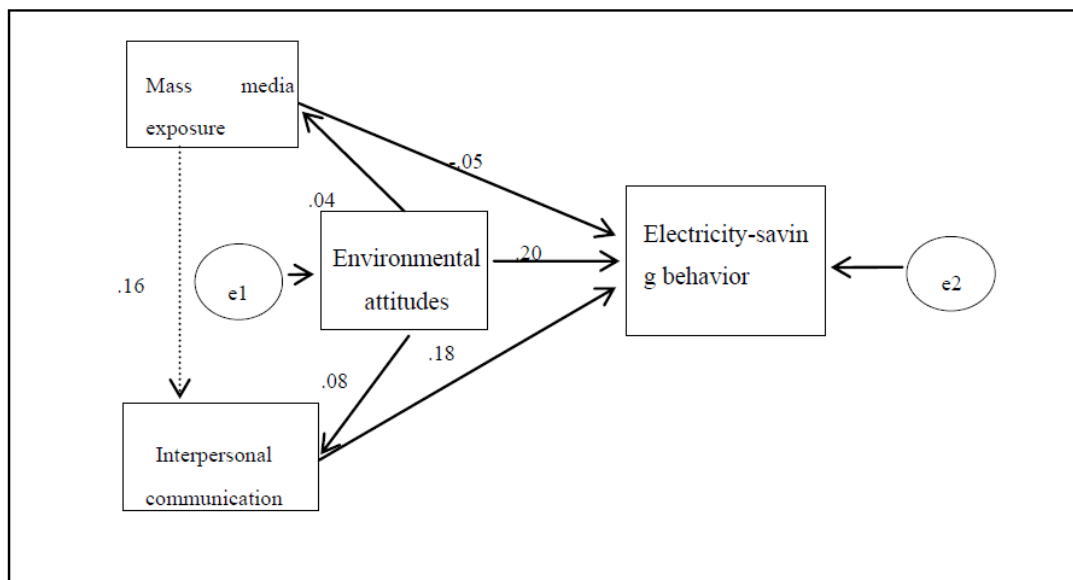

Figure 2. Results of a structural model

5.3 Environmental Attitudes as a Moderator Relationships between Mass Media Exposure, Interpersonal Communication and Electricity-Saving Behavior

The relationship between environmental attitudes and mass media exposure are not significant, as shown by the p-value is .09> .05 and regression coefficient of .04. This means that a person's environmental attitudes have not changed since the electricity-saving information from the media. Furthermore, the relationship between environmental attitudes and interpersonal communication is significant, as shown by the p .00 <.05 and regression coefficient of .08. This indicates a positive correlation between environmental attitudes and interpersonal communication. Environmental attitudes have a significant relationship with electricity-saving behavior, which is indicated by the value p .00 <.05 with beta coefficient

was .20. This shows that there is a positive relationship between environmental attitudes and electricity-saving behavior (Table 2).

Table 2. Environmental Attitudes as moderator relationship between mass media exposure, interpersonal communication and electricity-saving behavior

Moderator Variable	Independent/dependent Variables	S.E.	C. R.	P
	Mass Media Exposure	.04	1.70	.09
The Environmental Attitudes	Interpersonal Communication	.08	3.43	.00 **
	Electricity-saving Behavior	.20	3.69	.00 **

Note: CR= Critical Ratio

** P < .05

The study found that the relationship between environmental attitudes and mass media exposure is not significant, while the correlation between environmental attitudes and interpersonal communication is significant. It was also found that environmental attitudes are influenced indirectly by the mass media exposure through interpersonal communication. Interpersonal communication has a direct relationship with the environmental attitudes, both of which have a direct relationship with the household electricity-saving behavior. Therefore, we can conclude environmental attitudes do not act as moderator relationship between mass media exposure, interpersonal communication and electricity-saving behavior. Furthermore, it can be said that the hypothesis was not supported.

6. Discussion and Conclusions

Studies suggest that environmental attitudes do not serves as the moderator of the relationship between mass media exposure and interpersonal communication with household electricity-saving behavior. The results of this research show there is no relationship between environmental attitudes and mass media exposure. There is also no relationship between mass media exposure and electricity-saving behavior.

