4. **Research Framework**

4.1 Conceptual Model

The existing literature on consumer behaviour has recognized category attitude as a determinant of the extent of information search. Many derived and implicit findings suggest that category attitude impacts the extent of information search. Based on the research gap identified, through review of literature a psychological approach to model the ability to search with the extent of information search has been proposed. Several researchers have argued that individual factors mediate and external factors moderate the effects of various antecedent factors on information search activities and have suggested models for testing the same (Punj & Staelin, 1983; Srinivasan & Ratchford, 1991).

The available literature asserted that when a consumer goes for any purchase, he/she may engage into various degrees of information search (Engel et al., 1968; Howard & Sheth, 1969; Engel et al., 1995; Solomon, 1996, 2008; Kotler, 1997; Schiffman & Kanuk, 1997). There are several factors that determine the degree or extent of information search (Newman, 1977; Beatty & Smith, 1987; Moore & Lehmann, 1980; Guo 2001). The determinants of information search were categorized in several groups by various authors. However, broadly these could be grouped into 2 buckets: external or exogenous and internal or endogenous factors (Schiffman & Kanuk 2000; Loudon & Bitta 2000; Kotler, 2000).

Based on the review of literature and the gap identified, we proposed a framework to study the relationship of category attitude and extent of search. By the summary of literature, we realized that the individual factors identified having significant impacts were motivation (e.g., Kanfer, 1990), attitude (Betty & Smith, 1987; Moorthy et al., 1997; Anderson et al., 1979; Mantel & Kardes. 1999; Fishbein & Ajzen, 1975; Eagly, 1992; Fishbein & Middlestadt, 1995; Keller, 1993,
1998) and knowledge (Newman et al., 1972; Anderson et al., 1979; Moore & Lehman, 1980; Beatty & Smith, 1987; Chao & Gupta; 1995). Ability to search information was noted as a key factor impacting the amount of information search by several past researchers (Petty et al., 1976; Bettman, 1979; Bettman & Park, 1980; Duncan & Olshavsky, 1982; Brucks, 1985; Petty & Cacioppo, 1986; Srinivasan & Ratchford 1991, MacInnis, Moorman, & Jaworski, 1991; Schmidt & Spreng, 1996; Rothschild, 1999; Binney et al., 2003; Biswas, 2004).

Past studies showed that ability and the extent of information processing get influenced by one’s attitude towards the subject in discussion. For example, in case of any advertisement, people tend to relate more with messages relevant to their attitude as against relatively different attitude. Several studies around learning have highlighted that motivation level of students get influenced by their attitude and in turn can make a difference in an individual’s ability. The varying level of motivation as a function of attitude was identified as one of the reasons of varying degrees of success or abilities among students (Sturgeon, 2008). It was concluded in past work that without attitude, there would be no reason to believe that one is capable of the necessary action to achieve (Tuckman, 1999). Classic models also had indicated that attitude influence behavior mediated by motivation and opportunity, e.g., MODE model (Fazio, 1990, Fazio & Towles-Schwen, 1999). As per the MODE model, attitude influences behavior mediated by motivation and opportunity (Fazio, 1990; Fazio & Towles-Schwen, 1999), considering information search as a behavior in our case.

It was evident from past studies that motivation would be a function of attitude towards the particular subject in discussion along with the effort (Gardner, 1985) and attitude and ability significantly are the factors influencing ability (Petrides, 2006). In many language learning theories, success was attributed to higher motivation which was considered as a resultant of the positive attitude (Petrides, 2006). Thus it was evident from past studies that attitude towards the
subject influences motivation levels of performance in individuals, or in our case, we could conclude that attitude towards category influences the motivation to search information. Thus it could be derived that attitude influences motivation.

Many researchers have clearly indicated that ability is always a function of motivation (Shih & Gamon, 2001, OECD, 2004 and Petrides, 2006). It was observed that even when the opportunities are the same, the ability and performance varied among students, which was attributed to the level of motivation (Wigfield & Asher, 1984, Sturgeon, 2008). It was noted that the failure in achieving something was attributed to lower motivation resulting in lower ability and success was attributed to high achievement motivation leading to higher ability (Wigfield & Asher, 1984). Thus it could be derived that motivation influences ability.

Therefore, it could be derived that in the context of information search, attitude towards category would influence motivation to search and motivation to search information would influence the ability to search.

Additionally, the classics of implications of attitude indicate that one’s attitude provides knowledge or meaning to the particular subject (Katz, 1960). Attitude enables the organization of any topic to provide a meaningful structure and help in acquisition of knowledge. Standalone learning won’t be of much use without attitude (Katz, 1960, Tuckman, 1999). Thus we could conclude that attitude towards category influences category knowledge. Further, it was observed from literature that consumer ability is formed by past experiences, memory or knowledge about the product. The role of product experiences and previous knowledge in the consumer’s ability to do information search was studied by the researchers of this area. Ability is associated with prior-knowledge, ability is related to memory; knowledge provides higher capability. Knowledge makes one efficient, thus capacity of processing information is higher; Individual’s ability depends on
availability of cognitive resources and relevant knowledge needed; capability of assessing; Knowledge increases ability; experience enhances ability; capacity of processing; cognitive ability; (Bettman & Park, 1980; Brucks,1985; Petty & Cacioppo, 1986; Schmidt & Spreng, 1996).

In essence, the ability is one’s skill, proficiency or capabilities (Rothschild, 1999; Binney et al., 2003) and as per MacInnis, et al. (1991), motivation, opportunity and ability impact information processing. Hence, it could be derived that product or category knowledge positively influences the ability to search information.

Hence, considering information search as a behavior we could conclude that attitude influences ability to search information along with the interactions of knowledge and motivation.

