Importance of Culture, Personality and Environmental Awareness in Automotive Purchasing Behavior

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DEDICATION

I am aware that this work would not have been possible without the support of some noteworthy people to whom I would like to express my deepest gratitude at this point.

First, I would like to thank my supervisor, Prof. Dr. Klaus-Peter Wiedmann, for giving me the opportunity to deal with such an interesting topic. I am particularly grateful for his unlimited engagement, our inspiring discussions and for the fact that he has always created such a friendly and pleasant working atmosphere.

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Another big thank you goes to my family. My lovely parents, Brigitte and Jürgen, were and are always there for me and have supported me throughout my entire life. My deepest gratitude, which is difficult to put into words, is addressed to my sister Franziska: I am eternally grateful for your relentless generosity in proofreading my essays. I love you all!

Last but not least, I would like to thank my love, Chiara, and my Berlin and childhood friends, who always encouraged me to finish this thesis and never got tired of providing the necessary distractions. You complete my family, you are deep in my heart, and you make my life worth living.

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ABSTRACT

While the automotive industry is in a historical transformation phase, it is essential for affected manufacturers to meet the associated challenges. Today, more than ever, established automotive groups are required to address the prevailing demand mechanisms as precisely as possible to remain competitive in the market. In this context, market research and the analysis of customer behavior are becoming increasingly important. Behavioral analyses offer the opportunity to accurately identify the demands of international mobility customers, to implement these needs in the form of products or brand strategies, and thus to satisfy both customer and company interests. The present cumulative dissertation consists of three research projects. The central and comprehensive objective of the individual essays was to contribute to the behavioral analysis of automotive customers and to investigate the influences of culture, personality and environmental awareness. Moreover, the relevance of behavioral theories in automotive marketing practice was assessed, and differentiators of automotive brand management were examined.

Against the background of the research questions raised, partial least squares structural equation modeling (PLS-SEM) offered a very practical methodology. This analysis technique served to illustrate significant moderating characteristics of the investigated constructs such as culture, personality, and environmental awareness in the automotive/marketing-specific context and helped to investigate brand theorems (e.g., brand personality, self-congruity, and green marketing) in connection with established consumer metrics such as perception and behavior.

Keywords: Culture, Personality, Environmental Awareness, Automotive Marketing, Brand Management, Structural Equation Modeling

KURZFASSUNG

Während sich die gesamte Automobilindustrie in einer historischen Transformationsphase befindet, gilt es für die betroffenen Hersteller, sich den damit einhergehenden Herausforderungen zu stellen. Mehr denn je wird von etablierten Automobilkonzernen verlangt, sich möglichst zielgenau den vorherrschenden Nachfragemechanismen zu widmen, um auch weiterhin wettbewerbsfähig am Markt zu sein. In diesem Zusammenhang rücken besonders die Marktforschung und die Analyse von kundenseitigen Verhaltensweisen in den Fokus. Verhaltensanalysen bieten die Chance, die Bedürfnisse von internationalen Mobilitätsnachfragenden akkurat zu identifizieren, diese bestenfalls in Form von Produkten oder auch Markenstrategien umzusetzen und damit sowohl kunden- als auch unternehmensseitige Interessen zu befriedigen.

Die vorliegende kumulative Dissertation setzt sich aus insgesamt drei Forschungsbeiträgen zusammen. Zentrale und übergreifende Zielsetzung der jeweiligen Essays ist es, einen Beitrag zur Analyse des Verhaltens von Automobilkunden zu leisten und dabei Einflüsse der Kultur, der Persönlichkeit und des Umweltbewusstseins zu untersuchen. Ferner gilt es, die Relevanz von verhaltenswissenschaftlichen Theorien in der automobilen Marketingpraxis zu evaluieren und Differentiatoren des Automobilen Brand Managements zu beleuchten.

Vor dem Hintergrund der hervorgebrachten Forschungsfragen boten Partial Least Squares Strukturgleichungsmodellierungen (PLS-SEM) eine besonders praktikable Analysemethodik. Sie trugen dazu bei, bedeutsame moderierende Eigenschaften der untersuchten Konstrukte (Kultur, Persönlichkeit und Umweltbewusstsein) im automobilmarketing-spezifischen Kontext darzustellen und Marken-Theoreme (bspw. Brand Personality, Brand Self-Congruity, Green Marketing) im Zusammenhang mit etablierten Konsumenten-Metriken (Wahrnehmung und Verhalten) zu untersuchen.

Schlagwörter: Kultur, Persönlichkeit, Umweltbewusstsein, Automobiles Marketing, Brand Management, Strukturgleichungsmodelle

LIST OF SCIENTIFIC CONTRIBUTIONS

The centerpieces of this dissertation are three essays, from which individual elements have been released for review and subsequent publication at academic conferences and in scientific journals. To ensure that they are distinct from the framework portion of the overall dissertation, bundled notes on authorships and publications are given before the individual essays.

ESSAY 1

- **Paper publication:** Requardt, J. & Wiedmann, K.-P. (2020). *Analyzing the Behavior of Automotive Customers: Which Theories are of Significance in Marketing Practice and Science Today?*. 19th International Marketing Trends Conference (Paris, France / January 2020), reproduced with permission of Jean-Claude Andreani and Umberto Collesei, Paris-Venice Marketing Trends Association. ISBN: 978-2-490372-09-6.
- **Poster presentation:** Requardt, J. & Wiedmann, K.-P. (2020). *Influencing Factors on Automotive Behavior: Do Scientific Theories still meet the Pulse of Time?*. 2020 American Marketing Association Winter Academic Conference (San Diego (CA), United States / February 2020).

ESSAY 2

- **Paper publication:** Requardt, J. & Wiedmann, K.-P. (2020). *Self-Congruity as the Bottleneck Within an Automotive Purchase: What Impact do the Consumers' Personality and Culture Have?*. 2020 Academy of Marketing Science Annual Conference (Coral Gables (FL), United States / May 2020[1]) (reviewed and accepted for publication since 17 December 2019).

ESSAY 3

- **Journal publication:** Requardt, J. & Wiedmann, K.-P. (2020). *The Effect of Eco-Friendly Automotive Brands on Consumer Perceptions and Behavior: An Analysis focusing on Consumer Environmental Awareness*. Journal of Product and Brand Management. Emerald Group Publishing Ltd. (submitted and under review since 05 June 2020).

[1] Due to the COVID-19 crisis, the annual conference was rescheduled to 15-17 December 2020.

EVIDENCE OF COAUTHORSHIP AND DEFINITION OF RESPONSIBILITIES

The presented research projects were jointly developed in coauthorship. All content is completely based on collective and collaborative elaboration, whereby the following responsibilities were defined within the individual projects:

Responsibilities of the paper »*Analyzing the Behavior of Automotive Customers: Which Theories are of Significance in Marketing Practice and Science Today?*«: Jost-Gerrit Requardt: Introduction, theoretical background, conceptual model and hypothesis development, methodology, data collection and data analyses, results, conclusions and implications, limitations and future research; Klaus-Peter Wiedmann: Supervision.

Responsibilities of the poster »*Influencing Factors on Automotive Behavior: Do Scientific Theories still meet the Pulse of Time?*«: Jost-Gerrit Requardt: Submission manuscript, poster design/print; Klaus-Peter Wiedmann: Supervision.

Responsibilities of the paper »*Self-Congruity as the Bottleneck Within an Automotive Purchase: What Impact do the Consumers*' *Personality and Culture Have?*«: Jost-Gerrit Requardt: Introduction, theoretical background and hypothesis development, methodology, data collection and data analyses, results, conclusions and implications, limitations and future research; Klaus-Peter Wiedmann: Supervision.

Responsibilities of the paper »*The Effect of Eco-Friendly Automotive Brands on Consumer Perceptions and Behavior: An Analysis focusing on Consumer Environmental Awareness*.«: Jost-Gerrit Requardt: Introduction, literature review and hypothesis development, methodology, data collection and data analyses, results and discussion, conclusions and implications, limitations and future research; Klaus-Peter Wiedmann: Supervision.

LIST OF ABBREVIATIONS

BMWi	Bundesministerium für Wirtschaft und Energie (Federal Ministry of Economics and Energy)
Brexit	The withdrawal of the United Kingdom from the European Union
CEA	Consumer Environmental Awareness
CO_2	Carbon dioxide
ECE	Environmental Collective Efficacy
EKN	Environmental Knowledge
GPI	Green Purchase Intention
NOx	Nitrogen oxides
PANAS	Positive and Negative Affect Schedule
PCA	Principal Component Analysis
PLS	Partial Least Squares
R&D	Research and Development
SEM	Structure Equity Modeling
TIPI	Ten-Item Personality Inventory
UK	United Kingdom
USA	United States of America
VDA	Verband der Automobilindustrie (German Association of the Automotive Industry)
VW	Volkswagen

CHAPTER 1: INTRODUCTION

Currently, hardly a day goes by without a new report on the state of the automotive industry. The news about this branch of industry clearly shows the remarkable economic, employment- and innovation-related impact[2] it has. However, these reports also expose the assorted pressures that the involved international companies are currently facing. Despite rising sales, employment, and export figures, many automotive companies are threatened by the loss of established methods and time-tested, sophisticated, constructed models (e.g., the precisely optimized combustion engine). This is for a variety of reasons. First, the continued expansion of urbanized markets results in new mobility requirements. Competitive forces are now emerging from previously unknown directions, such as the software industry (e.g., Apple, Sony) or in the form of "branch-new" industrial powers such as China[3]. Growing climate discussions that focus on the reduction of emissions and the promotion of CO_2-neutral productions, alongside complex global economic policy problems (e.g., trade conflicts between the USA, China and Europe, as well as Brexit), have combined with uncertain regional market conditions such as urban access regulations and CO_2 taxes to not only corner established manufacturers but also intensify sector-specific mobility trends. Revolutionary, and for the customer, highly relevant innovations, such as the electrification and automation of vehicles, as well as shared mobility, are attracting attention, thereby creating a new understanding of automobility and ultimately changing the overall perception of mobility. While the classic powertrains (petrol and diesel) are currently being replaced by alternative energies (electric and hydrogen), conventional self-driving is being overtaken by concepts of assisted, automated and autonomous driving, and the idea of the ownership of one's own vehicle is gradually being substituted by the marriage of digital services and the idea of a sharing economy.

The international automotive industry is facing these cumulative developments and undergoing a more or less imposed transition from a traditional hardware supplier to a modern hard and software

[2] In 2017, the German automotive industry had a total turnover of approximately 423 billion euros and with approximately 820,000 employees, it is the industrial sector with the highest employment (BMWI 2020). In 2016, global spending on research and development (R&D) amounted to almost 40.2 billion euros (VDA 2018).

[3] With the strategic development plan »Made in China 2025«, the Chinese government proclaims the global expansion of its technology industries. The modernization strategy (similar to the German »Industry 4.0«) should also affect Chinese automobile manufacturers (LI 2018).

provider; thus, the industry has to adapt to drastic supply and demand changes, which will significantly upset its previous business models.

To meet the industries' transformation, which has now entered an accelerated phase, and due to the ongoing changes in the market, competition, and customer behavior, manufacturers are required to develop a sustainable survival strategy. In this respect, various approaches can currently be observed. Some manufacturers try to form cooperations (e.g., Ford and Volkswagen, Daimler and BMW) to achieve cost advantages in technical development or in the course of new emission standards (or alleged CO_2 penalty payments) and to ensure future entrepreneurial flexibility. Other manufacturers, however, are taking a different path; instead of developing increasingly more vehicle types and overloading the market with niche models, some companies have recently started to reduce their product portfolio and rather systematically adapt to market and customer demands with a refined product range (GEIGER 2020; FAECKS 2019; KACHER 2019). Regardless of the manufacturers' strategic approach (cooperation or the reduction of variants), it seems to be necessary (more than ever) to be informed about demand mechanisms and potential target groups. This (detailed) analysis is traditionally the duty of marketing or market research, as their task has always been to identify, anticipate and ultimately satisfy the needs and wishes of consumers by providing a basis for mid- and long-term business decisions (LOH 1971).
In particular, the behavioral findings of potential customers (extracted from market research) offer the opportunity to document current consumer preferences and to predict future product needs. This is particularly important because the concrete development and implementation of the demonstrated mobility trends offer, in fusion with specific consumer groups and/or certain global regions (therefore divergent demand constellations due to geographical, cultural, economic, technological, demographic and political conditions), many questions for the participating vehicle manufacturers.

From this outlined field of action, the direct motivation of the presented scientific projects was derived. The main objective was to contribute to the in-depth analysis of automotive consumer behavior with regard to their culture, personality and environmental awareness.
Consumer purchases are strongly influenced by cultural, social, personal, and psychological characteristics (e.g., motifs, beliefs and attitudes) (KOTLER and ARMSTRONG 2012). Accordingly,

potential automotive customers also process the three constructs to be investigated (culture, personality and environmental awareness), which can also be categorized into the traditional (internal and external) influencing factors during their purchasing decision. Therefore, an increased need for knowledge arises for manufacturers in the context of the currently prevailing transformational phase; cultural factors have a broad and deep influence on consumer behavior and should increasingly be a priority for international corporations as globalization accelerates. Additionally, while companies have always been interested in specific personal and psychological characteristics, as these constructs can explain important parts of perception and behavior and can therefore be useful for product and brand decisions, certain traits such as environmental awareness are currently becoming increasingly pivotal points of interest for market researchers.
The current dissertation can basically be assigned to the field of marketing research, in particular to behavioral research and brand management. The following comprehensive research questions interconnect the individual scientific contributions:

1) *What influence do consumer culture, personality, and environmental awareness have on automotive purchase decisions?*
2) *Which behavioral scientific theories are currently relevant in marketing practice and offer a potential benefit for automotive market research?*
3) *Which differentiators can be identified in automotive brand management to significantly influence central consumer metrics (e.g., perception and behavior)?*

The handling of such specific research questions is a challenge for both marketing practice and marketing science. Recently, in economic and social research, the practice-oriented analysis technique of partial least squares structural equation modeling (PLS-SEM) has increasingly attracted attention as a particularly suitable causal analysis method (HUBER et al. 2007; NITZL 2010). Causal analytical techniques belong to the category of multivariate analytical methods and are used to investigate the causal relationships between variables. For this purpose, regression and factor analytical elements are combined within a software application (in this dissertation, SmartPLS 3.2.8 is used), and previously established hypotheses are tested with empirically collected data (BACKHAUS et al. 2006). In addition to the general data robustness, the application of PLS-SEM is particularly advantageous when complex models with a large number of

investigation constructs and indicators are to be investigated with a small database. Moreover, within the software application used, there is the ability to statistically indicate mediator or moderator effects[4] in connection with path structures and to examine significant influencing variables. Due to these advantages, PLS-SEM was applied as a central analysis criterion in the research presented in this thesis.

A total of three studies were carried out to answer the research questions and to ensure a scientifically based gain of knowledge with a high level of practical orientation.

In the first research (**Essay 1**), a comprehensive interaction model was developed and empirically tested on the foundation of PLS-based structural equation modeling. With a focus on the automotive industry and referencing Kurt Lewin's classic field theory (LEWIN 1936), the idea of the research model was to analyze the behavior, specifically the purchase intention, of potential customers in detail, taking into account personal (personality and motivation) and environmental (culture) factors. Furthermore, it was examined whether scientific theories about personality (COSTA and MCCRAE 1992), motivation (BISCHOF 1985) and culture (HOFSTEDE 1980, 2011) can be reproduced within this context and whether useful marketing and sales measures can be derived from this information. In this regard, several principal component analyses (PCA) were conducted to test the theories. Based on an international study in which potential customers (n=800) from four different countries (Germany, Austria, USA and UK) were interviewed, the impact model was initially able to demonstrate adequate quality and prognostic capacity. It can be shown that there are interesting interaction effects between consumer personality and consumer motivation to purchase a car and that cultural values have moderating effects on customer behavior. However, it should be noted that the considered theories around motivation and culture could give certain insights but could not be replicated as shown in theory and that the universal applicability of these theories should be treated with caution.

Based on these findings, the second research contribution (**Essay 2**) analyzed the moderating influence of consumer personality and culture in relation to a brand management context (n=800). With reference to the automotive industry or the Volkswagen brand and using multiple PCAs and

[4] A moderator effect occurs when a specific variable significantly influences the effect of one or more other variables. Mediator effects, on the other hand, describe intervening or intermediary effects of variables. Mediators specify the relationship between two related variables (URBAN and MAYERL 2018).

PLS-SEM, the moderating effects of personality and culture in relation to the brand self-congruity theorem were demonstrated. A post hoc analysis yielded more detailed insights into how culture influences the relationships between a brand personality, brand self-congruity and consumer behavior. Additionally, the results suggest that the theory of self-congruity should be seen as a mediator in the course of a car purchase decision. Once again, the path model achieved an appropriate level of quality and predictive power.

The third and last research (**Essay 3**) concentrated on another brand management topic and was intended to show the effects of "green" automotive brands on the central consumer metrics (perception and behavior). With the help of PLS-SEM and based on a new survey (n=446), the analysis focused on a brand comparison (Volkswagen vs. Mercedes-Benz) and on consumer environmental awareness (CEA) as a moderating variable. The findings suggest that an eco-friendly perceived car brand influences meaningful perceptual and behavioral consumer metrics (e.g., customer satisfaction, brand trust, brand image) and could therefore be seen as an important differentiator in the context of automotive marketing. In addition, the investigation showed that the observation of the interaction effects of the considered perceptual and behavioral constructs is particularly important to ensure good marketing. Moreover, the study presented that a moderation test could confirm some significant effects of CEA, thereby allowing the conclusion that some of the evaluated relationships are prone to different environmental awareness profiles. The path models also demonstrated an appropriate quality and prediction strength.

CHAPTER 2: ESSAYS OF THE CUMULATIVE DISSERTATION

ESSAY 1

Analyzing the Behavior of Automotive Customers: Which Theories are of Significance in Marketing Practice and Science Today?

Elements of this essay were accepted for paper publication in the proceedings of the **19th International Marketing Trends Conference**[5] (Paris, France/January 16-18 2020) and poster presentation in the course of the **2020 American Marketing Association Winter Academic Conference**[6] (San Diego (CA), United States/February 14-16 2020).

[5] Requardt, J. & Wiedmann, K.-P. (2020). *Analyzing the Behavior of Automotive Customers: Which Theories are of Significance in Marketing Practice and Science Today?*. 19th International Marketing Trends Conference (Paris, France / January 2020), reproduced with permission of Jean-Claude Andreani and Umberto Collesei, Paris-Venice Marketing Trends Association. ISBN: 978-2-490372-09-6. → *Please find the published version of the paper in appendix A1.*

[6] Requardt, J. & Wiedmann, K.-P. (2020). *Influencing Factors on Automotive Behavior: Do Scientific Theories still meet the Pulse of Time?*. 2020 American Marketing Association Winter Academic Conference (San Diego (CA), United States / February 2020). → *Please find the published/presented version of the poster in appendix A2.*

Analyzing the Behavior of Automotive Customers: Which Theories are of Significance in Marketing Practice and Science Today?

ABSTRACT

In a representative study, potential consumers (n=800) from four different countries (Germany, Austria, UK, USA) were questioned about their personality, motivations and cultural values. The main objective of the study was to determine whether knowledge about personality structures (COSTA and MCCRAE 1992), motivational systems (BISCHOF 1985, 1993) and cultural values (HOFSTEDE 1980, 2011) is useful for an automobile manufacturer and whether meaningful marketing and sales measures can be derived from this information.

Against the background of a broad empirical study, it can be shown that there are interesting interaction effects between consumer personality and their motivation to purchase a car and that cultural values have moderating effects on customer behavior. The findings indicate that the considered theories around motivation and culture could not be replicated as shown in theory and that the universal applicability of these theories should be treated with caution.

