What I don't know *can* hurt me: The theoretical impact of knowledge on safety

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Abstract

The goal of this research is to increase consumer safety by providing insights about theimportantlinks between consumer knowledge, price perception, and safety intentions. Drawing from the expanded societal perspective of marketing, our model aims to further our understanding of the connection between consumer education and safety. We utilize a phased, mixed methods and interdisciplinary approach which blends transportation research and marketing. First, we conduct a qualitative inquiry of 151 comments regarding child safety seats. Next, using the key themes and concepts,we derive a quantitative model and test a proposed structural equation model on a sample of 217 respondents. Our research contributes to existing literature by showing that although consumers understand the importance of child safety seats and the ample potential harms associated with their misuse, a high perceived price can offset potential experience with them and attitude towards them, and eventually lower future intention to use them.

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Introduction

Knowledge acquired from information processing is at the heart of effective safety practices; indeed, research suggests that as individuals become more engaged in learning, they perform at a higher safety level (Burke et al., 2006). Furthermore, recent research reveals that increased knowledge is particularly relevant and effective when individuals are exposed to highly hazardous situations (Burke et al., 2011). As an example, traveling in vehicles can be viewed as a hazardous situation for vulnerable children; hence, the idea of increasing knowledge to impact caregiver safety deployment can be a useful paradigm. For the past few decades, vehicle travel for children occupants aged 14 and under continues to rise, and alongside this increase comes the hazard of accidental death and injury. During 2012, there were 1,168 fatal motor vehicle accidents and more than 176,000 injuries for passenger children ages 14 years and younger in the U.S. (CDC, 2012). The number of fatalities for these children in 2012 represents a 3% increase over the 1,139 fatalities that occurred in 2011 (National Highway Traffic Safety Administration, 2014). Motor vehicle crashes are the leading cause of accidental deaths among children in the United States, and those fatalities are often preventable because the children had not been properly restrained (CDC, 2012; U.S. National Library of Medicine, 2012). Given the immense harm associated with failing to use a child safety seat, the present research draws from the expanded societal perspective of marketing (Wilkie and Moore, 2012), to further our understanding of the connection between consumer knowledge and safety.The elevated marketing concept perspective argues for "… educating, not just informing," consumers to enable them to make better and safer decisions (Webster and Lusch, 2013, p. 394). Likewise, the aim of transformative consumer research is to increase societal well-being by designing

marketing policies and services such that they benefit not only individuals, but also families, groups, and communities (Davis and Pechmann, 2013).

As particularly vulnerable consumers, children in vehicles depend on their parents or caretakers to make the right choices when purchasing or deploying child safety seats.However, research shows that many caretakers do not utilize child safety seats when traveling with a child (Bilston, Du, and Brown, 2011). Greenspan, Dellinger, and Chen (2010) find that in one year, more than 618,000 children ages 0-12 actually occasionally rode in automobiles without the use of a child safety seat, a booster seat, or a seat belt. In fact, parents who do not deploy safety mechanisms for themselves, i.e. safety belts, are more likely to not use them for their children either (Macy and Freed, 2012).Multiple studies show that in comparison to regular seat belts, child safety seats significantly reduce the risk of death in the event of an automobile accident (Elliott, Kallan, and Durbin, 2009; Rice and Anderson, 2009). Even though child safety seats are expensive and often inconvenient to implement, Arbogast, Jermakian, Kallan, and Durbin (2009) indicate that they are 45% more effective in reducing injuries to children than regular seat belts. Thus, the pivotal part that caretakers play in determining whether or not to purchase and use a child safety seat cannot be understated. Any campaign to increase child safety seat use must therefore be targeted towards caretakers, and improve their attitude towards safety seats, thus increasing their intention to use them (Anitsal, Anitsal, and Liska, 2010). In light of the severity of the issue of child safety seats and the relatively few published studiesto address these vulnerable consumers, we provide a mixed methods approach to understanding the societal drivers for improving implementing safety measures while driving. We begin with a qualitative exploration of voluntary respondent comments in order to understand the emergent themes and concepts. Using those key themes, the present research then proposes a conceptual model to aid

in the development of consumer education mechanisms. The ultimate goal of this research is to increase consumer safety by providing insights about theimportantlinks between consumer knowledge, price perception, and safety intentions. In particular, the purpose of the proposed model is to lend insight into several key aspects of a consumer's decision to purchase and implement a child safety seat, which include: (1) the perceived price of a child safety seat; (2) the consumer's actual knowledge regarding child safety seat requirements; and (3) the consumer's perceived knowledge of child safety seat usage.

The paper is organized as follows. During out first phase, we select a set of locations based on a quasi-convenience sampling technique. Next, we conduct a qualitative study of participant comments and utilize unguided semantic analysis of those comments to uncover important themes and concepts. Upon completion of Phase 1, we discuss information processing theoryand perceived price literature to develop hypotheses that explicate the important role of actual knowledge in driving child safety seat usage intention. Following this, we begin Phase 2 and describe an empirical study designed to test the conceptual framework suggested by our hypotheses. After discussing our empirical findings, we explore their implications for both marketers and researchers. Finally, we summarize our research and draw appropriate conclusions.

Research Methodology

In this paper, we utilize a phased approach to understanding the relevant drivers for child safety seat deployment, which allows for an initial exploration of the phenomena followed by a more directed quantitative model. For the initial phase, a quasi-convenience sampling method derived a set of locations within which to gather qualitative respondent feedback. This information was then analyzed with an unguided semantic tool to uncover relevant themes and

concepts. Following this, the authors conducted Phase 2, by performing a thorough literature review to propose a theoretical framework and formulate a structural equation model. Figure 1 provides a schematic of the phased research process.

[Insert Figure 1here]

Phase 1 (Qualitative Study 1)

Sample and Methodology

As can be seen in Figure 1, Phase 1 begins with a combinatorial optimization sampling frame identification technique (Raschke et al., 2013). Statistical diversity was sought by distributing sampling sites throughout the Las Vegas and Henderson areas. Sampling sites were chosen based on the probabilistic occurrence of the following basic criteria: (1) Parents and/or guardians having small children should be likely; (2) Economic ranges should be well represented; (3) Children's age groups should be diverse; and (4) Various zip codes should be well represented. The chosen sites included day care centers, public parks, public libraries, and baby product retailers. Table 1 contains the list of informant locations and the number of instruments collected per location; Figure 2 depicts the spatial layout of the survey sites.

