CHAPTER 3

LITERATURE GAPS, RESEARCH QUESTIONS AND HYPOTHESES

This Chapter provides literature gaps based on the review of literature done in Chapter 2. Each literature gap leads to a specific research question. In order to examine the research questions, a conceptual framework is developed and presented. Finally, hypotheses have been developed based on the relationships shown in the conceptual framework.

3.1 Literature Gaps and Research Questions

From the review of literature presented in Chapter 2, it is observed that most of the studies used haptic products such as sweater, tennis racket, mobile handset (Peck and Childers 2003a), ball pen, fleece hand band, flashlight key chain (Grohmann, Spangenberg, and Sprott 2007), and tissue paper (Balaji, Raghavan and Jha 2011) to examine the role of haptic information processing in product evaluation between touch and no-touch environments. There are few research studies which examined the differential role of haptic information processing in the evaluation of haptic (bath towels and carpeting) and non-haptic products (videotapes and rolls of film) in touch environment (McCabe and Nowlis 2003). On the other hand, extant literature suggests that involvement positively affects the amount of information processing (Petty and Cacioppo 1979). Goldsmith and Emmert (1991) have found that information processing is more pronounced in high purchase involvement situation than in low purchase involvement. As it has been observed that prior studies do not asses purchase involvement of haptic products. Therefore, this literature gap leads to the following research question:

RQ1: How do consumers evaluate haptic and non-haptic products in a given purchase environment?
Accessibility of haptic information processing depends on the purchase environment. In touch environment, people have the opportunity to glean haptic information of a product which is not possible in no-touch environment such as in online buying. Citrin et al. (2003) have argued that haptic products are less likely to be sold in online situation. Consumers show more frustration and less confidence in no-touch environment while evaluating haptic product (Peck and Childers 2003a; 2003b). Similarly, prior research findings suggest that the products high on search attributes can be sold easily in online (Wright and Lynch 1995). But, most of the prior studies have not examined the relationships between purchase environment and individuals’ cognitive and affective responses across haptic and non-haptic products. Therefore, this leads to the second research question:

**RQ2:** Does a given purchase environment positively (negatively) affect cognitive and affective responses across haptic and non-haptic products?

Thirdly, research on impulse buying and variety seeking behaviors has identified product type, individual’s trait and store environment as their antecedents. It has been found that consumer’s affective and cognitive states mediate the relationship between purchase environment and overall evaluation and purchase behavior (Beatty and Ferrell 1998; Khan and Isen 1993). On the other hand, sensory marketing literature suggests that product characteristics and purchase environment generate affective and cognitive responses (Childers and Peck 2010; Peck and Childers 2003a). This suggests that affective and cognitive responses are likely to mediate the relationships between purchase environment and attitudinal and behavioral intentions for haptic and non-haptic products. But, this has not been empirically supported in the literature of haptic information processing. Therefore, it would be important to investigate:

**RQ3:** Do cognitive and affective responses mediate the relationships between purchase environment and overall evaluation and purchase intention of haptic and non-haptic products?
Peck and Childers (2003a, 2003b) have found that the importance of haptic information processing varies from one individual to others. Consumers who are high in NFT show more confidence in judgment and less frustration in touch environment than those consumers who are low in NFT while evaluating a haptic product (Peck and Childers 2003a, 2003b). Prior literature suggests that consumers who are high in NFT would like to use haptic information processing more than those who are low in NFT, but the moderating role of NFT between purchase environment and cognitive and affective responses have not been examined across haptic and non-haptic products. Hence, the following research question is framed:

**RQ4:** Do individuals who are high in NFT exhibit cognitive and affective responses differently in a given purchase environment while evaluating haptic and non-haptic products?

Peck and Wiggins (2006; 2011) have observed that retailers and marketers have adopted several creative ways to provide information about the touch based attributes in advertisement content to make consumers knowledgeable about the haptic product which may compensate for not touching the product. Although, it is believed that consumer knowledge influences the extent of information they look for while making a purchase decision (Alba and Hutchinson 1987), but its role is yet to be examined in haptic information processing literature. Therefore, it would be worthwhile to address this literature gap through the following research question:

**RQ5:** Does consumer knowledge about haptic and non-haptic products affect the relationships between purchase environment and consumer responses?