Keywords: Hofstede, Zurcher Model, Big Five, NEO-FFI, Automotive Marketing

INTRODUCTION

From the marketing practitioners' point of view, the question arises repeatedly whether and, if so, to what extent they can fall back on existing theories in the investigation of the behavior of relevant customers. Are the influencing factors and their significance, which have been identified within the framework of theoretical approaches, of significance in the specific problem context? Of course, this question arises in a special way in regard to analyzing the behavior of customers in an international context. What significance do cultural dimensions have here, since they are emphasized, e.g., in the Hofstede model (HOFSTEDE 1980, 2011), which, despite all criticism, is mostly used in studies of marketing science and practice? Moreover, what role do cultural influences play in comparison to that of other influencing factors, such as personality factors and

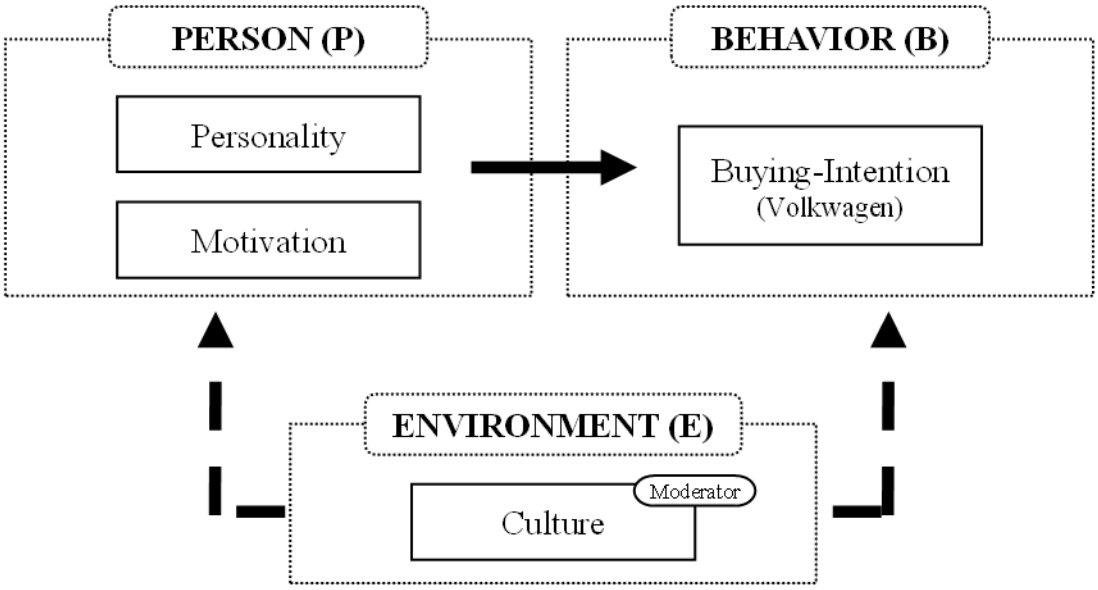
specific motive structures? Do personality factors, as recorded in the "Big Five" model (COSTA and MCCRAE 1992), or the basic motivational structures derived from Bischof (1985, 1993), which are given special attention in neuromarketing research today, explain the behavior of customers better? Specifically, the analysis of potential consumers in the automotive industry proves to be a particular challenge, as this complex sector combines forward-looking technological trends (e.g., electrification, autonomous driving, alternative mobility) with economic and sociopolitical changes (e.g., oil prices, urban access regulations, environmental reforms). Therefore, marketing specialists in this industry continue to strive for creative solutions to capture detailed information about the dominant influencing factors of their consumers.

The present study explores interesting interaction effects between consumer personality and their motivation to purchase a car. In addition, cultural values and their moderating effects on a potential car buyer's buying behavior are researched within this context. Based on the data of 800 car owners from four different countries (Germany, Austria, United Kingdom, United States of America), the primary object of investigation was the automotive brand Volkswagen.

THEORETICAL BACKGROUND AND CONCEPTUAL MODEL

In the case of a purchase decision, the consumer faces a complex task of processing a wide variety of information. Referring to Lewin's field theory [B= *f* (P, E)], the accentuated variables can be integrated into a theoretical model whereby personality and motives can be understood as internal factors and culture as a dominant external influence. Lewin holds the view that behavior (B) is a fundamental result of the person (P) (e.g., personality, motivations) and the environment (E) (e.g., culture) (LEWIN 1936). The idea of the research model (s. Figure 1) is therefore to analyze the behavior of a potential consumer within an automotive context. The following sections of this chapter serve to create a mutual understanding of the considered influencing factors and to develop the hypotheses.

Figure 1: Research Model



Role of Personality in Purchasing Behavior

The existing research into various internal influencing factors focuses either on volatile current factors or on individual predispositions. While current factors (e.g., fun, variety seeking, situational factors) concentrate on the less stable and frequently changing moods of a consumer (MISCHEL 1990) and therefore contribute to the explanation of everyday consumer decisions (e.g., grocery shopping), individual predispositions such as the (permanent) personality offer a much more consistent basis to pursue insistent behavioral research (MCCRAE 1982). Various studies have shown that personality traits can explain an important part of the perception, judgment and behavior of consumers (e.g., GOUNTAS and GOUNTAS 2007; KASSARJIAN 1971; THOMPSON and PRENDERGAST 2015) and that there is also a close connection between personality and the cognitions, affects and motivations of the consumer (e.g., ELLIOT and THRASH 2002; MISCHEL and SHODA 1995). Accordingly, it becomes clear that a person's personality influences his or her buying behavior and that research can be useful for product and marketing decisions.

This paper will focus on the popular personality test called the NEO Five Factor Inventory (NEO-FFI). The included factors of the (also called) "Big Five" are characterized as *neuroticism*, *extraversion, openness to experience*, *agreeableness*[7] and *conscientiousness* (COSTA and MCCRAE

[7] The items used in this study to assess *agreeableness* all measured the negative dimension (*non-agreeableness*).

1992). The NEO-FFI has proven to be particularly useful in predicting human perception and behavior in various domains. In the field of health research, for example, the integration of the test has made it possible to derive special insights into a higher life expectancy (e.g., WILSON et al. 2004). In the field of political science, the test was able to ascertain that personality correlates strongly with voting behavior and party affiliation (VECCHIONE et al. 2011). Successful studies in the field of marketing include research on brand loyalty (MATZLER et al. 2005) and customer satisfaction (MOORADIAN and OLVER 1997).

To test the benefits for research on automotive buying behavior, the following hypotheses are considered:

H1.a: *Theoretically assumed **personality** traits (COSTA and MCCRAE 1992) can be reproduced within an automotive context.*

H2.a: *The theory of **personality** structures (COSTA and MCCRAE 1992) offers indications for applicability within an automotive context since its factors have a significant influence on consumer behavior.*

Role of Motivation in Purchasing Behavior

Motives explain stable personality traits that stimulate, select and control behavior within a certain situational context and offer extremely important behavioral insights for the marketing of a company (MCCLELLAND 1987). Consequently, many companies rely on the know-how of psychologists, anthropologists and other social scientists to conduct motivational research, i.e., to investigate the hidden or unconscious motivations of consumers (KOTLER and ARMSTRANG 2012). The Zurcher Model of Social Motivation (BISCHOF 1985, 1993), which is based on findings from neuroscience, behavioral research, evolutionary theory and developmental and motivational psychology, has already attracted attention in fields of motivational psychology (e.g., SCHÖNBRODT and ASENDORPF 2011; SCHNEIDER 2001). The model describes three social motivation systems that belong to basic human equipment: *security*, *arousal* and *autonomy*. Each motive is present within a human being but individually developed based on different experiences (SCHEIER and HELD 2018). The safety system describes the striving for safety and security. There is a desire for familiar people (family, friends), as well as for material objects that are also able to donate security (BISCHOF 1985, 1993). Proximity, relevancy and familiarity, as parts of the security

motive, are identified as relevant factors with a positive influence (HECKHAUSEN and HECKHAUSEN 2018).

Components, such as striving for variety, something new or even strange, stand for the arousal system. This system regulates the processing of these stimuli by detecting the factors of proximity, relevancy and familiarity, which is similar to the security system, but it also negatively calculates the factor of familiarity (HECKHAUSEN and HECKHAUSEN 2018). "*Arousal (...) can be donated by an object that is relevant and close, but not familiar to me*" according to Schönbrodt (2006). Enterprises can also be defined as target values for measuring the factor of arousal (HECKHAUSEN and HECKHAUSEN 2018). The distance from family and the development of the play instinct are essential aspects of this system (SCHEIER and HELD 2018; HECKHAUSEN and HECKHAUSEN 2018).

The autonomy system determines a person's striving for independence, their ability to assert themselves and their desire for control and power. This system regulates the social hierarchy and the claimed sense of dominance. It is defined by the individual motives of power, prestige and achievement, which in turn have a theoretical influence on success (SCHEIER and HELD 2018; HECKHAUSEN and HECKHAUSEN 2018). Power helps to develop hierarchies or to maintain them. Important characteristics within the power motive are the hierarchy, impression and intimidation of opponents and competitors. It is therefore about the control of other individuals, which is reflected in a sense of triumph (HECKHAUSEN and HECKHAUSEN 2018). The validity motive corresponds to the desire for recognition and prestige. The achievement motive expresses the ability to recognize oneself according to experiences of success, which is described in this way as a kind of "*self-evaluation before an inner standard of quality*" (ibid.) and through which a feeling of pride can be produced (SCHÖNBRODT 2006).

As described at the beginning, motivational psychology allows important insights into the motives for actions, motivations and human goals and offers an extremely important behavioral basis for the marketing of a company. Strong brands or companies should be able to adapt the buying motives of their target groups and influence them with targeted (product) marketing.

The Zurcher Model of Social Motivation (BISCHOF 1985, 1993) will therefore be used in this paper. Again, the aim is to examine whether the motivational structures can be useful for research on automotive buying behavior according to the following hypotheses:

H1.b: *Theoretically assumed **motives** (BISCHOF 1985, 1993) can be reproduced within an automotive context.*

H2.b: *The theory of **motivation** systems (BISCHOF 1985, 1993) offers indications for applicability within an automotive context since its factors have a significant influence on consumer behavior.*

Role of Culture in Purchasing Behavior

With globalization and the resulting cultural diversity of customers, globally acting companies have a growing need for knowledge that enables them to adapt their marketing strategy. Many enterprises (e.g., McDonald's, Toyota) are developing special targeting measures that define culture (or subculture) as a bundle of values, perceptions, desires and behaviors within a society and focus on marketing that is as culture-adaptive and effective as possible (KOTLER and ARMSTRONG 2012).

With regard to the literature, three different categories can be identified in the listing of cultural models (MORDEN 1999): (1) one-dimensional models (e.g., FUKUYAMA 1995), (2) multidimensional models (e.g., HOFSTEDE 1980, 2011) and (3) historical-social models (e.g., BLOOM et al. 1994). Regardless of the dimensionality, a few general interpretations of culture seem to be accepted. First, culture can be regarded as the way in which people deal with problems and try to solve them (SCHEIN 1985). Second, culture can be defined by the generational transfer of historical values, ideas and symbol systems (KROEBER and PARSONS 1958). However, commonly, culture is understood as "*the collective programming of the mind that distinguishes the members of one human group from another*" (HOFSTEDE 1980).

While different models and definitions of culture exist, researchers from various disciplines tend to prefer the approach of Hofstede (MYERS and TAN 2002). Hofstede's cultural dimensions are based on data collected in more than 50 countries. These dimensions are defined as *individualism (IDV) vs. collectivism*, *uncertainty avoidance (UA)*, *power distance (PD)*, *masculinity (MAS) vs. femininity* and *long-term orientation (LTO) vs. short-term orientation* (HOFSTEDE 1980, 2011).

Although this theoretical approach is repeatedly criticized and questioned (e.g., BREWER and VENAIK 2011), and researchers have developed different levels of characteristics (e.g., HOUSE et al. 2004; HAMPDEN-TURNER and TROMPENAARS 2011), studies in both scientific and practical marketing research often refer back to the work of Hofstede. For example, Baptista and Oliveira

(2015) (acceptance of mobile banking) and Krishnan et al. (2013) (use of virtual social networks) have shown moderator effects of the country-specific culture in their articles.
However, while intercultural differences are already considered relevant in these papers, cultural influence has so far had less priority in relation to the automotive industry. To counteract this, the aim of this paper is to examine whether Hofstede's cultural dimensions can represent a benefit for research on automotive buying behavior. In addition, moderator effects of the cultural dimensions will be examined according to the following hypotheses:

H1.c: *Theoretically assumed **cultural** dimensions (HOFSTEDE 1980, 2011) can be reproduced within an automotive context.*
H3: *The **cultural** values according to Hofstede (1980, 2011) offer indications for applicability within an automotive context since its factors have moderating effects on the potential consumer.*

METHODOLOGY

Participants of the survey were car owners from Germany, Austria, the USA and the UK.[8] A short version with 30 items (KÖRNER et al. 2008) offered a perfect solution for measuring the "Big Five" personality traits (COSTA and MCCRAE 1992). With regard to consumers' buying motives (BISCHOF 1985, 1993), 13 items were assessed. To make the cultural dimensions (HOFSTEDE 1980, 2011) measurable, 18 items (SRITE and KARAHANNA 2006) were included in the questionnaire.
For all items, the participants had to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly). For all items, the participants had to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly).
The pretest showed that all the questions were formulated clearly and translated correctly according to the English questionnaire. This ensured the reliability, validity and feasibility of the questionnaire within a period of 8-10 minutes. The survey took place between 09/11/2018 and 14/11/2018 and included a sample size of n=800 (400 women, 400 men). The participants of the

[8] The reasons for selecting this group of markets were as follows: while Germany, Austria and the UK represent so-called core markets of the European automotive industry, the USA is still considered a noteworthy potential market due to complicated (political) import restrictions. Furthermore, in the course of the survey it was possible to form language-based country pairs (Germany & Austria; UK & USA) and thus to obtain variant advantages.

survey comprised car owners aged between 16 and 84 years (Ø = 49 years) who are residents of Germany (n=200), the USA (n=200), Austria (n=200) or the UK (n=200)[9].

RESULTS

The following chapters are devoted to the empirical testing of the hypotheses presented previously. For that reason, the software IBM SPSS Statistics (Version 25) and Smart PLS (3.2.8) were used to evaluate the collected data sets. With the help of an empirical analysis based on principal component analysis (PCA) and structural equation modeling (SEM), the influencing factors were tested.

Outcomes regarding Personality

To test H1.a, a PCA revealed that the five factors, i.e., personality traits, of the NEO-FFI were found in our study as well[10]. Table 1 displays the results of the PCA. Only items that clearly loaded on one factor and with a factor loading exceeding 0.4 were considered for factor interpretation. Each indicator loads satisfactorily high (> 0.4) on one single factor. The Kaiser-Meyer-Olkin (KMO) criterion had a value of 0.906, which can be described as "marvelous" (KAISER and RICE 1974). A total of 59.05% of the initial variance of the items was explained by the five factors. Table 1 also shows the reliability values of Cronbach's alpha for each factor. All the actors are higher than 0.8, which indicates a "very good" internal consistency (CRONBACH 1951).

Table 1: PCA-Outcomes for Personality

Personality trait (Cronbach´s Alpha)	Items (according to Körner et al. (2008))	Factor 1	2	3	4	5
Neuroticism (0.910)	I often feel helpless and wish for a person to solve my problems.	0.813				
	Sometimes I feel completely worthless.	0.809				
	I often feel tense and nervous.	0.807				
	When I am under a lot of stress, sometimes I feel like I am breaking down.	0.805				
	I often feel inferior to others.	0.783				
	Too often I am discouraged and want to give up if something goes wrong.	0.771				

[9] For a detailed demographic profile, see appendix.
[10] The KMO criterion was used to determine the optimal amount of factors. The PCA was used as varimax rotated.

Non-Agreeableness (0.842)	Some people think I am selfish and egotistic.		0.794			
	Some people think I am cold and calculating.		0.792			
	To get what I want, I am willing to manipulate people if necessary.		0.752			
	I rarely try to be considerate and sensitive.		0.632			
	I get into fights with my family and colleagues more often.	0.442	0.603			
	I am rather cynical and sceptical about the intentions of others.		0.580			
Conscientiousness (0.820)	I am a conscientious person who always do his job.			0.804		
	I try to do all the tasks assigned to me very conscientiously.			0.761		
	If I make a commitment, I am sure I can be relied upon.			0.717		
	I can manage my time quite well so that I can finish my business on time.			0.681		
	I am always able to bring order into my life.			0.637		
	I keep my things neat and tidy.			0.581		
Openness-to-Experience (0.827)	When I read literature or look at a work of art, I sometimes feel a thrill or a wave of enthusiasm.				0.731	
	Philosophical discussions are not boring for me.				0.719	
	I often enjoy playing with theories or abstract ideas.				0.704	
	I am fascinated by the motives I can find in art and nature.				0.683	0.331
	I am interested in speculating about the nature of the universe or the situation of mankind.				0.682	
	Poetry impresses me.				0.671	
Extraversion (0.803)	I like to have a lot of people around me.					0.772
	I am a cheerful, joyful person.		0.313			0.666
	I like to be in the centre of the action.					0.666
	I often have the feeling that I am overflowing with energy.					0.647
	It is easy to make me laugh.					0.588
	I am a very active person.					0.581

Outcomes regarding Motivation

H1.b was tested with the help of another PCA. Only two buying motivations were analyzed based on 13 items (s. Table 2). The KMO criterion had a value of 0.864, which can be described as "meritorious" (KAISER and RICE 1974). A total of 52.16% of the initial variance of the items was explained by the two factors. For all factors, the Cronbach's alpha values were higher than 0.7, which specifies a "good" internal consistency (CRONBACH 1951).

In contrast to the theoretically assumed purchasing motives according to Bischof (1985, 1993) (*security*, *arousal*, *autonomy*), the explorative factor analysis only reproduced two factors within an automotive context. While the *security* factor could be verified, the fusion of the *autonomy* and *arousal* items led to the formation of a factor to be called "*social signaling*" in the following text.

Table 2: PCA-Outcomes for Buying Motives

Buying Motive (Cronbach´s Alpha)	Features that influence me while buying a car…	Factor 1	Factor 2
Arousal & Autonomy = **Social Signaling** (0.833)	The car has to express my social position.	0.829	
	Brand image ("public opinion").	0.792	
	For me, a car is a reflection of economic strength (assets, income, etc.).	0.771	
	Brand origin / Production location.	0.623	
	Sportiness / Driving pleasure.	0.619	
	Modern technology / Progressiveness.	0.567	0.420
	Design / Styling.	0.554	0.442
Security (0.780)	Safety / Reliability.		0.782
	Driving comfort / Convenience.		0.741
	Functionality / Flexibility.		0.727
	Price-performance ratio.		0.641
	(Positive) Brand experience.		0.613
	Environmental friendliness (e.g., low fuel consumption / emissions,).		0.565

Outcomes regarding Cultural Dimensions

Similar to the analysis of personality and buying motives, another PCA was also carried out to test H1.c. Table 3 illustrates the outcomes for the cultural dimensions (*IDV*, *UA*, *PD*, *MAS*, *LTO*). Two *UA* items were dropped due to low factor loading. The KMO had a value of 0.860, which can be described as "meritorious" (KAISER and RICE 1974). A total of 61.34% of the initial variance of the items was explained by four factors. As a result, it was not possible (analogous to the PCA for buying motives) to generate an exact confirmation of the five theoretically assumed dimensions according to Hofstede (1980) within this context. Only four factors could be reproduced, and a fusion of the *PD* and the *MAS* dimensions could be observed. Table 3 also shows the reliability values of Cronbach's alpha for each factor. Most factors are higher than 0.7, which indicates a "good" internal consistency. Only the *LTO* factor shows a "moderate" internal consistency, with a Cronbach's alpha value of 0.603 (CRONBACH 1951).

Table 3: PCA-Outcomes for Cultural Dimensions

Cultural Dimension (Cronbach´s Alpha)	Items (according to Srite and Karahanna (2006))	Factor 1	2	3	4
MAS & POW (0.879)	It is preferable to have a man in a high level position rather than a woman.	0.817			
	Solving organizational problems requires the active forcible approach which is typical of men.	0.785			
	It is more important for men to have a professional career than it is for women to have one.	0.760			
	Manager should not ask subordinates for advice, because they might appear less powerful.	0.741			
	Women do not value recognition and promotion in their work as much as men do.	0.717			
	Managers should make most decisions without consulting subordinates.	0.672			
	Employees should not question their manager's decision.	0.662			
	Decision making power should stay with top management in the organization and not delegate to lower level employees.	0.645			
IDV (0.736)	Group success is more important than individual success.		0.790		
	Being loyal to a group is more important than individual gain.		0.763		
	Individual rewards are not as important as group welfare.		0.750		
	Being accepted as a member of a group is more important than having autonomy and independence.		0.601		
UA (0.716)	It is better to have a bad situation that you know about, than to have an uncertain situation which might be better.			0.811	
	People should avoid making changes because things could get worse.			0.794	
LTO (0.603)	I work hard for success in the future.				0.755
	I plan for the long term.				0.749

PLS-Based Estimation of the Research Model

PLS-SEM was used to test the presented hypotheses. The basic analysis of a path model includes several steps. First, the evaluation of the measurement models (outer models) took place. Second, the assessment of the structural model (inner model) was carried out (HENSELER et al. 2009). For this application, the analysis software SmartPLS 3.2.8 was used, including the partial least squares (PLS) algorithm and a blindfolding and bootstrapping procedure (RINGLE et al. 2005). PLS appeared to be the most appropriate method to address our hypotheses since it offers advantageous data robustness with minimal demand on the measurement scales (JEFFERS et al. 2008; IM and RAI 2008). Additionally, it has the ability to analyze highly complex models with a large number of constructs and indicators, even with a small database (HENSELER et al. 2009; CHIN 1998).

After the analysis of the measurement and structural model, an investigation of the moderation effects and a post hoc analysis were conducted.

(1) Evaluation of the Measurement Models

With regard to a reliable and valid measurement of the latent variables, we checked the measurement models against several criteria: construct reliability, indicator reliability, convergence validity and discriminant validity.

As shown in Table 4, all the constructs have sufficient values in the areas of composite reliability and Cronbach's alpha (>0.7)[11] such that a construct reliability can be concluded (STRAUB 1989). The indicator reliability was evaluated on the basis that factor loads must be greater than 0.7 and all loads below 0.4 should be eliminated (CHURCHILL 1979). Convergence validity was tested with the help of the AVE (>0.5)[12] (HENSELER et al. 2009). Discriminant validity was successfully analyzed with the Fornell-Larcker criterion (FORNELL and LARCKER 1981). Overall, the results guaranteed that the constructs could be statistically separated and used to test the structural model.