This study provides environmental attitudes has a significant relationship with an electricity-saving behavior of households. The environmental attitudes are not acting as a moderator relationship between mass media exposure, interpersonal communication, and household electricity-saving behavior. However, certain effects of environmental attitudes indicators consistent with the household electricity-saving behavior.

Thus, the interpersonal communication indicators has a strong role to change the household electricity-saving behavior, its main consumer confidence indicator and the frequency. All indicators, interpersonal communication is identified integrate personal relationships with each other. Familiarity happened because both sides want to hear, exchange ideas, sharing their feelings and want to understand what is being said. Faith exists when couples communicate like to understand the views, feelings, attitudes and behavior of each other.

Communication skills were built for the purpose of discussion or exchange ideas with others fit to social norms that exist, for this skill will give their perception to others against

themselves. A society with a strong adherence to the one can observe fine, comply with the social norms are regarded as mature, competent, practiced hierarchy and respect for authority (Barnlund & Yoshioka, 1990; Gudykunst & Nishida, 1993; Hirokawa & Miyahara, 1986; Che Su, 2007). Interpersonal communication determines to sharing knowledge and skills that are useful for both (Fiske & Taylor, 1991; Young & Perrewe, 2000). Sharing knowledge and skills means that skill using knowledge and ability that can increase energy saving. This communication that the practice was carried out actively, and open to improve the attitudes and behavior (Jacobs *et al*., 2004).

In its entirety, the results of this research shows the elements of mass media exposure, interpersonal communication, and environmental attitudes have an impact on the behavior of electricity-saving among households. Further research can be done with respect to qualitative research methods to understand more deeply about the role of environmental attitudes toward government campaign.

References

Ajzen, Icek. (1998). *Attitudes, Personality and Behavior*. Chicago, Illinois: The Dorsey Press.

Ajzen, Icek. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211. http://dx.doi.org/10.1016/0749-5978(91)90020-T

Ajzen, Icek. (2012). Martin Fishbein's Legacy: The Reasoned Action Approach. *American Academy of Political and Social Science, 640*, 11-27. http://dx.doi.org/10.1177/0002716211423363

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Ajzen, I., & Fishbein, M. (2004). Questions raised by a reasoned action approach: comment on Ogden. *Health Psychology, 4*(23), 431-434. http://dx.doi.org/10.1037/0278-6133.23.4.431

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions and perceived behavioral control. *Journal of Experimental Social Psychology, 29*, 71-90. http://dx.doi.org/10.1016/0022-1031(86)90045-4

Al-Jeraisy, K. I. (2008). *Consumer behavior: an analytical study of the Saudi family's purchase decisions*. Riyadh: Al-Jeraisy Establishment.

Allik, Jüri, & McCrae, Robert, R. (2004). Toward a Geography of Personality Traits Patterns of Profiles across 36 Cultures. *Journal of Cross-Cultural Psychology, 35*(1), 13-28. http://dx.doi.org/10.1177/0022022103260382

Auhagen, A. E., & Neuberger, K. Ž. (1994). Verantwortung gegenuber der Umwelt: eine Studie uber umweltbewusstes Handeln (Responsibility toward environment: a study of ecological concerned behaviour). *Gruppendynamik, 26*, 319-332.

Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems, 8*(4), *244-254.*

Baran, S. J., & Davis, D. K. (2003). *Mass Communication Theory: Foundations, Ferment and Future*. Belmont, CA: Wadsworth/ Thomson Learning.

Barnes, J. G. (2001). *Secrets of Customer Relationship Management: It's all about how you make them feel*. New York: McGraw-Hill.

Barnlund, D., & Yoshioka, M. (1990). Apologies: Japanese and American styles. *International Journal of Intercultural Relations, 14*, 193-205. http://dx.doi.org/10.1016/0147-1767(90)90005-H

Berelson, B. (1952). *Content analysis in communication research*. New York: Hafner.