[Insert Figure 2 and Table 1 here]

The aim of Study 1 is to gather qualitative ideas regarding the important aspects of child safety seat usage for consumers. Descriptive data was collected with a paper and pencil instrument at various locations throughout the southern Nevada region. Two graduate students who served as data collectors traveled to a total of 17 locations for gathering respondents. The instrument was designed to provide qualitative input which could guide the authors towards designing a quantitative study. In order to participate in the study, respondents were required to meet the following criteria: (1) be 18 or over; (2) have one or more children under the age of 14;

(3) have a valid driver's license in the state of Nevada; and (4) not be enrolled as a student in a university. A total of 200 subjects from the southwestern part of the United States participated in the study; respondents were not provided with any incentives. The entire sample population consisted of 42.9% males and 57.1% females; 68 were under 30 years old, 94 were between 31 and 40, and 38 were between 41 and 50; participant ages ranged from 20 to 49 years old.

The first page of the instrument asked participants to respond to the following statement: "Please give us any thoughts you have regarding child safety seat usage and laws in Nevada." The participants were provided with a page to respond in writing or could alternatively move to the next page. We then included a few filler constructs on the next page and ended with basic demographic questions. Of the 200 who filled out the instrument, 151 provided comments, yielding an acceptable qualitative response rate of 75.5%.

Procedure and Analysis

The qualitative feedback provided is similar to netnographic data, such as consumer product reviews, meaning that each comment differs in length and contribution and contains completely voluntary information (Kozinets, 2002). Thus, to conceptualize the qualitative data, and identify underlying concepts and ideas regarding child safety seats, we utilized a lexicographic content analyzer, called Leximancer. Leximancer (www.leximancer.com) uses a machine learning technique to discover the concepts and themes within verbal data (Smith, 2007). Several fields in social science, including marketing, advertising, and accounting, use Leximancer to analyze textual data (e.g., Dann, 2010; Campbell et al., 2011; Rooney, 2005). The semantic analysis algorithm, based on Bayesian theory, derives concepts and themes that in general conform to those derived by qualitative researchers (Rooney, 2005). Because our quest

for this study is purely exploratory, a semantic analyzer which can discover themes through an iterative process is appropriate and does not rely on human coding of text (Atkinson, 1992).

Results

The semantic analysis tool creates concept maps based on derived themes; and within each theme, it provides focal ideas. Researchers can then interpret these maps and derive any key ideas from them.

[Insert Figure 3here]

Figure 3 is divided into two panels in order to show the connections between the themes and concepts as well as the relative weights of each of the themes. As shown in Panel A, Safety is the largest theme that emerges from analysis, with several main concepts beneath it, including *believe, properly, installed, education,* and *use*. Table 2 provides sample comments for several of the main comments in each theme. Next, the theme Laws includes the concepts *strict* and *enforced;* Important includes *important, price,* and *people.* Lastly, Children includes *times, car, accident,* and *drive*. Some of the concepts overlap within themes, for example the theme Important contains the concept important and that word is also included in the Children theme within the accident concept. This overlap indicates that the respondents consider the concept of child safety seats to be a very important topic of interest. Importantly, the instructions on the instrument did not force them to provide written comments, so they did so of their own volition.

[Insert Table 2 here]

Discussion

In order to delve further into the issue of child safety seats, the semantic analysis of the respondent comments indicates that respondents consider the topic to be extremely important, which is a positive outcome. There are also several other interesting findings from this unguided

semantic analysis, as follow: (1) In terms of tangible properties of child safety seats, respondents seem most focused on the proper installation of them and their price; (2) Related to the laws surrounding their use, respondents claim that they should have better education and that the laws should be strictly enforced; and (3) Participants seem to be fully aware of the harms associated with improper use of child safety seats and the possible impact of lack of use, as provided in the *drive, accident, people, important,* and *car* concepts. According to these findings, two key areas of exploration include knowledge of child safety seat laws (which would include two of the themes from Study 1 – safety and laws) and price perceptions (as apparent in the important theme from Study 1). Therefore, the next phase of this study will introduce a conceptual framework to propose a quantitative model.

Theoretical framework and hypotheses

Information processing and knowledge

In their seminal research regarding product knowledge, Alba and Hutchinson (1987) identify the key components of consumer expertise, centering their ideas on memory for complex information. In essence, according to their work, experts: (1) have higher recall of product information; (2) recall relevant information better than irrelevant information; and (3) have higher relevant information retention over time, versus novices, among other differences. These distinctions are most important with regards to complex information, such as CSS laws and product information. Specifically, as product familiarity increases, so does consumer expertise (Alba and Hutchinson, 1987). Capraro, Broniarczyk, and Srivastava (2003) define two types of consumer knowledge in a decision making context, subjective and objective knowledge. In the present research, their use of subjective knowledge is matched to perceived knowledge; likewise, objective knowledge matches actual knowledge. Similar to other researchers, they highlight the

information processing differences between high and low knowledge purchases and how that by increasing consumer knowledge of brand alternatives, likelihood of brand switching increases. Increasing objective knowledge about a subject area, for example genetic literacy, can only be accomplished by carefully designed educational interventions (Pearson and Liu-Thompkins, 2012). Gaining actual knowledge for non-product categories such as child safety seats takes more effort for consumers since such information is not as readily available as in the case of product categories, i.e. consumers are regularly provided with product information as they make purchase decisions (Carlson, Vincent, Hardesty, and Bearden, 2009). In fact, expert consumers make their decisions based on their prior category knowledge and thus are able to make them more readily than novice ones, especially when they are presented with information that matches their category knowledge (Sujan, 1985).

Perceived Price

In addition to detailed product and domain knowledge, consumers often have to make price assessments based on their expertise. In the case of CSS price perceptions, most consumers would have to make an estimate based on their domain knowledge and their product expertise, especially when not explicitly provided with price or product details (Monroe and Lee, 1999).Without access to explicit price information, consumers rely on memory-based judgments(Ofir et al., 2008) and do not usually have high recall for exact product prices (Vanhuele, Laurent, and Dreze, 2006). Regardingretailpatronage, Binkley and Bejnarowicz (2003) find that memory-based price perceptions influence attractiveness to a store. Not only do consumers have limited knowledge of actual product pricing, but they also conceptualize and perceive price as a sacrificeor a give up component, i.e. they think of a product purchase in terms

of what they will have to *give up* versus what they could potentially *get* from the product (Chang and Wildt, 1994).

