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SHAWNEE STATE UNIVERSITY

**THE ANTECEDENTS OF CONFIDENCE IN ABSOLUTE
VERSUS COMPARATIVE EVALUATION**

A Thesis

By

Anaimalai V Muthukrishnan

Department of Mathematical Sciences

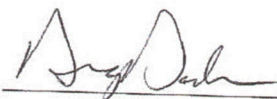
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for the degree of

Master of Science, Mathematics

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Accepted by the Graduate Department

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The thesis entitled **THE ANTECEDENTS OF CONFIDENCE IN
ABSOLUTE VERSUS COMPARATIVE EVALUATION** presented by
Anaimalai V Muthukrishnan, a candidate for the degree of **Master of Science
in Mathematics**, has been approved and is worthy of acceptance.

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Date



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ABSTRACT

This research study suggested a boundary condition for the effects of additional, irrelevant information about the attitudinal object and the cognitive elaboration of limited, relevant information on the *confidence* in the attitude or evaluation of the object. Prior research found that additional information and elaboration increase confidence in evaluation. While this research has considered additional, relevant information and the elaboration of the relevant information, the present study investigates these effects when the additional information is irrelevant and the elaboration does not enhance the extremity of the evaluation. Behavioral decision theory research on metacognitions suggests that such irrelevant, additional information and inconsequential elaboration enhance confidence in evaluation without increasing the accuracy of the judgments. The present research proposed that the effects of the amount of information and cognitive elaboration on the evaluative confidence reported in the literature are limited to the contexts of absolute evaluation (when the object is evaluated in isolation without any comparisons). In the context of comparative evaluation (when an object is evaluated in comparison with another object), the effects of the amount of information and cognitive evaluation on the evaluative confidence may not hold. An experimental study conducted in an Asian university with undergraduate students as the participants supported the predictions of this research. Specifically, the experimental study found that (i) the additional, irrelevant information increased the evaluative confidence under the absolute evaluation context but not the comparative evaluation context and (ii) cognitive elaboration enhanced the evaluative confidence under the absolute evaluation context but not the comparative evaluation context.

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CHAPTER I: INTRODUCTION

This chapter will give an overview of the rationale for this study, the significance of the research issue, and the specific aims of this research. This research concerns identifying boundary conditions for some widely accepted findings in psychology. The boundary conditions thus established will help the practice of marketing research in eventually making better predictions about brand sales. In the rest of the chapter, I will state the background and will discuss the relevant literature, the theoretical framework, and the specific research questions. These specific research questions will be stated as theoretical hypotheses. I will also give a brief outline of the research methods, data collection, and the plan of analysis for testing these hypotheses.

BACKGROUND OF THE PROBLEM

In marketing research, it is very common to use brand evaluations as predictors of brand choice. Preferences for a focal brand can be expressed as brand attitudes, intentions to buy the brand, and choice of that brand on the next purchase occasion. Although these are all measures of preferences, often people exhibit very little consistency between attitude and behavior. Psychological researchers have examined the role of several factors in increasing consistency between attitude and behavior. In marketing, we can

think in terms of several exogenous variables that affect the consistency between brand evaluation and choice. For example, one may have a very positive attitude toward Ferrari cars. However, its prohibitive price causes the brand to be excluded from this person's choice set. While the role of exogenous variables such as price in affecting attitude-behavior consistency is obvious, psychological research later focused on the properties of attitude themselves and concluded that if an attitude scores well in terms of these "strength" dimensions, then the likelihood of this attitude predicting behavior is high. Among the many dimensions, one that can be measured easily in non-experimental settings and that is relevant for marketers is the degree of certainty or confidence with which one's attitude is held. Many marketing researchers recognized the importance of confidence in evaluations. As a result, it is customary to include a measure of confidence whenever evaluations are assessed.

Now it is well established that confidence moderates the brand evaluation-choice relationship. The next research question is what factors cause confidence. In other words, what are the antecedents of evaluative confidence? Certain factors objectively increase the degree of confidence in one's evaluation. For example, if one has extensive knowledge of the object, his or her confidence in attitude toward that object will be greater. However, recent works in this area suggest that attitude confidence can sometimes arise for reasons that are not entirely justified. In this research, we focus on a set

of factors that increase confidence in evaluation because these increase the perceived validity of the evaluations although there is no objective reason for enhanced confidence in evaluations. Further, given that attitudes that are held with confidence are more likely to predict behavior, we seek to understand situations and contexts that lead to extreme confidence in attitudes and the reasons for this confidence. The question posed here has broader implications; however, the proposed study is in the context of marketing where it is easy to manipulate and control some of these factors. The following sections provide the objectives of this research, the theoretical basis for our work, the problem statement, research questions, our hypotheses, and the research plan and methodology we propose.

STATEMENT OF THE PROBLEM

The research problem is to test whether the antecedents of confidence in absolute evaluation and those of confidence in comparative evaluation are the same or different. Specifically, the prior research found that the amount of information about the focal object and the degree of cognitive elaboration of the information provided have served as antecedents of confidence in absolute evaluations. The proposed study would like to demonstrate that these two variables do not influence confidence in comparative evaluations. Thus, the research problem may be stated as highlighting the differential roles of the amount of information and elaboration as the antecedents of absolute versus

comparative evaluations. The rationale for these assertions is provided in the next section on theoretical background.

SIGNIFICANCE OF THE STUDY

This study will contribute a good deal toward our understanding of what causes confidence in absolute evaluation (a brand is rated in isolation) versus comparative evaluation (a brand is rated in comparison with its competitor). The findings will be very useful for theory building in consumer psychology. Further, the findings will help marketers to measure confidence in two different ways and arrive at strategic conclusions based on these measures.

PURPOSE OF THE STUDY

This research has the objective of establishing that the antecedents of confidence in absolute evaluations do not have any effect on confidence in comparative evaluations. The specific purpose of this study is to identify an important boundary condition for the prior findings in psychology concerning the roles of the amount of information about the focal object and the degree of elaboration of the given information in confidence in evaluations.

PRIMARY RESEARCH QUESTIONS

Do the amount of information and the elaboration of information that have been considered as the antecedents of absolute evaluations serve the same role for comparative evaluations? If not, what causes confidence in comparative evaluations? Within the context of absolute evaluation, will there be any difference in evaluations between the low and the high amount of information? Likewise, within the context of absolute evaluations, will there be any difference in evaluations between the low and high elaboration groups?

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

In psychology, attitudes toward people and objects have been researched extensively. Attitudes are considered summary evaluations that have the potential for actions (Eagly and Chaiken 1993). Indeed, the utility of the construct of attitudes as summary evaluations depends on the extent to which these attitudes predict subsequent behaviors. An important property that helps the attitudes predict consistent actions is the level of confidence or certainty with which these attitudes are held. This property is labeled attitudinal confidence or attitude certainty.

To extend the role of attitudinal confidence in consumer buying behavior, we can infer that the consistency between attitudes and buying behavior is enhanced if we consider only those attitudes that are held with a higher level

of confidence. This prediction about the moderating role of confidence in the attitude-behavior relationship underscores the importance of studying attitude confidence.

What causes attitudinal confidence? Prior research has identified a set of variables. The most important among these are (i) the amount of information about the attitudinal object and (ii) the cognitive elaboration of the information about the attitudinal object (Smith, Fabrigar, Macdougall, and Wiesensthal 2008). The amount of information influences confidence in two ways. If the information is relevant, evaluations based on a greater amount of such relevant information will result in a greater degree of confidence. The second way in which the amount of information influences confidence is the belief that my evaluation is based on a large amount of information, and therefore, I am confident in the accuracy of the evaluation that I expressed. In psychology, this second route is called metacognition (Schwarz 2004). Likewise, elaboration results in greater confidence either because genuinely the evaluative judgment was made after a lot of thought or due to the metacognitive belief that my evaluation is made after a lot of thought, and therefore, I am confident that the evaluation I expressed is accurate

The proposed study examines only the situations in which additional information and greater elaboration do not create different evaluations but greater confidence. Specifically, we examine the effects of additional, not-

so-important pieces of information and greater elaboration that create confidence because of metacognitive reasons.

- *Absolute versus Comparative Evaluations*

Research in psychology and marketing has typically examined attitude confidence by presenting people with a target object in isolation (absolute evaluations). Their attitude toward it, as well as their confidence in this attitude, is then measured. In such cases, attitudinal confidence is based on the elaboration of knowledge about the target and the amount of relevant information that is considered ((Barden and Tormala 2014). Within such contexts, if the additional information is not on important dimensions and if greater elaboration is not meaningful, without affecting the evaluations, these two factors nonetheless enhance confidence (Barden and Petty 200).

Although this research has yielded rich dividends, in marketing situations, brands are rarely encountered in isolation. Thus, while attitude researchers in psychology have focused exclusively on confidence in absolute evaluations and their consequences, our focus is on a different construct – confidence in comparative judgments. That is, does confidence in evaluation when the evaluation is formed after comparing the focal brand (Brand A) with another brand (Brand B) have the same antecedents as confidence in evaluation formed in isolation? This is our primary question. Based on a different paradigm of research discussed below, we believe that the antecedents of

confidence in such comparative evaluations are not the same as those of absolute evaluations.

Psychological research has shown that if two options can be compared on a specific dimension and if the comparison yields the superiority of one of the two options (say, brand A is available in 5 colors and brand B is available in only 4 colors), this attribute of color receives undue weight in one's evaluation of the two brands. The two brands are discriminated and this difference offers justification for confidence in evaluation. Surprisingly, this effect occurs even if the discriminating attribute is unimportant. The explanations for this effect include evaluability (Hsee 1996) and alignability (Zhang and Markman 2001). Evaluability occurs when an attribute that is hard to evaluate by itself (for example, a dictionary has 12,000 words, is this good or bad?) becomes easier when a comparison is involved (Dictionary A has 12,000 words and B has 11,000 words; therefore, A is better). Alignability refers to the property that the two options are described on the same attribute and one is better than the other.

Because two or more objects are described in terms of the same attribute, and one is better in terms of at least one attribute, the salience and the usefulness of this information are regarded as high. In addition, having compared and decided creates the “metacognition” that the decision is based on rational grounds. Our thesis, therefore, proposes that confidence in comparative judgments is conceptually distinct from confidence in absolute evaluation

which has traditionally been investigated by attitude researchers. This confidence in comparative judgment can come from processes other than those investigated in much of the attitude research.

Further, in the case of comparative judgments, making comparisons between options even on an irrelevant attribute might elicit metacognitive thoughts that one has formed an evaluation based on the superiority of the focal option. Based on this literature review, we propose that comparative choices in which one option is discriminated clearly (albeit on unimportant attributes) can produce the metacognitive perceptions that one's evaluation is justified and therefore increase confidence. This effect occurs without any additional information or cognitive elaboration. Therefore, the antecedents of confidence in absolute evaluation will not have any effect on confidence in comparative evaluation. In addition, if our reasoning that discrimination on any attribute will create metacognitive perceptions is correct, then discrimination alone is a sufficient condition for increased choice confidence. That is, the mere act of considering how the target is superior on an irrelevant attribute, might be sufficient to increase confidence in that option.

THEORETICAL HYPOTHESES

The theoretical frameworks we discussed earlier suggest that the antecedents of confidence in comparative evaluation are different from those of confidence in absolute evaluations. From this premise, the following hypotheses are offered.

H1: Within the absolute evaluation context, while the low and the high amount of information conditions vary in terms of confidence in evaluation, there will be no difference between these two conditions in terms of evaluation itself.

H1A: Within the absolute evaluation context, while the low and the high elaboration conditions vary in terms of confidence in evaluation, there will be no difference between these two conditions in terms of evaluation itself.

The above two hypotheses serve as checks of our assumptions. They ensure that our manipulations affect only confidence in evaluations but not the evaluations.

The remaining set of hypotheses pertain to our main predictions in the study.

H2: The amount of information available for the focal brand causes confidence in absolute evaluations. In contrast, the amount of information will not have any effect on confidence in comparative evaluations.

H3: Cognitive elaboration of the information about the focal brand causes confidence in absolute evaluations. In contrast, cognitive elaboration will not have any effect on confidence in comparative evaluations.

H4: Confidence in comparative evaluations based on discrimination on irrelevant or unimportant attributes will be of the same magnitude as confidence in absolute evaluations produced by a greater amount of information.

H4A: Confidence in comparative evaluations based on discrimination on irrelevant or unimportant attributes will be of the same magnitude as confidence in absolute evaluations produced by a greater degree of cognitive elaboration.

FOLLOW-UP RESEARCH

While the set of hypotheses stated above will be tested in our study, there are additional issues to consider. An important question to be investigated in a follow-up study is, within the context of a comparative evaluation, given that two brands are discriminated in terms of an unimportant attribute, how to increase the level of confidence. Increasing the importance of the discriminating attribute is an obvious answer, and it requires no research to conclude this. A prediction that discrimination on multiple unimportant attributes will increase confidence (compared to discrimination on a single unimportant attribute) is worth testing. Likewise, the magnitude of

differences between the two brands in terms of the discriminating attribute could affect confidence in comparative evaluation. We plan to investigate these predictions in follow-up studies after the results of the main study are obtained.

RESEARCH DESIGN

As this is a theory-testing research, we plan to follow experimental methods to test the research predictions. The variables of type of evaluation, amount of information, and cognitive elaboration will be manipulated. This ensures that the cause-effect relationships are uncovered without any alternative explanations. In addition, to prevent any sensitization to the treatments, we plan to use between-subjects designs. This will minimize any hypothesis guessing. Thus, a 2 (type of evaluation – absolute versus comparative) X 2 (amount of information about the focal brand – low versus high) X 2 (cognitive elaboration – low versus high) will be employed.

- *Manipulations*

Type of Evaluation: Absolute Evaluation – Information only about the focal brand and the rating scale pertains only to the focal brand. Comparative Evaluation: Information about the focal brand and a competitor and the rating scale asks for the belief about which of the two brands is better overall.

Amount of Information: Low condition - information about three important attributes of the focal brand. High condition: information about the same

three important attributes plus additional information about three additional but unimportant attributes of the focal brand.

Cognitive Elaboration: Low condition: Opportunity (time to provide the evaluation) will be limited. No instruction about thinking and no information that heightens involvement/motivation. High condition: Opportunity (time to provide the evaluation) will be high. Instruction about thinking will be provided. Further, involvement will be heightened by a statement that the product will be available soon at the University bookstore.

- *Measures*

The dependent measure of evaluation will be measured by two 11-point scales anchored by Dislike-Like and Bad-Good with suitable modifications in the comparative evaluation condition.

The dependent measure of confidence in evaluation will be measured by two 11-point scales anchored by Not at all Confident – Extremely Confident and Highly Uncertain – Highly Certain.

- *Product and Attributes*

Portable MP4 players that are quite popular among the population from which the participants are recruited. The brand names will be fictitious based on a pretest conducted earlier. The attributes were chosen based on their importance ranks determined by the pretest.