Table 4: Assessing the Measurement Models

		Factor Loadings	AVE	Cronbach´s Alpha	Composite Reliability	Fornell-Larcker Criterion (AVE > Max. Corr²)
Personality	Non-Agree.	0.580 - 0.794	0.562	0.842	0.883	0.562 > 0.338
	Open.	0.671 - 0.731	0.535	0.827	0.873	0.535 > 0.245
	Extra.	0.581 - 0.772	0.502	0.803	0.857	0.502 > 0.257
	Neuro.	0.771 - 0.813	0.689	0.910	0.930	0.689 > 0.271
	Consc.	0.581 - 0.804	0.532	0.820	0.872	0.532 > 0.239
Motives	Security	0.565 - 0.782	0.491	0.780	0.852	0.491 > 0.239
	Soc. Sig.	0.554 - 0.829	0.500	0.833	0.874	0.500 > 0.257
Culture	MAS & POW	0.645 - 0.817	0.542	0.879	0.904	0.542 > 0.338
	IDV	0.601 - 0.790	0.556	0.736	0.833	0.556 > 0.213
	UA	0.794 - 0.811	0.777	0.716	0.875	0.777 > 0.229
	LTO	0.749 - 0.755	0.712	0.603	0.832	0.712 > 0.275
Behavior	Buy. Int. VW	0.939 - 0.946	0.887	0.936	0.959	0.887 > 0.153

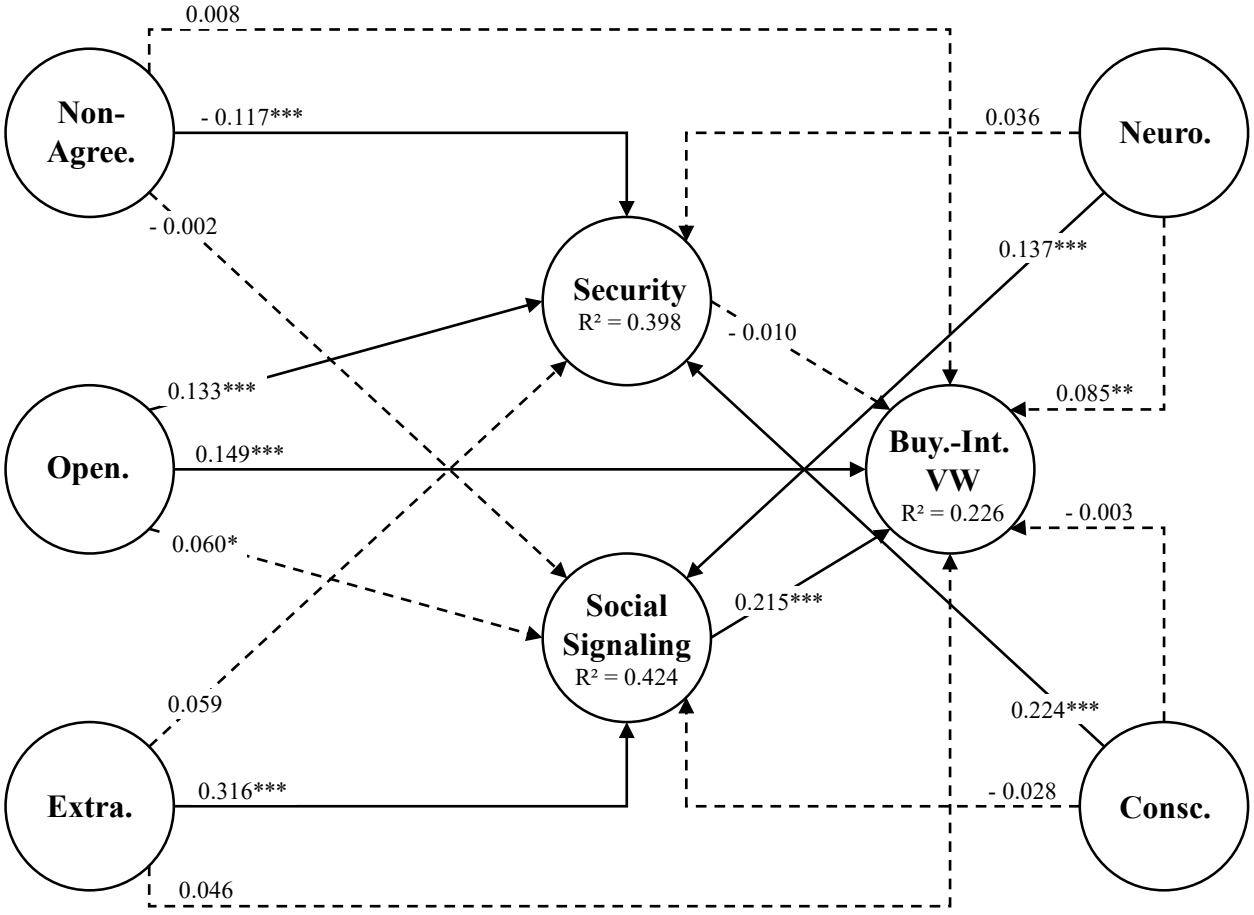
(2) Evaluation of the Structural Model

The assessment of the personality-related path coefficients led to statistically significant relationships (s. Figure 2). The strong (positive) relationships of *conscientiousness* (0.224) and

[11] LTO with Cronbach's alpha < 0.7
[12] Security with AVE < 0.5

openness to experience (0.133) and the (negative) influence of *non-agreeableness* (-0.117) on the *security* motive stand out. Furthermore, strong (positive) paths between *extraversion* (0.316) and *neuroticism* (0.137) towards *social signaling* can be observed. With regard to *buying intention (Volkswagen)*, strong (positive) bonds can be identified with *openness to experience* (0.149) and *social signaling* (0.215).

Figure 2: Outcomes of SEM (Personality)[13]



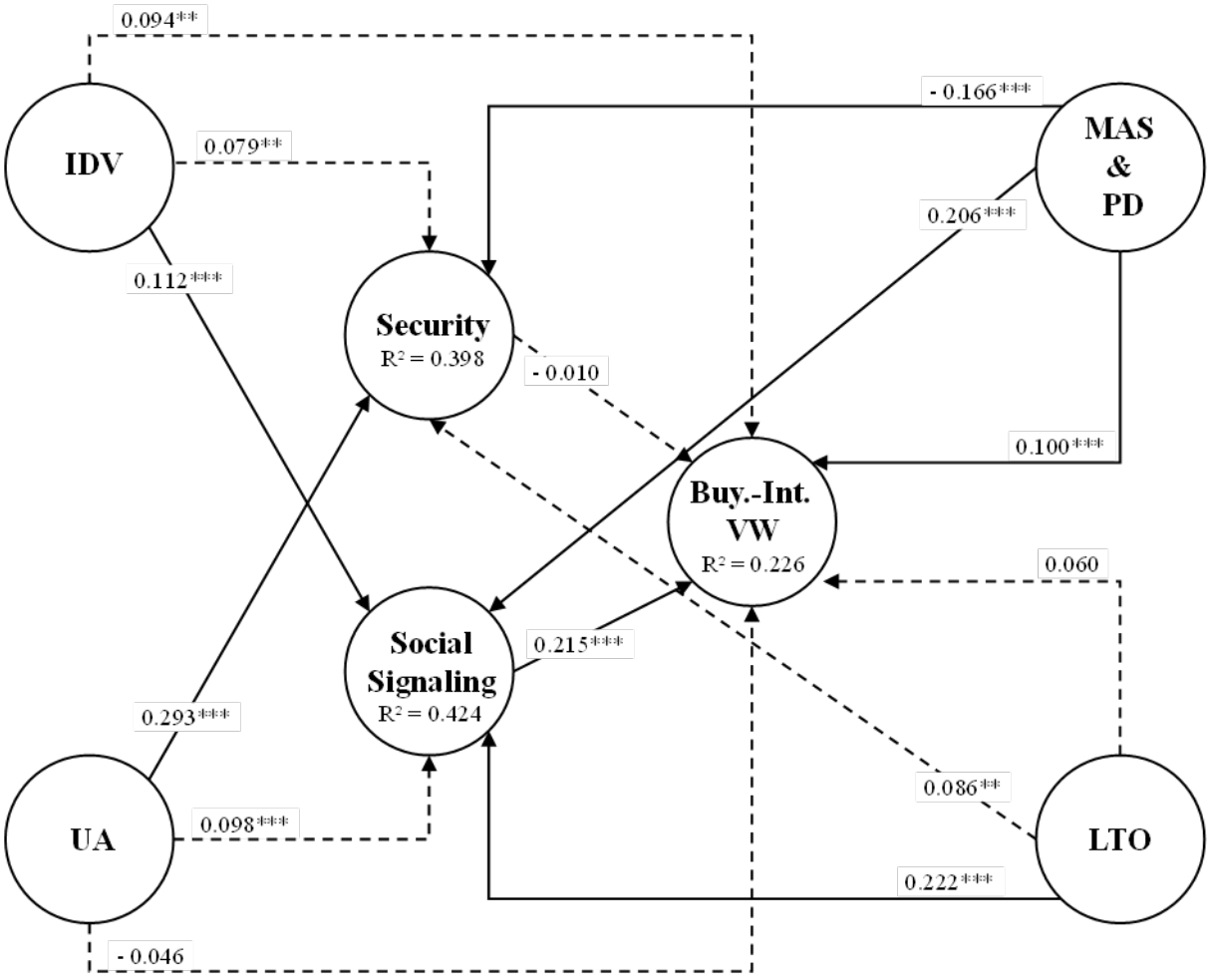
*** p = 0.01; ** p = 0.05; * p = 0.1

Considering the culture variables, it was also possible to discover statistically significant relationships (s. Figure 3). While *IDV* (0.112)*, LTO* (0.222) and *MAS & PD* (0.206) show strong (positive) relationships to the *social signaling* motive, only one strong (positive) connection

[13] To ensure a clear presentation, path coefficients that are significant and relevant (i.e., values > 0.1) are shown in solid lines, while dashed lines show less relevant relationships.

between *UA* (0.293) and the *security* motive can be observed. *MAS & PD* stands in a (negative) connection to the *security* motive (-0.166) and in a (positive) connection to the *buying intention (Volkswagen)* (0.100).

Figure 3: Outcomes of SEM (Culture) [14]



*** p = 0.01; ** p = 0.05; * p = 0.1

Since there is no generally accepted global quality measure for SEM[15], the assessment is based on a cumulative consideration of different quality criteria (NITZL 2010). The R^2 is an important criterion in this context (CHIN and NEWSTED 1999). All values show "mediocre" levels ranging

[14] To ensure a clear presentation, path coefficients that are significant and relevant (i.e., values > 0.1) are shown in solid lines, while dashed lines show less relevant relationships.

[15] Covariance-based procedures with LISREL in this context offer the possibility of making a global judgment on the overall model assessment with the help of the Goodness-of-Fit-Index (GFI) (TENENHAUS et al. 2005).

from 0.226 to 0.424. Determined by blindfolding, Stone-Geisser's Q^2 results (GEISSER 1974; STONE 1974) show values larger than zero for all endogenous latent variables, suggesting the predictive relevance of the explanatory variables. The standardized root mean square residual (SRMR) with a value of 0.071 and the normed fit index (NFI) with a value of 0.740 also delivered "good" results with respect to the model fit.

The evaluation of the measurement (1) and structural model (2) shows that the PLS estimates are reliable and valid according to various criteria and that significant observations were also revealed. The results indicate implications for further research and management practice, as described later.

(3) Moderation Effect of Culture

It is recommended to carry out an analysis of possible moderators after the evaluation of a PLS model has taken place (NITZL 2010). With the help of interaction variables and their path coefficients or significances, moderator influences of the cultural dimensions on different relationships could be demonstrated (s. Table 5)[16]. Considering H3, the cultural dimension *PD & MAS* shows a (positive) moderating influence on the *conscientiousness* to *security* path and a (positive) moderating influence on the *neuroticism* to *social signaling* relationship. *LTO* has a (positive) moderating effect on the *non-agreeableness* to *security* and the *extraversion* to *social signaling* bond.

Table 5: Moderation Effects of Culture

	UA		**IDV**	
	Est.	t-Stastistics	Est.	t-Stastistics
Non-Agree → Security	0.012	0.312	-0.000	0.005
Consc → Security	-0.041	0.833	-0.011	0.185
Open → Security	-0.019	0.587	0.010	0.331
Extra → Social Sign.	0.042	1.269	0.026	0.748
Neuro → Social Sign.	-0.020	0.679	0.051	1.493
	PD & MAS		**LTO**	
	Est.	t-Stastistics	Est.	t-Stastistics
Non-Agree → Security	-0.022	0.638	**0.080**	**2.050****
Consc → Security	**0.086**	**2.014****	0.079	1.644
Open → Security	0.006	0.173	0.024	0.736
Extra → Social Sign.	0.027	0.764	**0.056**	**1.687***
Neuro → Social Sign.	**-0.129**	**4.160****	-0.005	0.146

*** p = 0.01; ** p = 0.05; * p = 0.1

[16] Only the path coefficients were tested for a possible cultural moderation effect, which proved to be significant within the previous analysis.

(4) Post Hoc Analysis

For detailed insights into cultural issues, the research model was calculated on the basis of individual country data. The differentiation of the groups is significant if the estimate of the considered group does not fall within the confidence interval of the group to be compared and vice versa (SARSTEDT et al. 2011)[17].

The post hoc analysis shows five significant differences. Compared to the overall model, Austria shows much weaker estimates with *conscientiousness* to *security* (0.412 vs. 0.225), *neuroticism* to *buying intention* (0.112 vs. -0.126) and *neuroticism* to *security* (0.071 vs. -0.194) (s. Table 6).

Germany reveals differences with *extraversion* to *buying intention* (0.412 vs. 0.107), and the USA shows differences with *openness to experience* to *social signaling* (0.030 vs. 0.187).

There are also disparities regarding how nations differ from each other; 14 of 20 relationships show significant differences. The model for Austria shows the most differences (17), followed by that for Germany (13), the USA (13) and the UK (10) (s. Table 7).

The post hoc analysis allows the conclusion that most of the relationships are susceptible to cultural influences. The fact that the overall model shows only five significant differences compared to the country-specific models suggests a fairly good integration of the national models within the overall model.

[17] 97.5% bias-corrected bootstrap intervals. Calculations based on 5.000 bootstraps.

Table 6: Overall Model vs. Individual Nation Models

	Overall Model		**Germany** (G)		**Austria** (A)		**USA**		**UK**		**Δ**
	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	
Consc.→ Buy.Int.	0.017	-0.068 - 0.099	0.134	-0.061 - 0.309	0.051	-0.123 - 0.192	0.040	-0.167 - 0.226	-0.128	-0.274 - 0.038	
Consc.→ Security	**0.412*****	0.318 - 0.492	0.422***	0.272 - 0.552	**0.225****	-0.002 - 0.403	0.545***	0.322 - 0.693	0.419***	0.255 - 0.542	**OM > A**
Consc.→ Soc.Sig.	0.099	0.007 - 0.185	0.236**	0.035 - 0.404	-0.023	-0.240 - 0.158	0.064	-0.082 - 0.197	0.142	-0.005 - 0.291	
Extra. → Buy.Int.	**0.107**	0.018 - 0.190	**-0.173***	-0.339 - 0.008	0.016	-0.162 - 0.193	0.150	0.015 - 0.292	0.313***	0.122 - 0.495	**OM > G**
Extra.→ Security	0.057	-0.020 - 0.131	0.076	-0.070 - 0.228	0.109	-0.075 - 0.231	-0.103	-0.273 - 0.073	0.065	-0.089 - 0.215	
Extra.→ Soc.Sig.	0.454***	0.374 - 0.530	0.402***	0.232 - 0.549	0.464***	0.278 - 0.592	0.397***	0.240 - 0.540	0.523***	0.366 - 0.660	
Neuro. → Buy.Int.	**0.112**	0.033 - 0.189	0.105	-0.075 - 0.280	**-0.126**	-0.361 - 0.079	0.091	-0.078 - 0.243	0.125	-0.046 - 0.273	**OM > A**
Neuro.→ Security	**0.071**	-0.008 - 0.148	-0.005	-0.159 - 0.153	**-0.194***	-0.430 - -0.069	0.264***	0.102 - 0.411	0.032	-0.131 - 0.201	**OM > A**
Neuro. → Soc.Sig.	0.209**	0.123 - 0.286	0.210**	0.015 - 0.403	0.132	-0.162 - 0.347	0.243**	0.066 - 0.401	0.158	-0.031 - 0.326	
Non.Agree.→Buy.Int.	0.060	-0.016 - 0.137	-0.020	-0.183 - 0.157	-0.083	-0.235 - 0.114	0.207**	0.059 - 0.360	0.110	-0.068 - 0.281	
Non-Agree.→ Security	-0.191*	-0.255 - -0.120	-0.162	-0.275 - -0.031	-0.150	-0.272 - 0.086	-0.245**	-0.391 - -0.095	-0.206**	-0.373 - -0.016	
Non-Agree. →Soc.Sig.	0.078	-0.001 - 0.158	0.085	-0.062 - 0.230	-0.004	-0.155 - 0.222	0.080	-0.103 - 0.270	0.051	-0.109 - 0.195	
Open.→ Buy.Int.	0.131	0.048 - 0.203	0.048	-0.125 - 0.210	0.063	-0.142 - 0.214	0.219**	0.061 - 0.367	0.098	-0.061 - 0.243	
Open.→ Security	0.158	0.083 - 0.232	0.222**	0.098 - 0.322	0.085	-0.119 - 0.223	0.194*	0.022 - 0.370	0.116	-0.042 - 0.255	
Open.→ Soc.Sig.	**0.030**	-0.048 - 0.105	0.063	-0.100 - 0.203	-0.074	-0.246 - 0.092	**0.187***	0.039 - 0.328	-0.037	-0.203 - 0.098	**US > OM**
Security→ Buy.Int.	-0.034	-0.113 - 0.043	-0.065	-0.234 - 0.110	-0.035	-0.211 - 0.121	-0.100	-0.245 - 0.064	0.056	-0.119 - 0.216	
Soc.Sig.→ Buy.Int.	0.265***	0.185 - 0.355	0.420***	0.239 - 0.565	0.333***	0.204 - 0.492	0.251**	0.064 - 0.439	0.092	-0.091 - 0.275	
R² (Security)	0.282***		0.426***		0.209**		0.324***		0.285***		
R² (Soc.Sig.)	0.322***		0.261***		0.189*		0.521***		0.342***		
R² (Buy.Int.)	0.210**		0.172*		0.148		0.501***		0.236**		

*** p = 0.01; ** p = 0.05; * p = 0.1

Δ = Significant group differences (Overall Model vs. Nation Models) at the 2,5% level

Table 7: Differences between Individual Nation Models

	Germany (G)		**Austria** (A)		**USA**		**UK**		**Δ**
	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	
Consc.→ Buy.Int.	0.134	-0.061 - 0.309	0.051	-0.123 - 0.192	0.040	-0.167 - 0.226	-0.128	-0.274 - 0.038	**G > UK A > UK USA > UK**
Consc.→ Security	0.422***	0.272 - 0.552	0.225**	-0.002 - 0.403	0.545***	0.322 - 0.693	0.419***	0.255 - 0.542	**G > A USA > A UK > A**
Consc.→ Soc.Sig.	0.236**	0.035 - 0.404	-0.023	-0.240 - 0.158	0.064	-0.082 - 0.197	0.142	-0.005 - 0.291	**G > A**
Extra. → Buy.Int.	-0.173*	-0.339 - 0.008	0.016	-0.162 - 0.193	0.150	0.015 - 0.292	0.313***	0.122 - 0.495	**A > G USA > G UK > G UK > A**
Extra.→ Security	0.076	-0.070 - 0.228	0.109	-0.075 - 0.231	-0.103	-0.273 - 0.073	0.065	-0.089 - 0.215	**G > USA A > USA**
Extra.→ Soc.Sig.	0.402***	0.232 - 0.549	0.464***	0.278 - 0.592	0.397***	0.240 - 0.540	0.523***	0.366 - 0.660	
Neuro. → Buy.Int.	0.105	-0.075 - 0.280	-0.126	-0.361 - 0.079	0.091	-0.078 - 0.243	0.125	-0.046 - 0.273	**G > A USA > A UK > A**
Neuro.→ Security	-0.005	-0.159 - 0.153	-0.194*	-0.430 - -0.069	0.264***	0.102 - 0.411	0.032	-0.131 - 0.201	**G > A USA > G USA > A UK > A**
Neuro. → Soc.Sig.	0.210**	0.015 - 0.403	0.132	-0.162 - 0.347	0.243**	0.066 - 0.401	0.158	-0.031 - 0.326	
Non.Agree.→Buy.Int.	-0.020	-0.183 - 0.157	-0.083	-0.235 - 0.114	0.207**	0.059 - 0.360	0.110	-0.068 - 0.281	**USA > G USA > A**
Non-Agree.→ Security	-0.162	-0.275 - -0.031	-0.150	-0.272 - 0.086	-0.245**	-0.391 - -0.095	-0.206**	-0.373 - -0.016	
Non-Agree. →Soc.Sig.	0.085	-0.062 - 0.230	-0.004	-0.155 - 0.222	0.080	-0.103 - 0.270	0.051	-0.109 - 0.195	
Open.→ Buy.Int.	0.048	-0.125 - 0.210	0.063	-0.142 - 0.214	0.219**	0.061 - 0.367	0.098	-0.061 - 0.243	**USA > G**
Open.→ Security	0.222**	0.098 - 0.322	0.085	-0.119 - 0.223	0.194*	0.022 - 0.370	0.116	-0.042 - 0.255	
Open.→ Soc.Sig.	0.063	-0.100 - 0.203	-0.074	-0.246 - 0.092	0.187*	0.039 - 0.328	-0.037	-0.203 - 0.098	**USA > A USA > UK**
Security→ Buy.Int.	-0.065	-0.234 - 0.110	-0.035	-0.211 - 0.121	-0.100	-0.245 - 0.064	0.056	-0.119 - 0.216	
Soc.Sig.→ Buy.Int.	0.420***	0.239 - 0.565	0.333***	0.204 - 0.492	0.251**	0.064 - 0.439	0.092	-0.091 - 0.275	**G > UK A > UK**
R² (Security)	0.426***		0.209**		0.324***		0.285***		
R² (Soc.Sig.)	0.261***		0.189*		0.521***		0.342***		
R² (Buy.Int.)	0.172*		0.148		0.501***		0.236**		
									→ G = 13; A = 17; USA = 13; UK = 10

*** p = 0.01; ** p = 0.05; * p = 0.1

Δ = Significant group differences (Nation Model Differences) at the 2,5% level

CONCLUSIONS AND IMPLICATIONS FOR THEORY AND PRACTICE

The research model based on Lewin's field theory was established, the constructs were empirically tested, and significant interaction effects were demonstrated. It was found that all three accentuated theories are generally relevant in the investigation of customer behavior within an international automotive context. The following sections are intended to highlight some implications for theory and practice. Afterwards, some suggestions for bridging the identified limitations and for future research will be made.