Ample research confirms that there is a two-way relationship between product experience and perceived product cost. For example, product experience is an inherently limited resource (i.e. there are a fixed number of hours in a day) and thus is often more valued than perceived value or price of a product (Aaker, Rudd, and Mogilner, 2011). On the other hand, when a utilitarian product is perceived to be costly, consumers are less likely to want to purchase it and are less satisfied if they do (Jones, Reynolds, and Arnold, 2006). Therefore, we present the following hypothesis:

H_1: CSS perceived price is negatively associated with product experience.

Spending time with a product is a critical factor in achieving product experience, and as it increases, personal meaning, interpersonal connection, and ultimately happiness increase as well (Aaker, Rudd, and Mogilner, 2011). Across multiple product domains and experiments, Mogilner and Aaker (2009) demonstrate that activating a consumer's time with a product increases personal connection, which in turn leads to more favorable attitude towards the product and purchase decision. Extant research suggests that familiarity (defined as it relates to consumer experience) and expertise are the two dimensions of consumer knowledge (Cordell, 1997). Huffman and Houston (1993) establish the connection between product experience and product knowledge and show that by providing a goal to a novice, enhanced product learning can take place. In fact, according to Alba and Hutchinson (1997), product related experiences accumulated over time constitute familiarity. Consumer knowledge increases as consumers gain product experience, thus the following hypotheses are proposed:

H_2: CSS product experience is positively associated with attitude towards CSSs.
H_3: CSS product experience is positively associated with CSS actual knowledge.

Consumer choice research claims that consumers make decisions based on limitations in their motivation and ability to process information; in essence, this information processing approach to decision making claims that due to working memory and computational capabilities, consumers are prone to heuristics or rules of thumb when making choices (Bettman, 1979). Consumer knowledge level with regards to the use of a product, for example, will have a direct impact on the accessibility of information required to make a choice in that product category, as would be the case with child safety seats. In addition to impacting the use of a product, knowledge level would also impact the outcome of an attribute trade-off (e.g. price versus safety) in a product category(Bettman, Luce, and Payne, 1998). Hundreds of existing studies and multiple theories indicate that attitude towards a behavior is predictive of intention to perform that behavior, including the theory of reasoned action (Fishbein and Ajzen, 1975), and the theory of planned behavior (Ajzen, 1985). In the context of personal selling, DeCarlo, Laczniak, and Leigh (2013) show that there is a positive association between increased product knowledge and intention to purchase or use a product. In particular, for technology products such as mobile services, mechanisms that facilitate knowledge creation increase consumer intention to use (Kleijnen, Lievens, de Ruyter, and Wetzels, 2009).

H_4: Attitude towards CSS is positively associated with intention to use CSSs.
H_5: CSS actual knowledge is positively associated with intention to use CSSs.

Therefore, the current research tests the conceptual model shown in Figure 4.

[Insert Figure 4 here]

Phase 2 (Quantitative Study 2)

Participants, Procedure, and Measures

Descriptive data was collected via a quota convenience sample by university graduate students who were trained in data collection procedures. Existing research suggests that the quota

convenience technique produces a statistically dispersed sample which is generalizable and ecologically valid (Snijders 1992). Chen et al. (2013) compare quasi-convenience sampling methods such as snowball to several other techniques and find that they do not create estimation issues or biases, and even less so when the sample size is large. Previous research utilizes this method, which consists of data collectors randomly asking individuals to participate in a survey concerning child safety belts (Mick, 1996; Bitner, Booms and Tetreault 1990). In order to participate in the study, respondents were required to meet the following criteria: (1) be 18 or over; (2) have one or more children under the age of 14; (3) have a valid driver's license in the state of Nevada; and (4) not be enrolled as a student in a university. A total of 217participants completed the instrument. All constructs utilized Likert scales anchored by 1=strongly disagree and 7=strongly agree. *Perceived Price* (PP) measures the monetary cost associated with child safety seats with a three item Likert scale consisting of: (1) The price of a child safety seat is high; (2) The price of a child safety seat is low (R); (3) Child safety seats are expensive (Yoo, Donthu and Lee, 2000).*Product Experience* (PE) measures experience with child safety seats with a four item Likert scale consisting of: (1) I have a great deal of skill in using child safety seats; (2) I make use of child safety seats frequently; (3) I have experience using child safety seats; and (4) I know how to operate child safety seats (Griffin, Babin and Attaway, 1996), with a reliability of α =.70. *Attitude towards the child safety seats* (ATT) was measured with a three item scale with bipolar endpoints regarding child safety seats consisting of "bad/good," "unpleasant/pleasant" and "unfavorable/favorable" (Lord, Lee, and Sauer, 1994). Reliability was appropriate at α =0.81. *Intention to use child safety seats* (INT) was measured with a three item adapted Likert scale consisting of: (1) How often do you use a child safety seat while driving with children under the age of 14 years? (2) How often do you use a child safety seat? and (3)

How regularly do you use a child safety seat? (Sirgy et al., 1997). Reliability was appropriate at α =0.88. *Actual Knowledge* of child safety seats (AK), adapted to the context of child safety seats, wascreated and calculated with the same technique as given in Roy and Cornwell (2004). The scale items are provided in Appendix A.

Results – Study 2

Refinement of Scales and Measurement Model

The measurement model includes five variables, namely PE (Product Experience), PP (Perceived Price), ATT (Attitude to CSS), INT (Intention to use CSS), and AK (Actual Knowledge). To assess model fit, all constructs in the model were initially examined in tandem; to determine appropriate measurement model fit, the standard residual covariance matrix, modification indices, and squared multiple correlations were referenced. No items were deleted from the measurement model.

Structural Model and Hypothesis Testing

To check for the reliability and validity of the model, Table 3presentsloadings for each construct, composite scores, and average variance extracted (AVE) per construct. All items are significant at .05 levels and have acceptable loadings (all are 0.4 or higher), displaying convergent validity (Fornell and Bookstein, 1982). All constructs indicate acceptable levels of reliability with composite reliability measures ranging from 0.76 to 0.90 (Nunnally, 1978). The AVE values, which provide the variance of each indicator in relation to the measurement error and examine the convergent validity of each construct (Fornell and Larcker, 1981; Chin 1998), should be greater than 0.50 (Barclay, Thompson, and Higgins, 1995). As given in Table 3, the cutoff AVE value is achieved for all five constructs, with AVE values ranging from 0.52 to 0.76.

