

CONSUMER SOPHISTICATION: THE DEVELOPMENT OF A SCALE MEASURING A NEGLECTED CONCEPT

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The theoretical background and various conceptualizations of the important concept of consumer sophistication are discussed, as well as the need for the development of measures of the concept. Three scales are subsequently developed and tested on a large national sample of households who have recently purchased a new home. All three measures were shown to have high degree of reliability as well as content, convergent, and criterion validity. The results revealed that the more time spent on specific decision making activities does not necessarily lead to higher perceived sophistication of consumers nor a greater level of perceived satisfaction with, confidence on, and anxiety with the home purchase decision. Rather, it is an individual's perceived level of sophistication that was highly correlated with satisfaction, confidence and lesser anxiety in the purchase decision.

INTRODUCTION

In the face of the increased complexity of today's marketplace, consumers are continually faced with the difficult task of choosing between a large number of competing products and services. Yet more choices are not necessarily leading to "better" decisions or increased consumer satisfaction (Schwartz 2004). Rather, reports of consumers falling victim to unscrupulous business practitioners in a variety of situations seems to be more and more common. Consumers making uninformed decisions has negative effects not only on the individual, but also on the overall perceptions of the fairness of the marketplace. A case in point. The financial collapse of 2008, which eventually spread to most developed nations, was partially the result of unsophisticated consumers securing ill-advised home mortgage loans at the behest of unscrupulous lenders. Consequently, developing a better understanding of what constitutes sophisticated consumer decision making, and how to measure it, seems particularly important.

Despite the need for a better understanding of sophisticated shopping behavior, little research has been undertaken to define and measure consumer sophistication. The purpose of this article is to fill this void by presenting the development of a scale to measure consumer's home purchase sophistication. The advent of such a measure should serve as a template for further instrument development and measurement of shopping sophistication in the consumer context.

BACKGROUND

Conceptual Definition

Various conceptualizations of consumer sophistication have been advanced (Wu and Titus 2000; Titus and Bradford 1996; Barnes and McTavish 1993; Hirschman 1980; Sproles, Geistfeld and Badenshop 1978). From these, two schools of thoughts have emerged. One focuses on factors which facilitate the *ability* or the *potential* of being sophisticated. Both Sproles, Geistfeld and Badenhop (1978) and Barnes and McTavish (1993) equated consumer sophistication to the relevant knowledge, education, and experiences which facilitate efficient decision making. Similarly, Hirschman

(1980) used the term "consumer creativity" to denote the notion of "the problem solving capability" of consumers (p.286) which increases the probability of selecting superior products (p.289). The other school of thought alternatively focuses on the need to expand the sophistication concept beyond the mere possession of knowledge and experience (i.e., potential), to the actual engagement in "wise" purchase practices (Wu and Titus 2000; Titus and Bradford 1996). Although it is interesting and beneficial to identify sophistication "potential," it can be argued that it is the *actual practice* which impacts consumers' well being. Public policy should be behavior driven, rather than ability driven. Thus, for the purpose of this research, consumer sophistication in purchasing decisions is defined as: "the participation in well-informed action(s) during each stage of the purchase process that is systematic, thoughtful, and goal-directed throughout the entire purchase process, undertaken with knowledge of the consequences associated with its performance." Characteristics of this conceptualization are:

- Domain and Task Specificity: Similar to the concept of opinion leadership (Schiffman and Kanuk 2000), consumer sophistication levels are likely to vary across purchasing domains *and* stages of the consumer decision making process, making only a general (across) domain measure of sophistication futile.
- Goal independence: While consumer sophistication is "goal-directed," it is *not a goal specific or goal dependent activity*. Sophisticated consumers may pursue entirely different shopping goals (e.g., convenience vs. lowest price) and thus, display variations with respect to their shopping activities (e.g., search in retail stores vs. searching the internet). However, the "manner or approach" employed in their shopping activities should be similar. That is, their shopping activities should still be carried out in a systematic and thoughtful manner. Thus, it is the behavioral "approach or process" that is independent of the specific goals that determine whether or not a behavior is

considered sophisticated. In essence, it's not *what* the consumer does as much as it is *how* the consumer does it that counts.

- Decision Making Process: Consumers constantly face choices---whether to buy, what to buy, when to buy, where to buy, from whom to buy, and how to pay for it. It is widely held by most researchers that these decisions generally involve a process of stages (Koklic and Vida 2009; Kahn 2005; Engel, Kollatt and Blackwell 1973; Nicosia 1966). Since sophisticated consumer purchase behavior is defined as the participation in well-informed action(s) during *each* stage of the purchase process, a sophistication measure needs to cover all five stages identified above.