Moreover, it also was brought forward in literature that though one may have the ability to search, the actual extent of search gets impacted by the perceived risks and costs associated with search (Punj & Staelin, 1983; Srinivasan & Ratchford, 1991). According to Newman (1977), the determinants of extent of information search were cost and potential payoff (perceived risk). The extant of literature surveyed around determinants of information search had modelled these 2 factors consistently over decades (Newman, 1977; Bettman, 1979; Moore & Lehman, 1980; Beatty & Smith; 1987, Moorthy et al.,1997; Guo, 2001). As per recent works as well, the extent of search gets impacted by cost of search (Ting-Ting, 2012). In their works of information search, Ratchford (1980) and Punj and Staelin (1983), had modelled ‘search cost’ and found out that the cost of search had negative relationship with information search effort. Thus, it could be concluded that the cost of search impacts information search effort negatively.

The very nature of human decision making is reduction of risk. When the perceived risk is high, one goes for greater amount of information search (Jacoby et al., 1978). In order to reduce the perceived risk, consumers tend to search more extensively about the product. Given the fact that
ability is limited with respect to knowledge, memory etc (Betman, 1979; Bettman & Park, 1980),
customers look for more product related cues while processing information (Olson & Jacoby,
1974; Zeithaml 1988). Therefore, the perceived risk could be said to have a moderating impact on
the ability and the extent of search.

Based on the above discussion, the proposed model was conceptualized as represented below:

![Figure 5.1: Conceptual Model]

4.2 Constructs Definitions

This section describes the literature around each of the constructs conceptualized in our proposed
model and the implications for this research or the definition of each construct for the purpose of
this study.

Category Attitude: Literature Summary

Early researchers considered category attitude as a high-level psychological aspect consisting of
cognitive, affective and behavioral components. Attitude in consumer behavior literature was
studied as an individual characteristic impacting buying decision (Howard & Sheth, 1969). The
next age researchers gave more emphasis to the evaluative aspect of attitude. Recent researches have focussed on the context specific and implicit arguments were brought forward.

Thus broadly, attitude was observed to be studied in 2 groups such as

- psychological aspect vs. evaluative aspect
- context: specific vs. implicit

From the psychological perspectives, attitude studied to be comprising of cognitive; affective and behavioral dimensions (Fishbein & Ajzen, 1975; Eagly & Chaiken, 1993). Cognitive component is the outcome of category knowledge or gets generated by the association with product (Fishbein & Ajzen, 1975). Ajzen and Fishbein (1980) suggested that attitude is the belief about a brand and gets developed due to its perceived attributes and benefits, and can be measured as the consumer’s disposition towards that brand. Recent works of Heijden and Sorensen (2002) and Ogertschnig and Heijden (2004) focused on dispositions towards specific services for category attitude.

Under the contextual approach, exemplar as an important component of category attitude has recently gained importance as (Sia, Lord, Blessum, Ratcliff & Lepper, 1997; Sia, Lord, Blessum, Thomas & Lepper, 1999; Lord & Lepper, 1999; Loken, Joiner & Peck, 2002). In the last couple of decades, exemplars were increasingly studied as an important measure of category attitude (John, Loken & Joiner, 1998).

Regarding measurement, several researchers brought forward the approach demarked by explicit or implicit measurement. The researchers who focused on implicit measurement of attitudes insisted on the natural and automatic capture of attitude as against directed or laboratory set-up measures. They tried to capture respondents’ attitude without their awareness. These researchers have tried to measure through “cognitive priming procedures” (Greenwald et al., 1980; Greenwald & Banaji, 1995). These sets of studies gave more importance to category label, instead of the

A pattern was noted for the studies of category attitude that it was typically studied in the services area. In consumer behavior studies pertaining to services marketing of recent decade many researchers have studied the intentions, attitude or perception towards a service category, such as attitude towards healthcare (Corbin et al., 2001), attitude towards banking (Howcroft, et al., 2002), attitude towards online shopping (Li & Zhang, 2002), attitude towards science (education) Osborne et al., 2003), attitude towards life insurance (Dahl, 2004; Yusuf et al., 2009), attitude towards internet service (Neger, 2009), attitude towards mobile operators (Oracle White Paper 2011 52) and so on.

Following the above discussion in this study, qualitative aspects of attitude have been captured using a multivariate approach which focused more on recency rather than memory based attitude.

**Implications for this Research**

On the basis of review of literature on consumer psychological studies, category attitude could be defined as the consumer’s summary evaluation of a particular service (healthcare, education or insurance for example). The approaches used by Heijden and Sorensen (2002) and Ogertschnig and Heijden, (2004) which focused on dispositions towards specific services, was followed.

**Extent of Search: Literature Summary**

Extent of information search was studied by many consumer behavior theorists in past. The classical theories in consumer behavior have recognized information search as an integral step in the consumer’s decision making process (Engel et al., 1968; Howard & Sheth 1969; Engel et al.,

Information search pertains to the intensity as well as the direction of search. Many researchers had described and studied information search in terms of ‘intensity’, which can be understood as the degree of efforts and hard work a consumer puts in to get the desired information. Similarly, the direction in which a consumer goes to get the required information had also gained interest of many researchers (Punj & Staelin 1983, Srinivasan & Ratchford 1991; Chao & Gupta, 1995; Putrevu & Ratchford 1997). A common set of research papers describe the extent of search as:

- Punj and Staelin (1983) had used ‘Amount of Information search’ as a measured variable, by measuring five attributes pertaining to either the quantity of information sought or the time spent seeking the information.
- According to Beatty and Smith (1987): "External search effort is the degree of attention, perception and effort directed toward obtaining environmental data or information related to the specific purchase under consideration."
- Alba and Hutchison (1987) studied this as ‘degree of analysis.’ They described extent as “the degree of accessing all & relevant information”.
- Amount of Search was described as “effort aimed at acquiring information from the external environment” (Srinivasan & Ratchford, 1991)

Measurement of extent of search was the centre of many research studies in the area of consumer behavior. Number of sources searched (interpersonal, mass media etc.), types of options searched, amount of time spent, varieties of information searched etc. (Beatty & Smith, 1987); numbers of stores visited, number and types of sources searched, number of options, and time spent (Newman, 1977); types and amount of sources searched (Fodness & Murray, 1999); size of the search set, complexity of alternatives, and perceived differences across alternatives (Guo, 2001); sources,
brand and time (Kiel & Layton, 1981); time dimension, retailers searched, media or sources considered (Kiel & Layton, 1981); types of alternatives, type of stores, type of brands (Duncan, and Olshavsky, 1982) were considered for the measurement of extent of search. Similarly, number of retailers searched was studied as one of the major measures of extent of information search (Kiel and Layton, 1981). Advertisement was noted as one of the sources of information (Beatty & Smith, 1987; Kiel & Layton, 1981). Other than media sources, interpersonal communication was noted as an important source (Beatty & Smith, 1987; Kiel & Layton, 1981). The amount of time spent in looking for information was also a measure of the extent of information search (Kiel & Layton, 1981). Alternatives or options searched were identified as another indicator (Kiel & Layton, 1981).