Busselle, R. W. (2001). The role of exemplar accessibility in social reality judgments. *Media Psychology, 3,* 43-67. http://dx.doi.org/10.1207/S1532785XMEP0301_03

Chan, S. C., & Lu, M. T. (2004). Understanding Internet Banking Adoption and Use Behavior. *Journal of Global Information Management, 12*(3), 21-43. http://dx.doi.org/10.4018/jgim.2004070102.

Chang, M. K. (1998). Predicting unethical behavior: a comparison of the theory of reasoned action and the theory of planned behavior. *Journal of Business Ethics, 17*, 1825-1834. http://dx.doi.org/10.1023/A:1005721401993

Chau, Patrick Y. K., & Hu, Paul, Jen-Hwa. (2001). Information technology acceptance by individual professionals: a model comparison approach. *Decision Science, 32*(4), Fall, 699-719. http://dx.doi.org/10.1111/j.1540-5915.2001.tb00978.x

Chau, P. Y. K., & Hu, P. J. H. (2002). Examining a model of information technology acceptance by individual professionals: An exploratory study. *Journal of Management Information Systems, 18*(4), 191-229.

Che Su Mustaffa. (2007). *Pengantar Komunikasi Organisasi*. Petaling Jaya: Prentice Hall Pearson Malaysia Sdn. Bhd.

Creswell, John. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Darley, John M. & Beniger, James R. (2010). Diffusion of energy-conserving innovations. *Journal of Social Issues, 37*(2), 150-171. http://dx.doi.org/10.1111/j.1540-4560.1981.tb02630.x

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*, 319-339. http://dx.doi.org/10.2307/249008

DeFleur, Melvin, L., & Everette, E. Dennis. (1985). *Understanding Mass Communication.* Boston: Houghton Mifflin Company.

DeFleur, Melvin, L., & Sandra J. Ball-Rokeach. (1989). *Theories of Mass Communication.Fifth Edition*.New York: Longman.

De Matos, C. A., Iguassu, C. T., & Rossi, C. A. V. (2007). Consumer Attitudes toward

Counterfeits: A Review and Extension. *Journal of Consumer Marketing, 24*(1), 36-47. http://dx.doi.org/10.1108/07363760710720975.

DeVito, J. A. (1998). *The interpersonal communication book (8th ed.)*. New York: Longman.

Duncan, T., & Moriarty, S. E. (1998). A Communication-Based Marketing Model for Managing Relationships. *Journal of Marketing, 62*(April), 1-13. http://dx.doi.org/10.2307/1252157

Fazio, R. H. (1990). *Multiple processes by which attitudes guide behavior: The Mode model as an integrative framework*. New York: Academic Press.

Fazio, R. H., & Olson, M. A. (2003). *Attitudes: Foundations, functions, and consequences.* London: Sage.

Fazio, R. H. & Williams, C. J. (1986). Attitude Accessibility as a Moderator of the Attitude-Perception and Attitude-Behavior Relations: An Investigation of the 1984 Presidential Elecyion. *Journal of Personality and Social Psychology*, *51*, 505-14. http://dx.doi.org/10.1037/0022-3514.51.3.505

Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology*. *50*, 229-238. http://dx.doi.org/10.1037/0022-3514.50.2.229

Fishbein, Martin. (1997). *Reading in Attitude Theory and Measurement*. New York: Department of Psychology University of Illinois.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Fishbein, M., & Hornik, R. (2008). Measuring media exposure: An introduction to the special issue. *Communication Methods and Measures, 2*, 1-5. http://dx.doi.org10.1080/19312450802095943.

Flannery, Brenda, L. & May, Douglas, R. (2000). Environmental Ethical Decision Making in the U.S. Metal-Finishing Industry. *Academy of Management, 43*, 4642-662. http://dx.doi.org/10.2307/1556359

Fuhrer, U., & Wolfing, S. (1997). *From the social basis of environmental concern to responsible ecological action: the social psychological dimension of environmental problemsx*. Bern, Switzerland: Huber.

