WORKING PAPER

Motivated Consumer Innovativeness:
Concept, Measurement and Validation

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Abstract

Existing consumer innovativeness scales ignore the multitude of motivation sources of buying innovations. The objective of this paper is to incorporate motivation research into a multi-dimensional innovativeness scale to better account for the consumer-product relation. A combination of nine studies (with about 3,000 respondents in total) indicates that four types of motivations underlie consumer innovativeness: functional, hedonic, social and cognitive. The proposed 20-item 4-dimensional Motivated Consumer Innovativeness (MCI) scale proves to be reliable and internally valid and is free from social desirability bias. Moreover, the results of the studies indicate nomological and predictive validity for every MCI dimension. This new scale proves to measure more than existing Consumer Innovativeness scales: It disproves the general consensus that older people are always significantly less innovative than younger people, and the different MCI dimensions fit into a different network of relationships (i.e., a nomological network). This MCI scale can serve as a tool for future research on efficiently and effectively segmenting and targeting (motivated innovative) consumers.

Keywords

Consumer innovativeness, Motivation, Scale development, Scale validation
Motivated Consumer Innovativeness: Concept, Measurement and Validation

Since the early seventies, several researchers have tried to predict consumers’ innovative buying behavior (i.e., the purchase of innovations or new products) by means of different scales intended to measure innovativeness as a personality trait. However, most previous research disregards the consumer-product relation (Gatignon & Robertson, 1985; Goldsmith & Flynn, 1992; Subramanian & Mittelstaedt, 1991): Consumers who buy every new product that they are aware of are rare, even non-existent. In addition, Ostlund (1974) states that it is not solely the personality traits that are relevant, but also the consumers’ product perception. Therefore, in order to understand consumer innovativeness well, attention must be paid to the interaction between the consumer and the product itself. As a first attempt, Goldsmith and Hofacker (1991) launch the idea of domain-specific innovativeness (i.e., innovativeness within a specific product domain of interest). However, Roehrich, Valette-Florence, and Ferrandi (2003) question its discriminant validity because the scale relates more strongly with Laurent and Kapferer’s (1985) product category interest scale than with an innovativeness scale (Roehrich, 1994). In addition, Goldsmith and Hofacker’s (1991) scale is not a pure personality scale as it is very product-specific.

Baumgartner (2002, p. 287) argues that “personality is best understood in terms of the goals that people pursue in their lives […].” Lüthje (2004), on the other hand, states that users who experience new needs not addressed by existing market offers expect a higher benefit from an innovation than others and also expect that benefit to come earlier. Building on the foregoing, we would like to take the notion of product-consumer
interactions in consumer innovativeness one step further than existing, mostly unidimensional, scales by constructing a new consumer innovativeness scale which incorporates a diversity of underlying goals and motivations for buying an innovation. We base our research on Rogers (2003, p. 115), who states that “[w]e should increase our understanding of the motivations for adopting an innovation. Such ‘why’ questions about adoption have seldom been probed effectively”. Finally, also Huffman, Ratneshwar, and Mick (2000) are convinced that motivational goals provide us with more powerful explanations of consumer behavior.

The main objective of the current paper is thus to develop and validate a multi-motivational Consumer Innovativeness scale. Most of the current innovativeness scales focus on the hedonic purchase motivation, largely ignoring other motivation sources. Designing an innovativeness scale that is more balanced with respect to potential purchase motivations will, however, go beyond existing innovativeness scales. In order to do so, we use the procedures and guidelines suggested by Churchill (1979), DeVellis (2003), Netemeyer, Bearden, and Sharma (2003), and Rossiter (2002). A total of nine studies are carried out to develop and validate the scale combining the standard empirical validation of constructs and the focus on the conceptual rigor of the new C-OAR-SE procedure of Rossiter (2002) as Finn and Kayande (2005) and Geuens, Weijters, and De Wulf (2009) propose.

PHASE 1: THEORETICAL BACKGROUND

Consumer innovativeness. Rogers and Shoemaker (1971, p. 27) define innovativeness as “the degree to which an individual is relatively earlier in adopting new
ideas than the average member of his social system”. This definition focuses on the level of innovativeness which is observable in behavior. Marketing researchers refer to this as realized or actualized innovativeness. In the 1970s, researchers try to measure innovativeness as a personality trait. As Midgley and Dowling (1978) point out, innovativeness is a hypothetical construct and by definition not observable. They refer to it as innate innovativeness and describe it as being situated on a higher, more abstract level than realized innovativeness (Foxall, 1988, 1995; Hirschman, 1980; Midgley & Dowling, 1993; Steenkamp, Hofstede, & Wedel, 1999). Consumer innovativeness is part of that broader, more general innate innovativeness concept and concentrates on innovative consumer behavior. It can be conceptualized as “the tendency to buy new products in a particular product category soon after they appear in the market and relatively earlier than most other consumers in the market segment” (Foxall, Goldsmith, & Brown, 1998, p. 41). Leavitt and Walton (1975) are amongst the first researchers to develop a self-report measure of consumer innovativeness; others follow with different kinds of scales (e.g., Goldsmith & Hofacker, 1991; Hartman, Gehrt, & Watchravesringkan, 2004; Le Louarn, 1997; Manning, Bearden, & Madden, 1995; Roehrich, 1994; Steenkamp & Baumgartner, 1992; Tellis, Yin, & Bell, 2009; Venkatraman & Price, 1990).

Motivation research. In the 1950s, some marketing researchers (e.g., Levy, 1959) recognize the existence of psychological and symbolic aspects of consumption next to the more functional ones (Arnould & Thompson, 2005). Since then, researchers (e.g., Chulef, Read, & Walsh, 2001; Ford & Nichols, 1987) have formulated a number of motivation taxonomies, using a diversity of consumer motives and desires. Most motivation research
studies end up with broad categories of consumer needs and motivations which are categorized into two (e.g., negative versus positive dimensions of Rossiter & Percy, 1991; personal versus social dimensions of Tauber, 1972; intrinsic versus extrinsic dimensions of Vallerand, 1997), three (e.g., utilitarian, hedonic, and social dimensions of Brown & Venkatesh, 2005; functional, symbolic and experiential dimensions of Park, Jaworski, & MacInnis, 1986) or four (e.g., physiological, social-symbolic, hedonic/experiential and cognitive dimensions of Foxall et al., 1998; social, emotional, functional, and epistemic dimensions of Sheth, Newman, & Gross, 1991) main groups. We categorize these groups as (1) functional motivations (physiological needs to solve problems, to work more effectively and to create more utility), (2) hedonic motivations (the “just for fun” motivations such as experiential needs), (3) social motivations (including status, prestige and symbolic needs), and sometimes also a distinct (4) cognitive motivations dimension (including curiosity and a desire for knowledge).