DATA COLLECTION

Participants will be undergraduate students enrolled in a core marketing course at a major university situated in Hong Kong. They belong to the age group of 19-24. Approximately one-half of the participants will be females. The homogeneity of this set of participants is to strengthen the internal validity of the experimental findings. Approximately 250 to 300 subjects will be recruited and randomly assigned in more or less equal numbers to the eight experimental conditions. The participants will earn one credit in the course as compensation for experimental participation. Subject to the SSU IRB approval and subject to the approval of the Research Practices Committee at the Hong Kong University, the experiment is planned to be conducted in mid-April, 2024.

Hypotheses 4 and 4A will be tested via a pretest as the scales used in the main study do not permit a comparison between comparative evaluations and absolute evaluations. The details of this pretest will be provided in the Research Methodology chapter. Hypotheses H1, H1A, H2, and H3 will be tested in the main study.

DATA ANALYSIS

After ensuring that the key assumptions are met, a three-factor between-subjects Analysis of Variance (ANOVA) will be used for the data analysis.

As I have a very high degree of experience with SAS, this package will be extensively used. The SAS procedures ANOVA and GLM will be used to test the statistical hypotheses outlined below (denoted by SH1, SH2, etc.) and also stated in detail in the Research Methodology chapter. As all the comparisons are planned, most hypotheses will be tested via planned contrast tests. In the follow-up comparisons, Bonferroni corrections will be applied whenever the comparisons are non-orthogonal

- Statistical Hypotheses

There is a one-to-one correspondence between each of H1, H2, and H3 outlined at the end of the Theoretical Framework section and the statistical hypotheses stated below and labeled SH1, SH2, and SH3. In the Research Methodology section, we will explain what specific analysis will be used for testing these hypotheses.

SH1: Within the Absolute evaluation context, the Low and High information conditions will not differ in terms of the evaluation of the focal brand but will differ in terms of confidence in evaluation.

SH1A: Within the Absolute evaluation context, the Low and High elaboration conditions will not differ in terms of the evaluation of the focal brand but will differ in terms of confidence in the evaluation of the focal brand.

SH2: With respect to the dependent variable of confidence in evaluation, the interaction between the Type of evaluation and the Amount of information will be significant (The interaction F will be significant).

SH2A: The difference in confidence in evaluation between the Low and High information conditions will be significant for the Absolute Evaluation contexts but not for the Comparative Evaluation contexts (as indicated by two-group F-tests).

SH2B: Within the Absolute Evaluation context, the High information condition will produce significantly greater confidence in evaluation than the Low information condition (as indicated by a two-group F-test).

SH3: With respect to the dependent variable of confidence in evaluation, the interaction between the Cognitive elaboration and the Type of evaluation will be significant (The interaction F will be significant at .05 level).

SH3A: The difference in confidence in evaluation between the Low and High elaboration conditions will be significant for the Absolute evaluation contexts but not for the Comparative evaluation contexts (as indicated by two-group F-tests).

SH3B: Within the Absolute evaluation context, the High elaboration condition will produce significantly greater confidence in evaluation than the Low elaboration condition (as indicated by a two-group F-test).

ETHICAL CONSIDERATIONS

As no information about the participants' identity (such as ID number) was obtained, there is no way one could match a participant with the responses provided. We believe that except that we do not reveal the true purpose of the study and made participants believe that this is a market research study for a real brand, there is no deception involved in this study. The true objective of the study will be revealed after the participants complete all the tasks.

ASSUMPTIONS, LIMITATIONS, AND SCOPE

As the study is conducted at an Asian university with student subjects, the generalizability is limited. However, this concern arises for all theory-driven research in psychology, marketing, and behavioral sciences. As the primary objective of our research is theory testing, we traded off ecological validity for internal validity (lack of alternative explanations). Nonetheless, we realize that the findings cannot be generalized to other age groups, other cultures, or other product categories.

As the project is time-bound, we could not answer many questions such as whether extreme differences in terms of an irrelevant attribute between two options create greater confidence in comparative evaluations. We plan to investigate these issues in our future research.

DEFINITION OF TERMS

Absolute Evaluation: Rating of an object on a given scale (or a set of scales) and the rating is done in isolation. That is, participants rate an object based on information about that object only, without receiving information about any comparison object.

Comparative Evaluation: Rating of an object in comparison with another object on a scale (or on a set of scales). That is, participants receive information about both the focal object and a comparison object and judge (rate) which of the two objects fares better in terms of each characteristic that the rating scale assesses.

Confidence in Evaluation: The degree of certainty or confidence a participant attaches to his or her evaluative judgment.

Alignability: Two objects are compared on the same attribute, with one of them superior to the other on that attribute.

Evaluability: Uncertainty reduction due to comparison of two brands

Metacognition: Naïve theories such as “My evaluation is based on a large amount of information. Hence, I am confident that it is accurate.”

SUMMARY

Chapter 1 gives the conceptual background, the objectives, and the significance of the proposed study. In marketing research, often evaluations are used to predict the purchase rate for the focal brand for a given period. In

recent years, confidence in evaluation has been included as a moderator of the evaluation–buying relationship. Based on several streams of research on attitude strength and comparisons, we propose that the antecedents of confidence in absolute evaluation will not serve as antecedents of confidence in comparative evaluation. Specifically, we consider two antecedents of confidence – the amount of information and cognitive elaboration. The study will be a 2 X 2 X 2 experiment. Three factors – the amount of information (low or high), cognitive elaboration (low or high), and the type of elaboration (absolute or comparative) will all be manipulated between subjects. Between-subjects factorial analysis of variance (ANOVA) will be the main statistical test used. Follow-up tests will be done via independent sample t-tests or two-group ANOVA. We predict a type of evaluation X amount of information interaction and a type of evaluation X elaboration interaction. Appropriate contrasts with Bonferroni corrections, if necessary, will also be done.

CHAPTER II: BACKGROUND AND LITERATURE REVIEW

INTRODUCTION

In this chapter, the concepts of attitude (evaluation) and attitude strength are introduced. Then the role of elaboration in building attitude strength is outlined. As our focus is on confidence in evaluation, a detailed review of this topic, specifically on the antecedents and consequences is offered. After reviewing the findings of the only study that directly manipulated the antecedents of evaluative confidence, the way to extend this research is discussed. The second part of this chapter gives an introduction to the psychology of comparative evaluation and discusses the concepts of similarity/dissimilarity, alignability, and evaluability. The argument proposed in this section is that comparisons are used as tools of uncertainty reduction. The role of metacognition in uncertainty reduction and hence acquisition of evaluative confidence is discussed. Based on the integration of these findings, two key predictions are made. These two predictions encompass all the specific hypotheses (H1 to H3) proposed in Chapter 1.

ATTITUDES AND ATTITUDE STRENGTH

Attitude has remained a central topic of research in social psychology for several decades. Eagly and Chaiken (2007) define attitude as “a psychological tendency expressed by evaluating a particular entity with some degree of favor or disfavor” (p.582). According to Tormala and Rucker (2018), “An attitude refers to one’s general evaluation of something; the extent to which one sees an object as good or bad, positive or negative” (p. 72). A conceptualization of attitudes that is relevant for marketers was offered by Schwarz (2007): “. . . it is more parsimonious to think of attitudes as evaluative judgments, formed when needed, rather than as enduring personal dispositions” (p. 639). This conceptualization implies that in a consumer choice or marketing research context, attitude is a summary evaluation *constructed* when necessary. The evaluation may be based on beliefs and knowledge or sheer liking. For over fifty years, marketing researchers have regularly measured product and brand attitudes. For them, consumer attitudes toward products and brands served as useful tools in many areas such as predicting market share, positioning the product, constructing attitude-based marketing segments, and deciding whether to introduce new products.

While psychologists study attitudes to construct theories about human behavior, in marketing, the utility of the construct of attitude depends on its power to predict subsequent behavior. In psychology as well as in marketing,

early research focused on the question of whether attitudes predict behavior. The answer obtained after several years of research was “not always.” The next wave of research concentrated on the factors moderating attitude-behavior consistency (Glasman and Albarracin 2006).

Within this theme, the focus during the last three decades has been on the characteristics of attitudes (Howe and Krosnick 2017; Petty and Krosnick 1995) that can cause greater attitude-behavior correlation. These characteristics have been proposed to account for the “strength” of the attitude. According to Petty and Krosnick (1995), attitude strength is manifested in terms of (a) attitude-behavior consistency, (b) temporal stability, (c) resistance to counter persuasive influence attempts, and (d) selective information processing. Of these, research in psychology as well as marketing has focused mainly on the first three consequences. These researchers conceptualized that attitude strength has several dimensions.

DIMENSIONS OF ATTITUDE STRENGTH

Extremity. Attitudes can vary in terms of not only valence (positive or negative) but also extremity. Extremity refers to the polarization of attitudes in either a positive or negative direction. In a branding context, it simply means a very high degree of like or dislike toward the focal brand.

Accessibility. Another dimension on which attitudes vary is accessibility. Accessibility refers to the “strength of object-evaluation association” (Fazio 1986; p. 204). It simply refers to the likelihood that an evaluation is

activated from memory spontaneously and automatically (with no effort at all) when the attitudinal object is encountered. Fazio and his coauthors manipulated accessibility typically via repeated expression of the evaluation and measured accessibility via response latency measures. Their program of research concluded that accessible attitudes possess greater stability and greater potential to guide subsequent behavior. Based on his findings, Fazio considers accessibility as the single most indicant of the strength of evaluations. However, this claim is questionable as researchers later demonstrated that attitude strength is a multidimensional construct, and these several dimensions may have at best modest correlation among themselves but are conceptually distinct (Luttrell and Sawicki 2020).

Importance. Attitudes can also vary in terms of importance. When people have extreme attitudes toward certain issues they consider extremely important, they may selectively interpret some neutral information as supporting their position (Howe and Krosnick 2017). Consumers do consider certain products more *important* than others. It is noncontroversial to say that in a relative sense, consumers consider their attitudes toward these products more important than toward other products. In addition, certain brands may have greater connections with the self. Considering a product class more important leads to more extensive information processing, which may result in the consumer acquiring a greater amount of information about the product

or brand. Attitudes do vary in terms of the level of elaboration and the amount of information possessed.

Cognitive Consistency. Cognitive consistency is another dimension on which attitudes may vary. An attitude may be based on several beliefs. If all these beliefs are highly correlated, the attitude will be high in terms of cognitive consistency. If the beliefs are not highly correlated (“I consider a brand good quality but too expensive”), then a subset of beliefs will not be consistent with the overall evaluation. Attitude researchers (Eagly and Chaiken 1993) called this property evaluative-cognitive consistency

Confidence or Certainty. Finally, an important dimension on which attitudes vary is certainty or confidence. This dimension is important because, unlike other strength dimensions such as centrality, and cognitive consistency, confidence in marketplace choices can be created more easily. The antecedents of confidence include not only attitude-related factors but also completely irrelevant factors. Tormala and Rucker (2007; 2018) assert that people can feel certain or uncertain independent of any objective evidence that warrants this judgment (see also Petroli et al. 2007 and Rucker et al. 2014). Even metacognitions (naïve theories such as one’s evaluations were based on a lot of information and hence should be accurate) can increase confidence in evaluations (Schwarz 2004). Conceptually, certainty is defined as “a subjective sense of confidence or conviction one has about an attitude”

(Tormala and Rucker 2018, p. 72). A conceptually similar definition was proposed earlier by Gross, Holtz, and Miller (1995, p.215).

Although there might be some correlation empirically, conceptually confidence is distinct from valence (positive/negative) and extremity (Low, moderate, or high degree of like/dislike). The last three decades of research in social psychology has identified several antecedents and consequences for each of these strength dimensions (see Tormala and Rucker 2007; 2018 for comprehensive reviews). As confidence is the most relevant dimension from marketers' viewpoint, the focus here will be on the antecedents of confidence. While prior research has proposed several antecedents of attitudinal confidence, only a subset of these that provides the background for the research questions of this project will be covered in this chapter. These variables that serve as the antecedents of confidence are related to the information mode in attitude formation.

ELABORATION LIKELIHOOD MODEL

An important model of attitude formation and change was proposed by Petty and Cacioppo (1986). The postulates of this Elaboration Likelihood Model (ELM) were tested in a program of research for over three decades.

According to this model, upon receiving some information (such as a persuasive message or information about the attributes and benefits of a brand), people engage in one of the two modes of processing. When people have the *ability* to process and comprehend information, under high

involvement and *opportunity*, they elaborate upon the information and make several inferences based on the given information. This route is the central route to information processing. For example, if a person receives some information that challenges an existing attitude, a central route to persuasion implies that the person has sufficient ability, involvement/motivation, and opportunity to process this information. As a result, this person may produce arguments that either support or counter the arguments contained in the counter-attitudinal message. If there are more supporting arguments, the prior attitude is revised in the direction of the new message. Otherwise, if there are more counter-arguments this person will dismiss the new message and maintain the existing attitude.

The second route of processing is the “peripheral route” (Petty and Cacioppo 1986). When a person has inadequate ability, motivation, and opportunity to process the information, he or she takes a peripheral route to persuasion while encountering a message that challenges the existing attitude. Examples of the peripheral route may include “the person who delivered the message is an expert on this topic,” “the advertisement had some very pleasant sceneries,” and so on. Here a person does not go beyond the surface-level factors. Thus the difference between the central and the peripheral route is mainly in terms of to what extent the processing is based on the relevant arguments/aspects of the attitudinal object or issue versus other not-so-relevant factors.

Under high involvement, ability, and opportunity, the thoughtful processing of relevant arguments is called the *elaboration* of information. What are the consequences of elaboration? According to Petty and Cacioppo, elaboration leads to greater temporal stability of attitude (a person holds the same attitude at two points separated by a reasonably long time interval), attitude-behavior consistency, and resistance to any counter-attitudinal information (for example, positive brand attitude is challenged by some information from a neutral source such as Consumer Reports). Thus, greater elaboration produces relatively stronger attitudes.

Other psychologists proposed similar conceptual frameworks. While some of these were proposed in the context of attitude change, they are also applicable to the context of attitude formation. For example, Chaiken (1980) proposed the Heuristic-Systematic Model of information processing and attitude formation. Chaiken and her coauthors refined this conceptualization in their subsequent research. In their framework, systematic processing is more analytic and comprehensive. The heuristic processing requires less cognitive effort and is a more limited mode of information processing. Although there are some subtle differences between these two models, these are not relevant from the perspective of this research. Concerning their predictions about confidence in the evaluation, both models predict that central/systematic processing leads to a greater degree of attitude strength. Although these two models did not empirically investigate the role of processing mode on

confidence, from the postulates of these models one implies that elaboration, an outcome of the central/systematic mode of processing, leads to greater confidence. Later, researchers offered propositions about the effect of thought and elaboration on attitudinal confidence (Gross, Holtz, and Miller 1995; Petty, Haugtvedt, and Smith 1995).