Theoretical Implications

Considering the research model, it should be mentioned that the "mediocre" values of R^2 (0.226 to 0.424) are not sufficient (s. Figure 2 and 3). With reference to the individual nation models, in some cases, far better R^2 values can be shown (e.g., USA: 0.324 to 0.521). The aim here is to investigate more closely whether and to what extent the factors will be relevant in the future.

The reproducibility of the considered theories could only be partially confirmed within the automotive context. For every theory, a PCA was used for the purpose of this review. While the outcomes for personality show very good reliability and all theoretically assumed personality traits could be reproduced (H1.a; s. Table 1), this does not apply to the results for motivation (H1.b; s. Table 2) and culture (H1.c; s. Table 3). In contrast to the theoretically assumed purchasing motives according to Bischof (1985, 1993), there are only two confirmed factors. While the *security* factor could be verified, a new factor was created from the previously selected items for *arousal* and *autonomy*, which is (because of its properties) called "*social signalin*g". The same can be said for the cultural dimensions according to Hofstede (1980). Only four factors could be reproduced, and a fusion of the *PD* and the *MAS* dimensions could be observed (s. Table 3). Consequently, H1.b and H1.c apply to a limited extent.

Taking a closer look at both "new" factors ("*social signalin*g" and "*PD & MAS*", it is shown that they are meaningful in terms of content (only similar dimensions coincide) and that further empirical use is still possible. The factors were tested for applicability within an automotive context under the use of SEM. With regard to H2.a and H2.b, some statistically significant relationships could be observed (s. Figure 2 and Figure 3), which suggests that the results indicate substantial applicability for theoretical models.

The moderator effects of the cultural dimensions according to Hofstede (H3) could also be proven (even if marginally), suggesting that a usability in automotive market research can also be assumed. In support of this, it is worth mentioning the research of Lam (2007), Fischer et al. (2010), Liu et al. (2001) and Veiga et al. (2001), which also demonstrated cultural moderator effects within a consumer behavior context. Again, Hofstede's work helped to quantify the previously vague concept of culture and served to integrate culture as a measurable construct.
However, because motivation and culture are not completely reproducible, it is important to note that a universal or interdisciplinary applicability of the accentuated theories should be treated with caution. Therefore, we recommend that the approaches be considered and applied in a context-based way.

Managerial Implications

Regardless of the fact that managers need to be aware that culture, motivations and personality have an important influence on the consumer's behavior, the degree of required research should be assessed. It remains that in some cases, the addition of the tested theories could add certain facets to the market research of an internationally active company and enrich the detailed research of consumer behavior. The cultural dimensions of Hofstede (1980) have already been successfully used to explain and predict phenomena in human resources (e.g., RAMAMOORTHY and CARROLL 1998), international trade (e.g., KOGUT and SINGH 1988) and marketing (e.g., YENIYURT and TOWNSEND 2003). The theory of Costa and McCrae (1992) has also found its applicability in various treatises (e.g., WILSON et al. 2004; VECCHIONE et al. 2011), whereas the motivational theories of Bischof (1985, 1993) have been used less frequently thus far.
Moreover, certain brand management insights could also be demonstrated based on the results of this study. It could be clearly stated that the "new" motivational factor of *social signaling* exerts a much greater influence on the potential purchase of a Volkswagen than the factor of *security* (s. Figure 2). Statements could also be made about the cultural values (*MAS & PD*) that have the strongest (positive) influence on the potential purchase of a Volkswagen (s. Figure 3). However, a detailed analysis or research of the background of these results will not be part of this paper. It should be shown that a car manufacturer can use the established research model to provide valuable information for predicting target market brand management.

Limitations and Future Research

This study is not free of limitations. First, it must be taken into account that the research was conducted for merely one automotive brand and for one industry. Future studies should focus on demonstrating the robustness of the research model. An extension with other brands or industries could contribute to the further investigation of SEM and moderation effects.

Second, it should be noted that this study only includes a small sample of cultures. To identify further cultural effects, future studies should not concentrate on the observation of more countries but rather draw on supposedly different cultures. When examining cultural differences, Lam et al. (2012) recommend the addition of societies from the Far East, since these countries distinguish themselves (mostly through strong collectivism) from Western cultures (MARKUS and KITAYAMA 1991).

Third, it must be kept in mind that the discourse was limited to Hofstede's cultural values. Although these dimensions continue to have great influence, there are other theories that could be considered for research (e.g., HOUSE et al. 2004; HAMPDEN-TURNER and TROMPENAARS 2011). Of course, this limitation also applies to the survey of personality traits and motivations of consumers. Finally, it is necessary to examine our methodology. To obtain detailed insights into the observed research areas, it is probably worth conducting a more in-depth and multidimensional survey.

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APPENDIX

Table A6: Demographic Profile of the Sample

	n	%		n	%
Country			**Martial Status**		
USA	200	25.0	Single	212	26.5
Germany	200	25.0	Married	471	58.9
Austria	200	25.0	Widowed	24	3.0
United Kingdom	200	25.0	Divorced	93	11.6
Age (in years)			**Net income (in €/month)**		
16-29	88	11.0	less than 1000	39	4.9
30-39	172	21.5	1,001-2,000	157	19.6
40-49	147	18.4	2,001-3,000	182	22.8
50-59	169	21.1	3,001-4,000	145	18.1
60-99	224	28.0	4,001-5,000	83	10.4
			5000 and over	138	17.3
Gender			No answer	56	7.0
Male	400	50.0			
Female	400	50.0			

Table A7: Bootstrapping Results for the Outer Loadings (Part 1)

Loading	Est.	t-Statistics
brand_1 ← Security	0.667	22.450***
price_1 ← Security	0.621	16.934***
product_1 ← Security	0.616	20.992***
product_4 ← Security	0.740	31.461***
product_5 ← Security	0.774	30.194***
product_6 ← Security	0.768	36.759***
brand_2 ← Social Signaling	0.794	54.689***
brand_3 ← Social Signaling	0.672	28.781***
product_2 ← Social Signaling	0.663	27.130***
product_3 ← Social Signaling	0.633	23.158***
product_7 ← Social Signaling	0.649	24.354***
sociclas_1 ← Social Signaling	0.786	50.104***
sociclas_2 ← Social Signaling	0.734	36.860***
purchint_1 ← Buy.Int.VW	0.934	147.516***
purchint_2 ← Buy.Int.VW	0.947	200.304***
purchint_3 ← Buy.Int.VW	0.944	171.094***
indivd_1 ← Individualism	0.773	35.445***
indivd_2 ← Individualism	0.768	33.882***
indivd_3 ← Individualism	0.747	29.430***
indivd_4 ← Individualism	0.692	19.827***
ua_3 ← Uncertainty Avoidance	0.856	43.426***
ua_4 ← Uncertainty Avoidance	0.907	86.265***
ltst_2 ← Long-Term Orientation	0.892	52.328***
ltst_4 ← Long-Term Orientation	0.793	27.878***
mascu_1 ← Power Distance & Masculinity	0.797	46.896***
mascu_2 ← Power Distance & Masculinity	0.772	41.973***
mascu_3 ← Power Distance & Masculinity	0.736	34.186***
mascu_4 ← Power Distance & Masculinity	0.717	28.407***
power_1 ← Power Distance & Masculinity	0.703	31.818***
power_2 ← Power Distance & Masculinity	0.765	40.125***
power_3 ← Power Distance & Masculinity	0.674	27.892***
power_4 ← Power Distance & Masculinity	0.718	31.858***

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A8: Bootstrapping Results for the Outer Loadings (Part 2)

Loading	Est.	t-Statistics
cons_1 ← Conscientiousness	0.651	21.179***
cons_2 ← Conscientiousness	0.707	26.322***
cons_3 ← Conscientiousness	0.762	31.723***
cons_4 ← Conscientiousness	0.741	25.075***
cons_5 ← Conscientiousness	0.774	29.248***
cons_6 ← Conscientiousness	0.734	31.263***
extra_1 ← Extraversion	0.793	51.336***
extra_2 ← Extraversion	0.580	17.571***
extra_3 ← Extraversion	0.750	37.365***
extra_4 ← Extraversion	0.735	31.030***
extra_5 ← Extraversion	0.666	22.903***
extra_6 ← Extraversion	0.709	32.105***
neuro_1 ← Neuroticism	0.806	44.761***
neuro_2 ← Neuroticism	0.796	44.104***
neuro_3 ← Neuroticism	0.794	39.319***
neuro_4 ← Neuroticism	0.856	63.185***
neuro_5 ← Neuroticism	0.847	59.991***
neuro_6 ← Neuroticism	0.878	87.347***
nonagree_1 ← Non-Agreeableness	0.800	45.649***
nonagree_2 ← Non-Agreeableness	0.825	54.958***
nonagree_3 ← Non-Agreeableness	0.528	13.779***
nonagree_4 ← Non-Agreeableness	0.811	46.649***
nonagree_5 ← Non-Agreeableness	0.687	25.741***
nonagree_6 ← Non-Agreeableness	0.801	46.587***
open_1 ← Openness to Experience	0.640	19.399***
open_2 ← Openness to Experience	0.778	42.318***
open_3 ← Openness to Experience	0.765	39.884***
open_4 ← Openness to Experience	0.772	43.171***
open_5 ← Openness to Experience	0.680	22.514***
open_6 ← Openness to Experience	0.740	34.613***

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A9: Bootstrapping Results for the Path Coefficients

Path	Est.	t-Statistics
Security → Buy.Int.VW	-0.010	0.247
Social Signaling → Buy.Int.VW	0.215	4.849***
Individualism → Buy.Int.VW	0.094	2.368**
Individualism → Security	0.079	2.109**
Individualism → Social Signaling	0.112	3.047***
Long-Term Orientation → Buy.Int.VW	0.060	1.410
Long-Term Orientation → Security	0.086	2.294**
Long-Term Orientation → Social Signaling	0.222	6.342***
Uncertainty Avoidance → Buy.Int.VW	-0.046	1.137
Uncertainty Avoidance → Security	0.293	8.446***
Uncertainty Avoidance → Social Signaling	0.098	2.806***
Power Distance & Masculinity → Buy.Int.VW	0.100	2.208**
Power Distance & Masculinity → Security	-0.166	4.431***
Power Distance & Masculinity → Social Signaling	0.206	5.511***
Conscientiousness → Buy.Int.VW	-0.003	0.057
Conscientiousness → Security	0.224	4.626***
Conscientiousness → Social Signaling	-0.028	0.559
Extraversion → Buy.Int.VW	0.046	1.009
Extraversion → Security	0.059	1.442
Extraversion → Social Signaling	0.316	7.260***
Neuroticism → Buy.Int.VW	0.085	2.128**
Neuroticism → Security	0.036	0.871
Neuroticism → Social Signaling	0.137	3.329***
Non-Agreeableness → Buy.Int.VW	0.008	0.187
Non-Agreeableness → Security	-0.117	2.768***
Non-Agreeableness → Social Signaling	-0.002	0.049
Openness to Experience → Buy.Int.VW	0.149	3.890***
Openness to Experience → Security	0.133	3.566***
Openness to Experience → Social Signaling	0.060	1.667*

*** p = 0.01; ** p = 0.05; * p = 0.1

ESSAY 2

Self-Congruity as the Bottleneck Within an Automotive Purchase: What Impact do Consumers' Personality and Culture Have?

Elements of this essay were accepted for paper publication in the proceedings of the **2020 Academy of Marketing Science Annual Conference**[18] (Coral Gables (FL), United States/May 20-22 2020[19]).

[18] Requardt, J. & Wiedmann, K.-P. (2020). *Self-Congruity as the Bottleneck within an Automotive Purchase: What Impact do the Consumers' Personality and Culture Have?*. 2020 Academy of Marketing Science Annual Conference (Coral Gables (FL), United States / May 2020). → *Please find the reviewed and accepted version of the paper in appendix A3.*

[19] Due to the COVID-19 crisis, the annual conference was rescheduled to 15-17 December 2020.

Self-Congruity as the Bottleneck Within an Automotive Purchase: What Impact do Consumers' Personality and Culture Have?

ABSTRACT

Given the assumption that brands also have personalities, consumers are likely to choose brands with personalities that match their own. In this essay, focus is placed on the automotive brand Volkswagen. In a representative study, potential consumers (n=800) from four different countries (Germany, Austria, United Kingdom, United States of America) were questioned about brand personality, self-congruity, buying intention, culture and personality. With the support of the cultural dimensions according to Hofstede (1980, 2011) and the NEO-FFI according to Costa and McCrae (1992), culture (individualism, uncertainty avoidance, power distance, masculinity and long-term orientation) and personality profiles (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) were measured.

The main objective of the study was to investigate the relationships among brand personality, self-congruity and automotive buying intention. Brand self-congruity was tested as a mediator of the relationship between brand personality perception and car purchase intention. It was further analyzed whether culture and personality have moderating effects.

The findings suggest that self-congruity should be seen as a differentiator in the context of automotive marketing because (almost) every considered brand personality brings complete mediation in the course of a purchase decision. Furthermore, the study shows that a moderation test could confirm some significant effects of culture (e.g., power distance, masculinity, long-term orientation) and personality traits (e.g., non-agreeableness, neuroticism). In addition, a post hoc analysis yielded detailed insights into how culture (e.g., individualism, uncertainty avoidance) influences the relationships between a brand personality, brand self-congruity and consumer behavior.

Keywords: Brand Personality, Consumer Behavior, Self-Congruity, Big Five, NEO-FFI, Automotive Marketing

INTRODUCTION

In the age of urbanization and digitization, the manufacturers of traditional industries are facing a new field of challenges. The automotive industry, in particular, appears to be the one that is suffering the most. While this complex sector has always been exposed to a wide variety of economic and sociopolitical changes (e.g., oil prices, urban access regulations, environmental reforms), it now appears that the simple integration of technological trends (e.g., electrification, autonomous driving, connectivity) can probably no longer be regarded as the sole solution to various issues. Thus, it can be observed that new trends in the area of consumer behavior should be analyzed. The hype around "Dieselgate" can be seen as a trigger for an increasing ecological and environmental awareness of the automotive customer, which is now putting manufacturers under pressure. For most residents within urban living spaces (5 billion people in 2030[20]), the idea of a "sharing economy" is booming, alternative mobility concepts are drawing increasing attention, and the ownership of an automobile is becoming increasingly interesting. In addition, potential car buyers are confronted with an increasing number of vehicles that, as a result of cooperations between manufacturers, can only be distinguished by their brand logo instead of by their basic vehicle characteristics or even their design. To stay successful in this crisis-ridden industry, manufacturers must ask themselves which differentiator they have to offer compared to their competitors. For the established companies in the market, it is of course worthwhile at this point to put their brand into the focus of analyses and to perceive this as the "bottleneck" of success. If a customer today is still willing to buy their own car, it can be assumed that the brand, or the matching between the self-image/self-concept and the brand, is more important than ever. Based on the assumption that products and brands are preferred to be as congruent as possible with the individuals' own self-image (SIRGY 1982) and because the congruence between the brand and the individuals' own personality increases the probability of purchase significantly (USAKLI and BALOGLU 2011), it can also be expected that brand self-congruity (BSC) plays an enormously important role. Consequently, various studies have investigated the BSC phenomenon and its direct influence on consumer attitudes and behavior (STOKBURGER-SAUER 2011). However, the present study will explore the "mediating" role of BSC in the context of a car purchase. In addition, the moderator effects of various cultural dimensions according to Hofstede (1980, 2011) and "Big

[20] According to reports of the United Nations Population Fund (MONTGOMERY 2007).

Five" personality attributes according to Costa and McCrae (1992) are to be researched within this context. Based on the data of 800 car owners from four different countries (Germany, Austria, United Kingdom, United States of America), the primary object of investigation was the automotive brand Volkswagen.

THEORETICAL BACKGROUND

Especially in the case of a car purchase, the consumer is confronted with a multitude of information (keyword: high-involvement product). For this reason, the paper will focus on a number of very important subjects and will therefore analyze the behavior of a potential consumer with regard to BSC, personality and culture. The following sections of this chapter serve to create a mutual understanding of the considered theorems and to develop the hypotheses.

Mediating Brand Self-Congruity

To gain a clear definition of the BSC theorem, it is helpful to focus on the concept of brand personality. Brand personality is usually defined as a "*set of human characteristics associated with a brand*" (AAKER 1997). It can serve as a strategic instrument for market positioning by helping to create differentiation from competing brands, and it has a tactical function that offers a brand manager an orientation in marketing, advertising and design (SUNG and KIM 2010). Many researchers attribute psychological effects such as consumer feelings towards a brand and brand-related behavior (purchasing decisions, brand loyalty and brand love) to the brand personality theorem. Theory notes that there are three different understandings of why brand personality emerges. First, anthropomorphism, which is a psychological process that describes the attribution of human characteristics to nonhuman objects, is given in the nature of the consumer (AVIS 2012; PUZAKOVA et al. 2009). Anthropomorphism occurs subconsciously and serves the search for familiarity and risk reduction (FRELING and FORBES 2005; PUZAKOVA et al. 2009). A brand can therefore be perceived as a kind of animated human-like being (AVIS et al. 2012). The consumer uses symbolic representations to summarize a great complexity of information that helps to understand objects more easily and interact with them as with a person (LINDQUIST 1974). In situations of uncertainty, the symbolic representations serve as decision heuristics (STERN et al. 2001) and additionally contribute to a simplification of the purchase decision (AAKER 1999).

Second, brand personality can be viewed from the "naive psychology" perspective (ALLEN and OLSON 1995). This view exemplifies that consumers, when trying to understand a brand, constantly aim to assign brand-related characteristics, products, symbols and advertising to it (PHAU and LAU 2000). Brand managers often use this knowledge, e.g., in advertising, to present their brand as a figure with personality traits and within a human-like story (AAKER and FOURNIER 1995). If this succeeds, the consumer is encouraged to generate their own narrative, which establishes the connection between the brand and the intended personality traits (EDSON ESCALAS 2004).

A third perspective of brand personality states that consumers resort to norms and guidelines of interpersonal relationships while evaluating a brand (AGGARWAL and LAW 2005). As a result, a truly interpersonal relationship between the consumer and the brand emerges, which is fully related to emotions and a human-like personality (AAKER and FOURNIER 1995). For example, brands with a supposedly exciting brand personality are seen as a "temptation", while brands regarded as sincere or honest trigger the need for a "relationship" among consumers (FOURNIER et al. 2012).

However, the most common view of the brand personality theorem refers to the so-called "self-concept". The theories suggest that consumers have a firmly rooted idea of who they are and who they want to be and that they are constantly trying to maintain this idea (SIRGY 1982). Research indicates four different components of the self-concept: the actual self-image, the ideal self-image, the social self-image and the ideal social self-image. The actual self-image defines the way someone believes to themselves be, while in reality, the ideal self-image defines the "modus operandi" of how someone wants to be. The social self-image, on the other hand, describes thinking about how someone is seen by others. Finally, the ideal social self-image defines the wish to be perceived in the social environment (JOHAR and SIRGY 1991; JOHAR and SIRGY 1989; SIRGY 1982).