Ganesan, S. (1994). Determinants of Long-term Orientation in Buyer-Seller Relationships. *Journal of Marketing, 58*(April), 1-19. http://dx.doi.org/10.2307/1252265

Ganesan, S., & Hess, R. (1997). Dimensions and Levels of Trust: Implications for Commitment to a Relationship. *Marketing Letters, 8*(4), 439-448. http://dx.doi.org/10.1023/A:1007955514781

Gerbner, George. (1998). New Television-Rating System Is Extremely Flawed. Retrieved

August 25, 2010, from *The Progressive*.http://www.progressive.org/mpgerbnermrch98.htm.

Grant, J. T., S. T. Mockabee, & J. Q. Monson. (2010). Campaign Effects on the Accessibility of Party Identification. *Political Research Quarterly, 63*(4), 811. http://dx.doi.org/10.1177/1065912909336269

Grob, Alexander. (1995). A structural model of environmental attitudes and behaviour. *Journal of environmental psychology, 15*(3), 209-220. http://dx.doi.org/10.1016/0272-4944(95)90004-7

Gudykunst, W. B., & Nishida, T. (1993). *Interpersonal and intergroup communication in Japan and the United States*. Albany, NY: SUNY Press.

Gudykunst, W. B., & Nishida, T. (1994). Bridging Japanese/North American differences. Thousand Oaks, CA: Sage.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2006).*Multivariate data analysis.* New York: Macmillan Publishing Company.

Hamaguchi, E. (1990*). Nihon kenkyu no aratanaruparadaimu (A new paradigm for Japanese studies). In T. Umehara (Ed.), Nihon towanannanoka (What is Japan?).* Tokyo: NHK Books.

Hansen, T., J. M. Jensen, & H. S. Solgaard. (2004). Predicting online grocery buying intention: a comparison of the theory of reasoned action and the theory of planned behaviour. *International Journal of Information Management*, *24*, 539-550. http://dx.doi.org/10.1016/j.ijinfomgt.2004.08.004

Hayes, Andrew F. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs, 76*(4), 408-420. http://dx.doi.org/10.1080/03637750903310360

Held, M. (1993). Social impacts of energy conservation, *Journal of EconomicPsychology*, *3*(3-4), 379-394. http://dx.doi.org/10.1016/0167-4870(83)90013-2

Hogg, M. A., & Vaughan, G. M. (2004). *Social Psychology*. Harlow: Pearson Education.

Ilfeld, J. S., & Winer, R. S., (2002). Generating website traffic. *Journal of Advertising Research*, (September-October), 49-61. http://dx.doi.org/10.2501/JAR-42-5-49-61

Keller, P. (1999). Converting the unconverted: the effect of inclination and opportunity to discount health-related fear appeals. *Journal Applied Psychology, 84*, 403-15. http://dx.doi.org/10.1037/0021-9010.84.3.403

Kim, S. (2004). Rereading David Morley's The Nationwide Audience. *Cultural Studies, 18*, 84-108. http://dx.doi.org10.1080/0950238042000181629.

Kim, Y., & Choi, S. R. (2005). Antecedents of green purchase behaviour: An examination of collectivism, environmental concern and PCE. *Advances in Consumer Research, 32*(1), 592-599.

King, W. R., & He, J. (2006). A meta-analysis of the technology acceptance model.

Information & Management, 43(6), 740-755. *http://dx.doi.org*10.1016/j.im.2006.05.003.

Klapper, J. T. (1960). The Effects of Mass Communication, New York: The Free Press.

Knapp, M. L. (1984). *Interpersonal Communication and Human Relationships*. Boston, MA: Allyn & Bacon.

Koklic, M. K., & Vida, I. (2011). Consumer strategic decision making and choice process: prefabricated house purchase. *International Journal of Consumer Studies*, *35*(6), 634-643. http://dx.doi.org/10.1111/j.1470-6431.2010.00953.

Kosicki, G. M., & J. M. McLeod. (1990). *Learning from political news: Effects of media images and information-processing strategies*. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Littlejohn, Stephen, W. (2002). *Theories of Human Communication*. Belmont, California: Wadsworth Publishing Company.

Livingstone, S. (1998). *Relationships between media and audiences: Prospects for future audience reception studies*. London, UK: Routledge.

Lutz, R. J., (1991). *Perspectives In Consumer Behavior: The role of attitude theory in marketing*. New Jersey: Prentice Hall.