Operational Definition

Since sophisticated behavior is conceptualized as "the participation in well-informed action(s) during each stage of the purchase process," three measures are advanced in this article to operationalize the concept: the actual time measure, the regret (actual-ideal-gap) measure, and the global-perception measure

- Actual Time Measure: It is generally true that the more time and effort one spends on an activity, the more informed and the better the outcome. Therefore, the actual amount of time one spends on each stage of purchase activities, in and of itself, should be a reasonable measure of "the participation in well-informed action(s)."
- The Regret (Actual-Ideal-Gap) Measure: Although greater effort and more deliberation leads to well thought-out decisions, there are cases where buyers may be spending a disproportionate amount of time on a task in relation to its effect on the end result. On the other hand, there are also cases where a buyer may wish he/she had spent more time on an activity. Therefore, spending too little or too much time on an activity can be considered a deviation from the ideal. A sophisticated buyer should be an "informed" buyer as well as a "wise" buyer who allocates time in a productive manner. Thus, to

understand a sophisticated buyer, one may also want to know not only how much time individuals *actually spent* on an activity, but also how much time they feel that they *should have spent* (ideal time spent). The difference between the time respondents' *actually* spent and what they think they *should* spend, is another indication of the level of consumer sophistication. The greater the gap (positive or negative), the lower the level of sophistication.

- Global Perception Measure: A third measure of sophistication used in this research was the subjects' self perception of the sophistication level of the entire buying process.

While all are measures of sophistication, each measures a slightly different dimension of the concept. For instance, consumers often experience cognitive dissonance after a major purchase decision manifest by questioning the wisdom of the decision (Cooper 2007). To reduce the feelings of not making a right decision, consumers often develop more favorable attitudes toward the product selected. By the same psychological process, since the actual-time measure derives from the time actually spent on activities, it would be expected to correlate closely with subjects' perceived appropriateness of efforts spent on each decision stage. However, since the regret measure deals with the difference between the actual time the consumer spent vs. the time the consumer thought he/she should spend, it represents a more holistic and more objective assessment of the merits and deficiencies of the decision. Therefore, it would be expected to correlate stronger with the global perception measure of sophistication than with the actual-time measure.

METHOD

Scale Development

Given that buying a home is often the single largest and most complicated purchase decision that many individuals or households will make, it was chosen as the focus of this research.

Questions covering home purchase activities of all decision stages were developed based on Kiplinger's (2006) *Buying & Selling a Home* and Schmitt's (1989) *Consumer's Guide For Smart Spending*. For each activity, subjects were asked "how much time *did* your household spend on each of the following home purchase activities" and "how much time *should* your household have spent." Each was measured on a five-point scale, anchored by "none at all" and "an extensive amount." For example, subjects were asked about how much time they spent/should have spent identifying the specific living requirements/needs of their household, determining when would be the best time to purchase a home, gathering information about the list price of prospective homes, assessing the physical conditions/construction of their prospective home, inspecting their home after closing, and performing routine maintenance checks and repairs after purchasing their home. These questions served as the inputs to both the actual time and regret measure. A total of sixty-two items were developed.

In addition to these activity based items, a global self perception measurement was undertaken. Specifically, subjects were asked to indicate their perception of their overall home buying decision-making on a five point Likert scale, ranging from strongly agree (1) to strongly disagree (5). Questions covered their perception of whether an appropriate amount of time was spent on *each* decision stage, as well as whether they believed that they carried out the *entire purchase process* in a sophisticated, prudent, consistent, and well informed manner.

The initial set of items were evaluated by four different realtors who independently assessed the item's ability to capture what would be considered generally-accepted wise home purchase practices, those items that were unnecessary, and any items not included that they believed should be added. Based on the comments of these expert judges, the measurement was revised. The final instrument consisted of 47 activity based items used for the actual and ideal measures as well as 13 items

that served as the global self perception measure. This latter measure consisted of five stage specific items, and eight overall-process items. All measurement items are shown in Appendix A and B.

Sample

Using an established national research panel of an independent research firm as the sampling frame, approximately 900 sets of questionnaires were randomly mailed to panel member households throughout the U.S. who had purchased a new home within the last 12 months (Park 1982; Munsinger, Weber and Hansen 1975). In married households, information was collected from the husband and wife separately (Levy, Murphy and Lee 2008; Bonds-Raacke 2006; Cosenza 1985; Hempel 1972; Davis 1971; Granbois and Willett 1970).