In the self-concept approach, researchers assume that consumers' purchasing decisions are dependent on the image of the brand, as well as their willingness to "express" themselves through the brand (KARDES et al. 2011). The needs and characteristics of the consumer are compared to the image of the brand, which strongly becomes the focus of the purchasing motivation, while simple (rational) product characteristics receive less attention (AAKER 1996). The brand personality rises because consumers try to show consistency in their behavior (SUNG and CHOI

2012) and prefer products or brands that are congruent with their self-concept (whether actual self-image, ideal self-image, social self-image or ideal social self-image) (SIRGY 1982).
Accordingly, the self-concept approach is the basis of the BSC theorem. It combines a concept that describes the match between the brand personality and the consumer's self-concept. The measurement of BSC can consequently be an important marketing tool, as it can provide brand managers with important information in marketing practice. The development of such a specific congruence model enables detailed psychological research that goes far beyond the standardized evaluation of simple demographic customer data. As a result, products and brands can be adapted as closely as possible to the target groups, and precise product positioning can be achieved (JOHAR and SIRGY 1991).
With reference to the self-congruity theorem, various studies have already provided evidence of the mediating influence of BSC on purchase decisions (e.g., EISEND and STOKBURGER-SAUER 2013; USAKLI and BALOGLU 2011). In this paper, the same is to be expected within an automotive context. Therefore, the first hypothesis pursues the previous theoretical findings as follows:

H1: *BSC mediates the relationship between brand personality perceptions and automotive purchase intention.*

Moderating Personality

To study human personality, a collection of theories must be referred to. Engler (2009), for example, offers an illustrative overview. An important approach to personality research is that of "trait theories", which deals with the investigation of stable characteristic traits that usually remain throughout the entire lifetime of individuals (MCCRAE and COSTA 2003; MCCRAE and JOHN 1992).

> *"Psychologists define the substance of personality as 'the systematic description of traits' (McCrae and Costa, 1987, pp. 81), where traits are 'relatively enduring styles of thinking, feeling, and acting' (McCrae and Costa, 1997, pp. 509)."* Geuens et al. (2009).

While some trait theory approaches focus on a detailed analysis of individual isolated traits, such as extroversion/introversion (JUNG 1967), innovativeness (PRICE and RIDGWAY 1983), self-monitoring (SNYDER 1974; SNYDER 1979), self-consciousness (DUVAL and WICKLUND 1972;

FENIGSTEIN et al. 1975; FENIGSTEIN 1979), and the need for cognition (VENKATRAMAN et al. 1990; HAUGTVEDT et al. 1992), other attempts are devoted to multilayered personality attributes within holistic theory. Depending on the extent of data, a comprehensive theory can practically collect an endless number of personality factors (GOLDBERG 1990). Nevertheless, it is assumed that common theories, e.g., the 16 primary factors (CATTELL 1946), the "Big Five" (COSTA and MCCRAE 1992), the gigantic three (EYSENCK and EYSENCK 1975) or the two metatraits/big two (DIGMAN 1997), have a similar core and only differ in their peculiarity (e.g., FIGUEREDO et al. 2011; ZUCKERMAN et al. 1993).

Although the number of basic personality characteristics has often been strongly discussed in research (e.g., PAUNONEN and JACKSON 2000), numerous analyses in recent decades have repeatedly led to a replication of the five-factor solution (CAPRARA et al. 2000, TUPES and CHRISTAL 1992, GOLDBERG 1990). Therefore, this paper will be based on the popular NEO Five Factor Inventory (NEO-FFI) personality test, which is also well known as the "Big Five". The five comprised elements are branded as *neuroticism*, *extraversion*, *openness to experience*, *agreeableness*[21] and *conscientiousness* (COSTA and MCCRAE 1992).

The NEO-FFI's field of application is wide-ranging and, in most cases, beneficial in predicting human perception and behavior.

Whether in medicine (e.g., predicting a life expectancy (WILSON et al. 2004)), political science (e.g., researching voting behavior and party affiliation (VECCHIONE et al. 2011)) or marketing (e.g., investigation of brand loyalty (MATZLER et al. 2005) and customer satisfaction (MOORADIAN and OLVER 1997)), the NEO-FFI is able to offer added value in many areas.

This study is intended to examine which personality trait has a moderator effect on the connection between brand personality, BSC and automotive purchase intention according to the following hypothesis:

H2: *The personality traits according to Costa and McCrae (1992) will have moderating effects on the relationship between brand personality, BSC and automotive purchase intention.*

[21] The items used in this study to assess *agreeableness* all measured the negative dimension (*non-agreeableness*).

Moderating Culture

> *"'Culture' is one of the most popular and widely used words. Google lists half a billion searches for 'culture', more than for 'politics', 'money', or 'sex'."* Taras et al. (2012).

In 2019, Google lists more than 5.8 billion entries under the term "culture", and therefore, it is not surprising that many years before, Kroeber and Kluckhohn (1952) could assign more than 164 different definitions to this phenomenon. However, a few general interpretations in the field of cultural research have been able to assert themselves over the years. First, culture can be understood as a kind of cross-generational transfer of values, ideas and systems (KROEBER and PARSONS 1958). Second, culture is recognized as the way in which people deal with problems and try to solve them (SCHEIN 1985). Third, and seemingly the most common way in research to describe culture, there is a fallback on theories consisting of different levels of characteristics (e.g., HOFSTEDE 1980, 2011; HOUSE et al. 2004; HAMPDEN-TURNER and TROMPENAARS 2011). For example, Hofstede, whose approach is still applied in various research areas (MYERS and TAN 2002), distinguishes in his cultural model between *individualism (IDV) vs. collectivism*, *uncertainty avoidance (UA)*, *power distance (PD)*, *masculinity (MAS) vs. femininity* and *long-term orientation (LTO) vs. short-term orientation* (HOFSTEDE 1980, 2011).

Within an *individualistic* culture, individuals see themselves as independent and autonomous, and they are convinced that they can stand out of the crowd. In *collectivism,* this conviction is subordinated, and the common good is the most important. The extent to which members of a culture feel threatened by uncertain or unknown situations is described as *uncertainty avoidance*. *Power distance* defines whether members of a culture expect and accept that power is unequally distributed. A culture characterized by m*asculinity* is determined by strong differences in gender roles, while a *feminine* culture is delineated by overlapping gender roles. The *long/short-term orientation* refers to the relevance of future-oriented values (e.g., perseverance, thrift, etc.) and the handling of values in relation to tradition and social obligations (HOFSTEDE 1980, 2011).

The aim of this study is to prove that Hofstede's cultural dimensions have a moderating effect in connection with brand personality, BSC and purchasing decisions in the automotive sector. The dimensions of IDV and UA are particularly suitable for this purpose, as these dimensions have already been confirmed in a brand-related context (LAM et al. 2012). Since people of IDV cultures are focused on putting their own well-being above the welfare of the group, it can be assumed that

the self-concept of a consumer enjoys priority. Cross et al. (2003) see this confirmed in the demand for consistency in IDV cultures. While inconsistency bears the danger of abandoning the elaboration of the consumer's self-concept, consistency (e.g., in the form of maturity, integrity or reliability) suggests that consumers have a firmly rooted idea of who they are and who they want to be and that they are constantly striving to maintain this idea on the basis of consistent behavior (including brand selection) (SIRGY 1982). The congruence between the brand personality and the self-concept can therefore be regarded as a form of consistency. A high IDV index consequently suggests that potential car buyers prefer brands that are oriented towards their self-concept. Based on this assumption, the following hypothesis can be derived:

H3.a: *Hofstede's (1980, 2011) cultural dimension of IDV positively moderates the relationship between BSC and automotive purchase intention.*

As mentioned before, the UA dimension refers to "*the extent to which the members of a culture feel threatened by uncertain or unknown situations*" (HOFSTEDE 1980). In addition, UA cultures have a tendency towards clarity and structured behavior (HOFSTEDE 2011), which implies that low risk tolerance enjoys priority. Lam et al. (2012) therefore assume that stability proves to be an important factor in countries with a high degree of UA. Unknown brands are associated with high information costs and thus entail a certain risk. The fact that people with a high degree of UA rarely experiment with unknown brands has been demonstrated in earlier papers (BRODERICK 2007; DONTHU and YOO 1998). It is assumed that a gap between the perceived brand personality and one's own perspective (e.g., the self-concept) and the resulting ambiguity or uncertainty are viewed negatively. A high UA index consequently suggests that potential car buyers prefer brands that signal familiarity, i.e., a high degree of BSC. Based on this assumption, the following hypothesis can be derived:

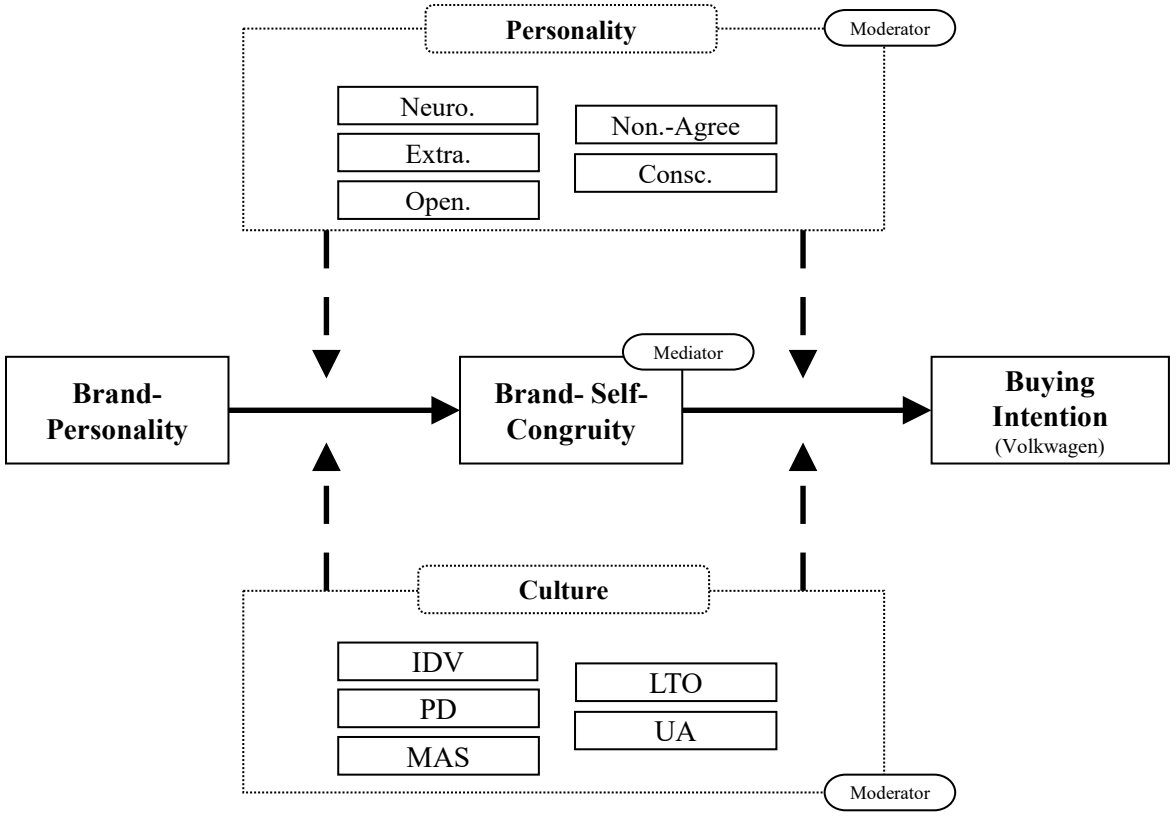
H3.b: *Hofstede's (1980, 2011) cultural dimension of UA positively moderates the relationship between BSC and automotive purchase intention.*

Since IDV and UA in this context offer sufficient reason to investigate moderator effects, the remaining cultural dimensions according to Hofstede (1980, 2011) will also be the subject of an analysis. Therefore, the following hypotheses can be derived:

H3.c, H3.d, and H3.e: *Hofstede's (1980, 2011) cultural dimensions of (c) PD, (d) MAS and (e) LTO will have moderating effects on the relationship between brand personality, BSC and automotive purchase intention.*

Figure 1 illustrates the proposed hypotheses in relationship with the research model derived from the theory and literature presented above.

Figure 1: Research Model



METHODOLOGY

In a broad questionnaire, participants were asked about brand personality, self-congruity, buying intention, culture and personality. The survey took place between 09/11/2018 and 14/11/2018 and included a sample size of n=800 (400 women, 400 men). The participants of the survey comprised car owners aged between 16 and 84 years (Ø = 49 years) from Germany (n=200), the USA (n=200), Austria (n=200) and the UK (n=200) (for a detailed demographic profile, see appendix). A pretest showed that all the questions were formulated clearly and translated correctly according to the English questionnaire. This ensured the reliability, validity and feasibility of the questionnaire within a period of 8-10 minutes.

Brand Personality

While the majority of studies are based on the work of Aaker (1997), which postulated five dimensions in the field of brand personality (sincerity, excitement, competence, sophistication and ruggedness), this paper is based on a more recent measure by Geuens et al. (2009). Their approach has gained prominence since Aaker's theory has suffered increasing criticism (e.g., "*loose definition of brand personality*", Azoulay and Kapferer (2003); "*nongeneralizability of the factor structure for analyses at the respondent level*", Austin et al. (2003); "*nonreplicability of the five factors cross-culturally*", Azoulay and Kapferer (2003)). The theory consists of five dimensions (*responsibility*, *activity*, *aggressiveness*, *simplicity* and *emotionality*) and shows similarities with the "Big Five" personality traits. With the assessment of 14 items (2-3 items per dimension), the participants were asked to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly).

Brand Self-Congruity

BSC was assessed with four items (e.g., "*Volkswagen as a car manufacturer suits my personality*"). The items were taken from several sources (BHATTACHARYA and SEN 2003, SIRGY and SU 2000, USAKLI and BALOGLU 2011) and were adapted to the context of an automotive purchase. Again, the participants were asked to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly).

Personality

Although numerous procedures for recording the "Big Five" personality traits exist, a short version of the NEO-FFI according to Körner et al. (2008) offers a suitable trade-off in terms of reliability, validity and economic suitability. The short version comprises 30 items (6 items per dimension) where participants have to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly).

Culture

To gain detailed insights into cultural issues, we decided to use two different methods. First, a moderator analysis took place to test hypothesis H3.(a; b; c; d; e) properly. For this purpose, the cultural dimensions according to Hofstede (1980, 2011) were measured by two (LTO) or four (IDV, UA, PD, MAS) items. Again, the participants were asked to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly). In addition, scores provided by Hofstede (https://www.hofstede-insights.com) were used (s. Table 1) to enable a post hoc analysis based on a significantly larger data set.

Table 1: Hofstede Cultural Scores (https://www.hofstede-insights.com)

	IDV	UA	PD	MAS	LTO
Germany	67	65	35	66	83
Austria	55	70	11	79	60
USA	91	46	40	62	26
UK	89	35	35	66	51

Purchase Intention

Purchase intention was measured by three items (e.g., "*I can imagine buying a Volkswagen (again).*"; "*I was already thinking about buying a Volkswagen (again).*"; "*I intend to buy a Volkswagen in the future.*"). Again, the participants were asked to indicate their extent of agreement based on a 5-point Likert scale (where 1 = Disagree strongly and 5 = Agree strongly).

RESULTS

The present sections are intended to empirically test the hypotheses presented above. To evaluate the collected data sets adequately, the software Smart PLS (3.2.8) was used to carry out structural equation modeling (SEM)[22].

PLS-Based Estimation of the Research Model

PLS-SEM was used to test the presented hypotheses. The basic analysis of a path model includes several steps. First, the evaluation of the measurement models (outer models) took place. Second, the assessment of the structural model (inner model) was carried out (HENSELER et al. 2009). For this application, the analysis software SmartPLS 3.2.8 was used, including the partial least squares (PLS) algorithm and a blindfolding and bootstrapping procedure (RINGLE et al. 2005). PLS appeared to be the most appropriate method to address our hypotheses since it offers advantageous data robustness with minimal demand on the measurement scales (JEFFERS et al. 2008; IM and RAI 2008). Additionally, it has the ability to analyze highly complex models with a large number of constructs and indicators, even with a small database (HENSELER et al. 2009; CHIN 1998).
After the analysis of the measurement and structural model, an investigation of the mediation and moderation effects and a post hoc analysis were conducted.

(1) Evaluation of the Measurement Models

When evaluating the measurement model, it is important to consider construct, indicator, convergence, and discriminant validity. Cronbach's alpha is considered an important indicator for the assessment of construct reliability (STRAUB 1989) and should have values greater than 0.7[23] (CRONBACH 1951) (s. Table 2). Factor loads larger than 0.7, on the other hand, suggest indicator reliability (CHURCHILL 1979). The average variance extracted (AVE) value helps you to check the convergence validity (>0.5)[24], while discriminant validity is successfully analyzed with the Fornell-Larcker criterion (FORNELL and LARCKER 1981). As a consequence of the obtained

[22] Some analyses required the use of IBM SPSS Statistics (Version 25).
[23] Simplicity and *LTO* with Cronbach's alpha < 0.7.
[24] *Conscientiousness* with AVE < 0.5.

satisfactory results, it was ensured that the constructs could be statistically separated and used to evaluate the structural model.

Table 2: Assessing the Measurement Models

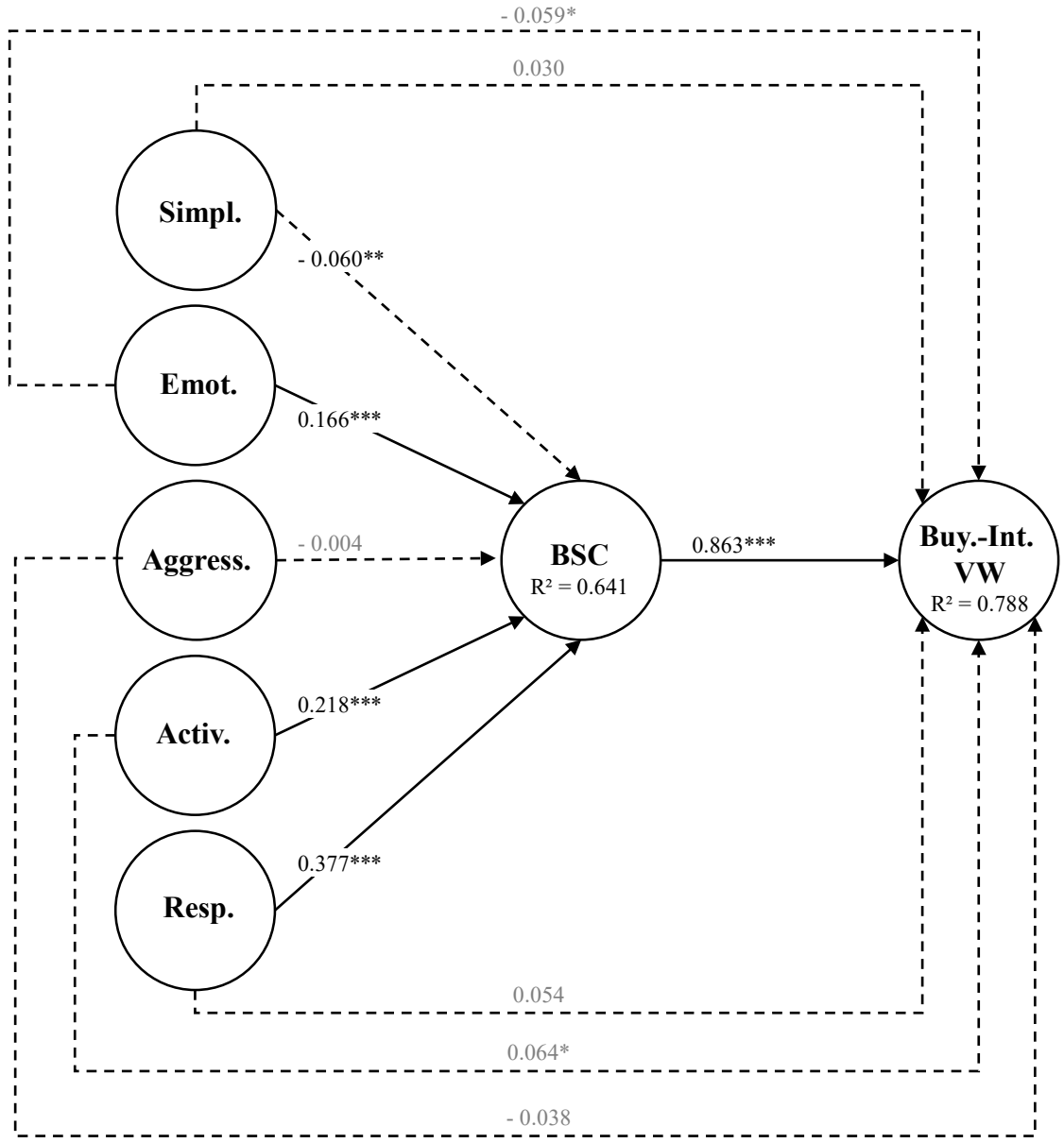
	Constructs & Items	Factor Loadings
Brand Personality	**Simpl**.	0.674 - 0.979
	CR = 0.823; α = 0.676; AVE = 0.706; F. = 0.706 > 0.227	
	Emot.	0.882 - 0.901
	CR = 0.920; α = 0.869; AVE = 0.793; F. = 0.793 > 0.424	
	Aggress.	0.705 – 0.892
	CR = 0.822; α = 0.723; AVE = 0.608; F. = 0.608 > 0.424	
	Activ.	0.903 – 0.917
	CR = 0.936; α = 0.898; AVE = 0.831; F. = 0.831 > 0.585	
	Resp.	0.848 – 0.896
	CR = 0.910; α = 0.852; AVE = 0.772; F. = 0.772 > 0.585	
Personality	**Non-Agree**.	0.544 - 0.813
	CR = 0.883; α = 0.845; AVE = 0.562; F. = 0.562 > 0.325	
	Open.	0.643 - 0.785
	CR = 0.872; α = 0.827; AVE = 0.534; F. = 0.534 > 0.247	
	Extra.	0.661 - 0.795
	CR = 0.857; α = 0.802; AVE = 0.502; F. = 0.502 > 0.247	
	Neuro.	0.796 - 0.873
	CR = 0.930; α = 0.910; AVE = 0.690; F. = 0.690 > 0.271	
	Consc.	0.434 - 0.868
	CR = 0.812; α = 0.823; AVE = 0.433; F. = 0.433 > 0.220	
Culture	**IDV**	0.715 - 0.777
	CR = 0.835; α = 0.741; AVE = 0.559; F. = 0.559 > 0.212	
	UA	0.872 - 0.893
	CR = 0.876; α = 0.716; AVE = 0.779; F. = 0.779 > 0.135	
	MAS	0.792 - 0.867
	CR = 0.900; α = 0.851; AVE = 0.692; F. = 0.692 > 0.408	
	PD	0.775 - 0.806
	CR = 0.871; α = 0.803; AVE = 0.629; F. = 0.629 > 0.408	
	LTO	0.768 - 0.909
	CR = 0.828; α = 0.604; AVE = 0.709; F. = 0.709 > 0.220	
Behavior	**Buy.Int. VW**	0.940 - 0.945
	CR = 0.959; α = 0.936; AVE = 0.887; F. = 0.887 > 0.773	
	BSC	0.862 - 0.934
	CR = 0.952; α = 0.932; AVE = 0.832; F. = 0.832 > 0.773	

CR = Composite Reliability; α = Cronbach´s Alpha; AVE = Average Variance Extracted;
F. = Fornell-Larcker Criterion (AVE > max. Corr²)

(2.a) Evaluation of the Structural Model: Brand-Personality and BSC

As illustrated in Figure 2, the assessment of the brand personality-related PLS path coefficients led to statistically significant relationships. Significant but weak bonds of the brand personality *activity* (positive) and *emotionality* (negative) to *buying intention (Volkswagen)* stand out.