Extent of search could vary with respect to purchase occurrences. It would decrease with learning or experience for e.g. repeat purchase (Bennett & Mandell, 1969). A major issue in measurement is the accuracy of measurement All such measurements were based on self-reported data of consumers based on memory and perception and this can affect reliability and accuracy of data primarily when the data were collected through survey, what gets reported might be distorted figures if there has been a considerable time elapse between the actual process of information search and the survey.

**Implications for this Research**

Much of the classical literatures in information search area had focused on amount of information search or search effort (Moore & Lehman, 1980; Punj & Staelin, 1983; Beaty & Smith, 1987). External search effort, elaborated by Srinivasan & Ratchford (1991), was affected by information that would have obtained by a consumer prior to purchase. In addition to it, other factors such as favourable past experience that determine prior preferences, was also incorporated in the model of
extent of search. For this study, the approach of Srinivasan & Ratchford (1991) and Beaty & Smith (1983) were followed and the extent of search was defined as “the effort aimed at acquiring information from the external environment”, and more specifically, this is the degree of attention, perception and effort directed towards obtaining environmental information related to the specific purchase.

**Ability to Search: Literature Summary**

Ability to search was studied extensively as a part of consumer information processing. This was studied as a significant and important construct by theorists (e.g., Bettman, 1979; Bettman & Park, 1980; Brucks, 1985; Petty & Cacioppo, 1986; Srinivasan & Ratchford, 1991; MacInnis et al., 1991; Schmidt & Spreng, 1996).

The researchers had indicated that different individuals have different abilities to process under different circumstances.

Summary of literature studied on Ability to Search is shown below:

- Petty, Wells and Brock (1976): “One’s capability impacts the information processing;
- Betmann (1979): Abilities vary by individuals, abilities are be limited, processing depends on ability; ability impacts decision; ability is associated with memory;
- Bettman and Park(1980): Ability is associated with prior-knowledge, ability is related to memory; knowledge provides higher capability;
- Duncan and Olshavsky (1982): “Ability to judge (alternatives)”.
- Brucks (1985): Knowledge makes one efficient, thus capacity of processing information is higher;
- Petty and Cacioppo (1986): Individual’s ability depends on availability of cognitive resources and relevant knowledge needed; capability of assessing;
- Srinivasan (1990): processing varies due to varying abilities; capability of processing depends on memory; processing is impacted due to limited ability;
- MacInnis et al. (1991): motivation, opportunity, ability impact information processing;
- Schmidt and Spreng (1996): Knowledge increases ability; experience enhances ability; capacity of processing; cognitive ability;
- Binney et al. (2003); Rothschild (1999): “skill”, “proficiency” or “capabilities”
- Knowledge and exposure (Marvel, 1976; Goldman, 1977; Brucks, 1985; Ratchford and Srinivasan, 1993; Biswas, 2004)
- Self-perception of an individual about his/her own capability (Takahashi, 2009)

Most researchers in past had described ability as one’s perceived capability, cognitive ability and skill etc. As a construct it was named as ability to search and measured as an individual’s own perception of his capability (Putrevu & Ratchford, 1997; McInerney et al., 2010; Olusola, 2013). We also followed the same approach that the construct was ability to search and defined and measured as one’s own Ability to Search.

**Implications for this Research**

Ability to search was conceptualized to capture one’s Ability to Search (Putrevu & Ratchford, 1997) and perceived competence (McInerney et al., 2010; Olusola, 2013). Ability was described as how one believes about his/her own ability (Olusola, 2013). Ability was also described as self-perception of an individual about his own capability (Takahashi, 2009). In the current study, the definition provided by Putrevu and Ratchford (1997) of consumer’s Ability to Search to evaluate new information regarding the products in the category was adopted.
Motivation to Search: Literature Summary

Information search is a personal characteristic and depends on an individual’s motivation to search for information. Relating it to psychology, motivation is the driving force which results in a particular action. Theorists have frequently referred to motivation as the base of a person’s action and behavior. It was manifested in how strongly and actively an individual does a particular action and to what extent (Vroom, 1964; Campbell & Pritchard, 1976; Kanfer, 1990; Steers, Mowday & Shapiro, 2004). Directly relating to purchase action or buying decision or information search for decision making – there would always be some motivation. Abraham Maslow (1965) postulated that needs are hierarchically structured and that needs low in the hierarchy must be fulfilled before the higher order needs in the hierarchy become salient. In other words, the driving force changes with time. From Herzberg’s 2 factor theory indirectly can be drawn that motivation to search in case of a lower important product would be lower, and for high-important/involvement products would be higher. Involvement is the motivational factor to search. When the involvement is high, the perceived risk is also high, which in turn results in higher amount of information search (Jacoby et al., 1978).