### 3.2 Conceptual Framework

In this section, a conceptual framework is developed to answer the research questions identified from the literature gaps. The conceptual framework is largely guided by the Stimulus-
Organism-Response (S-O-R) theory. S-O-R paradigm serves as a macro-level theory for the conceptual framework. Mehrabian and Russell (1974) has conceptualized S-O-R paradigm in environmental psychology. In S-O-R framework, S corresponds to the stimuli present in the environment which influences individual’s evaluation (O) of an object to avoid and to approach (R) the environment. Marketing researchers have used this framework to explain how stimuli present in a store affects consumer behavior (Spies et al. 1997; Turely and Milliman 2000).

In the proposed conceptual framework presented in Figure 3.1, product type and purchase environment act as stimuli. These stimuli affect consumer’s internal states such as affective and cognitive states which in turn influence consumer responses like overall evaluation and purchase intention. Individual sensory differences in propensity to touch and consumer knowledge are likely to affect the relationships between stimuli and consumer’s internal states. In addition, consumer’s internal states are proposed to mediate the relationships between stimuli and attitudinal and behavioral intentions.

In the next section, hypotheses have been formulated based on the conceptual framework shown in Figure 3.1.
FIGURE 3.1
Conceptual Framework

STIMULI

Product type:
Haptic Product
or Non-haptic
Product

Environment:
Touch, No-touch
or Print
Environment

Moderating Variables:
NFT and Consumer Knowledge

ORGANISM

Affective
Response

Cognitive
Response

RESPONSE

Overall
Evaluation

Purchase
Intention

Control Variable:
Gender
3.3 Development of Hypotheses

3.3.1 Impact of Product Type and Purchase Environment

Findings from research on haptic information processing suggest that evaluation of haptic products in touch environment positively influences offline purchase intention (Citrin et al. 2003), recall of haptic information (Peck and Childers 2003a), confidence in purchase decision (Peck and Childers 2003b), purchase likelihood (McCabe and Nowlis 2003), affective response (Peck and Wiggins 2006), unplanned purchase (Peck and Childers 2006), and overall evaluation (Grohmann, Spangenberg, and Sprott 2007). It has been found that haptic property such as soothing texture of a woolen sweater provides sensory pleasure and promises to engage shoppers for a longer period of time (Childers and Peck 2010). Hence, evaluation of haptic product in touch environment is likely to elicit more cognitive and affective responses, overall evaluation, and purchase intention than non-haptic product. While a number of prior studies support this proposition, the following is proposed taking purchase involvement as a major variable. It is likely that haptic information processing is more pronounced in the context of high purchase involvement (Peck and Wiggins 2006). Therefore, using haptic and non-haptic products which require high level of purchase involvement, the following hypotheses are proposed:

**H1a-d:** For the haptic product, touch environment will have a relatively stronger impact upon (a) cognitive response, (b) affective response, (c) overall evaluation, and (d) purchase intention than for the non-haptic product.

3.3.2 Congruence between Product Type and Purchase Environment

Sensory marketing literature indicates that fit or congruency of the in-store stimuli is essential to elicit favorable response (Peck and Childers 2008). For example, Schlosser (1998) has found that only social identity and not utilitarian product evaluations are influenced by
background music. It has been argued that a fit between the stimuli tends to facilitate information processing (Mandler 1982). For example, Grewal et al. (2003) use classical music versus non-classical music as one manipulation in the atmosphere of a jewelry store. They have found that classical music has a positive impact on overall evaluation of jewelry store and, in turn, intention to shop at the store because classical music fits well with the jewelry store. Spangenberg, Grohmann, and Sprott (2005) have studied the interactive effect of ambient scent and music in retail settings in the context of Christmas. They have found that the congruent condition of Christmas scent and Christmas music results in more favorable evaluations for the store, its merchandise, the store atmospherics, and intention to revisit the store. When music and scent did not match, evaluation and behavioral intentions were not affected, or, in some cases, negatively affected.

In the present dissertation, focus is on providing an evidence for the congruence between product types and purchase environment. It is expected that allowing consumers to touch a haptic product will have positive effects on cognitive and affective responses, overall evaluation, and purchase intention (Grohmann, Spangenberg, and Sprott 2007; Peck and Childers 2003a & 2003b). This proposed relationship between the congruence between haptic product and touch environment is reexamined in Indian context to provide additional evidence to existing literature.