Elaboration and Confidence

There are two ways in which elaboration can potentially influence evaluative confidence. First, it can provide a greater informational base and improve the accuracy of and thus confidence in evaluations. The second way is the metacognition path. Here the thought that the evaluation was based on elaboration is what increases confidence. Thus, instead of actual elaboration, perceived elaboration causes an increase in confidence (Barden and Petty 2008; Tormala and Rucker 2018). This research specifically examines situations that have the potential to increase perceived deliberation and thus increase confidence in evaluation.

Amount of Information and Confidence

As does elaboration, the amount of information influences confidence in two ways. If the information is relevant, evaluations based on a greater amount of such relevant information will strengthen the attitude. In this case, the greater amount of relevant information leads to more accurate knowledge about the attitudinal object. Once a person feels knowledgeable about an attitudinal object, his or her evaluation of that object will exhibit greater strength in

terms of several dimensions including confidence. The second way in which the amount of information influences confidence is the belief that “my evaluation is based on a large amount of information, and therefore, I am confident in the accuracy of the evaluation that I expressed.”

It is normatively appropriate if a greater amount of relevant information increases confidence in evaluations based on this information. However, if one’s confidence increases because of a lot of irrelevant information, then such inappropriate confidence may lead this person to make wrong judgments and decisions. Peterson and Pitz (1988) found that the amount of information, on the one hand, increased confidence in prediction judgments. On the other hand, because the additional information can cause multiple predictions, Peterson and Pitz found that uncertainty about each prediction also increased. Thus, it seems that confidence and certainty can go in different directions! The more difficult the judgmental domain, the higher is overconfidence in judgment.

The confidence – accuracy discrepancy was demonstrated in three experiments by Tsai and her colleagues (Tsai, Klayman, and Hastie 2008) even when the additional information was highly relevant to the task. In these experiments, the amount of information was varied within subjects. For example, the same subject received three, six, twelve, eighteen, twenty-four, and thirty cues (pieces of information) about two football teams. Subjects were asked to judge which of the two teams won the football game when they

played each other last. Further, they were asked to judge the margin of victory and express confidence in their estimates. The authors found that as the number of cues increased, the accuracy of the judgments suffered but confidence in judgments increased.

The logical extension of these findings is that compared to a small amount of relevant information, a larger amount in which the relevant information is a subset produces greater confidence. Furthermore, judgmental accuracy in the latter condition may be reduced. In the present research, only evaluations are investigated; hence, one cannot conclude that an evaluation is more accurate compared to another. Thus, both the amount of information and elaboration can increase confidence in evaluation objectively or inappropriately.

How does one discriminate between the two? If the evaluation is based genuinely on a greater amount of relevant information or appropriate elaboration, then the evaluation itself will be different in the greater amount of information and greater elaboration conditions, compared to the lesser amount of information and lesser elaboration conditions. However, if the evaluation is based on metacognitive beliefs, the two sets of conditions will not differ in terms of the evaluation. For example, assume that in one condition, people receive three pieces of information about the brand's important attributes, and in another condition, people receive these three pieces of information and also three additional pieces of information on unimportant attributes. Psychological research predicts that these two

conditions will not differ in terms of overall brand evaluation (Anderson 2014). However, based on the research reviewed in this section, confidence in the evaluation will be greater in the second condition because of metacognitive reasons. The present research examines only the situations in which additional information and greater elaboration do not create different evaluations but greater confidence. Specifically, the effects of additional, not-so-important pieces of information and greater elaboration that create confidence because of mostly metacognitive reasons are examined.

The literature reviewed so far is concerned only with absolute evaluations in which an object is judged in isolation (by itself with no object of comparison available at the time of evaluation). Even in this context, while attitude researchers proposed a relationship between confidence and the amount of information and also between confidence and elaboration, until recently there was no empirical evidence supporting either of these propositions. For example, the results pertaining to the association between the amount of information and confidence were mixed (Fabrigar et al. 2006). In a similar vein, the results concerning the association between elaboration and confidence were mixed or even negative (Wilson and Schooler, 1991).

Wilson and Schooler reported a fascinating finding. In domains where our attitudes are based predominantly on feeling, attitude-behavior consistency will be higher when not much thought is involved. As the attitude guides behavior, the inference here is that this attitude is held with a high degree of

confidence. For example, I like chocolates and, my confidence in this evaluation is high. On the other hand, if I start introspecting about my liking for chocolates, I will think about the negative consequences of eating sugary stuff and avoid eating it. Thus, if greater thinking via introspection is involved, then attitude-behavior consistency, and by inference, confidence in attitude will be lower. Note that this study concerns a specific type of thinking – introspection, and it is not clear if these findings will apply to cognitive elaboration, which is our focus.

None of these studies discussed above directly investigated the causal relationship between elaboration and confidence and that between the amount of information and confidence. Further, in most of these studies neither the amount of information nor elaboration was manipulated. The research that the current study purports to extend was by Smith et al (2008), and a detailed review of this research is offered below.

A DETAILED REVIEW OF SMITH ET AL (2008)

Smith et al (2008) pointed out the following gaps in the literature: (i) the prior studies were correlational (ii) because of this, there is a possibility of reverse causality (for example, confidence would have caused elaboration than the other way around (iii) the possibility of interaction between the independent variables was not considered and (iv) the process by which each independent variable affected confidence was not examined.

Smith et al considered three independent variables – the amount of information about the attitudinal object, cognitive elaboration of the information provided, and consistency among different pieces of information provided about the attitudinal object. Confidence in evaluation was the dependent variable. In a preliminary study, they found evidence for each of the three independent variables significantly affecting confidence. In addition, there was no interaction among the three independent variables. They acknowledged that this could be due to a lack of power. Therefore, they conducted an experimental study to test the following hypotheses:

- (i) Amount of information about the object of evaluation affects confidence in evaluation.
- (ii) Cognitive elaboration of information affects confidence in evaluation.
- (iii) Consistency among different pieces of information affects confidence in evaluation.
- (iv) The effects stated in the above hypotheses are mediated by perceived knowledge (+), perceived deliberation (+), and perceived ambivalence (-), respectively.

Undergraduate students taking an introductory psychology course were randomly assigned to one of the experimental conditions. The object of the evaluation was a store. Participants in the Low amount of information condition received 6 pieces of information and those in the High amount of information received 18 pieces of information. Cognitive elaboration was

manipulated by facilitating (ample time and no distraction) or constraining opportunities (limited time and distraction tasks while processing information). In the High consistency condition, the different pieces of information were either all positive or all negative. In the Low consistency condition, one-half of the different pieces was positive and the other half was negative.

The results supported all their hypotheses. The effects of the amount of information, cognitive elaboration, and structural consistency on confidence were all significant at .05 level. Although not predicted, the effect of interaction between consistency and elaboration on confidence was significant. The follow-up analysis revealed that consistency had an effect on confidence under high elaboration and not under low elaboration. The fit between the data and the mediational model was not perfect. However, different statistics suggested that the data and the model had an *acceptable to good* fit.

Thus, the amount of information, cognitive evaluation, and consistency among different pieces serve as antecedents of confidence in evaluation. Among these, consistency will simultaneously affect the evaluation and confidence in this evaluation, irrespective of whether the different pieces of information are relevant or irrelevant. The other two variables will affect evaluation and confidence simultaneously only if all the different pieces of information are relevant. If the additional information over and above the

core information is irrelevant, based on the prior research cited earlier, it can be concluded that the amount of information and elaboration will only affect confidence and not the evaluation itself. As the antecedents of confidence in evaluation only and not of evaluation itself are included in this research, only two antecedents – the amount of information and elaboration are considered. Further, the additional information will be irrelevant or unimportant. The rationale will be explained in the research methods chapter.

Almost all the articles in psychology (including the one reviewed above) on this topic have considered only one context- a context in which information about an object is presented by itself (absolute information). A more realistic context from a marketing perspective is a comparison context. Here, information is provided about the focal object and its competitor, and the evaluation is obtained in a comparative manner. For example, in a store, one compares two or more brands before making a decision. Likewise, marketing researchers have realized that obtaining evaluations for two or more competitors in a product category will be more informative in predicting their market shares. The research question is “Do the effects of the amount of information and cognitive elaboration demonstrated by psychologists under an absolute evaluation context hold under a comparative evaluation context?” To answer this question and propose specific hypotheses based on this answer, a review of the research that highlights the differences between

absolute and comparative evaluations is presented in the remaining sections of this chapter.

COMPARATIVE EVALUATIONS

Comparisons, Similarity, and Dissimilarity

Marketing choices often involve comparisons of a brand or product with another. The topic of comparative information processing has received substantial attention in psychology (Mussweiler 2003). While comparisons are often explicit (comparing two or brands simultaneously on a particular attribute), at times comparisons could be implicit (while evaluating an object, one retrieves from memory the characteristics of another object and uses this information as the standard of comparison with the focal object).

Comparative advertisements are often used by marketers. The benefits of comparative advertisements over normal, absolute advertisements include greater attention, better recall of the attributes of strength, better positioning for a not-so-well-known brand, and better evaluations of the focal brand (Pechman and Stewart 2019).

Contrary to situations in which an object is evaluated by itself, in comparative evaluations, the same object can be evaluated more extreme or less extreme, depending on whether the comparison process highlights similarity or dissimilarity (Mussweiler 2003). However, the judgment of similarity (and dissimilarity) itself is susceptible to contextual influences.

In a classic and highly influential work on similarity judgments, Tversky (1977) outlines the malleable nature of these judgments. As there are many bases on which two objects may be considered similar or dissimilar and in a given context only a subset of the bases may cause the judgment, the same pair may be judged highly similar and highly dissimilar by the same individual, depending on which subset is salient at the time of judgment. For example, in an experiment reported by Tversky (1977) and conducted before the reunification of Germany, compared to the pair of Nepal-Ceylon, the pair of East Germany-West Germany was considered both similar and dissimilar. This happened because while judging similarity aspects such as culture, race, and language were considered; however while judging dissimilarity, the then political philosophies of East vs. West Germany were salient. Often dissimilarities in choice research are represented by distances (as in the metric spaces). However, Tversky (1977) demonstrated that this representation violates the axiom of Triangle Inequality by showing that Cuba and Jamaica were judged similar (because both belong to the same continent), Cuba and Russia (USSR of those days) were judged similar, but Jamaica and Russia were judged extremely dissimilar.

One of the most influential findings in behavioral decision theory is that people's judgments are influenced by what other objects are in the set of options considered before the decision. Tversky (1977) offered one of the earliest demonstrations of this phenomenon. Two groups of subjects

participated in the experiment and were asked to choose which of the three other countries in the set was most similar to Austria. In group A, the countries were Poland, Sweden, and Hungary. In this group, around 50% considered Sweden to be most similar to Austria. We can explain this because those days Poland and Hungary were the East Bloc countries, while Austria and Sweden were capitalistic countries. In group B, the three other countries in the set were Norway, Sweden, and Hungary. In this group only around 15% of subjects judged Sweden to be most similar to Austria. Instead, 60% of subjects considered Hungary to be most similar to Austria. It is clear that the geography (Norway and Sweden are Scandinavian countries; Austria and Hungary are neighbors and were part of the Austro-Hungarian empire until World War I) determined the similarity judgment. Thus, the similarity between Austria and Sweden was influenced by which other options were in the set.

Comparison, Commensurability, and Alignability

The features and attributes of the two comparison options may vary from very low to very high in terms of comparability. At the very low end, the two options of comparison possess non-overlapping attributes. For example, brand A body lotion contains Aloe Vera, Jojoba extracts, and lemon grass extracts as the key ingredients; and brand B contains Vitamin E, Coco butter, and cucumber water as the key ingredients. Unless one is an expert in the category of Natural lotions or has a clear preference for one set of attributes

over the other, one cannot compare these two brands. At the very high end, the two brands possess the same set of attributes and one brand is superior to the other in terms of at least one attribute. In this research, only this latter type of situation in which comparability is very high is considered.

Accordingly, the literature review pertains to this type of comparisons.

In a classic research on decision-making, Slovic and MacPhillamy (1974) gave an intriguing problem of choice when the attributes possessed by the options are all equally important, how do people decide when some information is missing? To give an example, assume we receive partial test scores of two applicants. Applicant A scores 40 on verbal and 65 on quantitative, and applicant B scores 45 on verbal and 60 on analytical. The authors found that invariably people give greater weight to the common dimension on which the candidates vary (here B gets chosen more often). Slovic and MacPhillamy called this overweighting the *commensurable* dimensions. Several years later, a comprehensive theory on which among the common and unique attributes receive greater weight in judgments and choices was proposed by Gentner, Markman, Medin, and coauthors (see Zhang and Markman 2001 for a brief review). According to them, common attributes with alignable differences will receive much greater weight. While their explanations were memory and categorization-based, later decision researchers offered uncertainty reduction explanations that are extremely relevant for marketers. According to these researchers, the main reason for

the overweighing of the alignable differences is evaluability, and these differences will be salient only in joint evaluations.

COMPARATIVE EVALUATIONS, EVALUABILITY, AND UNCERTAINTY REDUCTION

During the last 50 years, many psychologists, notably Amos Tversky, Daniel Kahneman, Paul Slovic, and Richard Thaler demonstrated how people's preferences differ from those postulated by economic theories of choices under uncertainty. This *Behavioral Decision Theory* stream research suggests that even small variations in the description of options caused preference reversals. One such preference reversal is due to a violation of procedural invariance.

According to theories of choices in Economics, preferences can be measured in many different ways, and these different measures should be consistent. For example, between two options A and B, if one chooses A, then when preference for each of these is measured separately via a rating scale, one should give a higher rating for A than for B. Apart from choice and rating, pricing or Willingness to Pay, or WTP in short (how much one is willing to pay to acquire that object) is considered a measure of preference, especially for decisions under uncertainty. And if one chooses A to B, she should be willing to pay a higher amount for A than for B, when the actual prices are unknown. This property is called procedural invariance. That is,

irrespective of how preference is measured, one should be consistent in his or her preference.

Hsee (1996) demonstrates a *new type of procedural invariance*. In his studies, the mode of evaluation was varied: Separate vs. Joint. Could there be a reversal of preference between the joint evaluation mode (two options are presented side by side and evaluated by the same people) and the separate evaluation mode (each of the two options is presented separately and evaluated by two different groups of people)? If yes, what causes such preference reversal?

In certain contexts, the evaluation mode causes preference reversal.

Preference reversal due to joint-separate evaluation occurs because one of the attributes involved is hard to evaluate independently (for example, if I'm told that one dictionary has 20,000 entries, I do not know whether 20,000 entries are good or bad). The other is easy to evaluate (the front cover of the dictionary is torn). It is hard to evaluate the desirability of 20,000 words with no reference or comparison value. If the comparison value is 15,000, then a value of 20,000 is desirable. Otherwise, if the comparison value is 25,000, then the target value is not desirable. For an attribute like "torn cover", a comparison of "badly torn cover" is not going to make the former desirable. Thus, between-attributes variability in evaluability (one attribute hard and the other easy to evaluate) property is necessary for preference reversals between separate and joint evaluation. Further, the evaluability of an attribute can be

determined only when there are alignable differences in that attribute between the two options.