Turning to consumer innovativeness studies, we can observe that several researchers do acknowledge the importance of different motivations such as functional motivations (e.g., Hirschman, 1984; Venkatraman, 1991), social or symbolic innovativeness (e.g., Arnould, 1989; Fisher & Price, 1992; Roehrich, 2004; Simonson & Nowlis, 2000; Tian, Bearden, & Hunter, 2001) and hedonic motivations (e.g., Baumgartner & Steenkamp, 1996). Despite all this evidence in favor of recognizing different motivation sources, the number of motivation sources included in current consumer innovativeness scales is limited to two at most (e.g., Roehrich, 1994; Venkatraman & Price, 1990).
When we take both the foregoing and the general motivation taxonomies into account, it is surprising that hardly any innovativeness scale has been developed that includes a wider variety of potential consumer motives. However, a multi-dimensional consumer innovativeness scale is useful: It may help marketing researchers and managers to identify and reach the motivated innovative consumer for their innovative product or service more effectively and more efficiently and may also play a part in new product development and marketing communications development. The main objective of the current research is to fill this gap and to develop and validate such a multi-dimensional consumer innovativeness scale, called Motivated Consumer Innovativeness (MCI) scale, taking into account the different motivations of innovative consumers. In order to focus on the conceptualization of this personality construct, we explore the content domain with qualitative and quantitative exploratory research on top of the content captured in existing literature.

**PHASE 2: EXPLORATORY DIMENSIONS RESEARCH**

**Study 1: Exploratory interviews**

In our first study, we further explore the domain of innovative consumers by means of in-depth interviews with consumers who recently bought innovations. We ensure we interview individuals from relevant populations (Netemeyer et al., 2003). The objective of these interviews is conceptual groundwork on motivations of innovativeness aimed at enriching our pool of items and to ascertain that all content areas of the construct and its dimensions are incorporated (Rossiter, 2002).
Respondents are selected on the basis of self-reports of their innovative buying behavior, taking the following descriptions into account: “An innovative consumer is a consumer who frequently buys innovations earlier than the average consumer” and “An innovation is a newly launched product, service or brand on the consumer market which replaces an existing solution for consumer needs or which fulfills these needs differently”. The convenience sample consists of 37 innovative adult consumers of mixed age ($M_{\text{age}}=35, SD=16$) and gender (22 males versus 15 females).

For each interview we take about one hour, relying on the Means-End Chain (MEC) theory (Gutman, 1982). Consumers are asked to come up with reasons for buying certain innovations following Reynolds and Olson (2001) and the “laddering interviews” process (Grunert & Grunert, 1995). Furthermore, we also keep Cohen and Warlop’s (2001, p. 407) remark in mind that “functional benefits need not to be connected – at least in consumers’ minds – to these more abstract or higher level sources of value.”

During the interviews, 74 different products, varying from new food products to very specialized electronics, are discussed (e.g., blue-ray writer, beer cans that cool faster, Twix white chocolate, …). The motivations that the respondents report fit in with the taxonomies found in the literature, and more specifically, with the division into functional, hedonic and social motives. A clear, separate cognitive factor does not really emerge as only one cognitive item (i.e., ‘curiosity’) is rarely mentioned by the respondents. These in-depth interviews corroborate earlier research on the motivational structure of innovative consumers as at least the following three different motivation sources of consumer innovativeness seem to be important. (1) Functionally Motivated Consumer Innovativeness (fMCI) can be defined as consumer innovativeness motivated
by functional aspects such as usefulness, handiness, compatibility, efficiency, comfort, ease, quality, reliability, etc. (2) Hedonically Motivated Consumer Innovativeness (hMCI) can be conceptualized as consumer innovativeness motivated by hedonic aspects such as seeking variation, pleasure, fun, sensation, fantasy, excitement, enjoyment, creativity, tension, experimentation, desire, stimulation, or to give in to an irresistible urge, escape from the daily round, discover new things, etc. (3) Socially Motivated Consumer Innovativeness (sMCI) can be defined as consumer innovativeness motivated by being different and unique, and by status, standing, prestige, distinction, opinion leadership, manipulation, visibility, social reward, trendiness, symbolism, showing success, sense of belonging, image, etc.

**Study 2: Quantitative exploration of consumer innovativeness motives**

In a second exploratory study, a quantitative follow-up is made. The objective is twofold: (1) to check whether the same motivational dimensions are present in a larger sample than in the small sample of the qualitative study, and (2) to discover any motivational dimension that is discriminant from the dimensions we found earlier. To make sure no important motivation dimension would be omitted, we do not restrict the questionnaire to the three dimensions revealed in the qualitative study, but we use the comprehensive list of general human motivations developed by Chulef et al. (2001).

A sample of 279 respondents fills out an online survey ($M_{age}=27$, $SD=11$; 69% women). They are invited to evaluate all of Chulef et al.’s (2001) 135 motivation items according to innovativeness. After a definition of innovative consumers is given (cf., supra), the items are randomly presented and introduced by the sentence “I think people
acquire innovations (and therefore are innovative) because …” which was followed by
the motivation statements (e.g., “… they are in a better position to make decisions for
others”). Respondents answer on a five-point Likert scale (1 = “strongly disagree”, 5 =
“strongly agree”). Finally, they fill out their sociodemographic characteristics.

Next, an exploratory factor analysis is carried out with promax rotation on the
motivation items that have a mean significantly greater than three (this means that these
motivation items are of importance for consumer innovativeness: n=49) and with
Eigenvalue greater than one (Hair, Anderson, Tatham, & Black, 1998). The analysis
results in seven factors with more than one item per factor and a Cronbach’s alpha larger
than .60. The scree plot, however, suggests a four-factor structure: The three motivation
sources mentioned previously (hedonic, social and functional) and a new cognitive
dimension that deals with intellect, knowledge and ambition. This dimension has
occurred previously in value research (Sheth et al., 1991; Sweeney & Soutar, 2001) and
can be defined as “the perceived utility […] to arouse curiosity, provide novelty, and/or
satisfy a desire for knowledge” (Sheth et al., p. 162). Also Vallerand (1997)
acknowledges the existence of a cognitive motivation source within his intrinsic
motivation dimension. Next to this dimension, he also mentions the intrinsic motivation
toward accomplishments (close to our functional motivation dimension), intrinsic
motivation to experience stimulation (close to our hedonic motivation dimension), and
extrinsic motivation (close to our social motivation dimension).

Because the cognitive dimension could be important for the purchase of
innovations, we decide to incorporate it as well in our further studies. We define
cognitively Motivated Consumer Innovativeness (cMCI) as consumer innovativeness
motivated by knowledge, information, intelligence, wisdom, eagerness to learn, logical thinking, insight and understanding, reason, brainpower, stimulation of the mind, etc.