[Insert Table 3 here]

Table 4 provides cross factor loadings of construct items; all items loaded higher on their respective constructs than on others, suggesting the discriminant validity of the model measures.In Table 5, the mean, standard deviation, and correlations are given; here, diagonal values represent the square root of the AVE. To test for discriminant validity, these diagonal values should be greater than their corresponding non-diagonal ones. The table shows that this is the case, and therefore discriminant validity is displayed.

[Insert Tables 4 and 5 here]

The full structural model (see Figure 5) was tested with AMOS 20.0 and shows acceptable fit with a χ^2=136.970, root mean square error of approximation (RMSEA)= 0.064, normed fit index (NFI)= 0.910, comparative index fit (CFI)= 0.955, and Tucker-Lewis index (TLI)= 0.935 (Bagozzi and Yi, 2012). Because AK is a calculated construct, there are no items for the structural model, however all other constructs in the model have at least three associated measurement items, as per the Hulland (1999) suggestion. Figure 4 shows the path model results for the complete model; Table 6 provides the findings for Hypotheses 1-5. As indicated by the significant critical ratios, all hypotheses are fully supported with paths significant at the p= 0.02 or below level. To determine the extent to which variances in the constructs can be explained by the model, R^2 values for the dependent constructs are all significant and given as follows: product experience is 0.04, attitude to CSS is 0.29, actual knowledge is 0.13, and intention to use CSS is 0.23 (Hulland, 1999).

[Insert Table 6 and Figure 5 here]

Discussion

All hypotheses are confirmed in the final path model. H_1 shows a significant negative association between perceived price for a CSS and product experience with a CSS, with a path

coefficient value of β = -0.19.As given by H_2, product experience with a CSS is strongly positively predictive of attitude towards a CSS (β = 0.54); H_3 shows that PE is also predictive of actual knowledge of CSS laws (β = 0.36). Finally, as indicated by H_4 and H_5, respectively, intention to use a CSS is predicted by attitude towards a CSS (β = 0.30) and actual knowledge (β = 0.32).

In combination, Studies 1 and 2 find that actual knowledge of child safety seats is particularly important, given the societal implications of improper use. Study 1 shows that consumers believe that price is an important attribute regarding child safety seats and that consumers do perceive the harms associated with them. To explain the gap in use of child safety seats, we introduce perceived price in Study 2, showing that has negative consequences in terms of knowledge, attitude, and usage intention.

Conclusions, Future Research and Limitations

Our research contributes to existing literature on information processing and knowledge as well as pricing theory in several important ways. First, we show that even though most consumers understand the importance of child safety seats and the ample potential harms associated with their misuse, a high perceived price can offset potential experience with them and attitude towards them, and eventually lower future intention to use them. Second, to understand actual consumer beliefs regarding child safety seats, we present qualitative data and allow semantic analysis of it to conceptualize a quantitative model. In this way, we augment the relatively low number of mixed methods studies in the marketing realm (Hanson and Grimmer, 2007; Harrison, 2013) while addressing a topic of significant societal concern. Additionally, our model benefits from an interdisciplinary perspective which blends transportation research and

policy with marketing theory, a theoretical gapwhich has been recognized by business scholars (Wind, 2009).

In addition to impacting intention to use child safety seats, existing studies suggest that knowledge increases the likelihood and intensity of attitude-behavior consistency (Fabrigar, Petty, Smith, and Crites2006). The experimental findings of Fabrigar and colleagues are important to the current research because they confirm that actual knowledge of child safety seat laws is not only important to increased intention to use them, but also the likelihood of behavioral consistency regarding their purchase and deployment.

Decision making trade-offs when, for example, price and safety are being weighed, often force consumers to make suboptimal decisions. For instance, given a situation in which a consumer is faced with valuing safety versus money with limited knowledge, he/she may choose a lower priced product to save money rather than to purchase a safer child safety seat (Bettman, Luce, and Payne, 1998). Price, quality, and value perceptions are at the root of all consumer purchase decisions. In terms of value and quality, research shows that when consumers make purchase decisions, perceived monetary price impacts perceived quality and perceived sacrifice directly and impacts perceived value indirectly, which ultimately increases purchase intention for a product (Zeithaml, 1988).Therefore, if the perceived price is high, the perceived sacrifice will also be high, causing a consumer to avoid experiencing the product at all. This is consistent with our model since perceived price has a direct impact on product experience for child safety seats.

The societal issues of child safety seat usage become even more severe when marketers consider functionally illiterate and low literate consumers, who are more likely to rely on visual images, and socially contextual single attribute decision rules (Viswanathan, Rosa, and Harris, 2005). In effect, Viswanathan and colleagues find that a low literate consumer could be more

likely to use stored category knowledge to drive basic decision heuristics such as “buy the smallest,” “buy the cheapest,” or “buy the lowest sodium.” Given the proposed model and the importance of low perceived price in increasing product experience and actual knowledge, such single attribute decision rules have dangerous consequences for low literates in the context of child safety seat usage. Wegner and Girasek (2003) measure the required reading level for child safety seat instructions to determine whether lower priced safety seat instructions are geared to lower education levels of parents; disturbingly, their findings indicate that the instructions are written at a much higher reading level than that of most American consumers. This disparity in communication materials and their targeted consumer literacy levels exists not only for product instructions, but also for required laws for product use, as well as for product pricing and purchasing information.Specifically for low financially literate consumers, Gaurav, Cole, and Tobacman (2011) suggest that certain offers such as money back guarantees can serve as a signal for quality and trigger higher likelihood of purchasing an intangible product, such as insurance. Therefore, our findings have several important implications for low literate consumers, including: (1) due to the fact that a single attribute decision rule is more likely to be employed, the perceived price could have even a higher negative impact on likelihood of using and learning about child safety seats; (2) instructions for child safety seats and their accompanying laws must be carefully written and visual imagery should be utilized wherever possible to increase actual knowledge using multiple sensory mechanisms; and (3) advertisements can be targeted more carefully so that offers signal higher quality perceptions and thus lower perceived sacrifice.

As with all research, ours has several limitations, many of which provide potential directions for future research. First, the domain we chose, child safety seats, although important, limited our sampling frame to parents within a very specific geographic region of the U.S.