Figure 2: Outcomes of the SEM (Brand-Personality & BSC)[25]



*** p = 0.01; ** p = 0.05; * p = 0.1

[25] Path coefficients that are significant and relevant (i.e., values > 0.1) are shown in solid lines, while (significant and) less relevant relationships are shown in dashed lines.

Furthermore, strong (positive) and significant paths between *emotionality, activity* and *responsibility* towards *BSC* can be observed[26]. With regard to *BSC*, a very strong connection to *buying intention (Volkswagen)* can also be identified.

Since there is no generally accepted global quality measure for PLS for the overall assessment of the causal model[27], the assessment is based on a cumulative consideration of different quality criteria (NITZL 2010). In addition to the consideration of the PLS path coefficients, the coefficient of determination R^2 is an important criterion in this context (CHIN and NEWSTED 1999). The R^2 values of all the constructs show "mediocre" (*BSC* with 0.641) and "satisfactory" (*buying intention (Volkswagen)* with 0.788) levels.

Stone-Geisser's Q^2 (GEISSER 1974; STONE 1974) also tests the constructs, can be determined by means of the blindfolding procedure (cross-validated redundancy) (TENENHAUS et al. 2005) and shows how good the model can reconstruct empirical data. For all endogenous latent variables, values larger than zero are shown in the results, suggesting the predictive relevance of the explanatory variables. In addition, the standardized root mean square residual (SRMR) with a value of 0.062 and the normed fit index (NFI) with a value of 0.760 also delivered "good" results with respect to the model fit.

(2.b) Evaluation of the Structural Model: Personality and Culture

Considering the personality and culture variables, it was also possible to discover statistically significant relationships (s. Figure 3). In connection with personality, a significant but weak (positive) path between *extraversion* and *BSC* was found. *Openness to experience* also shows a significant but weak (positive) relationship to *buying intention (Volkswagen)*.

With regard to culture, a significant and strong (negative) bond between *UA* and *BSC* was found. *LTO*, *PD* and *MAS* also show significant (positive) connections to *BSC*. However, it should be noted that although the relationships are significant, they are mostly not exceptionally strong.

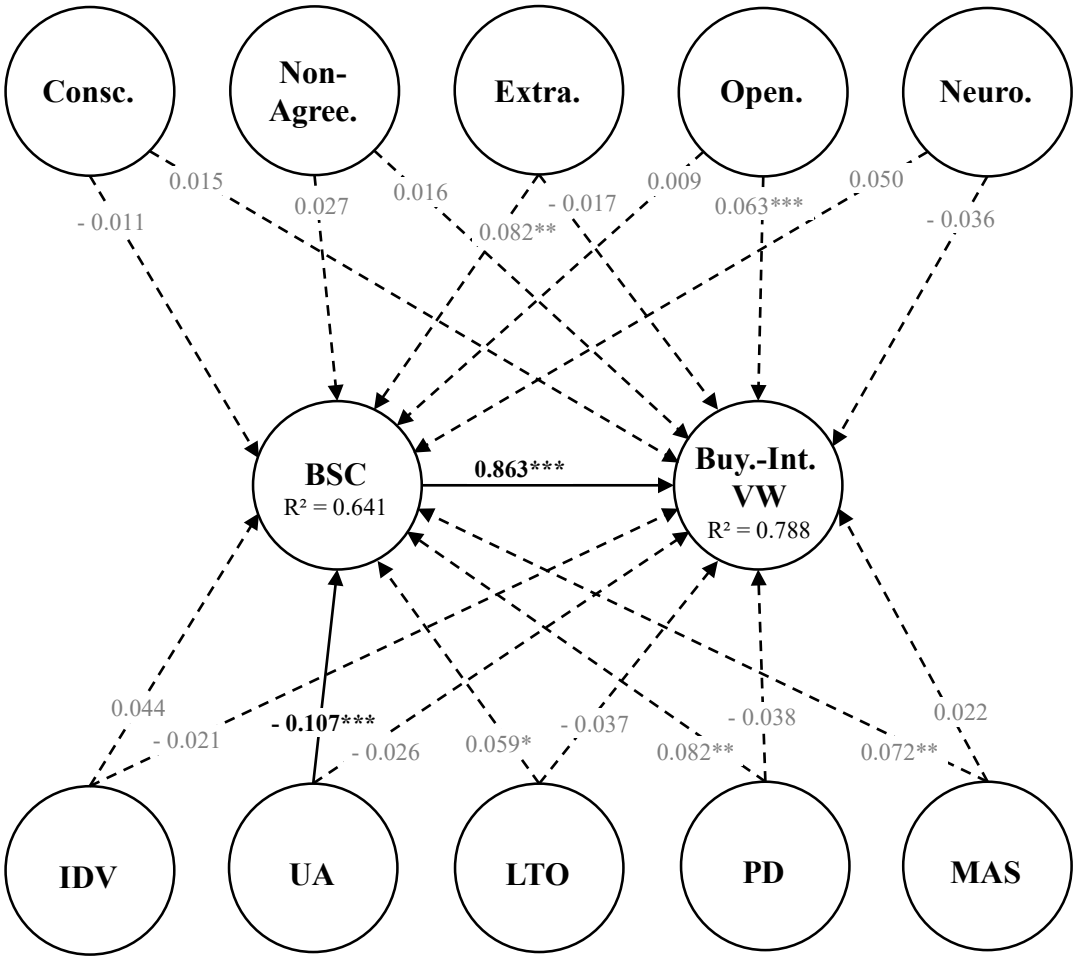
The results for the quality criteria, i.e., R^2, Q^2, SRMR and NFI, still apply, as shown in (2.a). The evaluations of the measurement (1) and structural model (2.a & 2.b) demonstrate that the PLS

[26] Another significant but weak link is the relationship between *simplicity* and *BSC*.

[27] Covariance-based procedures with LISREL in this context offer the possibility of making a global judgment on the overall model assessment with the help of the Goodness-of-Fit-Index (GFI) (TENENHAUS et al. 2005).

estimates are reliable and valid according to various criteria and that significant observations were also revealed.

Figure 3: Outcomes of the SEM (Personality & Culture)[28]



(3) Mediation Effect of BSC

It is recommended to carry out an analysis of possible mediators and moderators after the evaluation of a PLS model has taken place (NITZL 2010). To test the first hypothesis (H1), i.e., the assumption of the mediation effect of *BSC* on the relationship between *brand personality* and *buying intention (Volkswagen)*, a method suggested by Zhao et al. (2010) was followed. To use

[28] Path coefficients that are significant and relevant (i.e., values > 0.1) are shown in solid lines, while (significant and) less relevant relationships are shown in dashed lines.

this method, the following values had to be derived: indirect, direct and total effects of brand personality dimensions upon *buying intention (Volkswagen)* and the t-statistics for these effects. There is no mediation if the indirect effect is not significant. As soon as the indirect effect and the direct effect are significant, there is partial mediation. Full mediation occurs when the indirect effect is significant but the direct effect is not. In addition, research has recommended that confidence intervals are more appropriate for investigating mediating effects. Accordingly, a 97.5% bias-corrected confidence interval[29] was calculated. A significant mediating effect occurs when the confidence interval for the indirect effect does not include "0" (ZHAO et al. 2010) (s. Table 3).

Table 3: Mediation Effect of BSC

	Est.	t-Stastistics	97.5% BC CI	p-Value	Mediation
Simplicitiy					
Direct effect *Simpl.→ Buy. Int. VW*	0.030	1.380	-0.011 - 0.075	n.s.	
Indirect effect *Simpl.→ Buy. Int. VW*	-0.052**	2.116	-0.101 - -0.005	0.034	***yes*** *(fully)*
Total effect *Simpl. → Buy. Int. VW*	-0.022	0.700	-0.077 - 0.041	n.s.	
Emotionality					
Direct effect *Emot.→ Buy. Int. VW*	-0.059**	1.972	-0.121 - 0.000	0.049	
Indirect effect *Emot.→ Buy. Int. VW*	0.143***	3.837	0.067 - 0.211	0.000	***yes*** *(partially)*
Total effect *Emot. → Buy. Int. VW*	0.084*	1.695	-0.017 - 0.176	n.s.	
Aggressiveness					
Direct effect *Aggress.→ Buy. Int. VW*	-0.038	1.439	-0.089 - 0.013	n.s.	
Indirect effect *Aggress.→ Buy. Int. VW*	-0.003	0.099	-0.068 - 0.065	n.s.	***no***
Total effect *Aggress. → Buy. Int. VW*	-0.041	0.938	-0.129 - 0.043	n.s.	
Activity					
Direct effect *Activ.→ Buy. Int. VW*	0.064*	1.799	0.009 - 0.134	n.s.	
Indirect effect *Activ.→ Buy. Int. VW*	0.188***	4.755	0.116 - 0.271	0.000	***yes*** *(fully)*
Total effect *Activ. → Buy. Int. VW*	0.252***	4.659	0.151 - 0.364	0.000	
Responsibility					
Direct effect *Resp.→ Buy. Int. VW*	0.054	1.574	-0.010 - 0.123	n.s.	
Indirect effect *Resp.→ Buy. Int. VW*	0.325***	8.671	0.248 - 0.395	0.000	***yes*** *(fully)*
Total effect *Resp. → Buy. Int. VW*	0.379***	7.751	0.277 - 0.473	0.000	

*** p = 0.01; ** p = 0.05; * p = 0.1

The difference between partial and full mediation is as follows. Full mediation exists when the integration of the mediation variable reduces the relationship between the independent and

[29] Calculation based on 2.500 bootstraps.

dependent variables to zero. Here, partial mediation has a weaker but still significant effect on the relationship between the independent and dependent variables but does not explain all aspects of this relationship. This means that the mediator can simply be shown a direct link to the relationship between the independent and the dependent variable (BARON and KENNY 1986).

In this case, the brand personality dimensions of *simplicity, activity* and *responsibility* are fully mediated. *Emotionality* is partially mediated. No mediation could be determined for *aggressiveness*. Since a mediation effect of BSC could be investigated for the majority of the brand personality dimensions on *buying intention (Volkswagen)*, we conclude that H1 is partially supported.

(4) Moderation Effect of Personality and Culture

Only the path coefficients were tested for a possible cultural moderation effect, which proved to be significant within the previous analysis (s. Figure 2 and Figure 3). With regard to hypotheses H2 and H3, some significant effects could be demonstrated (s. Table 4). There are significant moderation effects of the cultural dimensions *PD* (negative) and *MAS* (positive) on the *BSC* to *buying intention (Volkswagen)* relationship. *PD* also negatively moderates the relationship between *emotionality* to *BSC,* and *LTO* moderates (negative) the connection of *responsibility* to *BSC*. In the case of personality as a moderator, the bond between *responsibility* and *BSC* is moderated by *non-agreeableness* (positive) and *neuroticism* (negative). *Non-agreeableness* also negatively moderates the *activity* on the *BSC* path.

Table 4: Assessing Moderation Effects of Personality and Culture

	IDV		**UA**		**LTO**	
	Est.	t-Stastistics	Est.	t-Stastistics	Est.	t-Stastistics
BSC → Buy. Int. VW	0.005	0.318	-0.011	0.676	0.008	0.432
Emot. → BSC	-0.031	0.705	-0.010	0.252	0.052	1.230
Activ. → BSC	0.017	0.342	-0.080	1.526	0.055	1.186
Resp. → BSC	0.028	0.607	0.043	1.051	**-0.069***	**1.689**

	PD		**MAS**	
	Est.	t-Stastistics	Est.	t-Stastistics
BSC → Buy. Int. VW	**-0.038***	**1.863**	**0.047****	**2.167**
Emot. → BSC	**-0.091***	**1.845**	0.003	0.044
Activ. → BSC	-0.083	1.588	0.080	1.390
Resp. → BSC	0.051	1.050	-0.059	1.062

	Non-Agree.		Neuro.		Extra.	
	Est.	t-Stastistics	Est.	t-Stastistics	Est.	t-Stastistics
BSC → Buy. Int. VW	0.001	0.050	-0.007	0.447	-0.016	0.899
Emot. → BSC	-0.021	0.474	-0.004	0.079	-0.037	0.830
Activ. → BSC	**-0.140****	**2.416**	0.059	1.065	0.040	0.708
Resp. → BSC	**0.093***	**1.879**	**-0.089***	**1.830**	0.026	0.494

	Open.		Consc.	
	Est.	t-Stastistics	Est.	t-Stastistics
BSC → Buy. Int. VW	0.029	1.573	-0.015	0.803
Emot. → BSC	-0.008	0.183	-0.026	0.582
Activ. → BSC	0.015	0.314	0.051	0.848
Resp. → BSC	0.004	0.088	0.005	0.091

*** p = 0.01; ** p = 0.05; * p = 0.1

(5) Post Hoc Analysis

To address cultural aspects, it is usually advisable to add a post hoc analysis in addition to the moderator analysis. It should be noted that the investigation of measurement and method differences was not an objective of this paper. The aim was to calculate a research model on the data basis of the individual countries and to enable corresponding comparisons. To identify cultural differences, the relationships among the constructs in one country compared to the overall model were first determined (s. Table 5). Additionally, the extent to which the individual nations differ from each other was examined (s. Table 6)[30]. The differentiation of the groups is significant if the estimate of the considered group does not fall within the confidence interval of the group to be compared and vice versa (SARSTEDT et al. 2011)[31].

The post hoc analysis shows four significant differences. Compared to the overall model (s. Table 5), Germany shows a much stronger estimate with the *responsibility* to *BSC* path compared to the overall model (0.367 vs. 0.543, respectively). The USA reveals a much weaker estimate with *responsibility* to *buying intention (Volkswagen)* compared to the overall model (0.055 vs. -0.038, respectively). In addition, Germany (0.735) and Austria (0.759) are significantly weaker in the *BSC* to *buying intention (Volkswagen)* bond compared to the overall model (0.850).

There are also differences in how the nations differ compared to each other (s. Table 6). All the relationships show significant differences except the connections between *emotionality* to *BSC* and

[30] The overall model was calculated without the moderator variables belonging to the origin research model.
[31] We calculated 97.5% bias-corrected bootstrap intervals. Calculations based on 5.000 bootstraps.

activity to *buying intention (Volkswagen)*. Regarding the *BSC* to *buying intention (Volkswagen)* path, we find that the models for Germany (0.735) and Austria (0.759) show significantly lower estimates compared to those of the UK (0.895) and the USA (0.912). Taking Table 1 as a reference, it can be seen that Germany (67) and Austria (55) have significantly lower *IDV* scores compared to the UK (89) and USA (91) but show higher *UA* scores (Germany: 65; Austria: 70; USA: 46; UK: 35). Based on the four countries considered in this study and with regard to hypotheses H3.a and H3.b, it can be noted that countries with high *IDV* scores (e.g., USA and UK) have a greater influence on the relationship between *BSC* and automotive purchase intention than countries with comparatively high *UA* scores (e.g., Germany and Austria).

The post hoc analysis therefore allows the conclusion that most of the relationships within the research model are susceptible to cultural influences. In most cases, however, the shown differences are in the strength but not in the direction of the path coefficients. In addition, the overall model shows only four significant differences compared to the country-specific models, which suggests a fairly good integration of the national models within the overall model.

Table 5: Comparison between the Overall Model and the Individual Nation Models

	Overall Model		**Germany** (G)		**Austria** (A)		**USA**		**UK**		**Δ**
	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	
Activ. → BSC	0.198***	0.108 - 0.287	0.067	-0.085 - 0.224	0.198**	0.010 - 0.385	0.089	-0.090 - 0.286	0.337***	0.158 - 0.531	
Aggress.→ BSC	0.060	-0.012 - 0.134	0.048	-0.109 - 0.190	0.058	-0.093 - 0.196	0.218**	0.050 - 0.380	-0.003	-0.134 - 0.105	
Emot. → BSC	0.280***	0.195 - 0.360	0.208***	0.068 - 0.343	0.231***	0.083 - 0.399	0.355***	0.192 - 0.500	0.279***	0.113 - 0.444	
Resp. → BSC	**0.367*****	0.283 - 0.451	**0.543*****	0.372 - 0.700	0.379***	0.209 - 0.542	0.323***	0.180 - 0.484	0.229***	0.052 - 0.386	**G > OM**
Simpl. → BSC	-0.047	-0.107 - 0.007	0.029	-0.151 - 0.155	-0.113*	-0.248 - -0.007	-0.087	-0.201 - 0.025	0.080	-0.034 - 0.187	
Activ. → Buy.Int.	0.060*	-0.011 - 0.125	0.051	-0.065 - 0.182	0.104	-0.043 - 0.253	0.036	-0.056 - 0.136	-0.028	-0.176 - 0.124	
Aggress.→Buy.Int.	-0.041	-0.092 - 0.010	0.016	-0.086 - 0.112	-0.133**	-0.255 - -0.021	0.023	-0.086 - 0.124	0.032	-0.078 - 0.145	
Emot. → Buy.Int.	-0.062**	-0.118 - -0.007	-0.071	-0.166 - 0.020	0.027	-0.095 - 0.171	-0.033	-0.114 - 0.059	-0.130**	-0.237 - -0.032	
Resp. → Buy.Int.	**0.055**	-0.010 - 0.122	0.132**	0.007 - 0.254	0.112	-0.036 - 0.263	**-0.038**	-0.138 - 0.054	0.068	-0.044 - 0.181	**USA < OM**
Simpl. → Buy.Int.	0.033	-0.011 - 0.075	0.097**	0.019 - 0.177	-0.022	-0.119 - 0.077	0.071*	-0.004 - 0.149	0.073	-0.003 - 0.168	
BSC → Buy.Int.	**0.850*****	0.805 - 0.890	**0.735****	0.631 - 0.840	**0.759*****	0.648 - 0.849	0.912***	0.842 - 0.977	0.895***	0.811 - 0.971	**G&A < OM**
R^2 (*BSC*)	0.565		0.586		0.492		0.662		0.569		
R^2 (*Buy. Int.*)	0.781		0.776		0.736		0.883		0.792		

*** p = 0.01; ** p = 0.05; * p = 0.1

Δ = Significant group differences (Overall Model vs. Nation Models) at the 2,5% level

Table 6: Group Differences between the Individual Nation Models

	Germany (G)		**Austria** (A)		**USA**		**UK**		**Δ**
	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	
Activ. → BSC	0.067	-0.085 - 0.224	0.198**	0.010 - 0.385	0.089	-0.090 - 0.286	0.337***	0.158 - 0.531	**G < UK USA < UK**
Aggress.→ BSC	0.048	-0.109 - 0.190	0.058	-0.093 - 0.196	0.218**	0.050 - 0.380	-0.003	-0.134 - 0.105	**G < USA USA < UK**
Emot. → BSC	0.208***	0.068 - 0.343	0.231***	0.083 - 0.399	0.355***	0.192 - 0.500	0.279***	0.113 - 0.444	
Resp. → BSC	0.543***	0.372 - 0.700	0.379***	0.209 - 0.542	0.323***	0.180 - 0.484	0.229***	0.052 - 0.386	**USA < G UK < G**
Simpl. → BSC	0.029	-0.151 - 0.155	-0.113*	-0.248 - -0.007	-0.087	-0.201 - 0.025	0.080	-0.034 - 0.187	**A < UK USA < UK**
Activ. → Buy.Int.	0.051	-0.065 - 0.182	0.104	-0.043 - 0.253	0.036	-0.056 - 0.136	-0.028	-0.176 - 0.124	
Aggress.→Buy.Int.	0.016	-0.086 - 0.112	-0.133**	-0.255 - -0.021	0.023	-0.086 - 0.124	0.032	-0.078 - 0.145	**A < G A < USA A < UK**
Emot. → Buy.Int.	-0.071	-0.166 - 0.020	0.027	-0.095 - 0.171	-0.033	-0.114 - 0.059	-0.130**	-0.237 - -0.032	**UK < A**
Resp. → Buy.Int.	0.132**	0.007 - 0.254	0.112	-0.036 - 0.263	-0.038	-0.138 - 0.054	0.068	-0.044 - 0.181	**USA < A USA < G**
Simpl. → Buy.Int.	0.097**	0.019 - 0.177	-0.022	-0.119 - 0.077	0.071*	-0.004 - 0.149	0.073	-0.003 - 0.168	**A < G**
BSC → Buy.Int.	0.735**	0.631 - 0.840	0.759***	0.648 - 0.849	0.912***	0.842 - 0.977	0.895***	0.811 - 0.971	**G < USA G < UK A < USA A < UK**

*** p = 0.01; ** p = 0.05; * p = 0.1

Δ = Significant group differences (Nation Model Differences) at the 2,5% level

CONCLUSIONS AND IMPLICATIONS FOR THEORY AND PRACTICE

Given that the brand personality has taken on an important role for both practitioners and academics (GEUENS et al. 2009), the primary goal of this essay was 1) to show the evidence of the mediating influence of BSC on the consumer's purchase decision (H1), 2) to analyze possible moderating effects of the consumer personality (H2) and the cultural dimensions (H3) on the relationship between brand personality, BSC and consumer's automotive purchase decision, 3) to explore this framework with a special focus on the automotive industry (using the brand Volkswagen) and 4) to identify other significant causal relationships between the dimensions of the brand personality, the BSC and their effects on consumer behaviors (buying intention) using a PLS path modeling approach.