This phenomenon was replicated in subsequent works (Hsee 1998; Hsee, Loewenstein, Blount, and Bazerman 1999; List 2002; Vonasch et al. 2023). The subsequent research (Hsee 1998; List 2002) also introduced a related phenomenon called *Less is Better*. For example, in separate evaluations of the two sets, a 24-item dinner set with all items intact receives better evaluation compared to a 31-item dinner set that includes the same 24 items but contains a few broken items among the remaining 7. In a joint evaluation of the two sets, this less is better effect does not occur (a significant majority prefer the 31-item set).

In these experiments, the uncertainty in valuation in the separate evaluation conditions gets reduced in the joint evaluation conditions. In none of these studies, confidence or certainty in evaluation was measured. One can predict that confidence in the evaluation will be higher in the joint evaluation condition with alignable differences.

Thus, the comparative evaluations in the alignability and evaluability paradigms of research reviewed above can simultaneously increase the evaluations and confidence in these evaluations. Are there any situations in which the comparative evaluation conditions produce the same level of evaluation as in the absolute evaluation condition but greater confidence in the evaluation? If the difference in terms of the alignable attribute is very

small, there will not be any difference between the comparative and absolute evaluations. However, confidence in the evaluation in the comparative evaluation condition will still be higher because of the metacognitive reasons explained below.

METACOGNITION AND CONFIDENCE

The metacognitive route by which elaboration of information increases confidence in evaluation was demonstrated by Barden and Petty (2008). In one of their experiments, they manipulated perceived deliberation directly. After receiving a message subjects were given a quiz rigged for their success or failure and thus created the perception of the message being well processed or not. The authors found that this manipulation significantly affected participant's confidence in evaluation.

In another study, Tormala and Petty (2004) kept the strength of the arguments of an advertisement against the participant's current negative attitude (experimentally created by providing a lot of negative information about the brand) toward a brand of aspirin constant. The advertisement was supposed to dispel the concerns about the brand. One-half of the subjects were made to believe that the arguments contained in the ad were strong, and the other half were made to believe that the arguments were weak. For participants who resisted the persuasion (ad), perceived strong arguments created greater certainty in their initial attitudes than did perceived weak arguments. The authors argued that the metacognition "I resisted the message that contained

strong message; so I'm very confident of my initial attitude" accounted for the greater certainty.

The same logic can be applied to the independent variables in the current study. When the difference between the two brands is very small, the comparative evaluation condition may not result in greater evaluation of the brand. However, the thought that "there is a justification for my evaluation as this evaluation is made after deliberate comparisons" may increase confidence. When there is a set of unimportant attributes added to the original set of important information, the evaluation may not change as the dilution effect and the addition effect cancels each other. However, the metacognitive belief that one's evaluation is based on a large amount of information increases confidence in evaluation. Finally, elaboration could make either the original set of attributes or the new set of unimportant attributes as the focus. As the former may cause an increase, and the latter may lead to a decrease, the net result is no change in the original evaluation. However, confidence increases because of the metacognitive belief of perceived deliberation. In the comparative evaluation condition, the metacognitive belief of having compared and decided may have an overwhelming effect on confidence. Therefore, other factors such as the amount of information and elaboration cause very little change in confidence. Based on the above logic, the two key predictions are offered: (1) In the absolute evaluation condition, additional information and elaboration do not

affect evaluation but affect confidence in the evaluation. (2) In the comparative evaluation condition, additional information and elaboration will not have any effect on either evaluation or confidence evaluation. These two predictions encompass all the specific hypotheses (H1 to H3) proposed in Chapter 1.

SUMMARY

This chapter started with a review of attitude and attitude strength. As the focus is on the strength dimension of confidence, research on confidence, especially on the consequences and antecedents was reviewed. The only study that directly manipulated the antecedents of evaluative confidence (Smith et al. (2008) was reviewed in detail. Then a boundary condition for the effect reported in this research, type of evaluation, was introduced. Specifically, the psychology of comparisons was reviewed in detail. The concepts of similarity/dissimilarity, alignability, and evaluability were discussed at length. The metacognitive effects of comparative evaluation, amount of information, and cognitive elaboration served as the foundation for the hypotheses presented in Chapter 1. Two key predictions that subsume all the hypotheses outlined in Chapter 1 were stated. The next chapter outlines the research methods to test these predictions and the specific hypotheses.

CHAPTER III: METHODOLOGY

In this chapter, the research methods employed to test the research predictions are outlined. Experimental methods are employed to execute the research. After revisiting the objective of this study and the hypotheses, the rationale for choosing this particular method to test the propositions is explained. In addition, the manipulations and measures and also the specific stimuli are explained. A note on the plan of analysis via the statistical hypotheses stated in Chapter 1 is presented. Further, the assumptions required for the statistical tests employed are discussed.

REVIEW OF RESEARCH OBJECTIVES AND HYPOTHESES

Recall that the objective of this research is to demonstrate that there is a boundary condition to prior research findings that the amount of information about the focal object and cognitive elaboration of this information affect confidence in the evaluation of the focal object. The specific hypotheses to be tested in this study are listed below. Note that the additional information about the brand is on *unimportant attributes*, and the cognitive elaboration in our context is *irrelevant*. However, for the sake of brevity, we just mention these as high information and high elaboration in our hypotheses and also in the rest of this chapter.

H1: Within the absolute evaluation context, while the low and the high amount of information conditions vary in terms of confidence in evaluation, there will be no difference between these two conditions in terms of evaluation itself.

H1A: Within the absolute evaluation context, while the low and the high elaboration conditions vary in terms of confidence in evaluation, there will be no difference between these two conditions in terms of evaluation itself.

H2: The amount of information available for the focal brand causes confidence in absolute evaluations. In contrast, the amount of information will not have any effect on confidence in comparative evaluations.

H3: Cognitive elaboration of the information about the focal brand causes confidence in absolute evaluations. In contrast, cognitive elaboration will not have any effect on confidence in comparative evaluation.

METHOD

The study was in the form of an *experimental research method*. The rationale for the choice of experiment versus other methods such as survey and observation is that each hypothesis is in the form of a cause-effect relationship. According to Sadish, Cook, and Campbell (2002), there are three requirements for a causal relationship: (1) temporal precedence of the cause- that is, the cause should precede the effect (2) the cause should explain the variation in the effect, and (3) the plausibility of any other variable explaining the variation in the effect should be minimal (p. 6).

These three conditions cannot be established unless the independent variables are manipulated, the dependent variables are measured after the manipulations, and all other variables are controlled. The control of other variables can be established by ensuring that the participants in all experimental conditions have the same traits (homogeneity) and by randomly assigning participants to various experimental conditions so that any variation due to extraneous variables could be distributed equally across these conditions (minimizing confounds). To what extent the manipulations explain the variations can be ascertained via the appropriate statistical test. While other methods such as surveys help us to find correlations between variables, the causality cannot be ascertained. Therefore, an experimental study is our choice.

SETTING AND PARTICIPANTS

The study had the objective of generalizing the findings to the universe of consumers in many markets. However, as is typical with any theory-testing research, the study requires a high degree of control. Therefore, the sample consisted of undergraduate students from an Asian business school. The sample selection was based on the considerations of convenience and homogeneity in terms of demographic and socio-economic background. Combined with random assignments, this homogeneity in the background minimizes the likelihood of alternative explanations for the experimental results. The minimal likelihood of alternative explanations for the results is

called internal validity (Shadish et al. 2002). Thus, internal validity is gained at the cost of generalization of results to other populations/contexts (external validity). Internal validity is the main concern of theory testing research and hence we restricted ourselves to this population of undergraduate students.

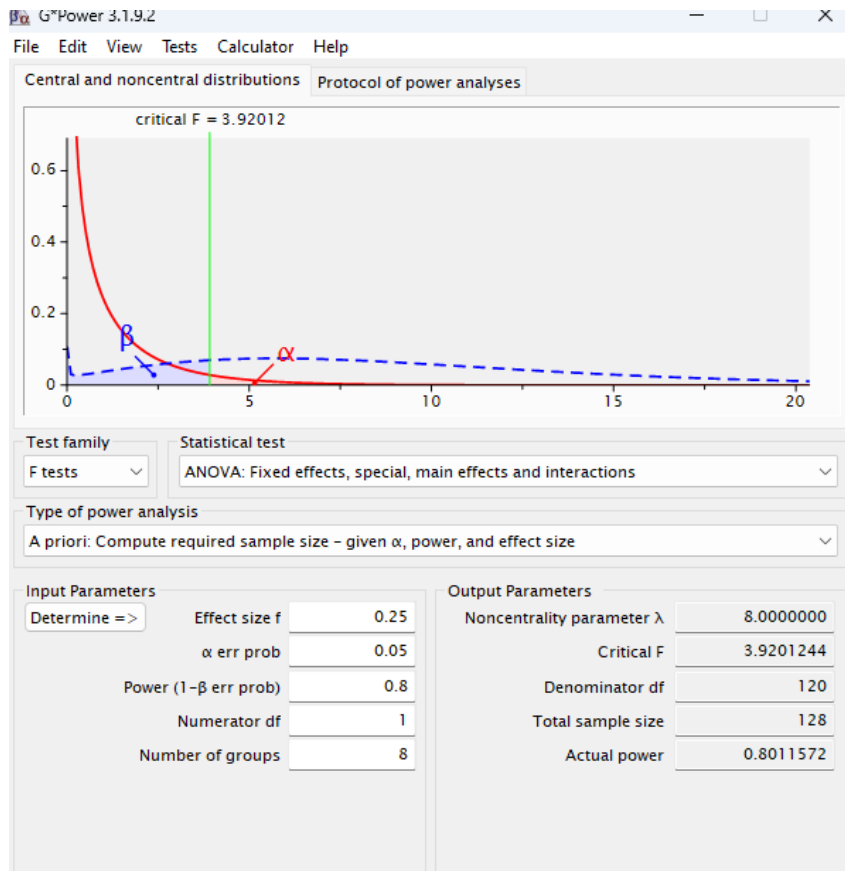
SAMPLING

Within this population, a convenient sample of students enrolled in the Introduction to Marketing course, which is a core course for all undergraduate business majors was opted. The number of participants required was decided on a Power Analysis via G-Power. Typically, the effect sizes in the published studies range from small to medium. Cohen's f was chosen as a measure of effect size. Normally Cohen's $f=0.1$ is considered small, and Cohen's $f=0.25$ is considered medium. Hence Cohen's $f=0.2$ was fixed as the effect size.

According to the convention in the field, the level of significance (α) was fixed at 0.05. To maximize the chance of detecting this effect, the desired power ($1-\beta$) was fixed at 0.9. A three-way interaction in a $2 \times 2 \times 2$ interaction is the first effect tested. Accordingly, the numerator degrees of freedom were specified as 1, and the number of groups was specified as 8. A screenshot of the G-Power output is given on the previous page. According to the output, a sample size of 265 is required. To acquire a margin of safety, the experiment had 288 participants randomly assigned to eight groups with 36 participants in each group (see Figure 1). The researcher also did a power analysis with 0.8 as the desired power for a medium-sized effect of 0.25.

Taking a conservative view about the power, the study included 288 participants,

FIGURE 1: Power Analysis with 0.9 as the desired power and an effect size of Cohen's $f=0.20$



METHOD AND PROCEDURE

Participants were recruited from the marketing department's participant pool. Participants were told that the participation is completely voluntary. As compensation for participation, a 1% credit would be given in the Introductory Marketing course. For those who did not want to participate or those who withdrew in the middle of the experiment, an alternative assignment was given to earn the 1% credit. Before entering the "experiment lab," participants were asked to read the Informed Consent form, and if they agreed with the contents, to sign the form. The experimenter then gave an introduction to the tasks to perform. Participants were told that the objective of the experiment was to find out how people evaluate marketing appeals, and their tasks included reading information and rating one or more brands based on the information provided. They then received a sheet that contained information, which manipulated the three factors and contained the rating scales.

Design

The experiment employs a 2 X 2 X 2 between-subjects factorial design. In a between-subjects design, each participant is exposed to only one combination of the experimental conditions. This design requires a relatively smaller number of statistical assumptions but a larger number of participants (Keppel and Wickens 2004). The choice of a between-subjects design was based on the criterion that the sensitivity to manipulations and thus hypothesis guessing

will be minimal in such designs. The factorial manipulation permits the evaluation of the effect of each factor but also their combined effect on the dependent variable.

Product

The product used in the experiment is a stand-alone MP4 music player. This product is quite popular with the students in the population (as determined by a pretest unrelated to the current study). It is believed that the choice of this product will increase the involvement in the experiment. Fictitious brand names were used to control for any familiarity effects.

Manipulations

The factors manipulated are (i) the type of evaluation, (ii) the amount of information, and (iii) the degree of cognitive elaboration.

The first factor, the type of evaluation, was manipulated at two levels: absolute and comparative. The information they received as well as the rating scales for evaluation was varied between the two levels. The following is the absolute versus comparative evaluation manipulation under a low amount of information and low elaboration. The manipulation at other levels and the complete stimuli are given in Appendix 1.

Absolute Evaluation (Low Amount of Information-Low Elaboration)

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below. Please read the information about the brand and answer the questions.

The following are the features of an MP4 player called Sound Supreme. This player lets you bring your favorite music anywhere. The following are its features.

Internal Storage – 128 GB

Songs stored (average 3 minutes per song) - 30 thousand

Battery Life -36 hours

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings within 2 minutes.

Dislike it ----- Like It

It is Bad ----- It is Good

I feel Negative ----- I feel
Positive

Comparative Evaluation (Low Amount of Information-Low Elaboration)

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below.

Please read the information about the two brands and answer the questions.

The following are the features of two MP4 players called Sound Supreme and Sound Exemplary. These players let you bring your favorite music anywhere. The following are their features.

Sound Supreme

Sound Exemplary

Internal Storage – 128 GB

128 GB

Songs stored (average 3 minutes per song) – 30,000

25,000

Battery Life -36 hours

36 hours

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings within 2 minutes. Compared to Supreme Exemplar,

My Liking for Sound ----- My Liking
Supreme is Less for Supreme is More

Overall Sound ----- Overall Sound
Supreme is Worse Supreme is Better

I feel more Negative ----- I feel more
about Sound Supreme Positive about Sound Supreme

The second factor, the amount of information, was manipulated at two levels – low and high. At the low level, there were three pieces of information as given above. At the high level, in addition to these three pieces of information, additional information was provided on the attributes of HD resolution, warranty, and range of colors. Of these, the range of colors (an unimportant attribute as shown by our earlier pretests) was the only additional attribute on which the two brands in the Comparative evaluation condition varied (See Appendix 1).