Although we presented a mixed methods approach, we did not conduct carefully controlled experiments, which limits the size and scope of our claims. We also limited our study to a small number of constructs, and only one of them, perceived price, is directly related to a tangible child safety seat attribute. Additional research is needed to examine other tangible attributes of child safety seats, such as brand name, perhaps using conjoint analysis in order to determine the relative weights and importance of them. Likewise, our research does not investigate heuristics or signals, such as the psychophysics-of-price heuristic (Grewal and Marmorstein, 1994), the price-quality heuristic (Zeithaml, 1988), the low price signal (Dutta, Biswas, and Grewal, 2007), and price framing effects (Grewal and Lindsey-Mullikin, 2006), and the significantrole they can play in priceperception and decision making.

With respect to road safety for parents regarding children, Greenberg-Seth et al. (2004) find that community-based interventions can be fruitful. Increasing a parent's knowledge of booster seats also increases intention to use them (Anitsal, Anitsal, and Liska, 2010). Future research should take the proposed model and consider delineating price in terms of actual cost versus perceived value of life. One stream of research could explore the economic impact of safety decisions and the mental accounting that takes place for consumer value calculations. In a similar vein, Weinstein, Grubb, and Vautier (1986) show that interventions which highlight personal risk increase driver likelihood to wear a seat belt. With high stake purchases, such as choice of a hospital, post purchase perceived risk can also have a significant impact on future intention to purchase the same brand of the same product (Grewal, Iyer, Gotlieb, and Levy, 2007). In light of this, future research can explore personal risk as well as post purchase perceived risk in terms of child safety seat purchases and deployment.

Regarding advertising, future research could explore the potential impact of fear-based campaigns to offset pricing concerns for child safety seats, since such campaigns have been implemented to improve driver safety (Rossiter and Thornton, 2004). More specifically, how should child safety seat providers frame their marketing communications in order to offset the high perceived price of a safety seat? In effect, child safety seat marketing messages should make consumers realize that the cost of losing a child's life is much higher than the price of a seat itself. Previous research shows that when safety features are positioned as reducing the probability of death, consumers exhibit higher valuation of them and willingness to pay for them (Boulding and Purohit, 1996). Regulatory focus theory may play a role in framing the *losing money* versus *gaining life* promotions, and should therefore be further researched in relation to this domain (Van Noort, Kerkhof, and Fennis, 2008).Finally, case-based qualitative inquiry of parental decision strategies regarding child safety seats would also be beneficial; as such a method could highlight additional constructs or theory to build better programs (Rittichainuwatand Chakraborty, 2012).

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Figure 1
Research Methodology