After eliminating questionnaires with incomplete responses or systematic response patterns (indicating possible validity problems), a total of 670 usable questionnaires remained. Of those, 494 questionnaires were returned from married panel members representing 247 different households while another 176 were from non-married households. Slightly more than half (52.8 percent) of the respondents were female. The largest percentage of respondents (48.4 percent) were between the ages of 25 and 44 years of age, with 65.7 percent indicating that they had at least some years of college education.

RESULTS

To validate the measures developed, a series of steps that were consistent with the procedures recommended and used by previous researchers (Newell and Goldsmith 2001; Bunn 1994; Churchill 1979) were undertaken. First, each set of items was purified by eliminating items that were ambiguous or that did not fit neatly to a specific underlying dimension. The remaining items were then subject to reliability and convergent validity checks. Finally, criterion validity was applied to the measures.

Since there is no theory or a priori foundation to expect that there is a difference in item-scale structure between gender, responses from husband and wife of the same household were treated as separate entities for the purpose of scale construction.

Exploratory Factor and Reliability Analysis

Activity Based Measures. Given the shortage of research studies attempting to measure consumer sophistication, it was difficult to predict with any degree of confidence the precise dimensionality associated with the concept. However, it is reasonable to expect consumer sophistication to have more than one dimension. In addition, given the belief that consumer sophistication is task specific, one might expect individual items to load on specific tasks associated with the home shopping process (a task-based dimensionality of shopping sophistication.) In order to assess the dimensionality of the activity-based sophistication scale (actual time and ideal measure), exploratory factor analysis was performed (Hair, Black, Babin and Anderson 2010). The results of the exploratory factor analysis on the actual time measure using varimax rotation, produced eight factors with eigenvalues higher than one, accounting for 63.34 percent of the variance. For the "ideal" measure, the analysis yielded seven factors with eigenvalues higher than one, accounting for 64.97 percent of the variance. For each factor, a reliability analysis was performed on those items highly loaded on that factor (Churchill 1979; Peter 1979). The factor structure and Alpha coefficients associated with each factor can be seen in Table 1.

As shown, all Alpha coefficients were above the .5 to .6 range deemed sufficient for an early stage of basic research (Nunnally 1967). Furthermore, the overall factor structures for the actual and ideal measurement were pretty much in agreement, especially for the first six factors. Since only one item was highly associated with the eighth factor for the actual measure, it was concluded that both the actual and ideal measure yielded essentially seven

TABLE 1
Factor Structure And Alpha Coefficients for the Actual and Ideal Measures:

Factors	Questionnaire Items*		Reliability Alpha Coefficient
1	Actual	22, 26, 28, 29, 30, 31, 32, 33	.89
	Ideal	26, 28, 29, 30, 32, 33	.88
2	Actual	39, 40, 41, 42, 43, 44, 45, 47	.91
	Ideal	39, 40, 41, 42, 43, 44, 45, 46, 47	.92
3	Actual	15, 34, 36, 37, 38	.88
	Ideal	7, 15, 34, 36, 37, 38	.92
4	Actual	9, 10, 11, 12, 13, 14	.87
	Ideal	10, 11, 12, 13, 14	.88
5	Actual	1, 2, 3, 4, 5	.85
	Ideal	1, 2, 3, 4, 5, 6, 8	.88
6	Actual	17, 18, 19	.77
	Ideal	17, 18, 19, 20	.78
7	Actual	1, 6, 7, 8	.78
	Ideal	9, 21, 22, 23, 24, 25	.88
8	Actual	20	-
	Ideal		

factors. Despite the convergence between the actual and ideal measures, there existed some disparity requiring a further purification of the measure (Churchill 1979). As shown in Table 1:

- The items associated with the seventh factor were totally different between the two sets of measures.
- There were items which associated with one factor for the actual measure but not for the ideal measure such as items #22 and #31.
- There were items not associated with any factors for both measures. Specifically, items #16, #27, and #35. Clearly, a further purification of the measure was needed (Churchill 1979).