**H2a-d:** *For the haptic product, touch environment will have a relatively stronger impact upon (a) cognitive response, (b) affective response, (c) overall evaluation, and (d) purchase intention, than no-touch and print environments.*

It has been found that accessibility of irrelevant information has negative effects on overall evaluation and recall of an advertisement (Heckler and Childers 1992). This suggests that, for non-haptic product touch environment is likely to affect individuals’ responses negatively because it does not facilitate the exploration of any additional product information. Moreover,
print environment essentially conditions the consumers to evaluate the product based on search attributes. Using a congruency theory, non-haptic product which can be argued to possess search attributes should best be evaluated in print environment (Peck and Childers 2003a; Wright and Lynch 1995). Therefore, print environment could be perceived more suitable for non-haptic products than touch environment. This line of argument and congruency theory leads to the next hypotheses, which predict higher effect on cognitive and affective responses, overall evaluation, and purchase intention for non-haptic product in print environment than no-touch and touch environments. Hence, the following hypotheses are proposed.

**H3a-d:** For the non-haptic product, print environment will have a relatively stronger impact upon (a) cognitive response, (b) affective response, (c) overall evaluation, and (d) purchase intention than touch and no-touch environments.

### 3.3.3 Mediating Effect of Cognitive and Affective Responses

Cognitive response is defined as individuals’ held belief for an object evaluation (Fishbein and Ajzen 1975). It is the result of a process by which input is transformed, reduced, elaborated, stored, recovered, and used (Neisser 1967). Ostensibly, these processes would produce cognitive responses such as the knowledge, opinions, beliefs, attitude certainty, and thoughts that are produced or retrieved from memory, in response to a stimulus.

Affective response relates to emotive reactions to an object (Khan and Isen 1993). It has been found that consumers’ direct experience with the product elicits more affective response than the advertisement contents (Kempf and Smith 1998). But, this effect seems to be greater with the products high on experience attributes than that of search attributes (Kempf 1999). It has been argued that sometimes advertisement content also emits more affective response than direct experience if the product has more search attributes than that of experience attributes (Wright and Lynch 1995). Though, there are sufficient evidences that cognitive and affective responses
affect attitude and behavioral intention, prior research did not examine more complex nomological relationships, such as mediation, involving these variables across haptic and non-haptic products.

Extant literature (Fishbein and Ajzen 1975; Kempf and Smith 1998) suggests that purchase environment is likely to affect cognitive response which in turn influences overall evaluation and purchase intention. In addition, Stimulus-Organism-Response (Mehrabian and Russell 1974; Grohmann, Spangenberg, and Sprott 2007) as well as preliminary findings (Childers and Peck 2010; Peck and Wiggins 2011) lead us to propose a positive relationship between purchase environment with overall evaluation and purchase intention through affective response. Indeed, Grohmann, Spangenberg, and Sprott (2007) have conducted four studies to examine the mediating role of affective response between purchase environment and overall evaluation using ball pen, fleece hand band, flashlight key chain as product stimuli. However, they do not find empirical support for the proposed mediating role of affective response. The possible reason for this finding could be the utilitarian nature of haptic products which seem to require low involvement in their purchase. Hence, based on the theory and preliminary findings discussed above, it is likely that purchase environment may influence cognitive and affective responses, which in turn will affect overall evaluation and behavioral intention. Therefore, the following hypotheses are proposed:

**H4a-h:** The relationship between touch environment and overall evaluation and purchase intention will be mediated by cognitive and affective responses for haptic and non-haptic products.

### 3.3.4 Moderating Effect of Need for Touch

Literature investigating the moderating effect of individual sensory differences has focused much on preferences for processing either visual or verbal information (Childers, Houston and
Heckler 1985; Holbrook 1986). Peck & Childers (2003a), in their seminal work, state that individuals differ in their preference for haptic perception, or need for touch (NFT), which is defined as “preference for the extraction and utilization of information obtained through the haptic system”.

NFT is found to be influenced by type of product and purchase environment (Peck and Childers 2003b). Haptic products vary across haptic properties such as texture, weight, softness, and shape which have been argued to influence cognitive and affective responses (Grohmann, Spangenberg, and Sprott 2007). It has been observed that touch environment allows consumers to access haptic information before they make a purchase (Spies et al. 1997). It has been argued that touch environment merits reducing perceived risk (Dholakia 1997) and stimulates affective response (Chiders and Peck 2010).