The third factor, cognitive elaboration, was also varied at two levels –low and high. At the low level, the instructions were as given above. At the high level, the following instructions were given before the brand information was given.

“This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below. We are interested in obtaining your most accurate ratings. Therefore, think about the characteristics of the brand carefully and then make an evaluation. Prior research has shown that evaluations made after careful consideration are more accurate.

Please read the information about the brand and answer the questions.”

(See Appendix 1 for all the combinations)

Measures

The evaluation measures were all obtained on three 11-point scales given in the section on manipulation of absolute versus comparative evaluation.

(Also See Appendix 1).

Measure of Confidence

In all eight conditions, the following two 11-point scales were used to measure confidence in the evaluation.

Now, how confident do you feel about your above evaluation of Sound Supreme?

Not at all Confident----- ----- Extremely Confident

Highly Uncertain ----- Highly Certain

The scales for evaluation and confidence used in this study have been used in almost all attitude studies since the 1980s (for example, Batra and Ohtola 1991 used semantic scales of like-dislike, positive-negative, and to measure evaluations and they loaded well on both utilitarian and hedonic dimensions of brand attitude; the certainty scales used here have been used in the study by Smith et al. (2008) reviewed earlier. Nonetheless, the reliability of the evaluation and confidence scales will be tested, and the results will be reported in the next chapter.

It was made sure that all the sessions were completed during a particular week, and in each session, subjects were assigned randomly to one of the eight conditions. The same experimenter ran all the sessions. After reading information about the brand(s), participants completed the evaluation scales first and then the confidence scales. At the end of the experiment, they were debriefed.

The scales for evaluation and confidence used in this study have been used in almost all attitude studies since the 1980s.

PLAN OF ANALYSIS

The statistical package SAS will be used for all the analyses. First, the reliability of the evaluation scales and the confidence scales will be checked and reported in the next chapter. The Proc CORR procedure of SAS with the option alpha (that gives the value of Cronbach's alpha) will be used to check the reliability of the scales.

ANOVA ASSUMPTIONS

1. Independence: This assumption is satisfied as a random assignment of subjects to the various experimental conditions is used.
2. Homogeneity of Variance: This assumption will be checked via box plots and formal tests such as Levene's test, Brown-Forsyth's test, and Bartlett's test.

The Proc PLOT procedure of SAS can produce the box plots. In addition, Proc GLM and Proc ANOVA can give us all the above tests' results if these

options are specified. I will look for $p > .05$ to conclude that the equality of variance assumption holds.

3. Normality: This assumption can be checked from the Q-Q (normal) plots that the Proc PLOT procedure can produce. Further, the Shapiro-Wilk tests will give the W and the associated p-values. The p-value has to be greater than .05 if the normality assumption holds.

These assumptions that are common for both univariate and multivariate ANOVA (Keppel and Wickens 2004; Tabachnick and Fidell 2007) will be verified.

TEST OF HYPOTHESES

The Proc GLM procedure will be used for testing the key hypotheses. The statistical hypotheses stated in Chapter 1 suggest that we need to look for two significant 2 X 2 interactions. Although a 2 X 2 X 2 (three-way) interaction will be tested and reported, theoretically a three-way interaction is not required as the predictions suggest that both the Type of evaluation X Amount of information and the Type of evaluation X cognitive elaboration should exhibit the same pattern.

Thus, the focus will be on the two-way interactions and the follow-up analyses. The first is the Type of Evaluation X Amount of Information interaction. If this interaction is significant, then in the follow-up analysis, it needs to be shown that the effect of the amount of information on confidence

is significant in the Absolute evaluation condition but not in the Comparative evaluation condition.

The second is the Type of Evaluation X Elaboration interaction. Once again, if this two-way interaction is significant, a follow-up analysis should be done, and the results of the follow-up analysis should show that the effect of cognitive elaboration on confidence should be significant in the Absolute evaluation condition but not in the Comparative evaluation condition.

In addition, to verify that the theoretical assumptions hold, it needs to be shown via a planned contrast that within the Absolute evaluation conditions, the evaluations should not differ across the levels of the amount of information and the levels of cognitive elaboration. Nor should there be an Amount of information X Elaboration interaction within the Absolute evaluation condition. However, with respect to confidence in evaluations, both elaboration and amount of information should have an effect within the Absolute Evaluation condition.

SUMMARY

This chapter gave the details of the research methods and the plan of analysis. The researcher acknowledges that a major limitation of this study is in terms of generalizing the findings to other populations. Thus, our results should be viewed with caution as the population in this study is the Asian college students in the Undergraduate courses. A replication in another setting could improve the generalizability. Further, the results need to be replicated with

brands in other product categories. In the next chapter, the detailed results will be presented first, and then the researcher's brief interpretation of the results.

CHAPTER IV: RESULTS

Before the results are presented, the study objectives, the participants, and the hypotheses to be tested are presented briefly. Recall that this research aims to establish that the antecedents of confidence in absolute evaluations do not have any effect on confidence in comparative evaluations. The specific purpose of this study is to identify an important boundary condition – type of evaluation: absolute versus comparative - for the prior findings in psychology concerning the roles of the amount of information about the focal object and the degree of elaboration of the given information in confidence in evaluations.

The experiment manipulated three factors- the amount of information, cognitive elaboration, and the type of evaluation- and measured the overall evaluation and the confidence in the evaluation. It was proposed that the amount of information and cognitive elaboration affect confidence in absolute but not comparative. The participants in this experiment were undergraduate business majors in an Asian university. Two hundred and eighty-eight students (thirty-six in each of the eight groups) participated in this experiment to get credits in a Marketing course.

Here, the descriptive statistics for the variables of evaluation and confidence, and the reliability statistics are presented. Then the appropriate statistics that test whether certain assumptions of ANOVA are satisfied are presented.

Finally, the Statistical hypotheses are listed one after the other, and the results of the analyses that test these hypotheses are presented.

Descriptive Statistics

Table1 and table 2 present the means, standard deviation, and confidence intervals for the dependent variables of evaluation and confidence, respectively. The group numbers refer to the following combinations

<u>Amount of Information</u>	<u>Elaboration</u>	<u>Type of Evaluation</u>	<u>Group</u>
Low	Low	Absolute	1
Low	High	Absolute	2
High	Low	Absolute	3
High	High	Absolute	4
Low	Low	Comparative	5
Low	High	Comparative	6
High	Low	Comparative	7
High	High	Comparative	8

Table 1: Descriptive Statistics on Evaluation (n=36 in each group)

Group	Mean	SD	95% CL-Lower	95% CL-Upper
1	7.40	2.09	6.69	8.11
2	8.21	1.60	7.67	8.75
3	7.89	1.27	7.45	8.32
4	7.79	1.76	7.19	8.38
5	8.25	1.57	7.71	8.78
6	8.13	1.78	7.52	8.73
7	8.07	1.83	7.45	8.69
8	7.99	1.71	7.41	8.57

Table 2: Descriptive Statistics on Confidence (n=36 in each group)

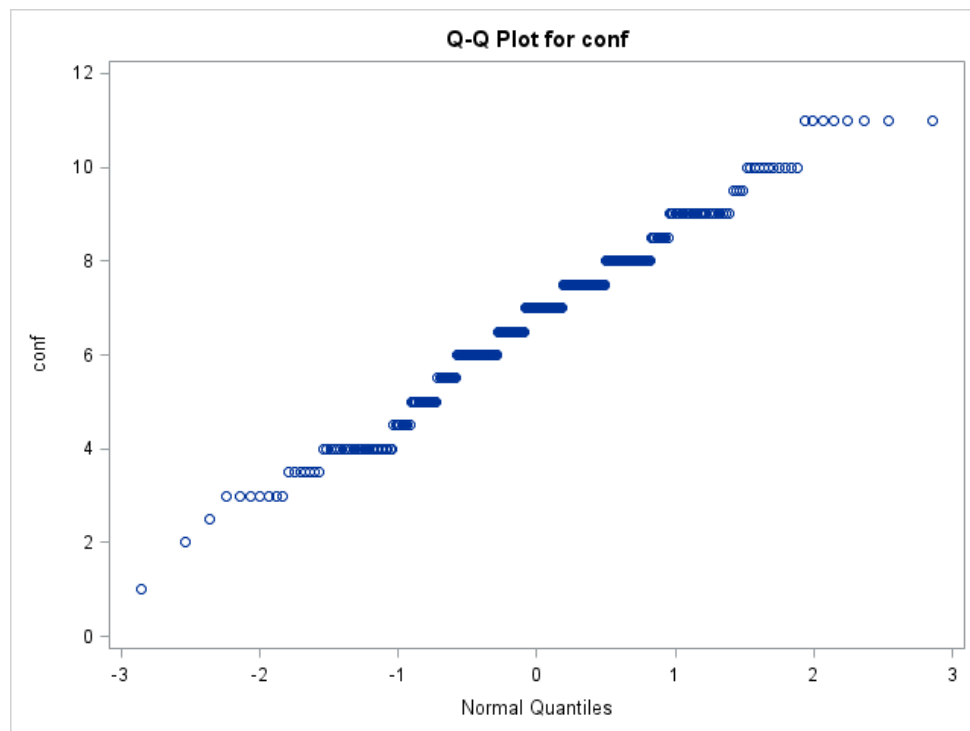
Group	Mean	SD	95% CL-Lower	95% CL-Upper
1	5.35	1.81	4.73	5.96
2	6.85	1.68	6.27	7.41
3	6.51	2.13	5.79	7.24
4	7.54	1.92	6.89	8.19
5	6.58	1.60	6.04	7.13
6	7.36	2.22	6.61	8.11
7	6.97	1.74	6.38	7.56
8	6.93	1.81	6.32	7.54

ANOVA ASSUMPTIONS: The ANOVA assumptions were tested for our key dependent variable – confidence in evaluations. As the participants were assigned to the various experimental conditions randomly, the independence assumption is satisfied. The other two assumptions – normality and homogeneity of variance were tested

Normality

Proc Univariate procedure of the SAS gives the q-q plot and also the Shapiro-Wilk W and the Kolmogorov-Smirnov D statistic. As $W=0.98$ and $p < W = .015$ and $D = 0.086$ and $p > D = .01$, the normality is a concern. The q-q plot given in Figure 2 below also suggests that the normality assumption is not satisfied.

Figure 2: Q-Q Plot for Confidence



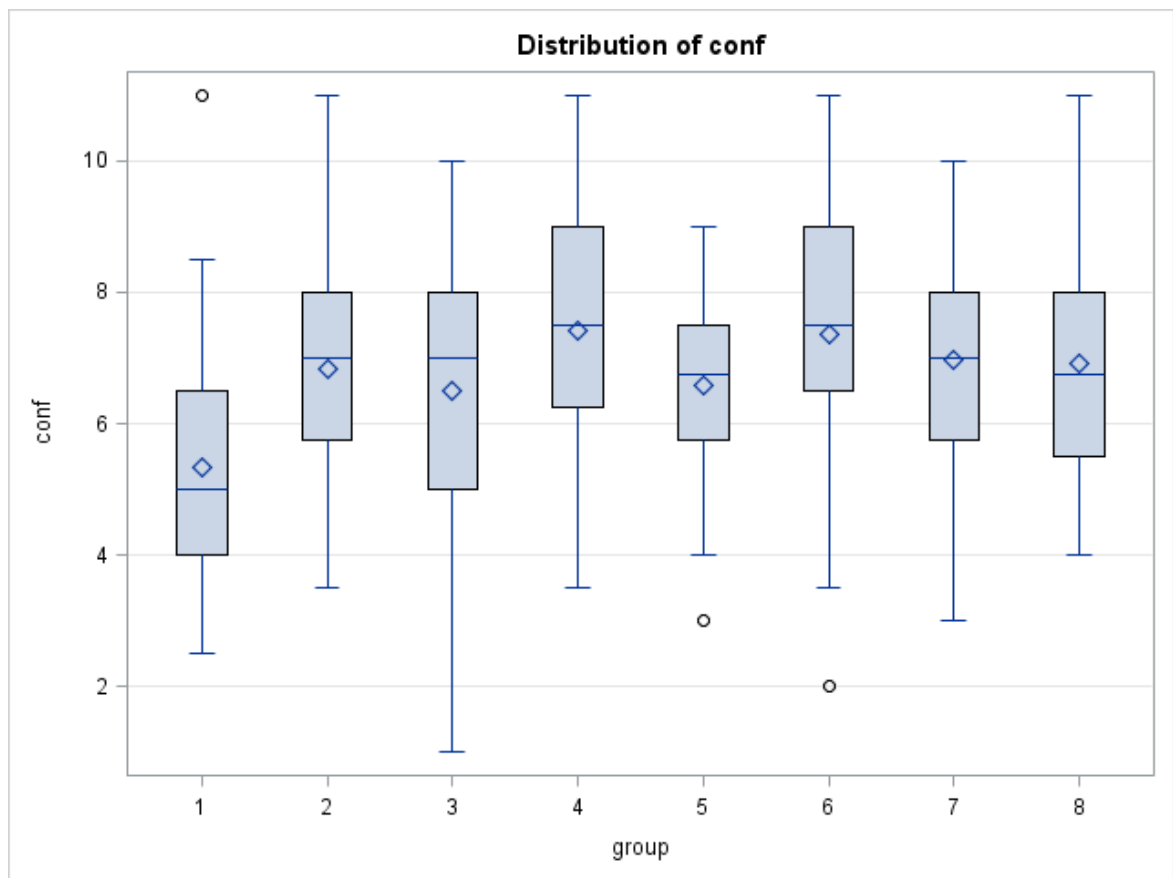
In addition, the Shapiro-Wilk W's were obtained separately for confidence in absolute vs. comparative evaluations. For absolute evaluations, the Shapiro-Wilk $W=0.98$ and $p < W=.04$. Thus, normality is a concern for confidence in absolute evaluations. However, it is not a concern for confidence in comparative evaluations ($W=0.98$, $p < W .07$). With no unequivocal evidence supporting the normality assumption, the results reported need to be viewed cautiously.

Heterogeneity of Variance:

One of the most important assumptions of the Analysis of Variance is the homogeneity of variance. This assumption refers to no experimental group varying about the mean more than any other experimental group. According to Keppel (2004), "By far the most serious problem is the presence of difference in variability." (p. 147). Two tests are recommended to test this assumption – Levene's statistic and Brown and Forsyth's statistic. An eight-group one-factor ANOVA was run to test this assumption. The Hovtest option of the Proc GLM procedure of SAS was used to obtain these statistics. The results reveal that homogeneity of variance is not a concern in this experiment. The Levene's $F=1.07$, $p > .38$, and the Brown-Forsyth $F=0.53$, $p > .8$ both offer converging evidence for the homogeneity of variance of the confidence in evaluations measure across the experimental conditions. The Box-plot figure given on the next page (Figure 3) supports this conclusion.