As a part of the purification process, the researchers independently reexamined the

original items to decide which items to delete. Seven items (#7, #16, #20, #26, #35, #46) were eliminated from the original list. Either they did not load on any factor (#16, #27, and #35), lacked convergence between the actual and ideal (#7, #46), or were ambiguous (#26, assessing the cost of maintaining and operating your prospective home). As shown in Table 1, item #20, (employing the assistance of a professional real estate lawyer), emerged as a single factor for the actual measure but not for the ideal. Therefore, it was judged to be idiosyncratic, seldom being employed by the general public, and subsequently deleted from the scale. After the item eliminations, the second round of analyses was performed. Table 2 presents the results of the factor and reliability analysis. As shown, the results for the actual measure using varimax rotation produced seven factors with eigenvalues higher

than one, accounting for 64.76 percent of the variance. Similarly, the ideal measure yielded seven factors with eigenvalues higher than one, accounting for 67.51 percent of the variance. Overall, the factor structures for the two measures are nearly identical, except item #9. As shown in Table 2, item #9 is grouped with Factor 5 on the actual measure and Factor 6 on the other. Upon close examination, item #9, gathering information about prospective neighborhoods, was positioned with Factor 5 for the following reasons: (1) item #9 was intended as a part of preliminary information gathering of the attractiveness of several neighborhoods, the domain of the Factor 5 group, while Factor 6 reflects the dimension of

assessment; and (2) removing item #9 from the items #21, #22, #23, #24 and #25 had little effect on the reliability of the group.

The resulting factor structure in Table 2 can be described as follows: The first factor measures the *post-purchase sophistication*, the second factor the *need assessment sophistication*, the third factor the *overall value assessment sophistication*, the fourth factor the *financing acumen sophistication*, the fifth factor the *information gathering sophistication*, the sixth factor the *physical condition assessment sophistication*, and the seventh factor *external assistance utilization sophistication*. Although the original 47 items were constructed

TABLE 2
Factor Structure and Alpha Coefficients for the Actual and Ideal Measures:
Final Analysis

Factors***	Questionnaire	Items**	Reliability Alpha Coefficient
1	Actual	39, 40, 41, 42, 43, 44, 45, 47	.90
	Ideal	39, 40, 41, 42, 43, 44, 45, 47	.92
2	Actual	1, 2, 3, 4, 5, 6, 8	.86
	Ideal	1, 2, 3, 4, 5, 6*, 8	.88
3	Actual	28, 29, 30, 31, 32, 33	.87
	Ideal	28, 29, 30, 31*, 32, 33	.88
4	Actual	15, 34, 36, 37, 38	.88
	Ideal	15, 34, 36, 37, 38	.91
5	Actual	9, 10, 11, 12, 13, 14	.87
	Ideal	10, 11, 12, 13, 14	.88
6	Actual	21, 22, 23, 24, 25	.87
	Ideal	9, 21*, 22, 23, 24, 25*	.88
7	Actual	17, 18, 19	.77
	Ideal	17, 18, 19	.79

* All these items have loadings equal to or above .45. Although not as high as .5, it is the highest loading across all factors.

** Factor structure is based on items with a factor loading equal to or greater than .50

*** Factor 1: Post Purchase Sophistication

Factor 2: Need Assessment Sophistication

Factor 3: Overall Value Assessment Sophistication

Factor 4: Financing Acumen Sophistication

Factor 5: Information Gathering Sophistication

Factor 6: Physical Condition Assessment Sophistication

Factor 7: External Assistance Utilization Sophistication

according to the stages of the home purchase decision making, what emerged from the factor analysis was a combination of decision stages and the nature of decisions including financing, physical conditions and overall values. Seven distinct dimensions emerging suggested sophistication should be measured at both the component and overall level.

Global Measures. The exploratory factor analysis on the 13 overall home buying decision-making items generated two factors with eigenvalues over one and accounted for 66.1 percent of total variance as indicated in Table 3. The two factors fell neatly according to the original conception of the items. That is, one group measured the perceived appropriate amount of time spent on each specific decision

stage, while the other group measured the subjective perception of global sophistication. Every item loaded highly on either one of the factors with the exception of item #7, "overall I believe my/our household wasn't very well-informed when deciding to purchase the home." In addition, there was a low correlation (approximately .2) between #7 and the remaining items, significantly lower than the correlation among other items. As a result, item #7 was dropped from the original list of questions (Churchill 1999, p.462).