Expectancy theory states that the desire or motive to engage in a certain behavior is a composite of the expected outcome of that behavior and the value or evaluation of that behavior. Mathematically, Vroom represented Motivation as a multiplicative model of “Valence, Expectancy & Instrumentality”. Consumer behavior literature around decision making borrows a lot from this. Information processing literature defines ability as an objective measure of cognitive ability of individuals and motivation as level of involvement (Petty & Cacioppo 1986). One’s desire to process information impacts the search (Petty & Cacioppo, 1979). Consciously or not, consumers process a lot of information in daily life, (Norretranders, 1998; Custers & Aarts, 2010).
Many theorists broadly classified motivation into pull (cognition) or push (drive based emotions) factors. Push factors allow a different response to differing external environments (Pavlov, 1927). In turn, pull factors impacts goal attributes and depend on cognitively penetrable parameters (Pylyshyn, 1986). Summary of findings from literature studied in the context of this paper is as follows:

- Pavlov, (1927): push factor
- Herzberg (1959) relates to involvement; satisfaction, delights
- Vroom (1964): force or drive based on one’s ability and expectation of outcome;
- Abraham Maslow (1965): Motivation is hierarchical, based on fulfilment of needs hierarchy;
- Jacoby and Wright (1975); Chestnut & Fisher (1978): motivation is dependent on involvement;
- Petty and Cacioppo (1979, 1981): related with involvement and ability; desire;
- Bettman (1979): “desire to expend effort on a task, influencing both the direction and intensity of the behavior”
- Pylyshyn, (1986): pull factors
- Kanfer (1990): direction, intensity, and persistence

**Implications for this Research**

In literature motivation is indicated by attention, effort and persistence. Most researchers have adopted the definition of work motivation from organizational behavioral studies. Motivation is defined as a force that drives a certain behavior (information search in our context) (Tremblay, Blanchard, Taylor, Pelletier & Villeneuve, 2009). In other words, motivation has been defined as to be moved to do something, considering the direction and intensity too (Ryan & Deci, 2000).
Motivation can be of two types: intrinsic and extrinsic. Intrinsic motivation drives an individual to perform something for an internal satisfaction whereas extrinsic motivation is driven by an external outcome or reward. The prudent Self Determination Theory primary deals with extrinsic motivation, describing the ‘why’ part of it (Ryan & Deci, 2000; Tremblay et al., 2009). In this study, motivation to search was defined as the driving force in terms of intensity and persistence, i.e., how much effort one would put before taking a particular action (information search before buying decision, since information search is an effort) ”, (Ruth, 1990, Wright 2004).

**Category Knowledge: Literature Summary**

Product category knowledge has been widely studied as an important antecedent of information processing activities (e.g. Chase & Simon 1973; Chi, Glaser & Rees 1981; Chiesi, Spilich & Voss 1979). Knowledge about a particular product or service has been described and studied as an important aspect of information search (Engel et al., 1968; Nicosia, 1968; Howard & Sheth 1969). Knowledge was defined as prior knowledge (Bettman and Park, 1980). Many researchers have used alternative terms for product category knowledge, such as product class knowledge (Bloom et al., 1956; Brucks 1985, Brucks, 1986; Russo & Johnson, 1980); product category knowledge (Brucks 1985), product knowledge (Rao & Sieben, 1992). Interestingly, knowledge has mixed relationship (both positive and negative relationships) with amount of information search. Presence or absence of knowledge could impact degree of information search both positively and negatively (Jacoby et al., 1978; Putrevu & Ratchford. 1997; Chao & Gupta. 1995; Lee, Herr, Kardes & Kim, 1999). In order to reduce perceived risk, engages into information search about the product. In absence of adequate product knowledge, consumers go to seek product information. Consumers go for product related cues, both intrinsic and extrinsic. Product knowledge is an
important intrinsic cue that consumers use prior to purchase decision (Olson & Jacoby, 1972; Zeithaml 1988). However, in absence of product knowledge, purchasers go looking for extrinsic cues. Because of the consumer's lack of knowledge and differences in consumption situations, perceived benefit or function is defined as a random variable prior to evaluation (Hauser & Wernerfelt 1990). Consumers use the available knowledge continuously throughout the search process (Hagerty & Aaker 1984). In order to put in lesser efforts, consumers tend to go for known brands, in other words, in order to reduce perceived risks consumer does information search, however, as it requires efforts, consumer optimizes with ‘known brand’, which is an extrinsic cue (Loudon & Bitta, 1988). Angelina Villarreal-Camacho in her review of literature shares that amount of product knowledge beforehand impacts acquiring right information (Angelina Villarreal-Camacho, 1985).

Knowledge, as a construct, was studied to capture: product class experience; familiarity and expertise based on the assumption that consumer has information of or experience with the product. Knowledge has been referred to as consumer’s familiarity with the product or the prior knowledge (Brucks 1985). Knowledge was also referred to as expertise (Jacoby et al., 1986; Alba & Hutchinson, 1987). Capturing the knowledge has been debated as one-factor (Alba & Hutchinson, 1987) vs multiple (Bettman 1986; Brucks 1986; Brucks, Mitchell, and Staelin 1984). Similarly, on the basis of availability, grasping and interpretation by consumer, knowledge can be categorised as objective knowledge (e.g., Brucks, 1985; Bettman and Park 1980) and subjective knowledge (Park and Lessig 1981).

Objective knowledge referred to fact-based knowledge, tested and accumulated knowledge, actual knowledge about a product, the way knowledge is organized, knowledge stored in memory etc. (Jacoby, 1974; Ruddell, 1979; Brucks, 1985, Alba & Hutchinson, 1987, 2000). It also pertains to
findings in official statistics (Frey & Foppa, 1986). Subjective knowledge referred to one’s assessment of knowledge about something (Brucks, 1985) and perceived knowledge (Alba & Hutchinson, 2000; Brucks, 1985; Park & Lessig, 1981). This knowledge captures what an individual believes to be objectively true (Frey & Foppa, 1986). Knowledge has been defined as prior knowledge (Bettman and Park, 1980). Many researchers have studied this as product class knowledge (Bloom et al., 1956; Brucks 1985, Brucks, 1986; Russo and Johnson, 1980); product category knowledge (Brucks 1985), product knowledge Rao, and Sieben, 1992).

The different aspects of a person’s knowledge content that have to be captured, was categorised as types or levels of knowledge (Bloom et al., 1956). For example Declarative (concept, event) vs Procedural knowledge (based on rules) is one way of classifying knowledge (Anderson 1976). Knowledge could be that of specific; that of ways & means; or of abstractions (Brucks, 1986). Another set of knowledge categorisation talks about generic (Hastie, 1982) vs. specific knowledge (Russo & Johnson, 1980). Brucks typology seemed to have dominance in this area. This typology talked about three types of knowledge, viz. terminology, specific knowledge and evaluation (Brucks, 1985).