McGuire, W. J. (1989). *Theoretical foundations of campaigns*. Newbury Park: Sage Publications.

Macnamara, J. (2005). Media content analysis: Its uses, benefits and Best Practice Methodology. *Asia Pacific Public Relations Journal, 6*(1), 1- 34.

Manstead, A. S. R. (1996). *Attitudes and Behaviour. Applied Social Psychology*. London: SAGE Publications.

McCrae, Robert, R., Costa, Paul, T., Thomas, A. Martin, Valery, E. Oryol, Alexey, A. Rukavishnikov, Ivan, G. Senin, Martina, Hřebíčková, & Urbánek, Tomas. (2004). Consensual validation of personality traits across cultures. *Journal of Research in Personality, 38*(2), 179-201 http://dx.doi.org10.1016/S0092-6566(03)00056-4.

McLeod, D. M., Kosicki, G. M., & McLeod, J. M. (2009). *Political communication effects*. New York, NY: Routledge.

McQuail, Denis. (1994). *Mass Communication Theory, An Introduction.* London: Sage Publication.

McQuail, D. (2010). *McQuail's mass communication theory*. London, UK: SAGE Publications.

Moreno, M. A., Jelenchick, L., Koff, R., Eikoff, J., Diermyer, C., & Christakis, D. A. (2012). Internet use and multitasking among older adolescents: An experience sampling approach. *Computers in Human Behavior, 28*, 1097-1102. http://dx.doi.org10.1016/j.chb.2012.01.016.

Morris, Michael, W., & Peng, Kaiping. (1994). Culture and cause: American and Chinese

attributions for social and physical events. *Journal of Personality and Social Psychology*, *67*(6), 949-971. http://dx.doi.org/10.1037/0022-3514.67.6.949

Petty, R. E., & Cacioppo, J. T. (1986). *The elaboration likelihood model of persuasion*. New York, NY: Academic Press.

Petty, R. E., & Krosnick, J. A. (1995). *Attitude strength: Antecedents and consequences*. Mahwah, NJ: Erlbaum.

Prior, M. (2009). The immensely inflated news audience: Assessing bias in self-reported news exposure. *Public Opinion Quarterly, 73*, 130-143. http://dx.doi.org10.1093/Poq/Nfp002.

Reinard, J. C. (1988). The empirical study of the persuasive effects of evidence: Thestatus after fifty years of research. *Human Communication Research*, 15, 3-59. http://dx.doi.org/10.1111/j.1468-2958.1988.tb00170.x

Rholes, William S. & John B. Pryor. (1982). Cognitive Accessibility and Causal Attributions. *Personality and Social Psychology Bulletin, 8*(4), 719-727. http://dx.doi.org/10.1177/0146167282084019

Roberts, D. F., Foehr, U. G., & Rideout, V. (2005). *Generation M: Media in the lives of 8-18 year olds*. Menlo Park, CA: Kaiser Family Foundation.

Rogers, Everett, M. (1995). *Diffusion of Innovations*. 4th Ed. New York: The Free Press.

Rogers Everett, M., *et. al*. (1999). Effects of an entertainment-education radio soap opera on family planning behavior in Tanzania. *Studies in Family Planning, 30*(3), 193-211. http://dx.doi.org/10.1111/j.1728-4465.1999.00193.x

Romantan, A., Hornik, R., Price, V., Cappella, J., & Viswanath, K. (2008). A comparative analysis of the performance of alternative measures of exposure. *Communication Methods and Measures, 2*, 80- 99. http://dx.doi.org10.1080/19312450802062539.

Rosenberg, M. J., & Hovland, C. I. (1960). *Attitude organization and change*. New Haven: Yale University Press.

Roskos-Ewoldsen, D. R., & Fazio, R. H. (1992). On the orienting value of attitudes: Attitude accessibility as a determinant of an object's attraction of visual attention. *Journal of Personality & Social Psychology. 63*(2), 198-211. http://dx.doi.org/10.1037/0022-3514.63.2.198

Sekaran, Uma. (2005). *Research methods for business*: *A skill building approach*. Singapore: John Wiley & Sons (Asia) Pte. Ltd.