**PHASE 3: SCALE DEVELOPMENT**

**Study 3: Item generation and content validation**

A total set of 254 items is constructed. This item pool originates from the literature review (n=68), the different existing consumer innovativeness scales (n=77) – both dealt with in the theoretical background section of the paper – the interviews (n=67) (i.e., Study 1) and the exploratory quantitative research (n=42) (i.e., Study 2). As Rossiter (2002) stresses the importance of expert judgments of a construct, the authors, five expert (Marketing Department members) and six non-student consumer judges critically evaluate all items, as proposed by Hardesty and Bearden (2004). The judges are asked to pay attention to content validity, representativeness, dimensionality, comprehensibility and unambiguousness. From the moment two judges have a problem with assigning an item to the intended dimension or when an item is judged as not valid or representative by two or more judges, it is deleted. Some items are reworded to meet the judges’ comments. This procedure results in 90 remaining items, of which 24 are functional, 24 hedonic, 22 social and 20 cognitive. Examples of deleted items are: “Buying innovations can make my day” (no clear dimension), “I talk with strangers” (nothing to do with innovative consumption), “I love brand switching” (not necessarily consumer innovativeness), and “I love experimenting” (vague).

**Study 4: Pilot study**
This quantitative pilot study wants to assess some basic psychometric properties of the 90-items MCI scale and purify the scale towards a more manageable number of items.

Respondents, procedure, and measures. We recruit 452 respondents ($M_{age}=36$, $SD=15$; 54% women) for an online survey via 35 web forums. The real objective of the study is withheld from the respondents to avoid response biases. Respondents are told that the survey will explore their purchase behavior and purchase motivation and keep silent about the innovativeness purpose. The online questionnaire includes the 90 MCI items (randomly rotated). Further, to be able to establish convergent validity, we include — for half of the respondents — Roehrich’s (1994) 11-item Hedonic and Social Consumer Innovativeness scale. We expect a significantly higher correlation between the respective hedonic and social components of Roehrich’s (1994) scale and ours than between the other dimensions. The Exploratory Acquisition of Products (10 items) variety seeking subscale of Baumgartner and Steenkamp (1996) and the 12-item Extraversion scale of Eysenck, Eysenck, and Barrett (1985) are added for the other half of the respondents to establish discriminant validity. We expect no or a relatively low correlation between these two scales and the MCI scale. Finally, respondents have to fill out questions about their sociodemographic profile.

MCI Results. Principal component analysis (promax rotation) results in 14 factors with Eigenvalue exceeding 1. Together with an identical analysis fixed to the theorized four factors, only items that load higher than .50 on their focal factor and not higher than .30 on another in one of both analyses are retained (Hair et al., 1998). A second analysis with 57 items left, points to four factors (as the scree plot suggests as well) and results in
43 items: 10 social items, 12 functional items, 13 hedonic items and 8 cognitive items keeping an eye on construct content as well (Rossiter, 2002). The Cronbach’s alpha’s for the MCI scale (alpha=.958) and the four dimensions separately (alpha_{SMCI}=.929; alpha_{FMCI}=.907; alpha_{HMCI}=.928; alpha_{CMCI}=.902) are comfortably high. The four factors account for 57.7% of the total variance and each factor minimally explains 5.4% of the total variance, which fulfills the minimal requirements of Netemeyer et al. (2003). All item-to-total correlations exceed .50 and the inter-item correlations exceed .30 of each dimension.

On the basis of a confirmatory factor analysis (with SAS CALIS Procedure), we delete the items with factor loadings below .60 and squared multiple correlations below .50. Two items that have loadings between .48 and .50 are kept as item in the scale because of their contribution to the content of the scale: These are the only scale items mentioning “easier to use” (fMCI) and “desire” (hMCI). Confirmatory factor analysis on the remaining 30 items results in an acceptable overall fit (TLI=.952, CFI=.952, RMSEA=.047). Also, the factors prove to possess high internal validity and show sufficient discriminant validity. Composite reliability (CR) and average variance extracted (AVE) are satisfying for sMCI (CR=.93, AVE=.64), fMCI (CR=.89, AVE=.53), hMCI (CR=.92, AVE=.55) and cMCI (CR=.91, AVE=.58). Average variance extracted is always larger than the squared correlations between the factors (cf., Fornell & Larcker, 1981) which proves discriminant validity between the dimensions. Moreover, this 4-factor correlated model proves to be the best model ($\chi^2=731.1$, df=399), compared to a null ($\chi^2=7318.2$, df=435), a 1-factor ($\chi^2=2933.6$, df=405), a 4-factor uncorrelated ($\chi^2=1220.2$, df=405), and a 1-factor 2\textsuperscript{nd}-order model with MCI as the higher order factor.
and the four subdimensions ($\chi^2=748.8$, df=401). The $\chi^2$-difference test always proves a significant difference in $\chi^2$ (all $p<.001$). We can conclude that this MCI scale and its dimensions have good internal consistency.

Convergent and discriminant validity results. The coefficient alpha estimates for Roehrich’s (1994) Hedonic and Social Consumer Innovativeness scale (alpha=.922), as well as for its two dimensions (alpha hedonic dimension=.866, social dimension=.887), are satisfactory. The most interesting results are the strong correlations between MCI and Roehrich’s general scale ($r=.822$), between sMCI and Roehrich’s social dimension ($r=.790$), and between hMCI and the hedonic dimension of Roehrich ($r=.727$). Furthermore, as expected, significantly weaker correlations emerge between fMCI and Roehrich’s innovativeness scale ($r=.509$) and between cMCI and Roehrich’s scale ($r=.629$). The second half of the respondents were asked to fill in the Exploratory Acquisition of Products scale (Baumgartner & Steenkamp, 1996) and the Extraversion scale (Eysenck et al., 1985). The coefficient alpha estimates for these scales are respectively .863 and .901. The Exploratory Acquisition of Products scale correlates weakly but significantly with MCI and all its subscales ($r=\text{between } .166, p=.019 \text{ for fMCI and } .242, p=.001 \text{ for cMCI}$), except for sMCI ($r=.104, p=.152$). Finally, MCI and its dimensions never correlate significantly with the Extraversion scale.

**PHASE 4: MCIs SCALE REFINEMENT**

In order to refine the scale, we conduct two extra studies: A confirmation study and a test-retest study with a sample of students from a Western European university.
Study 5: Confirmation study

The main objective of this study is to confirm the previously obtained results of the pilot study and to further refine the scale. We repeat this test with the 30 items of the previous study to be filled out by students.

Respondents, procedure, and measures. Students (M<sub>age</sub>=21, SD=2; 63% women) from the departments of Economics and Business Administration (36%) and Political and Social Sciences (63%) of a Western European university are recruited through the websites of their respective departments. The online survey includes the 30 MCI items, next to a few short sociodemographic questions (gender, age, and undergraduate study).

Results. Confirmatory factor analysis on the 30 items with the 4-factor correlated model shows an acceptable overall fit (TLI=.922, CFI=.929, RMSEA=.048). This model proves to be the best model (χ²=724.1, df=399), compared to a null- (χ²=4999.1, df=435), a 1-factor (χ²=2398.5, df=405), a 4-factor uncorrelated (χ²=1018.0, df=405) and a 1-factor 2<sup>nd</sup>-order model (χ²=752.0, df=401). The χ²-difference test always shows a significant difference in χ² (all p<.001). The composite reliabilities (CR) of the dimensions are satisfactorily high (between .83 for fMCI and .90 for sMCI) and average variance extracted is always larger than the squared correlations between the factors (cf., Fornell & Larcker, 1981) which indicates discriminant validity between the dimensions.