- **Product familiarity**: “how much a person knows about the product and how much a person thinks they know about a product? (Park & Lessig, 1981);
- **Product class knowledge**: subjective, objective, experience (Brucks, 1985).
- **Measuring knowledge** is another aspect in this area.
- **Measuring objective knowledge** is generally performed by way of some type of scoring methods. This method especially tries to capture an individual’s knowledge of product attributes (Alba & Hutchinson, 1987). Similarly objective knowledge could be tested –to
capture terminology, product attributes, criteria for evaluating attributes and measuring attribute covariance (Brucks, 1985).

- In order to capture the measurement, following categories have been identified (extension of Alba & Hutchison summary):
  - Purchase frequency (Bettman & Park, 1980; Kiel & Layton, 1981; Newman & Staelin, 1973; Park & Lessig, 1981);
  - Usage frequency (no of product related experience gathered (Alba & Hutchinson, 1987)
  - Objective type tests (Brucks, 1985; Jacoby, 1977)
  - Training (Hutchinson, 1983; Sujan, 1985)
  - Another aspect of knowledge covered in literature was product judgments (Maheswaran, Sternthal & Guerhan, 1996), and product choice (Mitchell & Dacin, 1996).

- The above discussion on classification of knowledge in literature has been recapitulated below::
  - Definitions: Product Class Knowledge; Prior Knowledge, Product Category Knowledge
  - Type: (Subjective vs Objective)
  - Source (experience, familiarity, prior knowledge)
  - Dimensions (uni vs multi)
  - Structure vs Content
  - Measurement (test, open-ended, training, purchase frequency)
  - Knowledge application: product judgments, product choice, information processing
Implications for this Research

Consumer knowledge in past studies considered subjective knowledge, objective knowledge and experience (Brucks, 1985; Flynn & Goldsmith, 1999). Though actual objective knowledge is factual knowledge, subjective knowledge is considered more important. Experience apparently had higher correlation with subjective knowledge and both types of knowledge have shown moderate to high correlation in past studies (Brucks, 1985; Flynn & Goldsmith, 1999). In this study, Category Knowledge has been defined as what the consumers think they know about the category (Brucks, 1985; Engel et al., 1990) and subjective knowledge, objective knowledge and experience (Brucks, 1985; Flynn & Goldsmith, 1999). For the purpose of this study, category knowledge was considered as “perceived category knowledge” (Brucks 1985) capturing objective knowledge, subjective knowledge, and experience (Flynn and Goldsmith, 1999).

Perceived Search Cost: Literature Summary

Costs of search had been studied as an integral part in information search area as search cost has been studied to see the causal impact it has on search effort. The effort and the potential output impact the search cost. A scan of the literature which focused on the definitions and descriptions of the cost, revealed that cost was associated with psychological and mental efforts and expenses; direct and indirect costs. Cost seemed to be related with the amount of mental pressure, or frustration that results from search process (Downs, 1961). The efforts put in thinking while making a purchase decision has been associated with cost of search (Shugan, 1980). Further, the amount of waiting time before a consumer could make the decision is also considered a cost or time cost (Engel et al., 1978). There are also direct costs – for example, fuel cost (Downs, 1961). Similarly, there are actual costs incurred due to various situational activities associated with search
effort such as travel, parking, food etc., (Ratchford, 1980). External search is impacted by external costs (Stigler, 1961; Avery, 1996). The effect of time on cost was also considered a significant component (Engel et al., 1978; Stigler, 1961). Perceived value of time per unit of search effort defines perceived cost (Srinivasan & Ratchford, 1991). Search time and introspection time are significant in search efforts (Beatty & Smith, 1987). Another interesting observation noted was that cost involved in search and benefit of familiarity might prohibit brand switching (Alba & Hutchinson, 1987). Some recent studies have used lost performance costs, uncertainty costs, pre-switching search and evaluation costs, post-switching behavioral and cognitive costs, setup costs, and sunk costs (Jones, Mothersbaugh & Beaty 2000).

A recap of this section is as follows:

The cost of search involves direct and indirect costs, which could be summarized into following categories:

- **Direct costs:**
  - Actual monetary expenses (Downs, 1961; Ratchford, 1980)
  - Opportunity cost: Cost due to information search process, actual selection vs. probable other selections; such cost may prevent brand switching also. (Alba & Hutchinson, 1987)
  - Physical costs (cost in terms of one’s actual physical effort put)

- **Indirect costs:**
  - Time cost (Stigler, 1961; Engel et al., 1978; Felick et al., 1983; Beatty & Smith, 1987; Srinivasan & Ratchford, 1991; Moorthy et al., 1997)
  - Psychological costs (Downs, 1961; Shugan, 1980; Punj & Staelin, 1983)
Implications for this Research

Search Cost has wide range of definition in literature Punj & Staelin (1983) had modeled ‘search cost’ and ‘cost saving’ in their model of unobserved constructs. In their study, the search cost was found to have negative relationship with information search effort; however, search effort seemed to have positive relationship with cost-savings. In his ‘economics of information” theory Stigler (1961) had identified 3 types of costs, viz., time, financial and effort. Most of the classical literature considered time to measure cost (Srinivasan & Ratchford, 1991; Moorthy et al., 1997). Some recent studies have used lost performance costs, uncertainty costs, pre-switching search and evaluation costs, post-switching behavioral and cognitive costs, setup costs, and sunk costs (Jones, Mothersbaugh & Beaty 2000). In this study, the cost definition given by Punj & Staelin, (1983): “perceived search cost as perceived costs while conducting the external search” was adopted. Given that the class of study was service and typically, services are experience and credence based (Nelson, 1970; Darby & Karni, 1973); experience attributes could be established only after purchase or during consumption and credence attributes are such that consumers would not be able to determine or evaluate even after purchase or consumption; we therefore decided to provide a comparative base for perceived search cost with respect to their previous experiences.