The following sections of this chapter are intended to provide the main findings of this paper.

Theoretical Contributions

First, the mediation of brand personality (H1) was confirmed in general, and it can be stated that *BSC* can certainly be seen as a "bottleneck" of success within automotive marketing. However, this study also shows that not every considered brand personality brings complete mediation in the course of an automotive purchase decision (s. Table 4). With reference to the self-concept theory (as explained at the beginning), it can be stated that car buyers who have a match between the brand personality and their self-image are more motivated to buy personality-influenced car brands. According to the present research, this applies to all brand personalities except *aggressiveness*. For *emotionality* and *activity* (both partial), as well as *simplicity* and *responsibility* (both fully), mediation could be demonstrated. The results correspond with various other studies in which similar findings of brand personality mediations could be detected (e.g., USAKLI and BALOGLU 2011). The automotive context or the brand Volkswagen per se could be responsible for the missing mediation effect of *aggressiveness*. This, however, needs to be tested empirically in future studies.

Second, the moderation or rather the influence of personality (H2) and culture (H3) was tested. Our study shows that a moderation test could confirm some significant moderation effects of culture (e.g., *PD*, *MAS*, *LTO*) and personality traits (e.g., *non-agreeableness*, *neuroticism*). A post hoc analysis yielded detailed insights into how culture influences the relationships between a brand

personality, *BSC* and consumer behavior. Therefore, it can be seen that countries with high *IDV* scores (e.g., USA and UK) have a high influence on the relationship between *BSC* and automotive purchase intention (with reference to H3.a). Although countries with high UA scores (e.g., Germany and Austria) also have strong path coefficients in this context (with reference to H3.b), these are significantly stronger in *IDV*-influenced countries. We hope that these findings will encourage future research to further focus on the impact of personality and cultural differences. In the context of automotive marketing, this research provides new insights into the relationships between brand personality, consumer behavior, personality and culture and therefore enables future research initiatives to build on this research.

Managerial Implications

This study also shows several important managerial implications. It has been found that brand personality characteristics (via *BSC*) influence automotive purchase intention, and it was demonstrated that brand personification strategies could in fact be useful in managing and positioning brands. Automotive managers should use the matching between brand personality and self-image/self-concept to build a differentiator. They must be aware that by emphasizing specific personality traits (e.g., through advertising), they can address specific consumer types but, at the same time, become less attractive to others. The study also suggests that the research model can be used to provide effective market segmentation to identify consumers with similar personality characteristics to the brand.

Finally, it has been shown that brand personification strategies might be more or less effective depending on personality and cultural differences. While more research is required to explore these effects, the results indicate that the management needs to be aware that the consumer's personality and culture have an influence on how effective their brand personification strategies are. As the cultural post hoc analysis indicated, managers must acknowledge that brand personification strategies might not be effective to the same degree in every country. The clustering of customer segments along cultural dimensions should therefore be a practical strategy for automotive managers.

Limitations and Future Research

There were several limitations to the current study. First, it should be noted that the analysis only included one car brand (Volkswagen) and one industry (automotive). To strengthen the robustness of the research model, future studies should increase both of these aspects to some degree. A further investigation of the moderating effects (as hypothesized and confirmed in H2 and H3) and researching the reasons for the missing mediation effect of *aggressiveness* (H1) could possibly be achieved with the extension.

Second, to identify further cultural effects, it would be logical to involve further countries. Therefore, future studies should draw on supposedly different cultures. For this purpose, Lam et al. (2012) suggest the integration of societies from the Far East. Due to a holistic way of thinking and an associated high level of abstraction, East Asian societies often prefer brands that are very prestigious and preserve the "face" of the consumer (HOFSTEDE 2001). Therefore, brands examined in the future should aim at fulfilling the BSC concept but rather be focused on demonstrating a high perceived quality. In contrast, consumers from Western societies, due to their analytical way of thinking, mostly concentrate on specific object properties (NISBETT et al. 2001) and could therefore focus strongly on BSC.

As a third limitation, it must be mentioned that we only relied on one cultural theory (HOFSTEDE 1980, 2011). House et al. (2004) or Hampden-Turner and Trompenaars (2011) also have the potential to provide information about cultural differences and should therefore be considered in future studies.

Finally, it is worth examining the methodology. We quantified *BSC* with a short four-item measure. To achieve differentiated results in the area of actual, ideal and social self-concepts, it is probably worth setting up a more detailed and multidimensional survey.

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APPENDIX

Table A7: Demographic Profile of the Sample

	n	%		n	%
Country			**Martial Status**		
USA	200	25.0	Single	212	26.5
Germany	200	25.0	Married	471	58.9
Austria	200	25.0	Widowed	24	3.0
United Kingdom	200	25.0	Divorced	93	11.6
Age (in years)			**Net income (in €/month)**		
16-29	88	11.0	less than 1000	39	4.9
30-39	172	21.5	1,001-2,000	157	19.6
40-49	147	18.4	2,001-3,000	182	22.8
50-59	169	21.1	3,001-4,000	145	18.1
60-99	224	28.0	4,001-5,000	83	10.4
			5000 and over	138	17.3
Gender			No answer	56	7.0
Male	400	50.0			
Female	400	50.0			

Table A8: Bootstrapping Results for Path Coefficients

Path	Est.	t-Statistics
Brand-Self-Congruity → Buy.Int. VW	0.863	37.496***
Neuroticism → Brand-Self-Congruity	0.050	1.522
Neuroticism → Buy.Int. VW	-0.036	1.636
Extraversion → Brand-Self-Congruity	0.082	2.361**
Extraversion → Buy.Int. VW	-0.017	0.758
Openness to Experience → Brand-Self-Congruity	0.009	0.292
Openness to Experience → Buy.Int. VW	0.063	2.846***
Non-Agreeableness → Brand-Self-Congruity	0.027	0.787
Non-Agreeableness → Buy.Int. VW	0.016	0.738
Conscientiousness → Brand-Self-Congruity	-0.011	0.312
Conscientiousness → Buy.Int. VW	0.015	0.621
Individualism → Brand-Self-Congruity	0.044	1.443
Individualism → Buy.Int. VW	-0.021	1.113
Uncertainty Avoidance → Brand-Self-Congruity	-0.107	3.122***
Uncertainty Avoidance → Buy.Int. VW	-0.026	1.246
Power Distance → Brand-Self-Congruity	0.082	2.293**
Power Distance → Buy.Int. VW	-0.038	1.465
Long-Term Orientation → Brand-Self-Congruity	0.059	1.811*
Long-Term Orientation → Buy.Int. VW	-0.037	1.632
Masculinity → Brand-Self-Congruity	0.072	1.998**
Masculinity → Buy.Int. VW	0.022	0.869
Activity → Brand-Self-Congruity	0.218	4.754***
Activity → Buy.Int. VW	0.064	1.799*
Aggressiveness → Brand-Self-Congruity	-0.004	0.099
Aggressiveness → Buy.Int. VW	-0.038	1.439
Emotionality → Brand-Self-Congruity	0.166	3.902***
Emotionality → Buy.Int. VW	-0.059	1.972**
Responsibility → Brand-Self-Congruity	0.377	8.985***
Responsibility → Buy.Int. VW	0.054	1.574
Simplicity → Brand-Self-Congruity	-0.060	2.137**
Simplicity → Buy.Int. VW	0.030	1.380

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A9: Bootstrapping Results for Outer Loadings (Part 1)

Loading	Est.	t-Statistics
brcongr_1 ← Brand-Self-Congruity	0.919	139.366***
brcongr_2 ← Brand-Self-Congruity	0.862	70.777***
brcongr_3 ← Brand-Self-Congruity	0.933	152.593***
brcongr_4 ← Brand-Self-Congruity	0.934	167.577***
purchint_1 ← Buy.Int. VW	0.940	185.336***
purchint_2 ← Buy.Int. VW	0.945	196.193***
purchint_3 ← Buy.Int. VW	0.941	172.906***
VWactiv_1 ← Activity	0.917	111.145***
VWactiv_2 ← Activity	0.903	105.408***
VWactiv_3 ← Activity	0.914	109.526***
VWagree_1 ← Aggressiveness	0.731	17.349***
VWagree_2 ← Aggressiveness	0.705	15.979***
VWagree_3 ← Aggressiveness	0.892	48.220***
VWemotion_1 ← Emotional	0.882	72.179***
VWemotion_2 ← Emotional	0.901	95.663***
VWemotion_3 ← Emotional	0.888	82.935***
VWresp_1 ← Responsibility	0.890	96.855***
VWresp_2 ← Responsibility	0.848	52.845***
VWresp_3 ← Responsibility	0.896	95.502***
VWsimpl_1 ← Simplicity	0.674	9.814***
VWsimpl_2 ← Simplicity	0.979	89.280***
neuro_1 ← Neuroticism	0.810	45.471***
neuro_2 ← Neuroticism	0.801	43.965***
neuro_3 ← Neuroticism	0.796	38.982***
neuro_4 ← Neuroticism	0.853	60.242***
neuro_5 ← Neuroticism	0.845	56.244***
neuro_6 ← Neuroticism	0.873	77.438***
extra_1 ← Extraversion	0.795	45.670***
extra_2 ← Extraversion	0.576	15.971***
extra_3 ← Extraversion	0.735	26.820***
extra_4 ← Extraversion	0.756	32.637***
extra_5 ← Extraversion	0.661	21.319***
extra_6 ← Extraversion	0.707	27.583***

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A10: Bootstrapping Results for Outer Loadings (Part 2)

Loading	Est.	t-Statistics
open_1 ← Openness to Experience	0.643	17.459***
open_2 ← Openness to Experience	0.778	37.908***
open_3 ← Openness to Experience	0.785	42.125***
open_4 ← Openness to Experience	0.771	38.229***
open_5 ← Openness to Experience	0.663	18.194***
open_6 ← Openness to Experience	0.730	30.038***
nonagree_1 ← Non-Agreeableness	0.798	39.856***
nonagree_2 ← Non-Agreeableness	0.813	41.518***
nonagree_3 ← Non-Agreeableness	0.544	12.609***
nonagree_4 ← Non-Agreeableness	0.812	41.139***
nonagree_5 ← Non-Agreeableness	0.704	25.068***
nonagree_6 ← Non-Agreeableness	0.789	38.535***
cons_1 ← Conscientiousness	0.868	6.532***
cons_2 ← Conscientiousness	0.612	4.124***
cons_3 ← Conscientiousness	0.530	2.842***
cons_4 ← Conscientiousness	0.434	2.129**
cons_5 ← Conscientiousness	0.561	3.082***
cons_6 ← Conscientiousness	0.828	6.840***
indivd_1 ← Individualism	0.755	29.269***
indivd_2 ← Individualism	0.777	31.551***
indivd_3 ← Individualism	0.741	24.749***
indivd_4 ← Individualism	0.715	20.510***
ua_3 ← Uncertainty Avoidance	0.872	4.472***
ua_4 ← Uncertainty Avoidance	0.893	5.034***
ltst_2 ← Long-Term Orientation	0.909	36.744***
ltst_4 ← Long-Term Orientation	0.768	16.387***
mascu_1 ← Masculinity	0.867	62.081***
mascu_2 ← Masculinity	0.831	48.341***
mascu_3 ← Masculinity	0.836	49.625***
mascu_4 ← Masculinity	0.792	35.725***
power_1 ← Power Distance	0.801	41.163***
power_2 ← Power Distance	0.789	34.543***
power_3 ← Power Distance	0.775	35.510***
power_4 ← Power Distance	0.806	39.552***

*** p = 0.01; ** p = 0.05; * p = 0.1

ESSAY 3

The Effect of Eco-Friendly Automotive Brands on Consumer Perceptions and Behavior: An Analysis focusing on Consumer Environmental Awareness.

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The Effect of Eco-Friendly Automotive Brands on Consumer Perceptions and Behavior: An Analysis Focusing on Consumer Environmental Awareness

ABSTRACT

Purpose – Consumer interest in products and brands with eco-friendly characteristics has grown in recent decades. Since Dieselgate, the importance of creating a green brand seems to be especially high in the automotive industry. The main objective of this study is to investigate the relationships among a car brand perceived to be eco-friendly, consumers' perception of the brand and their resulting behaviors. Moreover, the analysis focused on consumers' environmental awareness (CEA) as a moderating variable.

Design/methodology/approach – The primary objects of investigation are the automotive brands Volkswagen and Mercedes-Benz. To evaluate the collected data of 600 car owners adequately, principal component analysis and structural equation modeling were carried out. In addition, a brand comparison and an examination of CEA moderation effects were conducted.

Findings – The findings suggest that an eco-friendly perceived car brand influences meaningful, perceptual and behavioral consumer metrics (e.g., customer satisfaction, brand trust, brand image) and could therefore be seen as an important differentiator for automotive marketing. Furthermore, this study shows that a moderation test could confirm the significant effects of CEA, allowing for the conclusion that some of the evaluated relationships are prone to different environmental awareness profiles.

Originality/value – This paper contributes to consumer research by providing empirical evidence for the importance of an eco-friendly perceived car brand. The results give valuable insights on the brand-related effects on perceptual and behavioral consumer metrics and point out the relevance of CEA in automotive marketing.

Keywords: Consumer Perception, Consumer Behavior, Green Brands, Consumer Environmental Awareness, Automotive Marketing

Paper type: Research paper

INTRODUCTION

In the recent past, various studies and predictions about environmental degradation have ensured that concern for conserving the environment has drawn attention from scientists, practitioners, manufacturers and the general public (BEHNAM et al. 2018). With these environmental concerns in mind, consumers are becoming increasingly interested in eco-friendly heuristics, product-related environmental performance, and general consumption patterns. At the same time, organizations and manufacturers can use the environmental prudence of consumers to gain a competitive advantage by offering green products and brands. This competitive edge is based on the fact that consumers are often willing to perceive eco-friendly brands quite differently than traditional brands and adopt special behavior as a result. For example, in many cases, customers are likely to favor green brands over traditional brands (CHITRA 2007) or even to pay a premium price for these brands (e.g., VEISTEN 2007; VLOSKY et al. 1999). However, since their organization's profit is affected, it seems to be extremely important for marketing strategists to understand that increasing levels of consumer environmental awareness (CEA) may affect the perception and behavior of their potential customers.

The automotive industry is under exceptional pressure regarding environmental issues. Since the occurrence of the Dieselgate scandal, the introduction of increasing governmental CO_2 restrictions and the growth in the overall levels of CEA, some manufacturers have attracted particular attention in this regard. While Volkswagen has become the focus of public interest due to their manipulation and use of defeat devices, other major players in the automotive industry, such as Mercedes-Benz, were also fined for not fully complying with emissions regulations but were mostly able to avoid major reputational damages (FASSE and MURPHY 2018; MUZI 2016). However, both Volkswagen and Mercedes-Benz have started to implement green practices and to improve their marketing channels. As these companies work towards an "emission-free" brand, various (and cost-intensive) technological improvements (e.g., catalytic converters and exhaust manifolds) and marketing-based visions and strategies (e.g., Volkswagen TOGETHER 2025+; Mercedes-Benz 5C-Strategy) have been successfully introduced within recent years. However, major future-oriented topics (e.g., electrification, autonomous driving, and connectivity) have so far been largely suppressed as they are likely to continue to drive up R&D costs (CHEN et al. 2004; LEE et al. 2010). Therefore, many automotive manufacturers question the extent to which green marketing-specific actions

should be carried out to strengthen an environmentally-friendly brand and to positively influence the perception and behavior of their customers.

To fill this existing gap in the current literature, the present study aims to investigate causal relationships between brands perceived to be eco-friendly and their effects on relevant consumer metrics. In addition, other significant relationships and moderating effects of CEA are researched within this context. The primary objects of investigation are the automotive brands Volkswagen and Mercedes-Benz, examined using the data of 600 car owners.

The article is structured as follows: the next section briefly summarizes the extant literature regarding eco-friendly automotive brands and CEA and develops the research hypotheses. The third section describes the methodology used to address the research questions before the results of the structural equation modeling (SEM) are discussed in section four. The last chapter presents conclusions and provides managerial implications, closing by identifying the limitations of the study and offering advice for future studies.

LITERATURE REVIEW

As mentioned above, concerns about environmental and ethical issues might push companies or brands to invest massively in reducing their environmental impact while enhancing their social responsibility. For this reason, there is a growing trend in various streams of green literature to cover topics such as sustainable production, eco-friendly marketing, and consumer awareness, as well as other issues such as government subsidy policies to promote environmental protection. Considering this literary wealth, it was necessary to refine our marketing-related focus: What is the definition of green marketing and eco-friendly brands? How is environmental awareness characterized? How do these concepts interact? Moreover, as they are crucial for shaping marketing strategies, this paper will concentrate on central consumer metrics (perception and behavior) with regard to their influence on an automotive brand perceived to be eco-friendly and on the environmental awareness of its potential customers. Hence, the following sections of this paper serve to explain the considered theorems and to develop the hypotheses.

Green Marketing and the (Potential) Outcomes for Brands Perceived to be Eco-Friendly

The European Environmental Agency lists the transport sector, alongside the clothing, housing and travel/food sectors, as one of the main causes of climate change, air pollution and noise in the EU (EUROPEAN ENVIRONMENTAL AGENCY 2019). Since this sector generates more than 14% of global greenhouse gases, the environmental impact of the automotive industry is massive (EDENHOFER 2015). Because of these key figures, the increasing levels of CEA (see next chapter), and the opportunity that firms have to use marketing as a major strategy to link environmental issues with their operations, automotive groups have increasingly focused on the development of green marketing in recent years.

In the literature, many marketing researchers consider green marketing to be one of the most fundamental trends in modern companies (SHARMA and VREDENBURG 1998; PUJARI and WRIGHT 1996). The basic concept of green marketing began in 1976. Following a workshop led by the American Marketing Association, "Ecological Marketing" was published as one of the first environmental marketing books ever. In this book, Henion and Kinnear (1976) defined eco-marketing as »*the study of the positive and negative aspects of marketing activities on pollution, energy depletion and nonenergy resource depletion*«. In a later definition, Polonsky (1994) briefly describes specific marketing efforts that aim to produce and distribute products or services to satisfy human wishes and needs while (at the same time) minimizing harm to the environment. Examples include product and packaging modifications, changes to manufacturing processes and adjustments to advertising measures. Another definition, proposed by Peattie (1995), sees green marketing as a holistic administrative process responsible for identifying, anticipating and meeting the needs of consumers and society in a lucrative and sustainable way. Regardless of the definition, according to Rex and Burman (2007), eco-friendly marketing enables a bridge to be built, connecting the wishes of markets and customers to the environmentally-friendly commitments and technological offers of companies.

However, the development of a product with a minimal environmental impact might not be enough to pursue a successful green marketing strategy. Therefore, companies aim to generate a perception in their consumers' minds which both demonstrates a certain product quality and shows the environmental engagement of the company (MENON and MENON 1997). Similarly, the creation and management of a green brand is an essential component of green marketing.