Validity

Content Validity. Since reliability is a necessary but not sufficient condition to establish the validity of a measurement scale

TABLE 3
Factor Analysis and Reliability Alpha Coefficients

Items ⁴	Factors*	
	1	2
1. Overall I believe an appropriate amount of time was spent assessing the needs and resources of the household prior to purchasing our/my home.	.424	.646
2. Overall I believe an appropriate amount of time was spent gathering home buying information and assistance prior to purchasing our/my home.	.449	.714
3. Overall I believe an appropriate amount of time was spent evaluating housing alternatives prior to purchasing our/my home	.331	.690
4. Overall I believe an appropriate amount of time was spent negotiating and securing financing for our/my home.	.158	.795
5. Overall I believe an appropriate amount of time was spent ensuring that the household's financial and safety needs associated with the purchase of our/my home	.263	.743
6. Overall I believe my/our household acted in a very sophisticated manner through the entire home shopping effort.	.649	.315
8. Overall I believe my/our household carried out the home purchase process in a very systematic manner.	.779	.218
9. Overall I believe my/our household effort was very consistent with wise purchase practice.	.731	.415
10. Overall I believe my/our household acted in a very thoughtful manner throughout the home purchase process.	.830	.245
11. Overall I believe my/our household acted in a very prudent manner throughout the home shopping effort.	.770	.278
12. Overall I believe my/our household displayed a high degree of shopping competence throughout the home shopping process.	.787	.341
13. Overall I believe my/our home shopping effort was very through.	.702	.484

% of Variance Explained

37.83%

28.27%

Reliability Alpha

.92

.85

*Factor 1 represents the appropriate amount of time spent on each stage

Factor 2 represents the subjective perception of global sophistication

⁴The original item #7 was eliminated due to a low correlation with other items.

(Churchill, 1999, p.459), other indicators are needed. The first indicator is the content validity or face validity of the scale. For the forty-one activity-based items, the content validity was established by the fact that the items were adapted from consumer guides for buying and selling home as previously discussed. The scale also covered the multifaceted stages of home purchase decision. In an attributes-consequences-value framework, consumers are said to look for product attributes which lead to certain consequences when in use, and ultimately produce the attainment of desired values (Gutman 1982). If the forty-one activity based items are the micro-level "attributes," then the twelve overall home buying decision items are the more aggregate level "consequences" derived from those activities. All items pertain to the perceived results because of the house-purchase activities performed. If the activity items are content valid, so are the consequence items derived from those activity items. Therefore, the content validity of these twelve items was established.

Convergent Validity. A multi-trait, multi methods approach was employed to establish the convergent validity and discriminate validity. There were essentially two measures of specific *dimensions/stages* of home purchase sophistication. A high correlation between these measures is an indicator of convergent validity. One was the different factors of the forty one activity-based items designed to measure a *specific dimension/stage* of the home purchase sophistication. Specifically, these factors were:

- Need Assessment Sophistication
- Information Search Sophistication
- External Assistance Sophistication,
- Physical Condition Assessment Sophistication
- Overall Value Assessment Sophistication,
- Financial Acumen Sophistication
- Post-Purchase Sophistication

Each of these dimensions was represented by the average score of all the items in that dimension. The other measure were the specific items on the Global Perception Measure designed to measure the perceived

overall sophistication of *each decision stage*. Specifically, these were:

- Overall Need Assessment Sophistication
- Overall Information Search Sophistication
- Overall Evaluation of the Alternatives Sophistication
- Overall Negotiation Sophistication
- Overall Financial and Safety Need Sophistication

As shown in Table 4, there exists significant correlations not only between two measures of the same dimension, but among almost all dimensions. However, the correlation between two measures of the same dimension is consistently higher than those of correlations between dimensions. For example, the correlation between the need assessment sophistication dimension measure and the overall need assessment sophistication item measure, .26, is higher than its correlation with all other overall item sophistication measures. Similarly, the correlation between information search sophistication dimension measure, .34, and overall information search sophistication item measure is higher than other overall sophistication measures.

Not only is the convergent validity of the measures established, but to some degree there is evidence of discriminate validity. The external assistance sophistication dimension measure consists of the following three items: employing the assistance of a professional real estate agent, real estate appraiser, and home inspector. Real estate professionals not only provide expert information, but also a sense of security. Therefore, it is not surprising to see the results presented in Table 4 revealing that there exists a high correlation (.11) with not only the overall information search sophistication perception, but also with the overall financial and safety protection sophistication perception (.16). Similarly, the financial acumen sophistication dimension measure has the highest correlation (.38) with the overall negotiating and securing financing sophistication perception. It is also highly correlated (.31) with financial and safety protection sophistication measure.