Perceived Risk: Literature Summary

Classical theorists of economics considered decision making as a fundamentally a risk-mitigation process. One evaluates options and makes a final decision in order to minimize the risks (March & Simon, 1958 and Cyert & March, 1963). Similarly, Risks-Reward Model in information seeking highlights that search efforts are made to gain, and to reduce risk. Three types of risks are
commonly associated with purchase decisions: financial, performance, and social (e.g., Dowling & Staelin 1994; Taylor, 1974). Each type of risk is generally viewed as being composed of two components (Bauer 1967; Cunningham 1967; Conchar, Zinkhan, Peters & Olavarrieta, 2004). The first component involves the outcomes associated with a purchase decision. Negative outcomes can occur due to “downside” or “upside” risk. Downside risk arises from potential losses due to product performance that is below an acceptable level. Upside risk reflects the foregone positive consequences that could have accrued via the selection of a competing brand. The second component of risk relates to the certainty of the outcomes. As potential outcomes are perceived to become either more negative or more uncertain, the level of perceived risk associated with the purchase increases.

Consumer behavior literature, as typically associated with individual’s decision making, borrows heavily from the above. Risk was first introduced in consumer behavior by Bauer (1960). Thereafter, most of the classic theorists of consumer behavior have considered risk as one of the important aspects. Before making purchase decision, consumers go through information search process to minimize risks (Settle & Alreck, 1989). As per Aaker et al., (1992), consumer goes for search to reduce uncertainty.

Risk is referred to as the probability of loss of time, ego, money (Roselius, 1971); social and performance risk (Lutz & Reilly, 1973). While dealing with buying decisions, consumers evaluate performance, social, physical, financial and ego risks (Settle & Alreck, 1989). Similarly safety risks as well as factors like time and convenience have also been considered perceived risk factors (Murray, 1991). Similarly, financial, performance, physical, psychological, and social risks are noted by Jacoby and Kaplan (1972). Perceived risk was also discussed in terms of benefits (Schmidt & Spreng, 1996). An observation on risk is that some researchers have studied as
'uncertainty-reduction’ (Arndt, 1968’), some have studied reduction of risk, as well as increasing benefit, certainty (e.g. Schiffman, 1972).

The content of Risk has been studied to capture subjective and objective elements of risk, or in other words perceived and actual risks (Bauer, 1960). Another set of observation is around the measurement: as a satisfactory choice by measuring uncertainty and importance (Bettman, 1973); by measuring uncertainty and danger components (Cunningham, 1967); word-of-mouth as a measurement (Arndt, 1967). In the classical work around determinants of information search “Perceived Risk” has been identified as one of the potential pay-off factors (Newman, 1977; Beatty & Smith, 1987; Moore & Lehmann, 1980; Guo 2001). As summarized by Beaty and Smith (1987), perceived risk was measured through: performance (Cunningham 1964, in Beaty and Smith, 1987); Socioeconomic (Perry and Hamm, 1969, in Beaty and Smith (1987); Differences among alternatives and specifically, perceived price dispersion (Bucklin, 1969 in Beaty and Smith (1987), Claxton et al., 1974); number of critical attributes, and specifically, attribute importance (Holbrook & Maier, 1978; Lehmann & Moore, 1980): Status of decision-making activity, specifically Product class importance and Length of commitment necessary (Jacoby et al., 1978; Katona & Mueller, 1955).

This section of literature reviews may be summarized as:

- Sources (information processing, decision making, evaluation ) (e.g. Engel et al., 1973)
- Outcomes (benefits, mitigation, satisfaction, post-purchase reaction, dissonance reduction) (e.g. Cox & Rich, 1964; Schiffman, 1972; Schmidt & Spreng, 1996)
- Root - (ambiguity, uncertainty - Howard & Sheth, 1969; Aaker et al., 1992)
- Contents (subjective vs. objective, (Bauer, 1960).
- Dimensions (uni-dimension or bivariate: either reducing uncertainty, or reducing uncertainty as well as increasing certainty) – (Arndt, 1968; Schiffman, 1972)
- Types (performance, social, physical, financial and ego risks, safety risks, time and convenience, physical, psychological etc. (Jacoby & Kaplan, 1972; Settle & Alreck, 1989; Murray, 1991).

In this study, the subjective aspect approach was used to measure the perceived uncertainty.

**Implications for this Research**

Risk was studied as capturing financial, performance and social risks (Taylor 1974; Dowling & Staelin 1994, Delvecchio & Smith, 2005). In general all papers of risk have described risk as comprising of two components, one referring to the outcome of purchase decision and other one relating to certainty of outcome (Bauer, 1967, Cunningham, 1967; Delvecchio & Smith, 2005). For our study we had followed Delvecchio and Smith’s (2005) approach of performance risk as that was conceptualized at category level. In this study, perceived risk is defined as the performance risk perceived by a consumer.

**4.3 Relationship among Constructs (Hypothesis)**

**Category Attitude, Extent of Search &Ability to Search**

Extent of information search as studied in literature could be elaborated as number of sources searched (interpersonal, mass media etc.), types of options searched, amount of time spent, varieties of information searched etc. (Beatty & Smith, 1987); numbers of stores visited, number and types of sources searched, number of options, and time spent (Newman, 1977); types and amount of sources searched (Fodness and Murray, 1999); size of the search set, complexity of
alternatives, and perceived differences across alternatives (Guo, 2001); sources, brand and time (Kiel & Layton, 1981); time dimension, retailers searched, media or sources considered (Kiel & Layton, 1981); types of alternatives, type of stores, type of brands (Duncan & Olshavsky, 1982). The exhaustiveness is predominantly impacted by one’s ability, as mentioned in past studies, processing varies due to varying abilities; capability of processing depends on memory; processing is impacted due to limited ability (Petty et al., 1976; Srinivasan & Ratchford, 1991). As noted by Alba & Hutchinson (1987), experts have the ability to comprehend right questions and hence that impacts the search, and in turn, extent of search would be more efficient (Miyake & Norman, 1979). Goldman and Johansson (1978) defined search efficiency as “degree of a consumer’s ability to identify, assess and exploit the appropriate market sources” (Goldman & Johansson, 1978). Thus, ability to search evidenced to have positive relationship with extent of search. As explained by Petty, Wells, & Brock (1976), one’s capability impacts the information processing; The other research works around ability suggested that ability is associated with prior-knowledge, ability is related to memory and that knowledge provides higher capability; Knowledge increases ability; experience enhances ability; capacity of processing; cognitive ability (Bettman & Park, 1980; Schmidt & Spreng, 1996). Information processing literature also defined ability as an objective measure of cognitive ability of individuals and motivation as level of involvement (Petty & Cacioppo, 1986). Thus, it could be derived that ability to search influences extent of search positively.