Thus, we can safely assume that the most important assumption is not violated.

Figure 3: The Distribution of Confidence across Eight Experimental Conditions



THREE FACTOR ANALYSIS OF VARIANCE AS A DIAGNOSTIC TEST

Proc GLM was used to analyze the effects of the amount of information, cognitive elaboration, and type of evaluation on the brand evaluation and the confidence in this evaluation. The results revealed that there was no main effect of any of these factors and no interaction effects (two-way or three-way) involving any of these factor on the bran evaluation. Thus, our argument that the irrelevant additional information or irrelevant elaboration will not have any effect on the brand evaluation is strengthened. Further, the manipulation of the type of evaluation does not affect the evaluation as we assumed.

The results of a three factor ANOVA with confidence in evaluation as the dependent variable showed that the three way (Amount of information X Elaboration X Type of evaluation) was not significant ($F(1, 280) = 0.15, p = 0.695$). The main effects of the amount of information ($F = 4.23, p < .05$) and cognitive elaboration ($F = 13.62, p < .01$) were significant. Further, the effect of the type of evaluation on confidence in brand evaluation was marginally significant ($F(1, 280) = 3.26, p = .08$). As expected, the effects of Amount of information X Type of evaluation ($F(1, 280) = 4.63, p < .05$) and Elaboration X Type of evaluation ($F(1, 280) = 4.10, p < .05$) were both significant. As most our hypotheses are based on these two two-way interactions, below we test each of the hypotheses with an appropriate follow-up analysis.

HYPOTHESIS TESTING

Assumption Checks

As stated in Chapter 1, our conceptual hypotheses have been framed in terms of statistical hypotheses SH 1 – SH3. We state these again before presenting the results of the analysis. The first hypothesis is to test our theoretical assumption that the additional (irrelevant) information and irrelevant elaboration do not affect the evaluation but affect the confidence in this evaluation.

SH1: Within the Absolute evaluation context, the Low and High information conditions will not differ in terms of the evaluation of the focal brand but will differ in terms of confidence in evaluation.

SH1A: Within the Absolute evaluation context, the Low and High elaboration conditions will not differ in terms of the evaluation of the focal brand but will differ in terms of confidence in the evaluation of the focal brand.

To test these two hypotheses, we retained only the Absolute type of evaluation conditions (n=144) for our analysis. We ran an Amount of information X Elaboration ANOVA for the dependent variables of evaluation and confidence separately. SH1A predicts that there will be no effect of the amount of information on the evaluation but a significant effect of the amount of information on confidence in the evaluation. Our results support this

prediction. For the dependent variable of evaluation, the effect of the amount of information was nil ($F(1, 140) = 0.01, p = .91$). However, for the dv of confidence, the effect was significant ($F(1, 140) = 8.68, p < .01$). Thus, SH1 is supported.

To test SH1A, we ran an Elaboration X Type of evaluation ANOVA. The results suggested that the effect of elaboration on brand evaluation was non-significant ($F(1, 140) = 1.57, p = 0.21$). For the dependent variable of confidence, however, the effect was highly significant ($F(1, 140) = 16.01, p < .01$). Thus, SH1A also receives support from our results.

Now, we look at our key hypotheses (SH2 and SH3).

The Effect of Amount of Information on Confidence

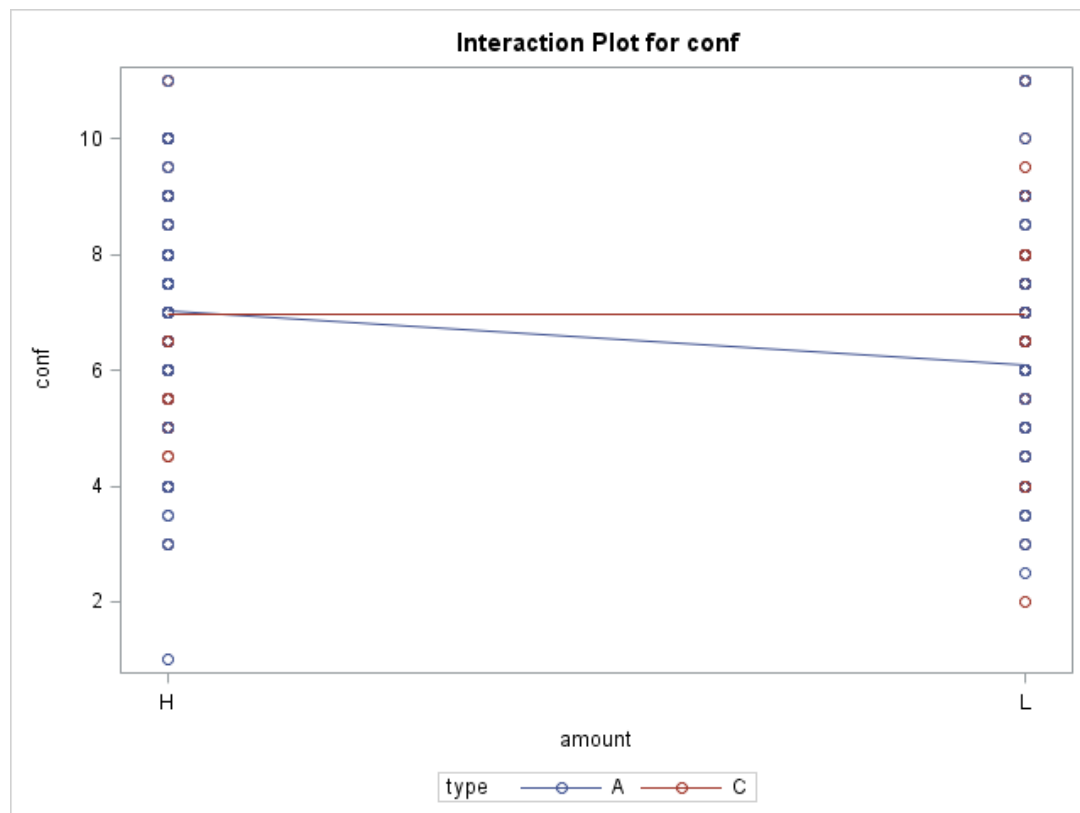
SH2: With respect to the dependent variable of confidence in evaluation, the interaction between the Type of evaluation and the Amount of information will be significant (The interaction F will be significant).

SH2A: The difference in confidence in evaluation between the Low and High information conditions will be significant for the Absolute Evaluation contexts but not for the Comparative Evaluation contexts (as indicated by two-group F-tests).

SH2B: Within the Absolute Evaluation context, the High information condition will produce significantly greater confidence in evaluation than the Low information condition (as indicated by a two-group F-test).

To test SH2, we ran an Amount of information X Type of evaluation ANOVA, with confidence in brand evaluation as the dependent variable. The results revealed that the main effect of the amount of information on confidence is significant ($F(1, 284) = 4.01, p < .05$). Further, the effect of type of evaluation on confidence was marginally significant ($F(1, 284) = 3.09, p = .08$). From our theoretical view point, the crucial effect is the interaction between the amount of information and the type of evaluation. This effect was significant ($F(1, 284) = 4.38, p < .05$; Eta-squared = 0.015), supporting SH2. [The interaction pattern can be seen from Figures 4 and 5].

Figure 4: The Marginal Means of the Amount of Info X Type of evaluation (DV=Confidence in Evaluation)



In the figures 4 and 5, A= Absolute evaluation and C=Comparative evaluation; H=High amount of information, and L=Low amount of information

Figure 5: Distribution of Confidence in Amount of Info X Type of Evaluation Interaction

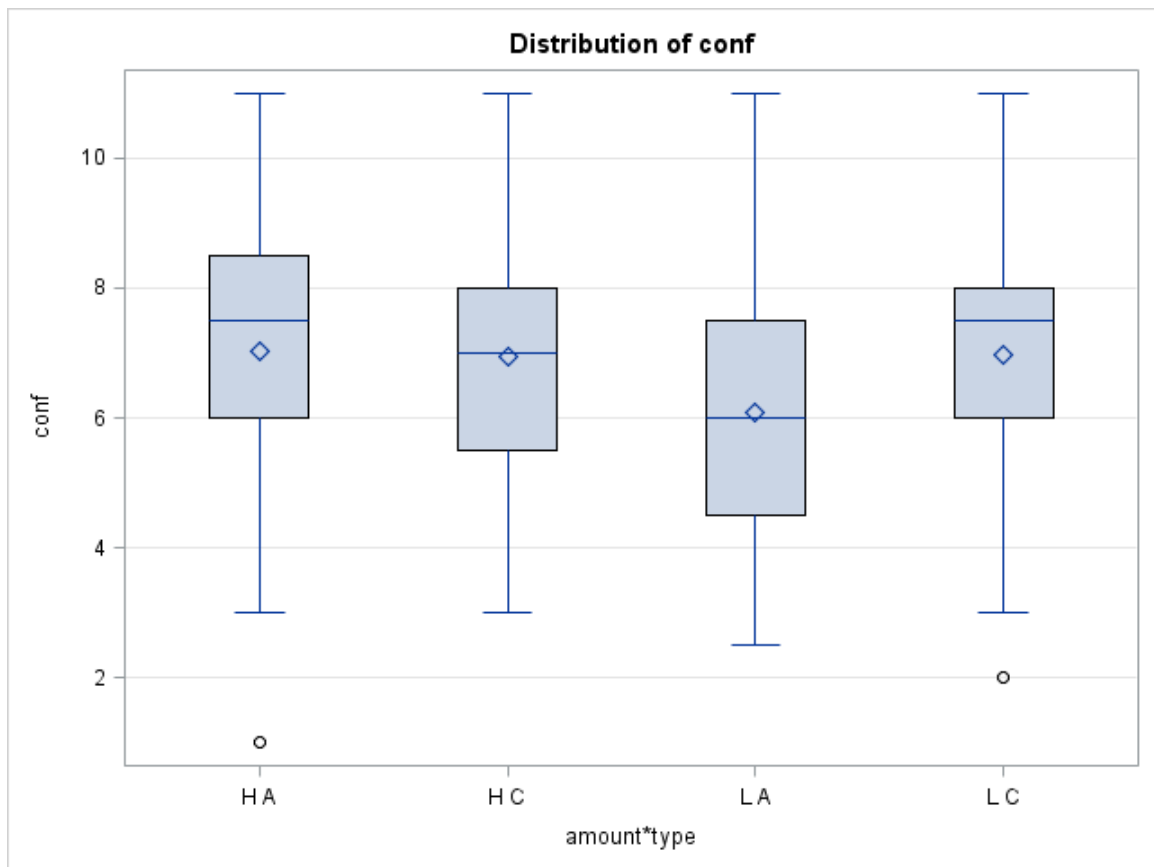


Table 3: Confidence Means in Amount of Info X Type Interaction

Level of amount	Level of type	N	Confidence	
			Mean	Std Dev
H	A	72	7.027	2.082
H	C	72	6.951	1.762
L	A	72	6.097	1.892
L	C	72	6.973	1.962

In the table above, H = High amount of information, L=Low amount of information; A=Absolute evaluation and C=Comparative evaluation

The follow up analysis suggest that when the type of evaluation is absolute, the amount of information had a significant effect on confidence in brand evaluation ($F(1, 142) = 7.87, p < .01$; Eta-squared=0.0526). Specifically, high amount of information (although the additional information is irrelevant) yielded greater confidence in evaluation (7.03) than did the low amount of information (6.09). However, this pattern does not occur under comparative evaluation. Here both high information (6.95) and low information (6.97) produce the same level of confidence ($F(1, 142) = 0.01, p = .94$). The above results support SH2A and SH2B.

The Effect of Cognitive Elaboration on Confidence

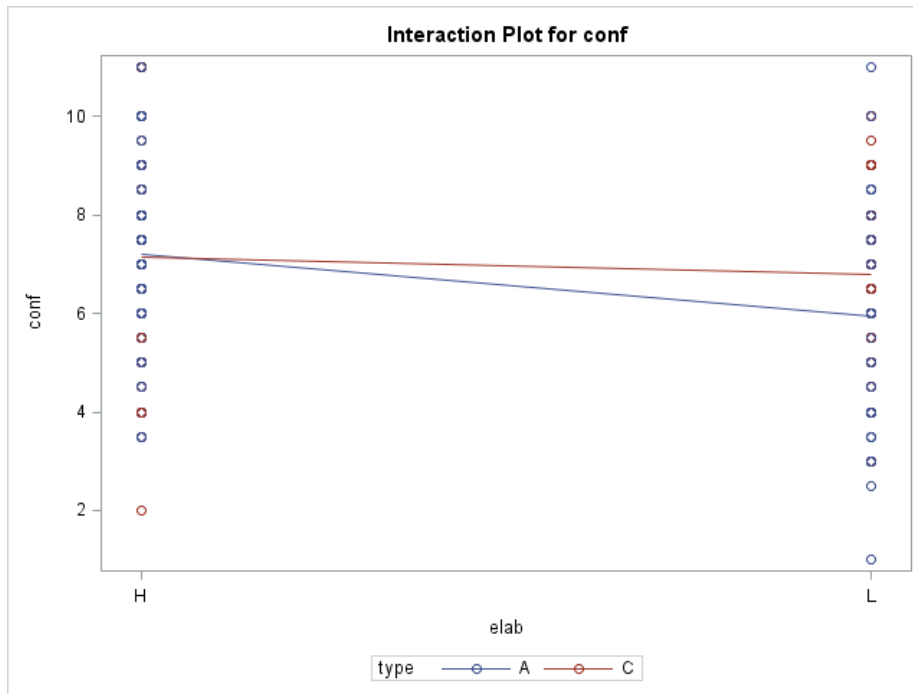
SH3: With respect to the dependent variable of confidence in evaluation, the interaction between the Cognitive elaboration and the Type of evaluation will be significant (The interaction F will be significant at .05 level).

SH3A: The difference in confidence in evaluation between the Low and High elaboration conditions will be significant for the Absolute evaluation contexts but not for the Comparative evaluation contexts (as indicated by two-group F-tests).

SH3B: Within the Absolute evaluation context, the High elaboration condition will produce significantly greater confidence in evaluation than the Low elaboration condition (as indicated by a two-group F-test).

To test these hypotheses, we ran an Elaboration X Type of Evaluation ANOVA. Figure 6 and 7 show the interaction pattern and Table 4 gives the means in several experimental conditions.

Figure 6: Marginal Means in Elaboration X Type of Evaluation Interaction (DV=Confidence)



In figures 6 and 7, A= Absolute and C=Comparative; H=High degree of elaboration and L=Low degree of elaboration.