Severin, Werner J. & James W. Tankard.(2000). *Communication Theories, Origin, Methods, Uses*. New York : Longman Inc.

Schwarz, Norbert & Bohner, Gerd. (2001). *Intrapersonal Processes*. Oxford, UK: Blackwell.

Shapiro, M. (2002). Generalizability in Communication Research. *Human Communication*

Research, *28*(4), 491-500. http://dx.doi.org/10.1111/j.1468-2958.2002.tb00819.x

Sharma, N. & Patterson, P.G. (1999). The Impact of Communication Effectiveness and Service Quality on Relationship Commitment in Consumer, Professional Services. *The Journal of Services Marketing, 13*(2), 151-170. http://dx.doi.org/10.1108/08876049910266059

Shrum, L. J. (2002). *Media consumption and perceptions of social reality: Effects and underlying processes*. Mahwah, NJ: Lawrence Erlbaum Associates.

Slater, M. D. (2004). Operationalizing and analyzing exposure: The foundation of media effects research. *Journalism & Mass Communication Quarterly, 81*, 168-183. http://dx.doi.org10.1177/107769900408100112.

Slater, M. D. (2007). Reinforcing spirals: The mutual influence of media selectivity and media effects and their impact on individual behavior and social identity. *Communication Theory, 17*, 281-303. http://dx.doi.org10.1111/j.1468-2885.2007.00296.

Sternheimer, K. (2003). *It's not the media: The truth about pop culture's influence on children*. Boulder, CO: Westview Press.

Sorolla, Roger, G. (2001). Affective Attitudes Are not Always Faster: The Moderating Role of Extremity. *Personality and Social Psychol Bulletin, 27*(6), 666-677. http://dx.doi.org 10.1177/0146167201276003.

Southwell, B. G., & Langteau, R. (2008). Age, memory changes, and the varying utility of recognition as effects pathway. *Communication Methods and Measures, 2*, 100-114. http://dx.doi.org10.1080/19312450802062380.

Szajna, B. (1996). Empirical Evaluation of the Revised Technology Acceptance Model. *Management Science, 42*(1), 85-92. http://dx.doi.org/10.1287/mnsc.42.1.85

Takai, J., & Ota, H. (1994).Assessing Japanese interpersonal communication competence.*The Japanese Journal of Experimental Social Psychology, 33*, 224-236. http://dx.doi.org/10.2130/jjesp.33.224

Taylor, Anita, Teresa Rosegrant, Arthur Meyer, & B. Thomas Samples. (1990). *Communicating*. Englewoods Cliffs, New Jersey : Prentice-Hall.

Teo, T., & Beng Lee, C. (2010). Explaining the intention to use technology among student teachers. *Campus-Wide Info Systems, 27*(2), 60-67. http://dx.doi.org/10.1108/10650741011033035.

Van Liere, K. D. & Dunlap, E. R. (1981). Environmental concern: does it make a difference how it's measured? *Environment and Behavior*, *13*, 651-676. http://dx.doi.org/10.1177/0013916581136001

Venkatesh, V., M. G. Morris, G. B. Davis, & F. D. Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly, 27*(3), 425-478.

Wejnert, Barbara. (2002). Integrating Models of Diffusion of Innovations: A Conceptual

Framework. *Annual Review of Sociology, 28,* 297-326. http://dx.doi.org 10.1146/annurev.soc.28.110601.141051.

Wood, Julia T. (2002). *Interpersonal communication: Everyday encounters*. Belmont, CA: Wadsworth.

Wyer, R. S., &Radvansky, G. A. (1999).The comprehension and validation of social information. *Psychological Review, 106,* 89-118. http://dx.doi.org/10.1037/0033-295X.106.1.89

Zillmann, D. (2002). Exemplification theory of media influence. Mahwah, NJ: Lawrence Erlbaum Associates.

Zillmann, D., & Brosius, H. (2000). *Exemplification in communication: The influenceof case reports on the perception of issues*. Mahwah, NJ: Lawrence Erlbaum Associates.

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