As per literature, attitude influences the ability and the extent of information processing. For example, in case of persuasive advertisement, people tend to think more about messages relevant to their attitude as against relatively inaccessible attitude. Similarly, studies around learning have highlighted that attitude influences motivation level and in turn can make a difference in an
individual’s professional efficiency, or ability and the reason of varying degrees of success or abilities among students was attributed to the level of motivation (Sturgeon, 2008). It was concluded in past work that without attitude, there would be no reason to believe that one is capable of the necessary action to achieve (Tuckman, 1999). As per the MODE model, attitude influence behavior mediated by motivation and opportunity, considering information search as a behavior, it could be derived that attitude influences extent of search (Fazio, 1990). Attitude is so strong an endogenous attribute that guide our behavior, decision and impact our selective memory (Pickens, J. (2005). In other words, one doesn’t always remember what he/she hears, rather the memory and subsequently knowledge about the topic gets developed based on one’s attitude. Thus it may be derived that attitude influence acquisition of knowledge (Petty & Cacioppo, 1979). Past studies have shown that attitude influences consumers’ persistence and that strong attitude influences thought and behavior so much that it becomes persistent over time, which becomes difficult to change (Krosnick & Petty, 1995). If something is counter-attitudinal, then individuals are often motivated to defend their attitudes. As explained in Elaboration Likelihood Model, motivation becomes subjective when there is an apriori judgment, opinion or belief exist in consumers (Petty & Cacioppo, 1986). Petty et al. (2003) had mentioned in their publication Handbook of psychology, when people have high motivation and ability to think and have high knowledge on the topic, it takes relatively high effort to change an attitude. Attitudinal consequence may lead to suboptimal decision making when the attitude is low or insufficient. As per literatures around cognitive dissonance, attitude influences behavior related with motivation that the individuals get motivated to do something (considering information search) to bring attitudes and behaviors into balance (Pickens, 2005). Further, it was also evidenced from past studies that attitude was used in association with motivation and ability or to judge how capable one is to perform a certain task
(Tuckman, 1999). It was mentioned that people with same level of intellectual, vary in the results primarily due to their self-efficacy, which was noted as a function of attitude and motivation. In several past studies, motivation was evidenced to have significant mediating role between attitude and end-behavior (Rogers, 1975). Thus it could be concluded that attitude influences extent of information search mediated by ability, which in turn gets influenced by one’s knowledge and motivation.

**Motivation to Search and Ability to Search**

Consumer behavior literature around decision making has a strong overlapping with psychology. Essentially, the literature around motivation borrows from classic theories of motivations of psychology. The core essence of most theories is ‘there is a driving force in order to achieve something.’ For example,

McClelland’s Theory of Needs: “people are driven by 3 essential motives: achievement, affiliation & power”. Work performed in this area also suggests that motivation directly impact action and search behavior (Cury, Sarrazin, & Famose, 1997). Mathematically, Vroom (1964) had represented motivation as a multiplicative model of Valence, Expectancy & Instrumentality. In other words, if one has a strong motivation to search, one will have a higher Ability to Search that he/she can search to higher extent.

Srinivasan and Tikoo (1992): Past experience may lead to expectancies of occurrences, based on which they tend to behave in a particular way. Higher the expectancies, the higher would be the intention to behave in a particular way. It was suggested that motivation, opportunity, and ability impact information processing (MacInnis et al., 1991). In his paper of self-efficacy (perceived ability), Bandura, (1994), brought forward, motivation influences, one’s self efficacy.
Moorman & Matulich (1993), Neumeister, et al., (2006): motivation influences the ability. In other words, if one has a strong motivation to search, one will have a higher perceived ability that he/she can search to higher extent. Based on the above discussion on previous sections, the following argument could be derived: the higher the ‘Motivation to search’ the higher would be the ‘Ability to Information Search.’

**Category Knowledge & Ability to search**

The greater the experience and knowledge of the product, the more efficient is the search. Category knowledge doesn’t have a direct proportional relationship with the extent of search. Consumers with extensive category knowledge might not be necessarily engaged in a higher extent of search, vis-à-vis consumers with minimal knowledge. Also, consumers with minimal knowledge also won’t get into higher extent of search due to the inability of search. The role of knowledge has been repeatedly studied as a catalyst or an enhancer, rather than a direct determinant, which makes the process of search more efficient. Individual’s ability to search has been reported to be more efficient with knowledge (Putrevu & Ratchford, 1997). With higher knowledge, one may feel lesser need for higher information because of the ability to gather right information even through less extent of search (Bettman and Park, 1980).

The importance of knowledge has been acknowledged to be impacting the attribute-level information search strategies. Subjective knowledge hence has been identified as an important aspect in enabling the search and processing in individuals (Brucks, 1985; Radecki and Jaccard 1995; Park et al., 1994). Similarly another set of researchers have noted that due to the acquired knowledge, consumers search would be more direct in terms of evaluating options, search locations, sources, types etc. (Moorman, C., Diehl et al., 2004). Ability was studied to be strongly associated with memory in papers over past few decades (Betmann, 1979; Betmann & Park, 1980;
Objective knowledge refers to fact-based knowledge, tested and accumulated knowledge, actual knowledge as a person knows about product, the way knowledge is organized, knowledge stored in memory etc (Jacoby, 1974; Ruddell, 1979; Brucks, 1985, Alba & Hutchinson, 1987; Alba & Hutchinson, 2000). The ability to analyze information and to elaborate on given information improves as familiarity increases (Alba & Hutchison, 1987). Therefore, as the knowledge about category increases, one’s recall and comprehension ability also increases, and thus the consumer is at an advantageous position while making an information processing or decision making (Alba & Hutchison, 1987).