Individuals who are high in NFT are adept in accessing the haptic information more accurately than those who are low in NFT (Chiders and Peck 2010; Peck and Childers 2003a). As a result, they will be in a better position to make confident decision of buying a haptic product in touch environment. On the other hand, construal level theory (CLT) suggests that an object seems to be distant and riskier if it is not being experienced such as touched before making a purchase (Trope, Liberman, and Waksalk 2007). Hence, building upon the previous findings and CLT, it is likely that high NFT individuals will show more cognitive and affective responses than low NFT individuals depending on the product characteristics and purchase environments. It is important to note that despite having above mentioned theoretical support, the existing literature on haptic information processing is bereft of empirical findings of such claim. Therefore, the present study will test this assumption in a broader context.

**H5a-d:** Consumers with high NFT scores will exhibit more (a) cognitive and (b) affective responses in touch environment than in no-touch and print environments only for haptic
product but not for non-haptic product. Whereas, consumers with low NFT scores will exhibit same (c) cognitive and (d) affective responses in all the purchase environments while evaluating either haptic or non-haptic product.

3.3.5 Moderating Effect of Consumer Knowledge

Extant literature suggests that prior knowledge affects the way information is processed and inferred in consumer decision making. Consumers with extensive prior knowledge exhibit greater selectivity and less search in the information they consider as a basis for decisions than those with limited knowledge (Brucks 1985; Johnson and Russo 1984). Edell and Mitchell (1978) found that technical advertisements generate more cognitive thoughts than non-technical advertisements and increase purchase intentions among knowledgeable consumers. It is argued that consumers with high knowledge will process information depending on the usage situations and organize this information by product categories (Brucks 1985; Sujan 1985). Brucks (1985) and Sujan (1985) have concluded that in complex usage situations, consumers are likely to process the information in piecemeal fashion (e.g., attribute by attribute) instead of employing product category-based processing which help to recall more attributes of a product. It is important to note that in all the studies where cognitive response was the result of higher consumer knowledge used utilitarian or functional product such as camera (Sujan 1985), automobile (Punj and Staelin 1983), microwave oven (Brucks 1985), and MP 3 players (Hong and Strenthal 2010). In addition, participants were not provided the opportunity to touch such products which limited affective response as an outcome.

On the other hand, it has been suggested that accumulated knowledge translates into a schema which allows consumers to retrieve the product information with little cognitive effort (Cowley and Mitchell 2003). Moreover, consumers with high knowledge act quickly in simple usage situation which results automaticity in their decision making (Bargh and Chartrand 1999).
It is argued that automaticity inhibits information search and results in more affective response (Wood and Lynch 2002). Furthermore, it is suggested that consumers with high knowledge rely more on abstract principles which may inhibit detailed attention to the product attributes (Hong and Strenthal 2010). Shiv and Fedorikhin (1999) have argued that consumers exhibit stronger affective responses when the product stimulus is presented physically. It is important to note that some of the product stimuli chosen for eliciting affective response were affective laden product stimuli such as candy, salad, and beverages and the presentation of such stimuli were also vivid while observing the affective response. It can be argued that affective and cognitive responses were the result of type of product stimuli (‘utilitarian’ or ‘hedonic’) and presentation of the product stimuli (‘actual experience of the stimuli’ or ‘imaginary based experience of the stimuli’). It has been argued that for haptic product, touch environment is likely to generate more cognitive and affective responses than no-touch environment (Childers and Peck 2010). At the same time for non-haptic product, print environment is expected to elicit more cognitive and affective responses than touch environment (Wright and Lynch 1995). Therefore, based on the preceding arguments, the following hypotheses are proposed:

**H6a-d:** Consumers with high levels of haptic product knowledge will exhibit more (a) cognitive response and (b) affective response in touch environment than in no-touch and print environments. But, consumers with low levels of haptic product knowledge will exhibit same (c) cognitive response and (d) affective response in all the purchase environments.

**H7a-d:** Consumers with high levels of non-haptic product knowledge will exhibit same (a) cognitive and (b) affective responses in all the purchase environments. But, consumers with low levels of non-haptic product knowledge will exhibit more (c) cognitive (d) affective responses in print environment than no-touch and touch environments.

The model and hypotheses presented in this Chapter will be examined using data generated in two phases of the study. The next Chapter provides the detail of the methodology followed for collection of data.