TABLE 4
Correlation Coefficients Between Time Based Sophistication Measures
(Actual Time Spent Items versus Overall Specific Activity Perception)

	<u>NEED*</u>	<u>INFO</u>	<u>EVAL</u>	<u>NEGO</u>	<u>FINA</u>
NAS*	.26**	.25**	.20**	.15**	.21**
ISS	.19**	.34**	.30**	.23**	.21**
EAS	.01	.11**	.04	.09***	.16**
PAS	.29**	.37**	.32**	.29**	.30**
OVS	.21**	.30**	.24**	.22**	.29**
FAS	.18**	.27**	.20**	.38**	.31**
PPS	.22**	.28**	.20**	.25**	.30**

* NAS: Need Assessment Sophistication

ISS: Information Search Sophistication

EAS: External Assistance Sophistication

PAS: Physical Condition Assessment Sophistication

OVS: Overall Value Assessment Sophistication

FAS: Financial Acumen Sophistication

PPS: Post-Purchase Sophistication

NEED: Overall NEED Assessment Sophistication

INFO: Overall INFOrmation Search Sophistication

EVAL: Overall EVALuation of the Alternatives Sophistication

NEGO: Overall NEGOTiation Sophistication

FINA: Overall FINAncial & Safety Need Sophistication

** significant at .01 level

*** significant at .05 level

In addition to the actual measure, the regret (actual-ideal-gap) measure can be correlated with the first five activity specific overall home buying decision making items in the global perception measure to establish the convergent validity as shown in Table 5. First, the same pattern emerged as with the actual time measures. The correlation between two different measures of the same dimension is generally higher than the correlation between measures of different dimensions. For example, the correlation between the need assessment regret sophistication measure and the overall need assessment sophistication perception (-.33) is higher than its correlation with overall sophistication measures intended for other dimensions. Therefore, convergent validity, and to a lesser degree, discriminate validity are established. Secondly, the direction of the correlation is in the expected direction. Specifically, the higher regret (gap) is negatively associated with perceived "appropriate" amount of time spent on a particular decision stage.

With respect to establishing convergent validity, the actual and regret measures use the same 41 items to measure sophistication while the global measure uses 12 items. Therefore, a summary indicator of each of the three measures of sophistication can be obtained by calculating the average of each measure. For instance, a summery indicator of the actual time measure can be obtained by taking the average of the 41 actual time items with similar averages calculated for the regret and global perception measure. Each of these means would serve as a surrogate measure of sophistication. With the actual time measure and global perception measure, the *higher* the mean, the *greater* consumer sophistication. Since the regret measure represents that difference in actual time spent vs. the ideal, the *higher* the mean, the *less* consumer sophistication. As shown in Table 6, all three measures have significant ($p < .01$) correlations among themselves in the direction expected. The more time spent on home purchase activities, the higher the perceived overall

TABLE 5
Correlation Coefficients Between Time Based Sophistication Measures
(Regret versus Overall Specific Activity Perception)

	<u>NEED*</u>	<u>INFO</u>	<u>EVAL</u>	<u>NEGO</u>	<u>FINA</u>
NASGP*	-.33**	-.29**	-.32**	-.23**	-.22**
ISSGP	-.31**	-.47**	-.37**	-.34**	-.28**
EASGP	-.14**	-.22**	-.12**	-.17**	-.16**
PASGP	-.31**	-.37**	-.33**	-.27**	-.27**
OVS GP	-.28**	-.33**	-.25**	-.29**	-.28**
FASGP	-.28**	-.35**	-.26**	-.35**	-.27**
PPSGP	-.29**	-.31**	-.25**	-.30**	-.32**

* NASGP: Need Assessment Regret Sophistication

ISSGP: Information Search Regret Sophistication

EASGP: External Assistance Regret Sophistication

PASGP: Physical Condition Assessment Regret Sophistication

OVS GP: Overall Value Assessment Regret Sophistication

FASGP: Financial Acumen Regret Sophistication

PPSGP: Post-Purchase Regret Sophistication

NEED: Overall NEED Assessment Sophistication

INFO: Overall INFOmation Search Sophistication

EVAL: Overall EVALuation of the Alternatives Sophistication

NEGO: Overall NEGOTiation Sophistication

FINA: Overall FINAncial & Safety Need Sophistication

** significant at .01 level

*** significant at .05 level

sophistication $r = .38$). Also, the more time spent overall, the less overall regret ($r = -.26$). Similarly, the higher the overall regret, the lower the perceived overall sophistication ($r = -.46$). It seems that the overall self perceived sophistication is determined not so much by how much time one actually spent on home purchase activity overall, but more by the degree of gap between the actual amount of time spent and the amount of time one ought to spend. Finally, within the global perception measure, there is a high correlation ($r = .73$) between subjects' perception that they spent an appropriate amount of time on all stages of decision making and their own assessment of how sophisticated they are.