On the basis of the confirmatory factor analysis results, we remove the items with low factor loadings (four items), relatively low SMC (one item) and relatively high modification indices (two items), resulting in 23 items. Three items that score slightly unsatisfactory on these statistics, but contribute to the content of the dimensions, are
retained in the scale. Again, the fit indices (TLI=.969, CFI=.972, RMSEA=.035) indicate a good model.

**Study 6: Test-Retest reliability and socially desirability bias**

As the MCI scale is a personality scale based on motivations, the concepts measured should be stable over time. Moreover, respondents should not respond to the items of this scale in a socially desirable manner.

All respondents from the previous study, who volunteered to participate in future surveys, are invited through e-mail to fill out a second questionnaire. A total of 111 students (32% response rate; \( M_{\text{age}}=21, SD=2; 67\% \) women) take part in this follow-up study. The time lag between both studies range between 36 and 60 days. The retest questionnaire consists of the 23 MCI items and a shortened version of the Marlowe-Crowne Social Desirability scale — the 11-item scale of Ballard (1992).

Confirmatory factor analysis on the retest data offer similar results as previous analyses. Test-retest correlations for MCI and its four dimensions range from .58 (fMCI), over .68 (sMCI), .73 (both hMCI and cMCI) to .76 (MCI). According to the social desirability tests, neither the overall MCI scale, nor its dimensions show significant correlation with the social desirability scale.

**PHASE 5: MCIs NOMOLOGICAL NETWORK**

**Study 7: Nomological validity**

In order to further evaluate the validity of MCI, it is necessary to investigate a nomological network. Voss, Spangenberg, and Grohmann (2003, p.317) state that “[t]he
extent to which a measure defines a construct depends on how well the measure fits into a network of expected relationships called a ‘nomological network’”.

**Hypotheses.** First, as need for uniqueness is a potential antecedent of consumer innovativeness, a positive correlation between MCI and Desire for Unique Consumer Products (Lynn & Harris, 1997) can be expected. Lynn and Harris report the existence of “a positive relationship between the self-attributed need for uniqueness and the tendency to be a consumer innovator” (p. 604). Also Roehrich’s (1994) social dimension of consumer innovativeness is based on the “need for uniqueness” measure: People are innovative because they want to be unique.

*H1: Desire for Unique Consumer Products is significantly more positively associated with sMCI than with the other MCI dimensions.*

Secondly, Voss et al. (2003) construct a scale which measures the Hedonic and Utilitarian dimensions of Consumer Attitude towards product categories and different brands within categories. The first dimension results from “sensations derived from the experience of using products” and the second dimension is “derived from functions performed by products (Voss et al., p. 310).

*H2: The Hedonic dimension of Consumer Attitude is significantly more positively associated with hMCI than with the other MCI dimensions.*

*H3: The Utilitarian dimension of Consumer Attitude is significantly more positively associated with fMCI than with the other MCI dimensions.*

Thirdly, Jain and Srinivasan (1990) develop a New Involvement Profile, defined as a multidimensional approach to measuring involvement that includes five facets: Relevance, pleasure, sign, risk importance and risk probability. Voss et al. (2003) also
use this scale to predict hedonic and utilitarian attitude: Affective involvement predicts hedonic attitude, whereas cognitive involvement predicts utilitarian attitude. The first three facets of the New Involvement Profile are of most importance to MCI.

H4: The Relevance dimension is significantly more positively associated with fMCI than with the other MCI dimensions.

H5: The Pleasure dimension is significantly more positively associated with hMCI than with the other MCI dimensions.

H6: The Sign dimension is significantly more positively associated with sMCI than with the other MCI dimensions.

Fourthly, two hypotheses (re)check the relations between MCI and the Exploratory Consumer Buying Behavior scale of Baumgartner and Steenkamp (1996). This scale consists of two dimensions: Exploratory Acquisition of Products defined as stimulation of the senses and Exploratory Information Seeking defined as stimulation of the mind. Based on these definitions, we expect:

H7: Exploratory Acquisition of Products is significantly more positively associated with hMCI than with the other MCI dimensions.

H8: Exploratory Information Seeking is significantly more positively associated with cMCI than with the other MCI dimensions.

Finally, we add the 5-item Need for Cognition scale of Epstein, Pacini, Denes-Raj, and Heier (1996), which is based on the Need for Cognition scale developed by Cacioppo and Petty (1982). They define this construct as the tendency for individuals to engage in and enjoy thinking.
**H9: Need for Cognition is significantly more positively associated with cMCI than with the other MCI dimensions.**

**Respondents, procedure, and measures.** In total, 716 students from a Western European university business school ($M_{age}=21$, $SD=3$; 77% women) fill out the survey. They are recruited via the website of the institution as well as via e-mail and flyers. The questionnaire randomly consists of the 8-item Desire for Unique Consumer Products scale, the 10-item Hedonic/Utilitarian dimension of Attitude, the 15-item New Involvement Profile, the 10-item Exploratory Acquisition of Products scale, the 10-item Exploratory Information Seeking scale, the 5-item Need for Cognition, the 23-item MCI, and three sociodemographic questions (age, gender, and business school department).

**MCI results.** Confirmatory factor analysis on MCI and its dimensions offer similar results as previous analyses. Three items — one functional, one hedonic, and one cognitive item — perform relatively badly on the factor loadings and squared multiple correlations. This was also the case in previous studies but they were left in the scale for content validity reasons (Rossiter, 2002). Because of their bad performance, however, we remove them so the final scale we propose consists of 20 items (cf., Table 1).

Table 1 here.

As a further proof that reducing the MCI scale from 90 items to the final 20 items does not result in excluding an important part of the construct, we correlate the 90-item MCI and 20-item MCI from Study 4 (and their respective dimensions) with each other.
This results in satisfying correlations of .90 (for fMCI and hMCI), .91 (for cMCI), .94 (for sMCI), and .97 (for MCI).

Nomological validity results. All coefficient alpha estimates for the scales used, range between .65 (Need for Cognition) and .84 (Exploratory Information Seeking). To test the associations between these constructs and MCI, we do not use regression analysis with its implied cause-effect relation since it is not always clear from the literature whether a variable is an antecedent or a consequence of MCI. That is why we use correlations to check the nomological validity. The results of this correlation analyses are summarized in Table 2.

Table 2 here.