Figure 7: Distribution of Confidence in Elaboration X Type of Evaluation Interaction:

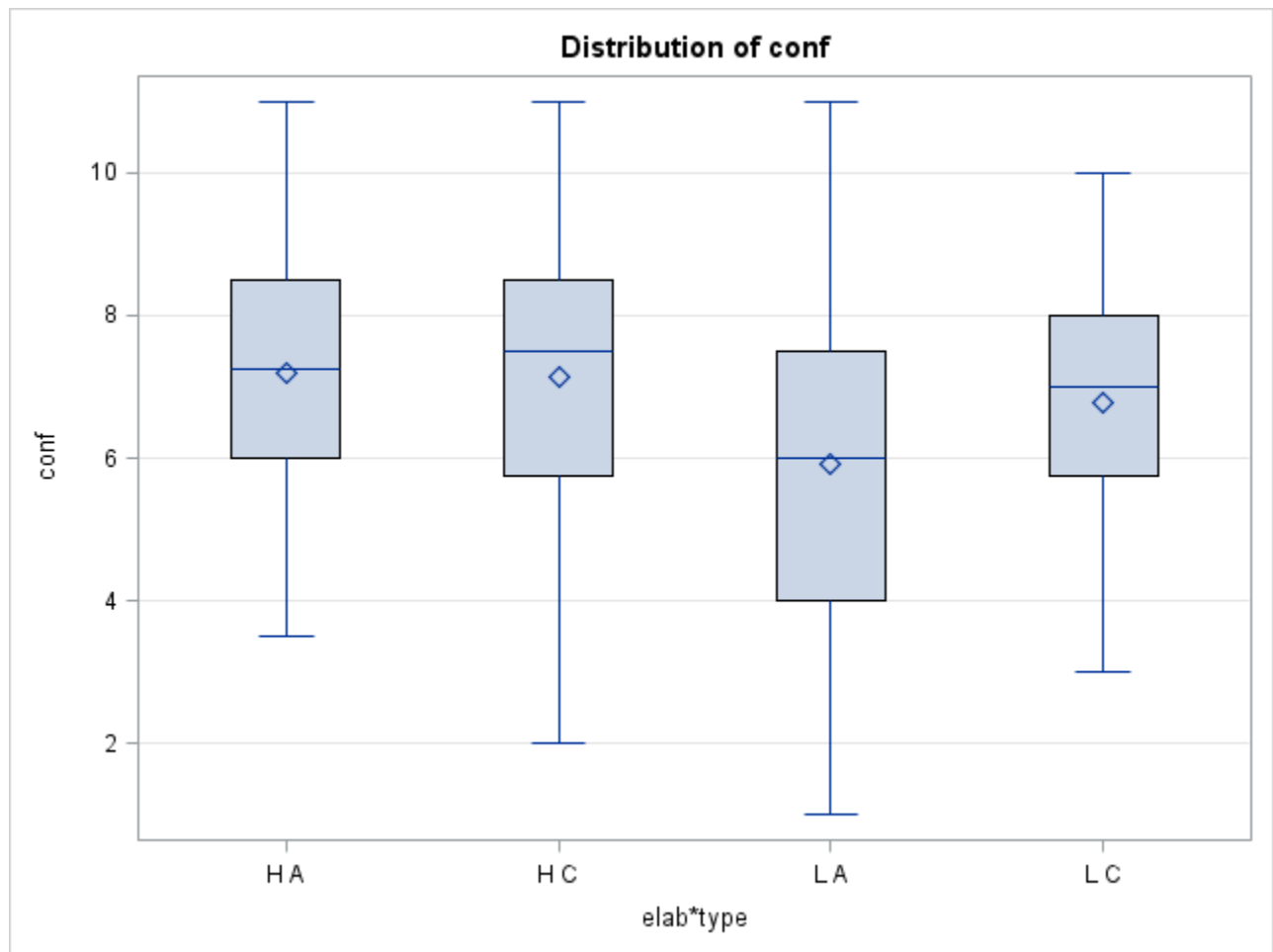


Table 4: Confidence Means in Elaboration X Type Interaction

Level of elab	Level of type	N	confidence	
			Mean	Std Dev
H	A	72	7.194	1.826
H	C	72	7.145	2.025
L	A	72	5.930	2.052
L	C	72	6.777	1.669

In the table above, H = High elaboration, L=Low elaboration; A=Absolute evaluation and C=Comparative evaluation

The results of the Elaboration X Type of evaluation ANOVA offer evidence for a significant main effect of elaboration on confidence ($F(1, 284) = 13.28$, $p < .01$) and a marginally significant effect of type of evaluation on confidence. However, from our theoretical perspective, we need to look for a significant effect of interaction between elaboration and type of evaluation. Indeed, this effect was significant ($F(1, 284) = 4.01$, $p < .05$; Eta-squared = 0.014). The follow-up analysis suggested that under Absolute evaluation, greater elaboration produced greater confidence in evaluation ($F(1, 142) = 15.24$, $p < .001$; Eta-squared = 0.097). Specifically, confidence under greater elaboration (7.19) was greater, compared to that under lesser elaboration (5.93).

This pattern does not occur under comparative evaluation. The effect of elaboration on confidence was non-significant under comparative evaluation

($F(1, 142) = 1.42, p = .234$; Mean Low = 6.78 and Mean High = 7.145).

Together, these results offer support to SH3, SH3A, and SH3B. Thus, this experiment offers evidence for our assumptions and support all our hypotheses.

Comparison Creates the Same Level of Confidence as High Amount of Information and Greater Elaboration

Recall that the following two hypotheses (H4 and H4A) were proposed in chapter 1.

- Confidence in comparative evaluations based on discrimination on irrelevant or unimportant attributes will be of the same magnitude as confidence in absolute evaluations produced by a greater amount of information.
- Confidence in comparative evaluations based on discrimination on irrelevant or unimportant attributes will be of the same magnitude as confidence in absolute evaluations produced by a greater degree of cognitive elaboration.

The results of ANOVA are reported here to consider the plausibility of these hypotheses. The difference in confidence between the Low Amount of Information – Comparative Evaluation group (6.97) and the High Amount of Information – Absolute Evaluation group (7.03) was not significant ($F(1, 142) = 0.03, p = .869$). Likewise, the difference in confidence between the Low Elaboration- Comparative group (6.77) and the High Amount – Absolute group (7.19) was not significant ($F(1, 142) = 2.04, p = .155$). Thus,

even under low levels of the amount of information or elaboration, the comparative evaluations may produce the same magnitude of confidence as the absolute evaluations at a high amount of information or greater elaboration. As this set of results is null, the conclusion is not definitive.

SUMMARY AND CONCLUSION

This study had the objective of introducing a boundary condition for the effects of the amount of information and elaboration found in prior research. Specifically, we proposed that the effects obtained under absolute evaluation will not hold under comparative evaluations. In the experiment, we manipulated the factors of amount of information, cognitive elaboration, and measured brand evaluation and confidence in this evaluation. We tested whether the assumptions of ANOVA hold and found that normality is a concern but the homogeneity of variance assumption holds. A battery of ANOVA tests offered support for all our hypotheses. In the next chapter, we will state the limitations of this study. Further, we will outline the future research plans. As the research has the objective of making strong theoretical contributions to the psychology of evaluative confidence and make contributions to practice of marketing research, it is important to state these plans in a somewhat elaborate manner. The second half of next chapter will provide a detailed account of these plans.

CHAPTER V: SUMMARY AND FUTURE RESEARCH

In this chapter, the theoretical framework that motivated this research is revisited, and the contribution of the findings to this theoretical framework is highlighted. The differential characteristics of absolute versus comparative evaluations are restated. Accordingly, the findings of this research are interpreted in terms of metacognitive beliefs. The limitations of the study are then outlined. Finally, certain important themes are proposed for future research.

In psychology, attitudes toward people and objects have been researched extensively and are considered summary evaluations that have the potential for actions (Eagly and Chaiken 1993). Indeed, the utility of the construct of attitudes as summary evaluations. An important property that helps the attitudes predict consistent actions is the level of confidence with which these attitudes are held. This property is labeled attitudinal confidence and attitude certainty (Rucker et al. 2014; Gross et al. 1995). While confidence may be empirically correlated with other properties of attitudes such as extremity and ambivalence, psychologists have established that attitude certainty or attitude confidence is conceptually a distinct variable.

Research in marketing has also investigated the role of attitudinal confidence in consumer buying behavior and concluded that the consistency between attitudes and buying behavior is enhanced if we consider only those attitudes that are held with a higher level of confidence, especially if the purchase

decisions are made after some deliberation. (Berger 1992). This prediction about the moderating role of confidence in the attitude-behavior relationship underscores the importance of studying attitude confidence.

To understand what causes attitudinal confidence, a set of variables was identified. These include the level of knowledge about the attitudinal object (Davidson, Yantis, Norwood, and Montano 1985; Wood 1982), relevance (Rucker et al. 2014), importance of attributes that serve as the basis of attitude formation (Eaton and Visser 2008), cognitive elaboration and consistency among the pieces of information that helped form the attitude (Smith, Fabrigar, Macdougall, and Wiesenthal 2008). These variables affect confidence in evaluations in a predictable manner. For example, the greater the level of knowledge on relevant attributes, the greater the confidence in one's attitudes. However, the manner in which these attitudes have been studied (i.e., whether they are formed in isolation or in the context of other targets) raises some intriguing questions.

Absolute versus Comparative Evaluations

Research in psychology and marketing has typically examined attitude confidence by presenting people with a target object in isolation (absolute evaluations). Their attitude toward it, as well as their confidence in this attitude, is then measured. In such cases, attitudinal confidence is based on the elaboration of knowledge about the target, the amount of relevant information that is considered, and whether it is consistent with other

information or not (Barden and Tormala 2014). According to Petty, Haugtvedt, and Smith (1995), elaboration increases attitude certainty and confidence which, in turn, leads to attitude-behavior consistency, temporal persistence of attitudes, and resistance to counter-attitudinal information.

Although this research has yielded rich dividends, objects are rarely encountered in isolation. People might have to choose between many different brands on the shelf. Little is known about how attitude confidence is formed in these cases. Thus, while attitude researchers in psychology and marketing have focused exclusively on confidence in absolute evaluations and their consequences, the focus of the present research is on a different construct – confidence in comparative judgments. That is, how does confidence in an attitude object (e.g., Brand A) vary if it is presented in the context of other options (e.g., Brand B), versus when it is presented alone? Specifically, will the factors that cause confidence in absolute judgments can also cause confidence in comparative judgments?

In this research, two known antecedents of confidence in evaluations – the amount of information about the object of evaluation and the degree of cognitive elaboration – were manipulated and their varied effects on absolute versus comparative evaluations were investigated. As outlined in Chapter 4, the results supported many of our assumptions and predictions. To recap, the following are the key theoretical findings.

- As the additional information and greater degree of elaboration are both *irrelevant* (additional information is on clearly unimportant attributes and the additional thinking led to no further knowledge about the attitudinal object), these two factors did not affect the evaluation itself. However, additional, irrelevant information and inconsequential elaboration of information enhanced confidence in evaluation.
- The amount of information available for the focal brand affected confidence in absolute evaluations. In contrast, the amount of information did not have any effect on confidence in comparative evaluations.
- : Cognitive elaboration of the information about the focal brand affected confidence in absolute evaluations. In contrast, cognitive elaboration did not have any effect on confidence in comparative evaluations.

INTERPRETATION OF FINDINGS: METACOGNITION DRIVES THE EFFECTS

As discussed in Chapter 2, confidence in attitudes towards an object is based on the elaboration of knowledge about it, the amount of relevant information that is considered, and structural consistency between different aspects of the information. When individuals go through any of these processes, their confidence in their evaluations increases. Much of the research on attitudes suggests that this is the primary way in which attitude confidence increases.

An increase in confidence via any of these means is very appropriate.

Barden and Tormala (2014), however, identify a second process by which deliberation results in greater confidence; through creating metacognitive

perceptions about the amount of information or elaboration individuals engage in (see also Barden and Petty 2008). That is, people have thoughts about how much information caused this evaluation, and how much elaboration was involved in causing the evaluation (i.e., metacognitive thoughts). Further, people have beliefs about how a greater amount of information or elaboration produces better judgments that they can be certain of. Thus, people form some naïve theories about the amount of information they process before making an evaluation- those based on a greater amount could be more accurate. Further, people can not only deliberate long and hard on relevant attributes but also have metacognitive beliefs that this deliberation was good. In other words, this metacognition or “thinking about thinking” allows them to feel confident about their judgments.

The findings of this study support this metacognitive route to enhanced confidence in the evaluation. If the additional information and elaboration affect only the confidence in evaluation without affecting the evaluation as our conceptual finding reveals, this is clear evidence for the metacognitive process. Further, this process is not completely automatic as some degree of thinking is required to form naïve theories that boost one’s confidence in the evaluation.

Further, the realization that the evaluations were based on comparisons can increase confidence in the evaluation. This is the second type of metacognition that our findings suggest. As this metacognition of “comparisons enhance validity” provides a high level of confidence, the

additional effects of either the amount of information or cognitive elaboration do not increase confidence in the comparative evaluation conditions. The findings of this study related to the difference between the absolute and the comparative evaluation conditions in terms of the effects of the amount of information and elaboration support this theory. To the best of our knowledge, this is the first time that the illusion of validity of comparative evaluations is demonstrated.

These findings help us to make some speculations about the relationship between comparisons and confidence. When an option is presented in the context of others (e.g., a comparative judgment context where a choice is being made), this context elicits a tendency to first discriminate between the two. This discrimination is based on any discriminant attributes even if these are irrelevant for product performance. Comparisons between options even on an irrelevant attribute might elicit metacognitive thoughts that the evaluation was based on very rational considerations. These metacognitive thoughts increase confidence in evaluation.

The necessary condition for producing such inappropriate confidence is that one option is discriminated clearly (albeit on unimportant attributes). Several streams of research in the field of judgment and decision-making that we discussed in Chapter 2 (for example, on the themes of alignability, commensurability, and evaluability) found that clear discrimination on even the least important attributes can influence people's choices. In the present

research, we extend the findings and conclude that this effect occurs not only for choices but also for confidence in evaluations. Thus, per our reasoning, discrimination on any attribute will create metacognitive perceptions, and discrimination alone is a sufficient condition for increased confidence in evaluations. That is, the mere act of considering how the target is superior on an irrelevant attribute, might be sufficient to increase confidence in the evaluation of that option.

Further, two Hypotheses (4 and 4A) were proposed to show that the comparative information produces the same level of confidence as higher amount and greater elaboration of information. To recap,

- Confidence in comparative evaluations based on discrimination on irrelevant or unimportant attributes will be of the same magnitude as confidence in absolute evaluations produced by a greater amount of information.
- Confidence in comparative evaluations based on discrimination on irrelevant or unimportant attributes will be of the same magnitude as confidence in absolute evaluations produced by a greater degree of cognitive elaboration.