In consumer literature experts and novices are defined so, based on their respective ability to store and retrieve relevant information while searching or processing. Knowledge makes one expert (Punj & Staelin, 1983; Cowley, 1984). Hence it could be derived that category knowledge increases the Ability to Search to search information (Schmidt & Spreng, 1996).

From the above discussions among constructs, it could be summarized that ability to search is influenced by category knowledge and motivation to search and ability to search influences extent of search; category attitude and extent of search is mediated by ability to search which in turn is mediated by category knowledge and motivation to search. Thus the following hypotheses could be derived:

**H1:** There is a positive relationship between Category Attitude and Motivation to Search

**H2:** There is a positive relationship between Category Attitude and Category Knowledge

**H3:** There is a positive relationship between Motivation to search and Ability to search

**H4:** There is a positive relationship between Category Knowledge and Ability to search

**H5:** The relationship between Category Attitude and Ability to Search is positive
H6: The relationship of Category Attitude and Extent of Search is mediated by Ability to Search.

H7: The relationship of Category Attitude and Ability to Search is mediated by Motivation to Search

H8: The relationship of Category Attitude and Ability to Search is mediated by Category Knowledge

Ability to Search, Extent of Search and Perceived Search Cost & Perceived Risk

As studied in literature, extent of search is dependent on various factors, mainly identified as 7 categories (Newman, 1977; Bettman, 1979; Moore & Lehman, 1980; Beatty & Smith, 1987; Guo, 2001). However, as a broad summarization, we understood that the variables studied in past literature are of two types, viz. external and internal factors (Punj & Staelin, 1983; Alba & Hutchinson, 1987; Beatty & Smith, 1987; Srinivasan & Ratchford 1991).

- Internal (Individual differences, Knowledge and experience, Conflict and conflict resolution strategies and
- External (Market Environment, Situational variables and Potential payoff/product importance) and Cost of search

Internal factors are predominantly the factors arising out of individual differences. An individual’s ability is a measure of individual differences (Moore & Lehman 1980) and that impacts the extent of search. As noted by Alba & Hutchinson (1987), experts have the capability to comprehend right questions and hence that impacts the search, and in turn, extent of search would be more efficient (Miyake & Norman 1979). As per Economics of Information (EoI) theory, search efficiency was identified as a significant construct, which positively impacts the amount of information search (Stigler, 1961, Goldman & Johansson, 1978, Biswas, 2004). Goldman and Johansson (1978) defined search efficiency as “degree of a consumer’s ability to identify, assess and exploit the appropriate market sources” and one’s capability impacts the information processing (Petty et al.,
1976). Thus, ability to search seems to have positive relationship with extent of search. As per Betmann (1979), processing depends on ability and that impacts decision. Also, ability is associated with memory, therefore it’s limited and it varies by individuals. Hence this could be argued that ability to search impacts amount or extent of information search. Additionally, many researchers have associated ability with knowledge and knowledge and exposures impact search efficiency (Goldman, 1977; Brucks, 1985; Ratchford & Srinivasan, 1993; Biswas, 2004). It was observed from the papers studied that knowledge makes one efficient, thus capacity of processing information becomes higher; (Brucks, 1985); Knowledge and experience enhance ability and capacity of processing or the cognitive ability (Schmidt & Spreng, 1996); It was studied that individual’s ability depends on availability of cognitive resources and relevant knowledge needed; capability of assessing (Petty & Cacioppo, 1986). Similarly many researchers have identified that processing is dependent on ability due to its linkage with memory. From the papers studied, it was noted that processing varies due to variation in abilities; capability of processing depends on memory and gets impacted due to limited ability (Srinivasan & Ratchford, 1991).

From the extant of literature studied about the external factors, the 2 important factors that were studied quite often as determinants of extent of search are costs and perceived risks. According to Newman (1977), the determinants of extent of information search were cost and potential payoff (perceived risk). A good amount of studies performed around determinants of information search have modelled these 2 factors consistently over decades (Newman, 1977, Bettman, 1979, Moore & Lehman, 1980, Beatty & Smith, 1987, Moorthy et al., Guo, 2001). As per recent works as well, the extent of search gets impacted by cost (Ting-Ting, 2012). Ratchford, (1980) and Punj & Staelin, (1983), had modelled ‘search cost’ and ‘cost saving’ while studying their model of unobserved constructs. According to them, the cost of search was found to have negative relationship with
information search effort; however, search effort seemed to have positive relationship with cost-
savings. The cost of search impacts information search effort negatively.
When the involvement is high, the perceived risk is also high, which in turn results in higher
amount of information search (Jacoby et al., 1978). In order to reduce the perceived risk
consumers go for extensive search about the product.
Given the fact that ability is limited with respect of knowledge, memory etc. (Betmann, 1979;
Bettman & Park, 1980), consumers go for more product related cues while processing information
(Olson and Jacoby, 1972; Zeithaml 1988). In order to reduce risks consumer does information
search, however, as it requires efforts, consumer optimizes with ‘known brand’, which is an
extrinsic cue (Loudon & Bitta, 1988). Risk is referred to as loss of time, ego, money (Roselius,
1971); social and performance risk (Lutz & Reilly, 1973). From the papers studied, it was observed
that while dealing with buying decisions consumers evaluate performance, social, physical,
financial and ego risks (Jacoby & Kaplan, 1972; Settle & Alreck, 1989).
The above discussions highlight that though one may have ability to search and higher the ability
to search the higher would be the extent of search, however, the actual extent of search gets
impacted by perceived risk and costs of search (Punj & Staelin, 1983; Srinivasan & Ratchford,
1991). As hypothesized by Doh (2001), search cost had negative relationship and benefit had
positive relationship with extent of search.
The above discussions lead to testing of following hypotheses

H9: The relationship between Ability to Search and Extent of Search is positive

H10: The relationship between Ability to Search and Extent of Search is moderated by Search
Cost

H11: The relationship between Ability to Search and Extent of Search is moderated by Perceived
Risk