First, Desire for Unique Consumer Products is significantly more positively associated with sMCI ($r=.45$) and hMCI ($r=.44$) than with the other two dimensions ($r_{cMCI}=.37$, $r_{fMCI}=.26$) following Steiger’s (1980) formulae ($T^2 > 2.27^1$). Secondly, the Hedonic Dimension of Consumer Attitude is significantly more positively associated with hMCI ($r=.50$; $T^2 > 2.72$) than with the other dimensions ($r<.40$). The Utilitarian dimension of Consumer Attitude is only positively associated with fMCI ($r=.14$) and negatively associated with sMCI ($r=-.16$). The Utilitarian dimension of Consumer Attitude is uncorrelated with cMCI and hMCI. Thirdly, (a) the three correlations between the Relevance dimension of the New Involvement Profile, on the one hand, and hMCI ($r=.27$), fMCI ($r=.22$), and cMCI ($r=.22$), on the other, do not significantly differ from each other ($T^2 < 1.43$). (b) The Pleasure dimension of the New Involvement Profile is by

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1 $T^2$ is distributed as a Student’s t, with d.f. = N-3.
far significantly more associated with hMCI ($r=.59$; $T_2>10.03$) than with the other MCI dimensions ($r<.31$), (c) and the same holds for the sign dimension of the New Involvement Profile and its association with sMCI ($r=.46$ versus $r<.38$; $T_2>2.61$). In contrast with H7 and H8, (1) Exploratory Acquisition of Products correlates the most with cMCI ($r=.21$) though there is no significant difference with the correlation with hMCI ($r=.14$; $T_2=1.74$), and (2) Exploratory Information Seeking is significantly more positively associated ($T_2=4.12$) with hMCI ($r=.30$) in comparison with cMCI ($r=.15$). Finally, we find that Need for Cognition is only positively associated with cMCI ($r=.25$).

The correlations between Need for Cognition and fMCI and hMCI respectively are not significant. The correlation with sMCI is significant, but is negatively correlated with Need for Cognition ($r=-.08$).

The results of the correlation analyses clearly support H2, H3, H5, H6 and H9: The existing scales or their dimensions are significantly more associated with one of the four MCI dimensions than with the other three. Next to that, for H1, the correlation between Desire for Unique Consumer Products and sMCI is the highest among the significant ones, but the correlation with hMCI is not significantly different, so we can only partially confirm this hypothesis. The same is true for H4 and H7: These hypotheses are also partially confirmed as the hypothesized correlations are not significantly different from the highest correlations. The only hypothesis that has to be rejected is H8: Exploratory Information Seeking is less correlated with the expected cMCI ($r=.15$) than with the other dimensions ($r>.22$). When analyzing the separate items and their correlations with the dimensions, Exploratory Information Seeking consists of items with respect to reading mail advertising and talking to friends about purchases. This is a
different interpretation of stimulating the mind than is used here and could explain why the hypothesis cannot be confirmed.

**Study 8: Predictive validity**

An innovativeness scale also needs to predict innovative consumer behavior in everyday life. For the MCI scale, there should be a unique relation between each motivation dimension and the buying intentions or buying behavior of consumers regarding innovations that satisfy these specific functional, hedonic, social or cognitive needs. We check this predictive validity in the next study with (1) fictitious innovations and (2) a list of existing innovations selected from different product categories.

*Pretest for fictitious innovations.* First, we describe four different non-existent innovations for mobile phones which represent each motivation dimension: A cognitive option (i.e., a mobile phone with infrared technology in order to scan the barcodes of products to know more about their origin, history, product content, …), a social option (i.e., a mobile phone with radio technology which notifies the user if your friends or family are within a certain distance), a hedonic option (i.e., a mobile phone with sensors that change the look, color and screen depending on the mood of the user), and a functional option (i.e., a mobile phone with solar cells which can charge the battery automatically, without mains current). We conduct a pretest with 92 respondents (\(M_{age}=35, SD=11; 47\% \) women) to test whether these innovative options are correctly assigned to the different motivation sources. Three of the four motivations measure the intended motivated innovativeness: The social option is assigned to the correct motivation by 78\% of the respondents, the hedonic option by 84\% and the functional
option by 95%. The cognitive option is assigned correctly by 57% only. About 36%
suppose this option is a functional one. Because of these results, we adapted the cognitive
option to make it more cognitive and less functional. Furthermore, single-factor ANOVA
results also indicate that the four options are identical concerning complexity
\( (F_{(3,87)}=2.07, p=.104) \) and uniqueness \( (F_{(3,87)}=1.61, p=.186) \) which reassures that these
characteristics cannot distort the results of the main study.

**Pretest for existing innovations.** To check which motivation each of the existing
innovations satisfies, another pretest is set up. We select 96 innovations on the basis of a
list of 502 innovations we had drawn up for the exploratory research phase and after an
extensive search for “new” products/services in (a) the shelves of different supermarkets
and shops; (b) on websites of the national brands of a variety of product categories; (c) in
advertisements for these products and services in magazines. Products or services are
removed from this selection when they did not meet the conditions in the definition of an
innovation (cf., supra), could not be used or bought by everybody (e.g., innovations
within the category of female hygiene products and products specifically used by persons
within certain age ranges), could not be afforded by everybody (e.g., luxury products) or
because of fashion trends (i.e., more subject to personal taste). These innovations are
randomly divided over three groups of 62 respondents \( (M_{\text{age}}=32, SD=9; 44\% \text{ women}) \) in
total. The respondents are staff members of the Economics and Business Departments of
two Western European institutions for higher education. They have to score each product
on the four motivation dimensions (e.g., “This new product is bought for functional
reasons”), given a definition of each motivation and a score on a 7-point Likert scale
(with 1=totally disagree, 7=totally agree). The innovations that score significantly higher
on one motivation dimension than on the other three dimensions (i.e., extreme innovations) are selected for the predictive validity survey (i.e., 7 functional, 6 hedonic, 2 social, and 1 cognitive innovations). As there are not many extreme cognitive and social innovations, we add 4 extra social and 2 cognitive innovations that score high but are not significantly different from other dimensions.

**Respondents, procedure and measures.** Predictive validity is tested through online self-report surveys of consumers who are recruited through an announcement in *Metro*, a Belgian newspaper, distributed for free in train and bus stations, schools, universities, etc. Moreover, several e-mail databases composed during previous surveys, and internet forums are used to collect respondents. Five gift boxes worth €250 in total are offered to respondents as an incentive to fill out the survey completely. The recruitment efforts result in 1,101 completed surveys that take on average 20 minutes to fill out ($M_{\text{age}}=32$, $SD=12$; 58% women).

The questionnaire consists of the list of 22 existing innovations randomly mixed with the four non-existing innovations. A description of each innovation is accompanied with a picture of the product and a link to a web site of the innovation. For each product, an awareness question is presented, followed by a trial question, both with *yes*, *no*, or *not sure* answering categories. If the trial question is answered negatively, an extra question concerning the reason for not buying the innovation is asked to check for external reasons (e.g., respondents *could* not buy a particular innovation because they did not have the possibility or responsibility to buy these products, because of budget constraints, etc.) or internal reasons (they did not *want* to buy it). Finally, the respondents have to answer a buying intention question for all innovations on an 11-point scale (the chance, from 0 to
10, that the respondent would buy the product within the next 12 months, making allowances for external reasons such as budget restraints, responsibility, etc.). In addition to the list of innovations, the questionnaire has several filler items on media usage and consumer value systems of the respondents. Next, the 20-item MCI scale is added with an instructional manipulation check as an extra item, to detect participants that did not read the items carefully (Oppenheimer, Meyvis, & Davidenko, 2009). Finally, the respondents are asked to answer some sociodemographic questions.