In Chapter 4, the results of the appropriate contrasts that support these effects were reported. The difference in confidence between the Low Amount of Information – Comparative Evaluation group and the High Amount of Information – Absolute Evaluation group was not significant. Likewise, the difference in confidence between the Low Elaboration- Comparative group and the High Amount – Absolute group was not significant. Thus, even under low levels of the amount of information or elaboration, the comparative

evaluations may produce the same magnitude of confidence as the absolute evaluations at a high amount of information or greater elaboration.

Nonetheless, as this set of results is null, the conclusion is not definitive.

LIMITATIONS

As mentioned in an earlier chapter, the main limitation of the study is its generalizability. The study was conducted with participants drawn from an Asian University's undergraduate population. It is not clear whether these findings can be generalized to other cultures and other age groups. Further, the study used only one product category. It is proposed that in future research, multiple product categories are used. Further, there was hardly any delay between the receipt of brand information and the expression of confidence in evaluations. In the real world, there will be a temporal delay between these two activities, and in any future study on this theme, delay could be considered as an additional factor. Although it is very difficult to conduct field experiments on this theme, if resources permit, at least one field experiment may be conducted to check whether the results are at least in the predicted direction, even if they are not statistically significant.

IMPLICATIONS FOR MARKETING RESEARCHERS

Marketing researchers often measure consumer evaluations of various brands in a product category to estimate consumer choices and predict market shares based on their evaluations. While positive evaluations with greater extremity

often lead to consistent choices, this relationship is stochastic at best. Based on psychological research findings, marketers have started measuring confidence in evaluations as the evaluation–choice relationship is moderated by the confidence with which these evaluations are held. Then the next step in the marketing action is how to boost confidence in evaluations so that the evaluation-choice relationship is strengthened. Some strategies include providing additional (not necessarily relevant) information via advertisements, and in several ways, creating the perception that their evaluations are based on a good deal of thought.

However, marketing research and actions accompanying this research have so far focused mainly on *confidence in absolute evaluations*. Here, each brand will be evaluated separately followed by the confidence in the evaluation. For example, if we have two brands of music players – say Sony and Pioneer– consumers will first be given some information about Sony and asked to rate their evaluation of Sony. Then they will be asked how confident they feel about the evaluation of Sony. Next, they will be asked to rate Pioneer and indicate their confidence in their evaluation of Pioneer. The antecedents such as the amount of information, and the degree of elaboration will be strengthened via advertisements.

The focus of this study is on *confidence in comparative evaluation*. In a comparative evaluation context, information for the two competing brands (Say Sony and Pioneer) will be provided simultaneously and consumers will

be asked to provide a comparative evaluation (on a comparative scale ranging from Sony is better than Pioneer to Pioneer is better than Sony. Confidence in this comparative evaluation will be obtained on the same scale of confidence (Not at all confident to Extremely Confident).

The findings of this study suggest that the antecedents of confidence in absolute evaluation will not be relevant for confidence in comparative evaluations. For example, increasing inconsequential elaboration and additional, irrelevant information produced a high degree of confidence in absolute evaluation but did not have any effect on confidence in comparative evaluations.

Thus, to increase confidence in comparative evaluations marketers may have to change their strategies to enhance confidence in consumer evaluations.

What exactly are the strategies to follow was not answered by the present study. Likewise, what exactly are the consequences of confidence in comparative evaluations was not examined in this study. Both these questions are important from the practitioners' viewpoint. Therefore, several directions for future research are proposed.

FUTURE RESEARCH

CONSEQUENCES OF CONFIDENCE IN COMPARATIVE EVALUATION

Attitude researchers have proposed three major consequences of attitude certainty: attitude-behavior consistency, temporal persistence, and resistance

to counter-persuasive influence attempts (Krosnick and Petty 1995; Petty, Haugtvedt, Smith 1995; Tormala and Rucker 2018). Although all these consequences are relevant for marketing, the latter two are particularly important for understanding repeat purchase behavior, which is a key marketing objective. The property of temporal stability refers to consistency in evaluations between two time periods. Confidence in absolute evaluations generally accounts for the stability of attitudes over a period of time (Krosnick and Petty 1995). In marketing contexts, the consequence of resistance refers to previously formed evaluations withstanding persuasive efforts by competitors to switch consumers away from the focal brand. The efforts include promotions, price cuts, advertisements that portray the competitor as better, and providing information that highlight the superiority of competitor's brand.

Stability

Concerning the effect of elaboration on stability, a question worth investigating is whether additional irrelevant information (i.e., discrimination along an irrelevant dimension) will create temporal stability. That is, will the metacognitions created by the comparative evaluation process persist over time?

Concerning the effect on stability of confidence created by the amount of additional information versus that created by greater discrimination, it is predicted that the latter to be stronger. While the sheer amount of

information can create confidence momentarily, after a time gap, confidence as well as the evaluation depends on which subset of the original information is recalled. However, in the case of confidence in comparative evaluations, the piece of information that is more likely to be recalled is the superiority of the focal brand. Therefore, it is predicted that the stability to be greater for confidence based on comparative evaluations. This is a theme to be investigated in future research.

Resistance to Challenges

Confidence in attitudes typically helps people resist challenges and withstand persuasive attempts by competitors. While in the case of social attitudes, people have some motivation to defend their prior attitudes, the extent of such motivation is very little in marketplace choices and judgments. As a greater strength in terms of confidence for comparative evaluations is predicted, resistance will be greater for an evaluation based on the comparison of irrelevant attributes than that based on absolute information on relevant attributes.

ANTECEDENTS OF CONFIDENCE IN COMPARATIVE EVALUATION

An important question to be investigated in a follow-up study is, within the context of a comparative evaluation, given that two brands are discriminated in terms of an unimportant attribute, how to increase the level of confidence. Increasing the importance of the discriminating attribute is an obvious

answer, and it requires no research to conclude this. A prediction that discrimination on multiple unimportant attributes will increase confidence (compared to discrimination on a single unimportant attribute) is worth testing. Likewise, the magnitude of differences between the two brands in terms of the discriminating attribute could affect confidence in comparative evaluation. These two predictions are worth investigating in follow-up studies. There is very little research on the antecedents of confidence in comparative evaluation that are distinct from those of confidence in absolute evaluation, and this topic offers fertile grounds for future research that will be important from both theoretical and practitioner perspectives.

CONCLUSION

In this chapter, the findings of this study are integrated into a broader theoretical framework. The findings were interpreted from the premise that the metacognitive beliefs drive the effects reported in Chapter IV. Then the major limitations of the study were stated. The future research themes on the consequences and the antecedents of confidence in comparative evaluation were outlined. Several interesting issues within this area warrant further research.

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APPENDIX A –STIMULI USED IN SEVERAL CONDITIONS

BRAND EVALUATION STUDY

LLA

We presume that you are at least 18 years old. If not, you cannot participate in this study as a different protocol would be required for persons below 18.

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below.

Please read the information about the brand and answer the questions.

The following are the features of an MP4 player called Sound Supreme. This player lets you bring your favorite music anywhere. The following are the values of Sound Supreme on the given attributes.

Internal Storage – 128 GB

Songs stored (average 3 minutes per song) - 30 thousand

Battery Life -36 hours

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings within 2 minutes.

Dislike it ----- Like It

It is Bad ----- It is Good

I feel Negative ----- I feel Positive

Now, how confident do you feel about your above evaluation of Sound Supreme?

Not at all Confident ----- Extremely Confident

Highly Uncertain ----- Highly Certain

BRAND EVALUATION STUDY

HLA

We presume that you are at least 18 years old. If not, you cannot participate in this study as a different protocol would be required for persons below 18.

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below.

Please read the information about the brand and answer the questions.

The following are the features of an MP4 player called Sound Supreme. This player lets you bring your favorite music anywhere. The following are the values of Sound Supreme on the given attributes.

Internal Storage – 128 GB

Songs stored (average 3 minutes per song) - 30 thousand

Battery Life -36 hours

HD Resolution Pixels – 1920 X 1080

Range of Colors of the Product – 5

Warranty – 24 months

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings within 2 minutes.

Dislike it ----- Like It

It is Bad ----- It is Good

I feel Negative ----- I feel Positive

Now, how confident do you feel about your above evaluation of Sound Supreme?

Not at all Confident ----- Extremely Confident

Highly Uncertain ----- Highly Certain

BRAND EVALUATION STUDY

LHA

We presume that you are at least 18 years old. If not, you cannot participate in this study as a different protocol would be required for persons below 18.

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below. We are interested in obtaining your most accurate ratings. Therefore, think about the characteristics of the brand carefully and then make an evaluation. Prior research has shown that evaluations made after careful consideration are more accurate.

Please read the information about the brand and answer the questions.

The following are the features of an MP4 player called Sound Supreme. This player lets you bring your favorite music anywhere. The following are the values of Sound Supreme on the given attributes.

Internal Storage – 128 GB

Songs stored (average 3 minutes per song) - 30 thousand

Battery Life -36 hours

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings after careful deliberations. You may take up to 5 minutes to complete the ratings.

Dislike it ----- Like It

It is Bad ----- It is Good

I feel Negative ----- I feel Positive

Now, how confident do you feel about your above evaluation of Sound Supreme?

Not at all Confident ----- Extremely Confident

Highly Uncertain ----- Highly Certain

BRAND EVALUATION STUDY

HHA

We presume that you are at least 18 years old. If not, you cannot participate in this study as a different protocol would be required for persons below 18.

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below. We are interested in obtaining your most accurate ratings. Therefore, think about the characteristics of the brand carefully and then make an evaluation. Prior research has shown that evaluations made after careful consideration are more accurate.

Please read the information about the brand and answer the questions.

The following are the features of an MP4 player called Sound Supreme. This player lets you bring your favorite music anywhere. The following are the values of Sound Supreme on the given attributes.

Internal Storage – 128 GB

Songs stored (average 3 minutes per song) - 30 thousand

Battery Life -36 hours

HD Resolution Pixels – 1920 X 1080

Range of Colors of the Product – 5

Warranty – 24 months

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings after careful deliberations. You may take up to 5 minutes to complete the ratings.

Dislike it ----- Like It

It is Bad ----- It is Good

I feel Negative ----- I feel Positive

Now, how confident do you feel about your above evaluation of Sound Supreme?

Not at all Confident ----- Extremely
Confident

Highly Uncertain ----- Highly Certain

BRAND EVALUATION STUDY

LLC

We presume that you are at least 18 years old. If not, you cannot participate in this study as a different protocol would be required for persons below 18.

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below.

Please read the information about the two brands and answer the questions.

The following are the features of two MP4 players called Sound Supreme and Sound Exemplary. These players let you bring your favorite music anywhere. The following are the values of these players on the given attributes.

Sound Supreme	Sound Exemplary
Internal Storage – 128 GB	128 GB
Songs stored (average 3 minutes per song) – 30,000	25,000
Battery Life -36 hours	36 hours

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings within 2 minutes. Compared to Supreme Exemplar,

My Liking for Sound ----- My Liking for
Sound Supreme is Less Sound Supreme is More

S

Overall Sound ----- Overall Sound
Supreme is Worse Supreme is Better

I feel more Negative ----- I feel more
about Sound Supreme Positive about Sound Supreme

Now, how confident you feel about your above evaluation of Sound Supreme?

Not at all Confident ----- Extremely
Confident

Highly Uncertain ----- Highly Certain

BRAND EVALUATION STUDY

HLC

We presume that you are at least 18 years old. If not, you cannot participate in this study as a different protocol would be required for persons below 18.

This study is conducted to find out how participants evaluate marketing appeals. The evaluations are based only on the information given below.

Please read the information about the brands and answer the questions.

The following are the features of two MP4 players called Sound Supreme and Sound Exemplary. These players let you bring your favorite music anywhere. The following are the values of these players on the given attributes.

Sound Supreme	Sound Exemplary
Internal Storage – 128 GB	128 GB
Songs stored (average 3 minutes per song) – 30,000	25,000
Battery Life -36 hours	36 hours
HD Resolution Pixels – 1920 X 1080	1920 X 1080
Range of Colors of the Product – 5	4
Warranty – 24 months	24 months

Based on the information provided above, please Rate Sound Supreme on the following scales. Complete the ratings within 2 minutes. Compared to Supreme Exemplar,

My Liking for Sound ----- My Liking for
Sound Supreme is Less Supreme is more

Overall Sound ----- Overall Sound
Supreme is Worse Supreme is Better

I feel more Negative ----- I feel more

about Sound Supreme

Positive about Sound Supreme


Now, how confident you feel about your above evaluation of Sound Supreme?

Not at all Confident ----- Extremely
Confident

Highly Uncertain ----- Highly Certain

APPENDIX B- IRB APPROVAL BY SHAWNEE STATE UNIVERSITY

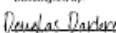
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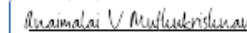
SSU IRB Approved  3/11/2024 | 12:36

Shawnee State University

Study # 2024-5

In submitting this form and the corresponding documents, I acknowledge that I have completed Human Research Participants training and that I understand and will uphold the rights of human participants. I also verify that all information contained in this form and any other corresponding documentation is correct based on my knowledge. I understand that I may not have contact with any research participants until the Shawnee State University IRB has given me their approval. I also understand that I must file an *Amendment/Modification Form* if my project extends beyond a year from my approval date and I must file a *Final Study Form* with all consent forms once the study is complete.

DocuSigned by:

Signature of Principal Investigator 1

DocuSigned by:

Signature of Co-Investigator 2

Signature of Co-Investigator 3

Signature of Co-Investigator 4

Signature of Co-Investigator 5

Signature of Co-Investigator 6

Date of Submission: 3/2/2024 | 1:42 AM EST

Please compile attachments into one document for each category. If any forms below are not applicable, please attach reasons why.

Human Research Training Certificates:



Data Collection Questions and Forms:



Research Summary:



Consent Forms:



Assent Forms:



Advertisements:



Revisions Requested Yes No ☒ IRB Chair Signature

Date sent for revision (if applicable):

Please attach revisions requested with changes clearly marked

Changes marked

Final copy

Rev. 9/3/2013;1/24/22

4



APPROVAL BY HKUST HUMAN SUBJECTS COMMITTEE

ticketlab.ust.hk/ticketlab_HKUST/popup.aspx?CommId=-1998651651&EventId=Review.Start

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IRB Review: HREP-2024-0092 "Antecedents of Confidence in Absolute versus Comparative Evaluation", (v.9.0), Approved/Approved

All

Notes to Applicants

Personnel

General Information

Training

Protocol/Forms Links

Project Information

Data Collection

Human Participants and Recruitment Information

Investigational Drugs or Devices

Biological Specimens

Risks and Benefits



Informed Consent

Protection Of Data

PI Declaration

Workflow History

Subject: HAREC Member Review

22-Mar-2024 11:55:38 AM	Approved	This protocol looks great!		
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Response

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BIBLIOGRAPHY

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Thesis: THE ANTECEDENTS OF CONFIDENCE IN ABSOLUTE VERSUS
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ADVISER'S APPROVAL:  6/20/2024