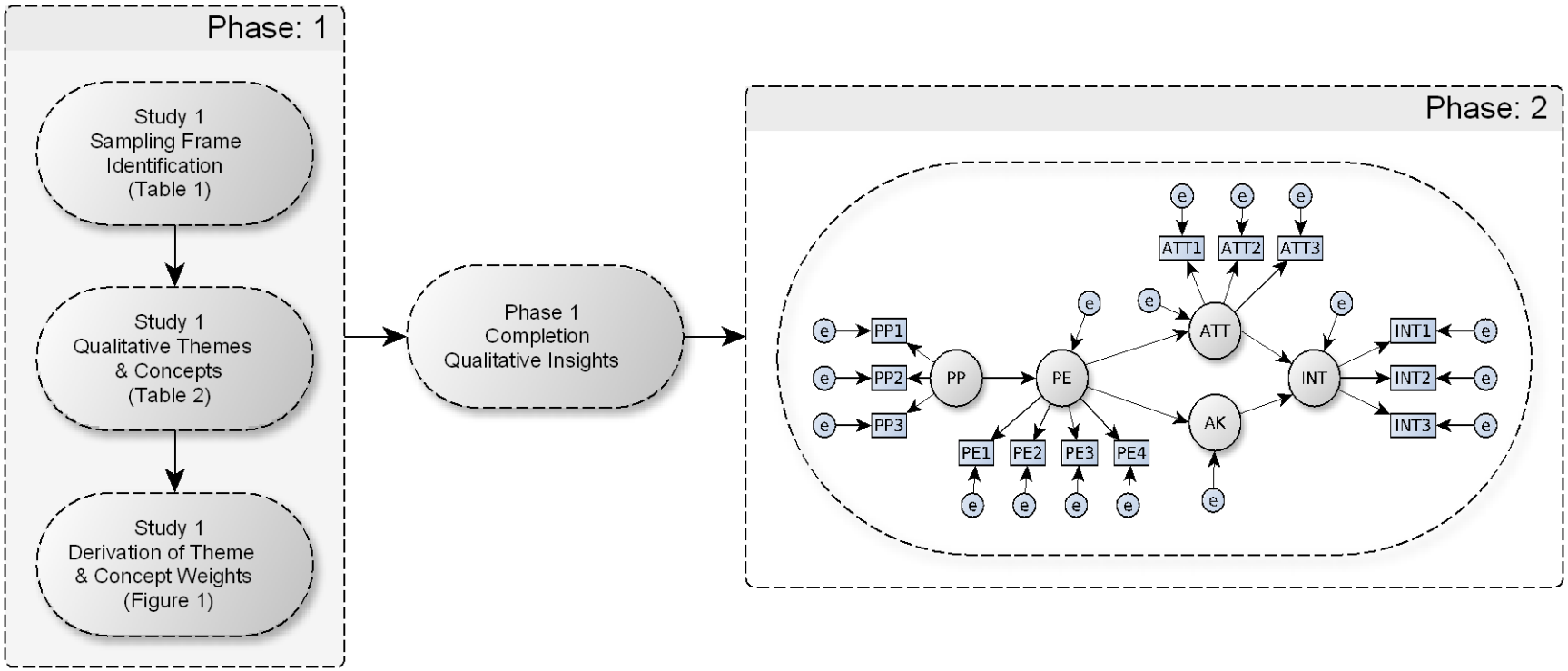


Figure 2
Study 1 Survey Locations

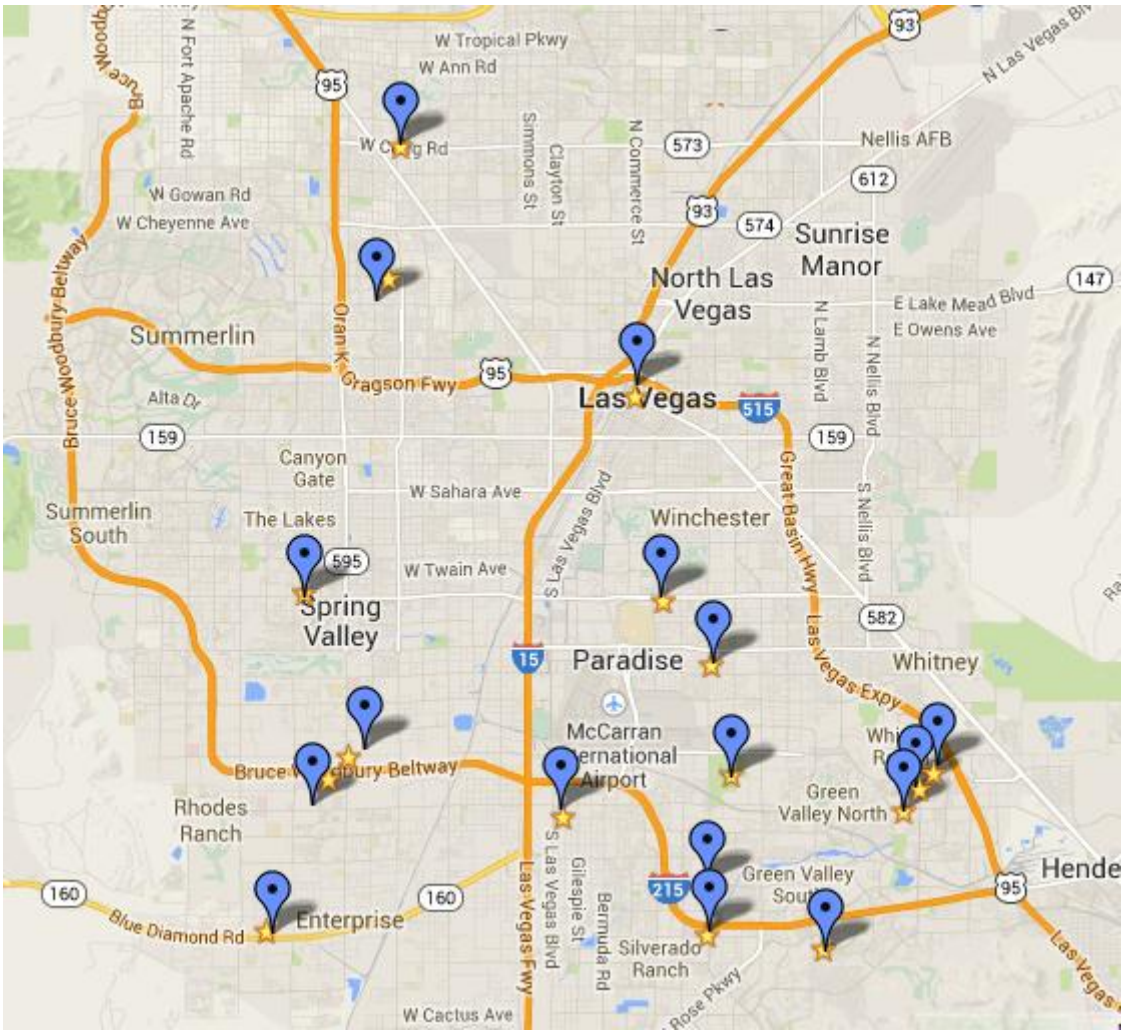
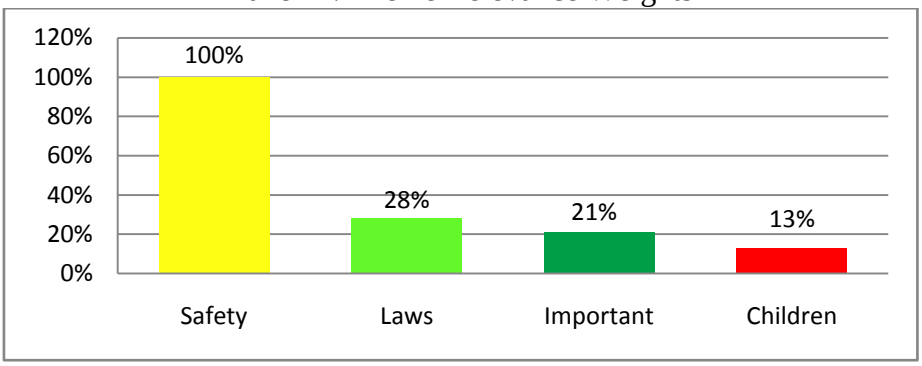