Results. First, the instructional manipulation item is analyzed to exclude those respondents who do not read the items carefully enough. Exactly 25% of all respondents did not read and follow the instructions as asked for in the manipulation check question. These respondents are deleted from the dataset (i.e., leaving 826 respondents). Confirmatory factor analysis on MCI and its dimensions offer similar results as previous analyses. The discriminant model ($\chi^2=320.1$, df=164) outperforms the other models ($\chi^2>1452.8$, df=190-170), except for the 1-factor-$2^{nd}$-order model ($\chi^2=327.4$, df=166), which has the same fit.

To test the predictive validity, multiple regression is used. First, we discuss the results for the non-existing mobile phone innovations. As nobody could have really bought these non-existing innovations, we use their buying intention scores as a dependent variable. Those who pretend to know (between 4.4% and 28.7%) or claim to have bought (between 0.2% and 10.2%) one of these innovations are omitted from the analysis. Multiple regression with the buying intentions for the four innovative mobile phones as dependent variables and the four MCI dimensions as independent variables provides predictive validity in three of the four cases (see Table 3). The only buying
intention that is not predicted by its predetermined dimension is for the hedonic innovation option.

Table 3 here.

We conduct identical regression analyses for the list of existing innovations. The dependent variables are the trial on awareness ratios (T/A) of the extreme functional (n=7), hedonic (n=6), social (n=2), and cognitive (n=1) innovations. Going from 0 to 100%, T/A measures to what extent respondents bought the innovations that they were aware of. It thus measures a purer form of innovativeness, not biased by the awareness factor. Next, also the five innovations which score highest as social innovation (n=5; SocPlus in Table 4) and cognitive innovation (n=5; CogPlus in that table) are taken into account in Table 4. We exclude respondents living with their parents (in general, they are not responsible for buying most of the innovations in the list) and those who are never responsible for buying fast moving consumer goods or durables. When taking the four MCI dimensions as independent variables, Table 4 (first line) shows that two of the four innovative behavior variables (i.e., functional and social plus T/A) are predicted by the expected MCI dimension.

Table 4 here.

The cognitive innovations are only significantly predicted by fMCI and not by cMCI as we hypothesized. Because cognitive innovations often score high on the functional
motivation factor as well, this can explain the significant regression coefficient of fMCI with the cognitive innovations as dependent variable.

The results of an extra regression analysis with the mean intentions to buy the different innovation groups as dependent variables and the MCI dimensions as independent variables are presented as a second row in Table 4. Those respondents who have already bought the innovation get the maximum buying intention score of 10, as their intention to buy the new product has already reached the maximum before participating in the survey. Generally, three of the four regression analyses with buying intention as dependent variable, give results as expected. First, when only the MCI dimensions are taken into account, the analysis brings out that buying intention for extreme functional products is predicted by just one dimension, namely, fMCI. Secondly, buying intentions for extreme hedonic products is predicted by hMCI, but also by fMCI. Thirdly, the extreme social product buying intention is only significantly explained by the sMCI. Finally, as expected, the purest cognitive innovation is only predicted significantly by cMCI, and not by any of the other three dimensions.

**PHASE 6: MCIs INTERNAL CONSISTENCY**

So far we carried out eight studies with in total about 3,000 respondents. In five of these studies, we assessed several measures of internal consistency and structural model fit. The Motivated Consumer Innovativeness scale performed well on nearly all of these measures. Now that we have a final 20-item MCI scale, we can test the internal consistency of the final scale on all available samples in order to confirm its validity and
to have an overview of internal consistency and factor analysis measurements across all studies. This summary can be found in Table 5.

Table 5 here.

Table 5 gives an overview of the mean, standard deviation, lowest corrected item-total correlation, the average interitem correlation, composite reliability, and average variance extracted statistics of the MCI scale and its dimensions. These results prove that the internal consistency of the MCI dimensions is satisfying. The confirmatory factor analysis models’ fit statistics exceed the recommended criteria well (cf., Table 5).

**MCI BEYOND SCALE DEVELOPMENT**

With the MCI scale, we disprove the general consensus (cf., Dickerson & Gentry, 1983; Manning et al., 1995; Steenkamp et al., 1999; Tellis et al., 2009; Uhl, Andrus, & Poulsen, 1970; Venkatraman, 1991) that older people are always significantly less innovative than younger people. A Manova with MCI and its four dimensions as dependent variables and gender, age, income, and education as independent variables is carried out on the two datasets with non-students (resp. Studies 4 and 8). The analyses show that age is only consistently significant for sMCI ($F_{(4,245)}=9.88, p<.001$; $F_{(3,538)}=4.00, p=.008$) and hMCI ($F_{(4,245)}=7.51, p<.001$; $F_{(3,538)}=3.31, p=.020$). This is not the case for fMCI ($F_{(4,245)}=2.11, p=.080$; $F_{(3,538)}=1.54, p=.204$), nor but to a lesser extent for cMCI($F_{(4,245)}=2.98, p=.020$; $F_{(3,538)}=1.17, p=.321$). Older people are as functionally and cognitively innovative as younger people. Next to age, gender is the only socio-
demographic variable that leads to significant differences, but only in Study 8 and only for sMCI \( (F(1,540)=7.04, p=.008) \), hMCI \( (F(1,540)=4.27, p=.039) \) and cMCI \( (F(1,540)=6.64, p=.010) \): Men are more innovative in these cases than women. According to the functional motivation to be innovative, women are as innovative as men \( (F<1) \).

**GENERAL DISCUSSION**

The primary contribution of this research is validating a new consumer innovativeness scale which takes all motivations to buy innovations into account. This leads us to a multi-dimensional consumer innovativeness scale with four dimensions which stand for the four main motivation sources responsible for buying innovations.

There are several reasons why this new consumer innovativeness scale is useful. To begin with, the eight studies show, repeatedly and in great detail, that the dimensionality, reliability, convergence, discriminant, and predictive validity of MCI prove satisfactory. Moreover, the studies indicate that the statistical standards are met. The predictive validity is proven for every MCI dimension. Particularly the predictive validity of the functional dimension is impressive, bearing in mind that, to the best of our knowledge, this dimension has never been included as a motivation for innovativeness before.

Secondly, this study allows us to conclude that MCI measures more than the existing consumer innovativeness scales: (1) This study disproves the general consensus that younger people are in general more innovative than older people: Older people are as functionally and cognitively innovative as younger people. Most existing innovativeness scales focus on hedonic and — to a lesser degree — social innovativeness. As older people are less interested in buying innovations purely for the sake of the fun, excitement
or status (i.e., hedonic and social motivations), it is only logical that they cannot be shown to be innovative according to these scales. However, this study allows us to conclude that older consumers can be just as innovative as younger consumers if only for different reasons. (2) The correlations between Roehrich’s (1994) Hedonic and Social Consumer Innovativeness scale and the hedonic and social dimensions of MCI are significantly larger than the correlations with the functional and cognitive MCI dimensions. This can be interpreted as an indication that the functional and cognitive motivation sources are less represented in Roehrich’s scale, and possibly other scales as well. Moreover, the nomological network of each dimension is substantially different.