Criterion Validity. Criterion validity reflects whether a scale relates to other constructs in a theoretically predicted way. Since consumer sophistication reflects "wise", "well thought out" decisions, it is logical to expect that a sophisticated buyer would be more satisfied with his/her decision, more confident in the decision made, and experience less anxiety

about the decision. Three items were developed to measure the above constructs: "I am very satisfied with the purchase of my/our home," "I am very confident that I/we made the right decision to buy the house," "After the decision to buy my/our home, I felt very anxious about my/our purchase decision." All three overall measures of sophistication were correlated to the three separate items. The results are shown in Table 7.

As expected, the regret (actual-ideal-gap) measure correlates significantly with all three items. A high level of regret (low sophistication) correlates with low level of satisfaction, low level of confidence and high level of anxiety. Similarly, a high level of global perception indicating greater sophistication correlates highly and positively with satisfaction and confidence, but negatively with anxiety. However, The actual time measure correlates significantly with both satisfaction and confidence, but not with anxiety. Overall, there exist criterion validity for both the regret (actual-ideal-gap) measure

TABLE 6
Correlation Coefficients Between Overall Sophistication Measures
(Actual Time Spent versus Regret versus Global Perception)

	<u>TLPART1*</u>	<u>TLABSGAP</u>	<u>BUYOVALL</u>
TLPART1	--	-.26**	.38**
TLABSGAP		-	-.46**
BUYOVALL			--
* TLPART1	Overall Sophistication based on actual activity items		
TLABSGAP	Overall Sophistication based on regret items		
BUYOVALL	Overall Sophistication based on global perception		
** significant at .01 level			

TABLE 7
Correlation coefficients between sophistication and satisfaction, confidence, anxiety

	<u>Satisfaction</u>	<u>Confidence</u>	<u>Anxiety</u>
TLPART1*	.12**	.12**	.06
TLABSGAP	-.25**	-.29**	.24**
BUYOVALL	.49**	.51**	-.24**
* TLPART1	Overall Sophistication based on PART I activity items		
TLABSGAP	Overall Sophistication based on Regret (ABS(PART I - PART II))		
BUYOVALL	Overall Sophistication based on Global Perception		
** significant at .01 level			

and the global perception measure, but only partially with the actual time measure.

DISCUSSION

Based on the convergence of factor analysis results performed on the actual and ideal measures and the results of the subsequent reliability analysis, the original forty-seven activity-items were reduced to forty-one items. Similarly, one item was eliminated from the thirteen overall perception items. The actual time sophistication measure and the regret measure were then constructed based on the forty-one reduced items, while the global perception measure was constructed from the twelve overall perception items. All three measures were shown to have high degree of reliability. Furthermore, they were shown to have content validity, convergent validity, and criterion validity.

Additionally, it was found that the global perception measure has the highest convergent as well as criterion validity, followed by the regret measure, with the actual time measure the least. It seems that the more time spent on decision specific activities does not necessary lead to higher perceptions of decision making sophistication. Nor does more time spent lead to more perceived satisfaction with, confidence in, and less anxiety with, the home purchase decision. It is one's self perceived sophistication which has the highest correlation with one's satisfaction, confidence and anxiety.

Since the global perception measure are items stated in general terms, they can easily be adapted to study the sophistication level of other purchases as well, thus becoming the standard sophistication measure. The results of this measure over different purchase situations, for example, automobile purchase, computer

purchase, insurance purchase, investment decision, etc., can be used to construct a relative sophistication index over different purchase situation.

Although the regret measure does not perform as well as the global perception measure, it outperforms the actual time measure. It also offers an important advantage over the global perception measure in its ability to shed insight into the "causes" of a certain overall sophistication measure, the diagnostic power. For example, the overall regret measure is found to correlate highly with satisfaction, confidence and anxiety. However, which dimensional regret measure is responsible for this correlation? When regression analyses were performed, using satisfaction, confidence and anxiety as the dependent variables and the seven dimensional regret measures as the independent variables, it was found that the overall value assessment regret sophistication measure was the sole factor significantly related to the anxiety about home purchase decision. On the other hand, the physical condition assessment regret sophistication measure is the sole factor responsible for the correlation with both the overall home purchase satisfaction as well as the expressed confidence that right decision has been made.

In addition to its diagnostic power, the regret measure also provides policy makers with the ability to understand in which sophistication factors consumers seem to be most deficient. Subsequently, policy initiatives can be designed and implemented to alleviate this deficiency. In future research, the overall regret measure, as well as the dimensional regret measures, should be analyzed based on important demographic variables as well as family structural variables. This would provide deeper insights into the differences in sophistication among gender, race, family size, and stage of family life cycle, etc.