Figure 3
Study 1 Theme and Concept Diagrams

Panel A: Theme Relevance Weights



Panel B: Theme and Concept Connections

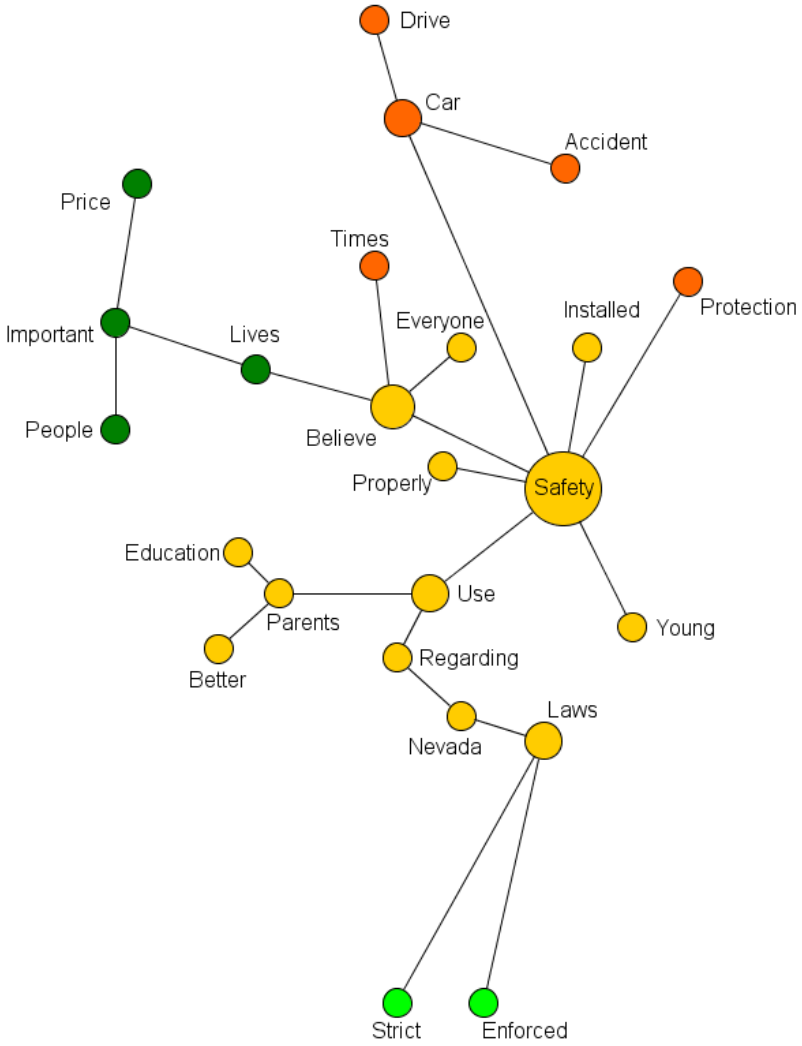


Figure 4
Study 2 Conceptual Model

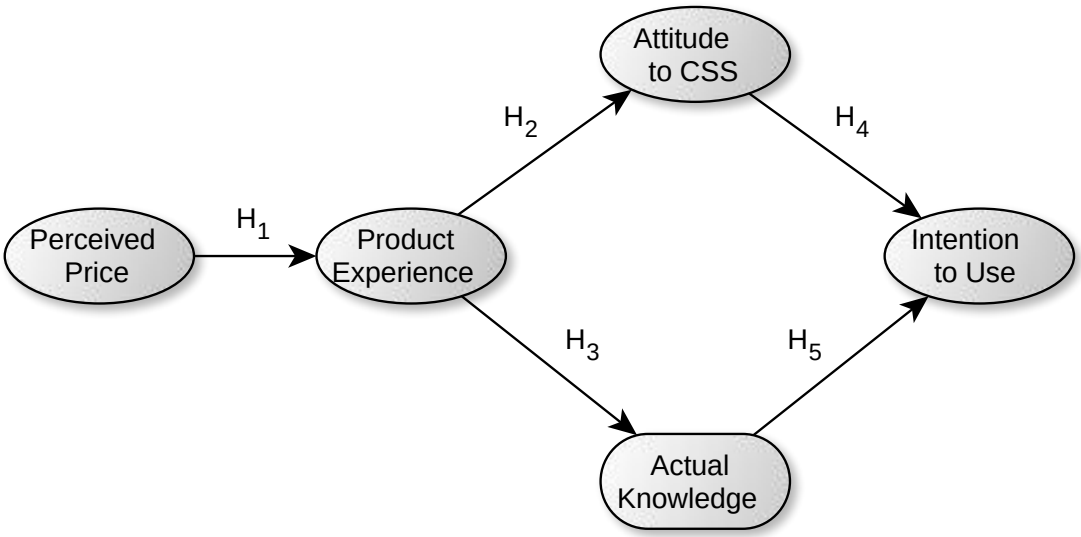


Figure 5
Study 2 Path Model Results

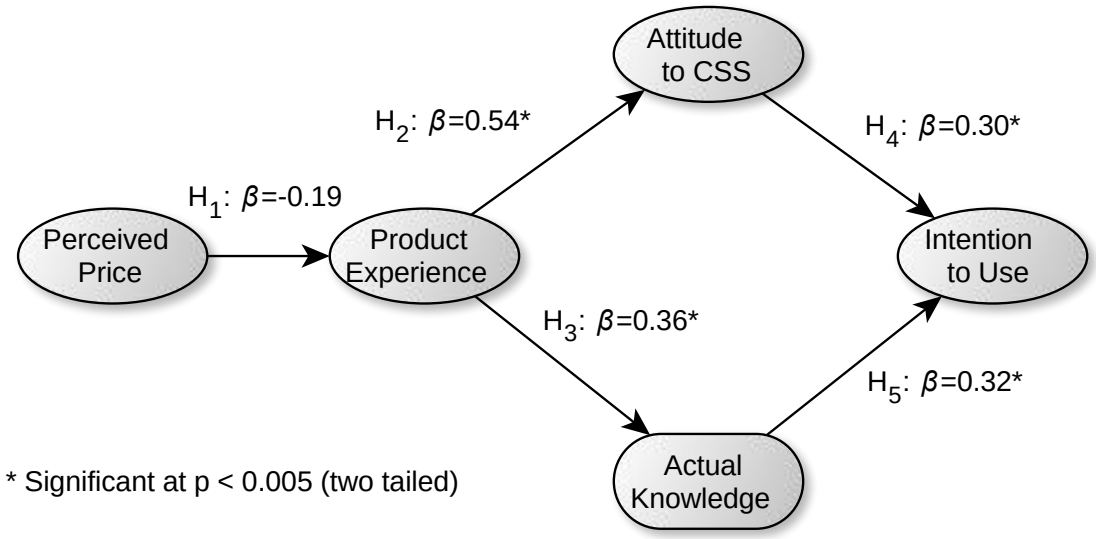


Table 1

Study 1 Quasi-convenience Sampling Frame (*N*=200)

Sr. No.	Location	Jurisdiction	Start Time	End Time	Number of Participants
1	Walmart -215 Rainbow	Las Vegas	10.00 AM	3.00 PM	10
2	Babies R Us - 215 Rainbow	Las Vegas	10.00 AM	3.00 PM	10
3	Walmart - 215 Eastern	Henderson	10.00 AM	3.00 PM	10
4	Babies R Us - Sunset/Stephanie	Henderson	10.00 AM	3.00 PM	15
5	Day Care - Cinderella Careskool	Las Vegas	10.00 AM	3.00 PM	15
6	Day Care - Tinker Town Learn & Play	Las Vegas	10.00 AM	3.00 PM	12
7	Day Care - La Petite Academy	Henderson	10.00 AM	3.00 PM	11
8	Day Care - Creative Kids Learning Center Inc.	Henderson	10.00 AM	3.00 PM	7
9	Walmart - West Craig Road	North Las Vegas	10.00 AM	3.00 PM	10
10	Clark County Library (Flamingo/Maryland)	North Las Vegas	10.00 AM	3.00 PM	9
11	Outlet Mall- Warm Springs	Las Vegas	10.00 AM	3.00 PM	11
12	Outlet Mall- Warm Springs	Las Vegas	10.00 AM	3.00 PM	18
13	Galleria Mall-Henderson	Henderson	10.00 AM	3.00 PM	10
14	Galleria Mall-Henderson	Henderson	10.00 AM	3.00 PM	11
15	Sunset Park	Las Vegas	10.00 AM	3.00 PM	15
16	Paseo Verde Library	Henderson	10.00 AM	3.00 PM	12
17	Spring Valley Community Park	Las Vegas	10.00 AM	3.00 PM	14