We interpret all this as a proof that particularly the functional and cognitive motivation sources for being innovative are less or even not represented in other innovativeness scales.

**Research limitations and further research**

A first limitation is that using an online survey may show higher innovativeness scores than we would expect from the general population (Vandecasteele & Geuens, 2009) as those who do not use the internet, did not have the opportunity to fill in the survey. Therefore, it is advisable not to generalize the means of the MCI scale. However, the difference in innovativeness between internet users and internet non-users becomes less important as the medium is being used by more and more people every day. The internet population converges towards the general population (Goldsmith, 2001). Secondly, only one Western European country was involved in the different studies. Lynn and Gelb (1996) show that nationality, even within Europe, may influence
innovativeness scores. However, these two limitations do not constitute a major obstacle because the aim of this research was to construct a multi-dimensional scale and to compare different motivations for being innovative rather than to determine a general and worldwide standard for Motivated Consumer Innovativeness. More specifically, the means may differ between countries and cultures, but it is very unlikely that the type of motivations will be different – identical to goals and values (e.g., Schwartz, 1992) – as these motivation dimensions are based on international motivation research (cf., supra). However, this can be the subject of future cross-cultural research in line with Steenkamp and Burgess (2002).

The results of our predictive validity study are satisfactory, however, there are two issues that need more research. First, innovations that primarily satisfy the cognitive motivations of people are very hard to find. In the list of 96 innovations, there is only one innovation of which the ability to cognitively motivate a purchase is higher than the other three motivation sources. We use four other innovations that load relatively high on the cognitive condition, but, as cognitive products often show a highly functional ability to motivate, the predictive validity for cMCI is not significant for the list of existing products. This seems in contrast with the discriminant validity of cMCI with respect to the other three dimensions. However, it has to be kept in mind that the MCI scale is a personality scale: The products used in Study 8 could be bought for other (personal) reasons (cf., Gatignon & Robertson, 1985; Venkatraman & Price, 1990) than those obtained by the pretest, which presents average motivations that can be satisfied by these products. In the extreme case, all existing products, including the most functional, hedonic and social innovations, can be bought out of curiosity, for example (i.e.,
cognitive motivation). An interesting future predictability research challenge can be to rate the specific reasons or motivations of each respondent for each product questioned. Nevertheless, the buying intentions for the non-existing mobile phone innovations prove that the predictive validity of cMCI really exists (cf., Table 3). Secondly, hMCI does not predict real-life hedonic innovativeness in two of the three cases. The mobile phone option described in the non-existing hedonic innovation can also be very appealing to socially motivated innovative consumers as the colors of the mobile phone change according to the mood of the user, which is visible for others as well. However, in contrast with that, the pretest proves that this option is indeed hedonic: 84% assign the hedonic option correctly. The trial/awareness ratio test shows that hMCI does not predict trial of known hedonic products. When we analyze the hedonic products separately, some of these products are tried significantly more often by older respondents than by younger respondents (i.e., After, Douwe Egberts Black and new scratch cards). This is in contrast with hMCI as a personality scale, where younger people have a higher score than older people. These hedonic products probably fit into product categories that are bought less by the younger generation (i.e., liqueurs, coffee and lottery products) and do not relate to CI. Probably, the interest in and involvement with these categories have more influence on the buying behavior than CI. This leads us to stress the importance of product characteristics as possible mediators of the CI-behavior link, as others have done before (Midgley & Dowling, 1978; Ostlund, 1974). “Every study measuring awareness and trial on the basis of a list of products suffers from the specificity of these products. A selection of a different list of products can lead to different results.” (Vandecasteele & Geuens, 2009, p.142).
Future studies may also want to focus on the consequences of our analyses for marketing communications towards these differently motivated innovative consumers. The nomological network is very different according to which motivation is critical to these innovative consumers. So, the expectation is that these consumers will prefer different kinds of communicating these innovations and that for the four different groups of consumers, some types of marketing communication — in form and content — will work better than others. Moreover, differently motivated innovative consumers may prefer different media: It is likely that the selection of which medium to use in trying to reach the right innovative consumer will largely depend on the kind of needs that the innovation can satisfy.
References
Ballard, R. (1992), Short forms of the Marlowe-Crowne social desirability scale. Psychological Reports, 71, 1155-1160.


Le Louarn, P. (1997). La tendance à innover des consommateurs: Analyse conceptuelle et proposition d'une échelle de mesure. [The tendency to consumer innovativeness:


### Table 1

#### 20-item Motivated Consumer Innovativeness (MCI) scale

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>I love to use innovations that impress others.</td>
</tr>
<tr>
<td></td>
<td>I like to own a new product that distinguishes me from others who do not own this new product.</td>
</tr>
<tr>
<td></td>
<td>I prefer to try new products with which I can present myself to my friends and neighbors.</td>
</tr>
<tr>
<td></td>
<td>I like to outdo others and I prefer to do this by buying new products which my friends do not</td>
</tr>
<tr>
<td></td>
<td>have.</td>
</tr>
<tr>
<td></td>
<td>I deliberately buy novelties which are visible to others and which command respect from others.</td>
</tr>
<tr>
<td>Functional</td>
<td>If a new time-saving product is launched, I will buy it right away.</td>
</tr>
<tr>
<td></td>
<td>If a new product gives me more comfort than my current product, I would not hesitate to buy it.</td>
</tr>
<tr>
<td></td>
<td>If an innovation is more functional, then I usually buy it.</td>
</tr>
<tr>
<td></td>
<td>If I discover a new product in a more convenient size, I am very inclined to buy this.</td>
</tr>
<tr>
<td></td>
<td>If a new product makes my work easier, then this new product is a “must” for me.</td>
</tr>
<tr>
<td>Hedonic</td>
<td>Using novelties gives me a sense of personal enjoyment.</td>
</tr>
<tr>
<td></td>
<td>It gives me a good feeling to acquire new products.</td>
</tr>
<tr>
<td></td>
<td>Innovations make my life exciting and stimulating.</td>
</tr>
<tr>
<td></td>
<td>Acquiring an innovation makes me happier.</td>
</tr>
<tr>
<td></td>
<td>The discovery of novelties makes me playful and cheerful.</td>
</tr>
<tr>
<td>Cognitive</td>
<td>I mostly buy those innovations that satisfy my analytical mind.</td>
</tr>
<tr>
<td></td>
<td>I find innovations which need a lot of thinking intellectually challenging and therefore I buy</td>
</tr>
<tr>
<td></td>
<td>them instantly.</td>
</tr>
<tr>
<td></td>
<td>I often buy new products which make me think logically.</td>
</tr>
<tr>
<td></td>
<td>I often buy innovative products which challenge the strengths and weaknesses of my intellectual</td>
</tr>
<tr>
<td></td>
<td>skills.</td>
</tr>
<tr>
<td></td>
<td>I am an intellectual thinker who buys new products because they set my brain to work.</td>
</tr>
</tbody>
</table>
### Table 2