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APPENDIX A: Activity Based Measures*

Home Purchase Activity items

1. Determining whether your household really needed to purchase a home.
2. Identifying the specific living requirements/needs of your household.
3. Prioritizing your household's specific living requirements/needs.
4. Determining how various home designs or layouts would satisfy the specific living requirements of your household.
5. Prioritizing the desired features your household wanted in a home.
6. Determining how much your household could reasonable afford to pay for a home.
7. Determining how much of a down payment your household could afford to put down.
8. Determining when would be the best time for your household to purchase a home.
9. Gathering information about prospective neighborhoods.
- 10 Visiting prospective homes.
11. Gathering buying information/advice from different sources.
12. Verifying the accuracy of gathered home buying information.
13. Gathering information about the list price of prospective homes.
14. Gathering information about the actual sale price of recent home sales.
15. Gathering information about financing options and interest rates.
16. Utilizing modern technologies (e.g., internet) to assist your information gathering activities.
17. Employing the assistance of a professional real estate agent.
18. Employing the assistance of a professional real estate appraiser.
19. Employing the assistance of a professional home inspector.
20. Employing the assistance of a professional real estate lawyer.
21. Assessing the physical condition/ construction of your prospective home.
22. Assessing the strengths and weaknesses of your prospective neighborhood.
23. Assessing the strengths and weaknesses of the design/layout of your prospective home.
24. Assessing the strengths and weaknesses of the location of your prospective home.
25. Assessing the size and condition of the lot and landscaping.
26. Assessing the cost of maintaining and operation your prospective home.
27. Assessing the working condition of the major appliances in your prospective home.
28. Assessing the actual market value of your prospective home.
29. Assessing the tax advantages of purchasing your prospective home.
30. Considering the future appreciation value of your prospective home.
31. Considering the hidden costs of purchasing your prospective home (insurance, real estate taxes).
32. Estimating the cost of necessary repair/improvements to your home.
33. Assessing the physical condition/ construction of surrounding homes.
34. Locating favorable financing terms and options to pay for your home.
35. Developing a strategy for negotiating the purchase price of your home.
36. Assessing the financial terms and condition of your mortgage agreement.
37. Reviewing the legal and financial terms of the real estate sales contract prior to signing them.

38. Ensuring that the purchase contract included the appropriate purchase contingencies (e.g., securing acceptable financing).
39. Inspecting your home after closing to ensure it had no hidden or undisclosed defects.
40. Verifying that all the terms and conditions of the purchase contract were executed and upheld.
41. Learning about all the mechanical features (e.g., heat/AC, appliances) after purchasing your home.
42. Verifying the working condition of the appliances and fixtures after purchasing your home.
43. Inspecting the physical condition of the lot and landscaping after purchasing your home.
44. Securing the proper insurance to protect your financial investment after purchasing your home.
45. Performing routine maintenance checks and repairs after purchasing your home.
46. Re-evaluating your financial status after purchasing your home.
47. Familiarizing yourself with all the product warranty information related to the mechanical devices after purchasing your home.

*Two responses were obtained from each respondent on each item.

(1) "How much *did* your household spend on the following home purchase activities;" (Actual Measure)

(2) "How much time *should* your household have spent on each of the following home purchase activities?" (Ideal Measure).

APPENDIX B:

Home Buying Decision Items

Stage Specific Items

1. Overall I believe an appropriate amount of time was spent assessing the needs and resources of the household prior to purchasing our/my home.

2. Overall I believe an appropriate amount of time was spent gathering home buying information and assistance prior to purchasing our/my home.
3. Overall I believe an appropriate amount of time was spent evaluating housing alternatives prior to purchasing our/my home
4. Overall I believe an appropriate amount of time was spent negotiating and securing financing for our/my home.
5. Overall I believe an appropriate amount of time was spent ensuring that the household's financial and safety needs associated with the purchase of our/my home

Global Sophistication Items

6. Overall I believe my/our household acted in a very sophisticated manner through the entire home shopping effort.
7. Overall I believe my/our household wasn't very well-informed when deciding to purchase the home.
8. Overall I believe my/our household carried out the home purchase process in a very systematic manner.
9. Overall I believe my/our household effort was very consistent with wise purchase practice.
10. Overall I believe my/our household acted in a very thoughtful manner throughout the home purchase process.
11. Overall I believe my/our household acted in a very prudent manner throughout the home shopping effort.
12. Overall I believe my/our household displayed a high degree of shopping competence throughout the home shopping process.
13. Overall I believe my/our home shopping effort was very thorough.