Table 2

Study 1 Themes and Concepts (N = 151)

Theme	Key Concept	Sample Comment
Safety	Believe	Childsafety seats are definitely a safety precaution and I believe the laws are.
	Properly	Everyonewith children should be required to attend a class or have them installed properly.
	Education	Bettereducation for parents regarding child safety seats would benefit the family and the community as a whole.
	Installed	I follow theNevada Safety laws for the safety of my children. All children should be in a safety seat and it should be installed properly.
	Use	They should always be used with children according to state laws and manufacturer's guidelines.
Laws	Strict	US laws should be as strict asEurope.
	Enforced	Should be further enforced.
Important	Important	It's important.
	Price	Child safety is very important to me, so price is not an issue based on quality of the product.The state must educate the people about their options and available products in terms of safety ratings and pricing.
	People	Important and a lot of people don't follow it.
Children	Times	You have small kids use them at all times.
	Car	I have one 13 month old son who is still rear facing.Safe Kids – we installed our car seat.
	Accident	Extremely Important! Car seats and booster seats are vital especially when considering the best protection in a car accident.
	Drive	I believe that any child under 60 pounds should be in a child safety seats at all times no matter how short the drive may be.

Table 3
Study 2 Measurement Items and Loadings

Construct		Measurement Items	Item Loading
Product Experience	PE1	1. I have a great deal of skill in using child safety seats.	0.88
(PE: CR=0.86;	PE2	2. I make use of child safety seats frequently.	0.67
AVE=0.62)	PE3	3. I have experience using child safety seats.	0.73
	PE4	4. I know how to operate child safety seats.	0.84
Perceived Price	PP1	1. The price of child safety seat is high.	0.86
(PP: CR=0.76;	PP2	2. The price of child safety seat is low. (R)	0.44
AVE=0.52)	PP3	3. Child Safety Seats are expensive.	0.80
Attitude to Child Safety Seats	ATT1	1. Child safety seats are a good idea.	0.62
(ATT: CR=0.78;	ATT2	2. Child safety seats are a favorable idea.	0.78
AVE=0.54)	ATT3	3. Child safety seats are a pleasant idea.	0.79
Intention to Use Child Safety Seats	INT1	1. How often do you use a child safety seat while driving with children under the age of 14 years?	0.67
(INT: CR=0.90;	INT2	2. How often do you use a child safety seat?	0.98
AVE=0.76)	INT3	3. How regularly do you use a child safety seat?	0.93

Table 4
Study 2 Cross Factor Loadings

		PE	PP	ATT	INT	AK
PE1	I have a great deal of skill in using child safety seats.	0.88	-0.17	0.47	0.24	0.31
PE2	I make use of child safety seats frequently.	0.67	-0.13	0.36	0.19	0.24
PE3	I have experience using child safety seats.	0.73	-0.14	0.39	0.20	0.26
PE4	I know how to operate child safety seats.	0.84	-0.16	0.45	0.23	0.30
PP1	The price of child safety seat is high.	-0.17	0.86	-0.09	-0.05	-0.06
PP2	The price of child safety seat is low.	-0.09	0.44	-0.05	-0.02	-0.03
PP3	Child Safety Seats are expensive.	-0.16	0.80	-0.08	-0.04	-0.06
ATT1	Child safety seats are a good idea.	0.33	-0.06	0.62	0.22	0.12
ATT2	Child safety seats are a favorable idea.	0.42	-0.08	0.78	0.28	0.15
ATT3	Child safety seats are a pleasant idea.	0.43	-0.08	0.79	0.29	0.15
INT1	How often do you use a child safety seat while driving with children under the age of 14 years?	0.19	-0.04	0.24	0.67	0.25
INT2	How often do you use a child safety seat?	0.27	-0.05	0.36	0.98	0.37
INT3	How regularly do you use a child safety seat?	0.26	-0.05	0.34	0.93	0.35

Table 5

Study 2 Mean, standard deviation and correlations

Variables	Mean	S.D.	PE	PP	ATT	INT	AK
PE	5.94	1.17	1.36				
PP	4.41	1.44	-0.27	2.07			
ATT	6.38	0.91	0.49	-0.08	0.82		
INT	5.50	1.92	0.88	-0.16	0.60	3.68	
AK	5.87	2.08	0.85	-0.22	0.44	1.66	4.33

Table 6
Study 2 AMOS Path Model Results

Dependent Variable	Independent Variables	β	*t*-value	Hypothesis
PE (R^2=0.04)	PP	-0.19	-2.40 (p=0.02)	H_1
ATT (R^2=0.29)	PE	0.54	5.88*	H_2
AK (R^2=0.13)	PE	0.36	5.07*	H_3
INT (R^2 = 0.23)	ATT	0.30	3.78*	H_4
	AK	0.32	4.74*	H_5

β is a standardized coefficient
* Significant at p<.005 (two-tailed)

Appendix A

Study 2 Actual Knowledge Construct

Measurement Items	Correct Answer Agree/Disagree/Don't know
1. Rear-facing infant seats should be used from birth to at least two years of age and at least 30 pounds.	Disagree
2. Forward-facing toddler seats should be used in the back seat from age one and 20 pounds to about age 4 and 40 pounds.	Agree
3. Booster seats should be used in the back seat from about age 6 to at least age 10 – unless the child is 5'3" or taller.	Disagree
4. Safety belts should not be used in the back seat at age 8 or older or taller than 4'9".	Disagree
5. Nevada state law requires that children under age 6 and 60 pounds ride in a federally approved car seat or booster seat that is appropriate for the child's age and weight.	Agree
6. A car seat or booster does not need to be installed and used according to manufacturer's instructions.	Disagree
7. If children are less than 4'9" tall, they do not need to ride in a booster seat.	Disagree
8. Safety belts are made to protect an adult who is at least 4'9" tall.	Agree
9. Kids who have outgrown their toddler seat are still not tall enough for the belt to lay on the strong parts of their body, such as hip bones, rather than vulnerable parts like their stomach.	Agree
10. If children are less than 4'9" tall, they should be in a booster seat.	Agree