**Correlations nomological validity test**

<table>
<thead>
<tr>
<th></th>
<th>MCI</th>
<th>cMCI</th>
<th>sMCI</th>
<th>hMCI</th>
<th>fMCI</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUCP</td>
<td>.49***</td>
<td>.37***</td>
<td>.45***</td>
<td>.44***</td>
<td>.26***</td>
<td>H1 Partially confirmed</td>
</tr>
<tr>
<td>HED</td>
<td>.47***</td>
<td>.28***</td>
<td>.40***</td>
<td>.50***</td>
<td>.22***</td>
<td>H2 Confirmed</td>
</tr>
<tr>
<td>UT</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>-1.16***</td>
<td>NS</td>
<td>H3 Confirmed</td>
</tr>
<tr>
<td>REL</td>
<td>.27***</td>
<td>.22***</td>
<td>.16***</td>
<td>.27***</td>
<td>.22***</td>
<td>H4 Partially confirmed</td>
</tr>
<tr>
<td>PL</td>
<td>.44***</td>
<td>.26***</td>
<td>.31***</td>
<td>.59***</td>
<td>.22***</td>
<td>H5 Confirmed</td>
</tr>
<tr>
<td>SIGN</td>
<td>.43***</td>
<td>.26***</td>
<td>.46***</td>
<td>.38***</td>
<td>.22***</td>
<td>H6 Confirmed</td>
</tr>
<tr>
<td>EAP</td>
<td>.14***</td>
<td>.21***</td>
<td>.08*</td>
<td>.14***</td>
<td>NS</td>
<td>H7 Partially confirmed</td>
</tr>
<tr>
<td>EIS</td>
<td>.28***</td>
<td>.15***</td>
<td>.22***</td>
<td>.30***</td>
<td>.22***</td>
<td>H8 Rejected</td>
</tr>
<tr>
<td>Ncog</td>
<td>.07*</td>
<td>.25***</td>
<td>-.08*</td>
<td>NS</td>
<td>NS</td>
<td>H9 Confirmed</td>
</tr>
</tbody>
</table>

NS=not significant, *p<.05, **p<.01, ***p<.001; EAP = Exploratory Acquisition of Products, EIS = Exploratory Information Seeking, DUCP = Desire for Unique Consumer Products, HED = Hedonic dimension of consumer attitude, UT = Utilitarian dimension of consumer attitude, REL = Relevance dimension of NIP (New Involvement Profile), PL = Pleasure dimension of NIP, SIGN = Sign dimension of NIP, Ncog = Need for Cognition. Figures in **bold** are the expected significant coefficients.
Table 3

Unstandardized coefficients of regression analyses (standardized coefficients in brackets) with the buying intention scores for the mobile phone innovations as dependent variable and the four MCI dimensions as independent variables

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
<th>fMCI</th>
<th>hMCI</th>
<th>sMCI</th>
<th>cMCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Func. mobile intention</td>
<td>.036</td>
<td>.686 (.160)***</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Hed. mobile intention</td>
<td>.046</td>
<td>NS</td>
<td>NS</td>
<td>.375 (.163)***</td>
<td>NS</td>
</tr>
<tr>
<td>Soc. mobile intention</td>
<td>.067</td>
<td>NS</td>
<td>NS</td>
<td>.447 (.132)***</td>
<td>NS</td>
</tr>
<tr>
<td>Cog. mobile intention</td>
<td>.096</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.571 (.158)***</td>
</tr>
</tbody>
</table>

NS=not significant, *p<.05, **p<.01, ***p<.001; figures in bold are the expected significant coefficients.
Table 4
Unstandardized coefficients of regression analyses (standardized coefficients in brackets) with the trial/awareness ratio (first row) and buying intentions (second row) for the existing innovations as dependent variable and the four MCI dimensions as independent variables

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
<th>fMCI</th>
<th>hMCI</th>
<th>sMCI</th>
<th>cMCI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Func. T/A</strong></td>
<td>.045</td>
<td>3.727 (.126)*</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Func. intention</td>
<td>.080</td>
<td>.419 (.142)***</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Hed. T/A</strong></td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Hed. intention</td>
<td>.040</td>
<td>.267 (.110)**</td>
<td>.228 (.099)*</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Soc. T/A</strong></td>
<td>.029</td>
<td>NS</td>
<td>NS</td>
<td>6.530 (.116)*</td>
<td>NS</td>
</tr>
<tr>
<td>Soc. intention</td>
<td>.060</td>
<td>NS</td>
<td>NS</td>
<td>.297 (.101)*</td>
<td>NS</td>
</tr>
<tr>
<td><strong>SocPlus T/A</strong></td>
<td>.049</td>
<td>NS</td>
<td>NS</td>
<td>3.763 (.140)**</td>
<td>NS</td>
</tr>
<tr>
<td>SocPlus intention</td>
<td>.106</td>
<td>.237 (.118)**</td>
<td>.191 (.101)*</td>
<td>.298 (.152)***</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Cog. T/A</strong></td>
<td>.063</td>
<td>.086 (.146)**</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Cog. intention</td>
<td>.036</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>.534 (.110)*</td>
</tr>
<tr>
<td><strong>CogPlus T/A</strong></td>
<td>.068</td>
<td>4.817 (.147)**</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>CogPlus intention</td>
<td>.097</td>
<td>.469 (.170)**</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

NS=not significant, *p<.05, **p<.01, ***p<.001; SocPlus and CogPlus = the five highest scoring innovations on social or cognitive motivations (but not necessarily significantly different from mean scores on other motivations); Figures in **bold** are the expected significant coefficients.
<table>
<thead>
<tr>
<th>Participants</th>
<th>Study 4 General population</th>
<th>Study 5 University students</th>
<th>Study 6 University students</th>
<th>Study 7 Business school students</th>
<th>Study 8 General population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>452</td>
<td>349</td>
<td>111</td>
<td>716</td>
<td>826</td>
</tr>
<tr>
<td>Number of items</td>
<td>90</td>
<td>30</td>
<td>23</td>
<td>23</td>
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<td>Scale mean MCI</td>
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<td>- cMCI</td>
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<td>Standard deviation MCI</td>
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<td>Internal consistency</td>
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<td>- Lowest corrected item-total correlation (&gt;0.50)</td>
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<td>.68</td>
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<tr>
<td>- cMCI</td>
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<td>- Average interitem correlation (&gt;0.3)</td>
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<td>- Composite reliability (&gt;0.80)</td>
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<td>- Average variance extracted (&gt;0.50)</td>
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<td>Factor Analyses</td>
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<td>- Percentage of total variance explained with four factors (&gt;50)</td>
<td>68.1</td>
<td>63.4</td>
<td>67.2</td>
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<td>- Minimal explanation of each factor (&gt;5)</td>
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<td>- CFA fit TLI (&gt;0.90)</td>
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<td>- CFA fit RMSEA (&lt;0.06)</td>
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<td>- CFA lowest standardized loading MCI (&gt;0.60)</td>
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