Since the basic concept of a brand is to unite values, ideas, associations, feelings and emotions and furthermore to generate a coherent identity (OWEN and CHANDLER 2002; FARQUHAR et al. 1992), branding allows for differentiating products from the competition, especially in relation to similar product types or models (LOW and LAMB 2000). A green brand can thus be understood as a specific set of brand attributes with a focus on minimizing environmental impact and bringing benefits to environmentally conscious consumers (HARTMANN et al. 2005). This focus is usually why the ecological advantages of one brand over another are asserted and thus advertised to supposedly environmentally-friendly clients (LEE 2008). For this reason, the core of a green brand is successful communication with its target market, since the perceptions of consumers can lead to a positive attitude towards the brand (RIOS et al. 2006).

The development of an eco-friendly car brand is extremely complex. Before cost-intensive and unexplored technological innovations are implemented in product lifecycles, the manufacturer´s first steps are usually the general integration of various marketing activities that are aimed at anchoring an environmentally-friendly image in their consumers' minds (OTTMAN and BOOKS 1998). It can be observed that automotive companies are currently trying to implement systematic green marketing measures because technological progress seems to be stuck in long product lifecycles (e.g., hydrogen vehicles) and the latest technology sales figures are rather moderate (e.g., electric vehicles). For example, the exclusion of certain materials in product manufacturing[33] and the usage of more conscious production systems[34] are currently considered to be the most common methods of strengthening an automotive brand and satisfying the environmental expectations of clients.

Based upon the aforementioned information about green brands and considering that previous studies have shown that eco-friendly brands are more attractive to consumers (PHAU and ONG 2007), the purpose of this paper is to examine the effects of an automotive brand perceived to be green on the important constructs of consumer perception and behavior. The following consumer metrics are common in marketing research and are the focus of this paper (s. Table 1).

[33] e.g., Volkswagen, Mercedes-Benz and Tesla offer leather-free car interiors.

[34] e.g., General Motors promotes a reuse and zero waste initiative; Volkswagen advertises carbon neutral production for their I.D. models.

Table 1: Important Consumer Metrics in Marketing Research

	Construct	Definition		Construct	Definition
Consumer Perception	Customer Satisfaction	»*The consumer´s response to the evaluation of the perceived discrepancy between prior expectations and the actual performance of the products as perceived after its consumption.*« (TSE and WILTEN 1988)	**Consumer Behavior**	Price-Premium	Several empirical studies have experimentally tested consumers´ willingness to pay higher prices with regard to some products. (e.g., VEISTEN 2007; VLOSKY et al. 1999).
	Brand Image	»*Perception about a brand as reflected by the brand associations held in consumer memory.*« (KELLER 1993)		Brand Loyalty	»*A deeply held commitment to rebuy or patronize a preferred product/service consistently in the future, despite other situational and marketing factors that have the potential to induce switching behavior.*« (OLIVER 1999)
	Brand Trust	»*The willingness of the average consumer to rely on the ability of the brand to perform its stated functions.*« (CHAUDHURI and HOLBROOK 2001)		Buying Intention	»*The antecedents that stimulate and drive consumers' actual purchase of products and services.*« (HAWKINS et al. 1998)

Considering the influence of an eco-friendly perceived automotive brand on the consumer perception constructs (brand image, customer satisfaction, and brand trust), we have developed the following hypotheses:

H1.a: *An eco-friendly perceived automotive brand positively influences customer satisfaction.*
H1.b: *An eco-friendly perceived automotive brand positively influences brand image.*
H1.c: *An eco-friendly perceived automotive brand positively influences brand trust.*

What consumers know about a brand affects their future reactions to the brand and its products (KOLL and VON WALLPACH 2009). For the sake of focus, we concentrate on the potential behavioral responses (willingness to pay a price premium, brand loyalty, and buying intention) to eco-friendly perceived automotive brands. Therefore, we have developed the following hypotheses:

H2.a: *An eco-friendly perceived automotive brand positively influences willingness to pay a price premium.*
H2.b: *An eco-friendly perceived automotive brand positively influences brand loyalty.*
H2.c: *An eco-friendly perceived automotive brand positively influences buying intention.*

CEA and its Impact

According to institutional theory, which is an approach that addresses key guidelines and aspects of social interactions, the social structure as an external factor has a strong influence on companies and their operations (HIRSCH 1975). The theory states that society provides a framework from which acting organizations draw their motivational factors. This framework in turn can lead to sociocultural pressure that forces organizations to take steps towards the adoption of different trends (IACOBUCCI and HOPKINS 1992). Various studies have identified increasing CEA as one of the main pressure points of modern times (e.g., PAUL et al. 2016; WANG et al. 2018). It is one of the main pressure points due to the growing awareness of global ecological and socioeconomic issues and the resulting misgivings about global sustainable developments and the healthy future of humanity (HOPWOOD et al. 2005). With these concerns in mind, CEA is often defined as an awareness or understanding of eco-related problems and a willingness to remedy these issues. Therefore, it can affect individuals' behavior, causing them to be more environmentally friendly (e.g., HU et al. 2010; LIN et al. 2017). However, it should generally be noted that a basic attitude of a person does not directly influence their behavior (FISHBEIN and AJZEN 1980); thus, CEA is likely to have only an indirect impact on behavior. Even if people are motivated to behave in a sustainable way, there are sufficient reasons for the discrepancies between their will and actions because other factors also influence a person's environmental behavior, in addition to environmental awareness. It should be emphasized that environmental awareness is only one of the many objectives of human behavior. Additionally, green behavior is usually much more time-consuming and cost-intensive, and since humans are rational-thinking beings, it often suits everyday life to put environmentally-friendly actions second.

Nevertheless, CEA is perceived as a fundamental indicator of ecologically-aware behavior and has proven to be particularly useful for research in various domains. Several studies have confirmed that CEA influences consumers' purchase behavior regarding environmentally-sound products (e.g., BALDERJAHN 1988; ROBERTS and BACON 1997). Conrad (2005) investigated how CEA affects market share, product attributes and market prices, while Yakita (2009) researched the market implication of product differentiation when potential consumers are apprehensive about the environmental aspects of goods. In another work, Yalabik and Fairchild (2011) discussed how manufacturers integrate eco-friendly production techniques to attract environmentally-conscious consumers in the market.

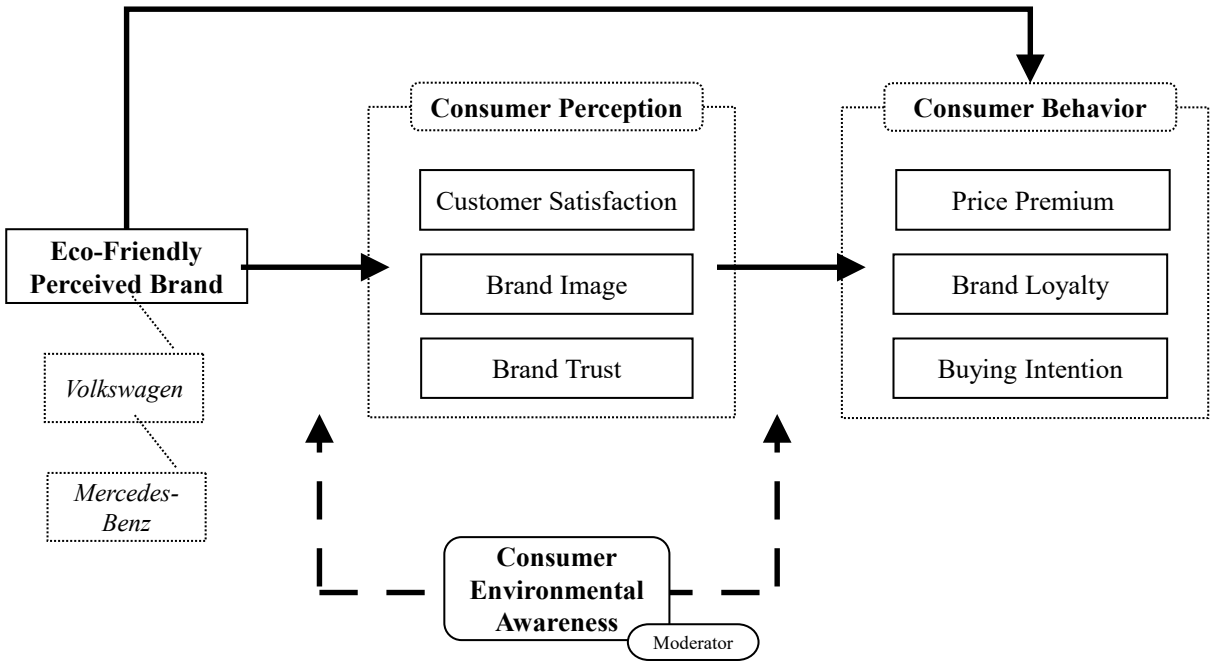
However, the question of how to correctly measure CEA frequently arises. Scientists use a variety of alternative and complementary measurement scales to assess consumers' concerns about environmental issues (e.g., KINNEAR et al. 1974; SYNODINOS 1990). The New Environmental Paradigm (NEP), according to Dunlap and Van Liere (1978), is one of the most prominent approaches in this context and has been carried out in numerous studies (HAWCROFT and MILFONT 2010). Following this classical paradigm, a concept developed by Wingerter (2014) and will be used in this paper. The scale of General Environmental Awareness was established to measure environmental awareness as a general conviction or ideology and is based on a rational choice model, which assumes that green beliefs and values are based on rational decisions. Three dimensions are identified in this scale: the intrinsic understanding of nature (INTRIN), the belief that nature is the basis of existence (EXIS) and the instrumental understanding of nature (INSTRU). In an intrinsic understanding, nature is considered so important that it is an integral part of a person's overall value system and that an intact natural environment would be irreplaceable were it to be lost. The belief that nature should be seen as the basis of existence includes two important convictions: First, nature is regarded as an indispensable basis of human existence. Second, it is assumed that through their fundamental actions, humans are irreversibly damaging nature and thereby damaging their basis of existence. The instrumental understanding of nature represents an attitude that recognizes the natural environment as a resource for satisfying human activities. Again, a degradation of environmental quality is understood as a loss, but only if the needs that the environment had previously been meeting can be met alternatively (e.g., through technological progress) (WINGERTER 2014).

While different levels of CEA are already considered to be relevant in some research, the influence of these levels has received less attention in relation to the automotive industry so far. To counteract this outcome, the General Environmental Awareness scale proposed by Wingerter (2014) will be used in the present paper to examine the moderating effects of the three dimensions previously explained (INTRIN, EXIS, INSTRU). Therefore, we have developed the following hypothesis:

H3: *The CEA levels according to Wingerter (2014) will have moderating effects on the relationship between an eco-friendly perceived automotive brand and the considered consumer metrics (i.e., perception and behavior).*

Figure 1 illustrates the proposed hypotheses in relationship to the research model derived from the theory and literature presented above.

Figure 1: Research Model



METHODOLOGY

The dataset was built using data from a questionnaire in which participants were asked about their environmental awareness, their perceptions, their behavior and eco-friendly brands. A pretest showed that all the questions were formulated clearly. This formulation ensured the reliability, validity and feasibility of the questionnaire to be completed within a period of 8-10 minutes. A total of 600 surveys were returned between November 09, 2018, and November 14, 2018. To ensure that our analysis would be as differentiated as was feasible, bias towards the Volkswagen and Mercedes-Benz brands needed to be excluded as much as possible. Volkswagen and Mercedes-Benz owners were therefore excluded from the subsequent evaluations (→ n = 446). The demographic data of the participants are shown in Table 2.

Table 2: Demographic Characteristics of Participants

	n	%		n	%
Country			**Education**		
Germany	446	100.0	No school/work-related qualification	1	0.2
			Work-related qualification without graduation	4	0.9
Age (in years)			Lower Secondary Education (LSE)	21	4.7
16-29	60	13.4	Middle School (MS)	59	13.2
30-39	89	20.0	Work-related qualification with graduation (LSE or MS)	120	26.9
40-49	98	22.0	High School Diploma	55	12.3
50-59	98	22.0	Work-related qualification with High School Diploma	71	15.9
60-99	101	22.6	Bachelor´s degree	58	13.1
			Master´s degree (or higher)	57	12.8
Gender					
Male	228	51.1	**Net household income (in €/month)**		
Female	218	48.9	less than 1000	17	3.8
			1,001 - 2,000	92	20.6
Martial Status			2,001 - 3,000	124	27.8
Single	156	35.0	3,001 - 4,000	102	22.9
Married	229	51.3	4,001 - 5,000	37	8.3
Widowed	12	2.7	5000 and over	34	7.6
Divorced	49	11.0	No answer	40	9.0

Measures

Scales from previous works were adopted to measure the studied variables. Therefore, the wording of some items was changed slightly. For all the variables, the participants were asked to indicate the extent to which they agreed with the item based on a 5-point Likert scale (where 1 = Strongly disagree and 5 = Strongly agree).

To evaluate a brand in terms of its environmental performance, it is recommended that various subject areas are taken into account (e.g., social responsibility, sustainability, eco-credibility, climate change). In this case, each of the brands' perceived eco-friendliness was measured by 12 items (e.g., "*In comparison to other brands, Volkswagen is environmentally friendly.*"; "*Volkswagen sets the ecological standard for other brands.*"; "*Products from Volkswagen are produced sustainably/in a resource-saving way.*"; "*The Volkswagen brand is known for its environmentally-friendly reputation.*").

As already mentioned, the measurement of CEA was based on the Wingerter (2014) scale. The three included dimensions (INTRIN, EXIS, INSTRU) were measured with two to four items each (e.g., for INTRIN: "*There are limits to growth that our industrialized world has already crossed or will reach very soon.*"; e.g., for EXIS: "*If we go on like this, we are heading for an*

environmental crisis."; e.g., for INSTRU: "*People have the right to transform nature according to their needs.*")

To measure consumer perception and behavior, a questionnaire based on Wiedmann et al. (2011) was used and adapted to this specific context. With regard to perception, two items measured the constructs of *customer satisfaction*, *brand image* and *brand trust* (e.g., "*Volkswagen completely meets my expectations.*"; "*I rely on Volkswagen.*"). Consumer behavior was determined by the factors *price premium*, *brand loyalty* and *buying intention*, which were also measured with two items each (e.g., "*I recommend Volkswagen to my friends.*"; "*I am willing to pay a higher price to buy a Volkswagen.*").

RESULTS AND DISCUSSION

The present sections present the empirical testing of the hypotheses proposed above. To evaluate the collected datasets adequately, the software IBM SPSS Statistics (Version 25) and Smart PLS (3.2.8) were used to carry out principal component analysis (PCA) and partial least squares structural equation modeling (PLS-SEM).

PCA for CEA

As shown in Table 3, PCA was carried out to test the theoretically assumed CEA profiles in this context according to Wingerter (2014). Only items that clearly loaded on one factor and had a loading that exceeded 0.4 were considered for factor interpretation. The PCA for CEA revealed that two such factors were found, which explained 55.64% of the initial variance.

In contrast to the three theoretically assumed CEA dimensions (INTRIN, EXIS, INSTRU) according to Wingerter (2014), the explorative factor analysis only reproduced two factors within this study. While the INSTRU factor could be verified, the fusion of the INTRIN and EXIS items led to the formation of only one factor. It remains unclear whether a sophisticated approach, such as that of Wingerter (2014), offers the best solution for measuring CEA. However, in the following section of the paper, considering the content of the study, we concentrated on one environmentally-conscious and one less environmentally-conscious factor. Therefore, the INSTRU factor was called CEA^{low}, and the (merged) INTRIN/EXIS factor was named CEA^{high}.

Table 3: PCA: Consumer Environmental Awareness

CEA (Cronbach´s Alpha)	Items (according to Wingerter (2014))	Factor 1	Factor 2
INTRIN & EXIS = CEA^{high} (0.752)	If we go on like this, we are heading for an environmental crisis.	0.761	
	When I read newspaper reports or watch television shows about environmental problems, I am often outraged and angry.	0.758	
	There are limits to growth that our industrialized world has already crossed or will reach very soon.	0.746	
	Animals should have similar rights as humans.	0.743	
INSTRU = CEA^{low} (0.707)	People have the right to transform nature according to their needs.		0.774
	Science and technology will solve many environmental problems without us having to change our way of life.		0.726
	Plants and animals exist mainly to be used by humans.		0.712
	Economic growth is needed to protect the environment.		0.678

The Kaiser-Meyer-Olkin-Criterion (KMO) indicates whether a dataset is suitable for factor analysis. With a KMO value of 0.762, this dataset could be described as "middling" (KAISER and RICE 1974). The Cronbach´s alpha (as a measure of the internal consistency of a scale) for both factors was higher than 0.7, which indicates good internal consistency (CRONBACH 1951).

PLS-Based Estimation of the Research Model

PLS-SEM was used to test the presented hypotheses. The basic analysis of a path model includes several steps. First, the evaluation of the measurement models (outer models) took place. Second, the assessment of the structural model (inner model) was carried out (HENSELER et al. 2009). For this application, the analysis software SmartPLS 3.2.8 was used, including the partial least squares (PLS) algorithm and a blindfolding and bootstrapping procedure (RINGLE et al. 2005). PLS appeared to be the most appropriate method to address our hypotheses since it offers advantageous data robustness with minimal demand on the measurement scales (JEFFERS et al. 2008; IM and RAI 2008). Additionally, it has the ability to analyze highly complex models with a large number of constructs and indicators, even with a small database (HENSELER et al. 2009; CHIN 1998).

After the analysis of the measurement and structural model, a brand comparison between Volkswagen and Mercedes-Benz and an investigation of the moderation effects were conducted.

(1) Evaluation of the Measurement Models

When evaluating the measurement model, it is important to conduct a reliability and validity analysis. Many studies, such as Hair et al. (2009), recommend factor loadings larger than 0.7 to suggest indicator reliability. All the factor loadings in Table 4 met these requirements[35]. For the assessment of construct reliability, Cronbach´s alpha and composite reliability were used. Table 4 shows that the Cronbach's alpha values were between 0.706 and 0.966, and the composite reliability values were between 0.818 and 0.976, which are all higher than the benchmark of 0.7 (CRONBACH 1951). Therefore, the construct reliability in this study is reasonable.

To examine the construct validity, the convergence validity and the discriminant validity were tested. The average variance extracted (AVE) is widely used to analyze the convergence validity (>0.5), while discriminant validity was successfully analyzed in our case with the Fornell-Larcker criterion (FORNELL and LARCKER 1981).

As a consequence of these satisfactory results, we ensured that the measurement model was reliable and valid.

Table 4: Evaluation of the Measurement Models

	Constructs & Items	Loadings
Consumer Perception	**Customer Satisfaction**	
	Volkswagen*: α = 0.934; CR = 0.968; AVE = 0.938; F. = 0.968 > 0.810*	0.969 - 0.968
	Mercedes-Benz*: α = 0.913; CR = 0.958; AVE = 0.920; F. = 0.959 > 0.821*	0.960 - 0.958
	Brand Image	
	Volkswagen*: α = 0.930; CR = 0.966; AVE = 0.934; F. = 0.967 > 0.900*	0.967 - 0.967
	Mercedes-Benz*: α = 0.923; CR = 0.963; AVE = 0.929; F. = 0.964 > 0.885*	0.964 - 0.963
	Brand Trust	
	Volkswagen*: α = 0.906; CR = 0.955; AVE = 0.914; F. = 0.956 > 0.885*	0.956 - 0.956
	Mercedes-Benz*: α = 0.904; CR = 0.954; AVE = 0.912; F. = 0.955 > 0.893*	0.956 - 0.954
Consumer Behavior	**Price Premium**	
	Volkswagen*: α = 0.922; CR = 0.963; AVE = 0.928; F. = 0.963 > 0.835*	0.964 - 0.962
	Mercedes-Benz*: α = 0.885; CR = 0.945; AVE = 0.897; F. = 0.947 > 0.823*	0.949 - 0.945
	Brand Loyalty	
	Volkswagen*: α = 0.871; CR = 0.939; AVE = 0.885; F. = 0.941 > 0.896*	0.949 - 0.933
	Mercedes-Benz*: α = 0.852; CR = 0.931; AVE = 0.871; F. = 0.933 > 0.871*	0.940 - 0.926
	Buying Intention	
	Volkswagen*: α = 0.940; CR = 0.971; AVE = 0.943; F. = 0.971 > 0.848*	0.972 - 0.970
	Mercedes-Benz*: α = 0.950; CR = 0.976; AVE = 0.953; F. = 0.976 > 0.760*	0.977 - 0.975

[35] Three items regarding CEA^{high} and one item regarding the *eco-friendly perceived brand (Volkswagen)* were eliminated due to low factor-loading (< 0.4).

Eco-Friendly Perceived Brand	**Volkswagen as an eco-friendly perceived brand…**	
	Volkswagen*: α = 0.962; CR = 0.968; AVE = 0.719; F. = 0.848 > 0.789*	0.922 - 0.549
	Mercedes-Benz as an eco-friendly perceived brand…	
	Mercedes-Benz*: α = 0.966; CR = 0.971; AVE = 0.740; F. = 0.860 > 0.715*	0.922 - 0.574
Consumer Environmental Awareness (CEA)	INSTRU = **CEA**^{low}	
	Volkswagen*: α = 0.706; CR = 0.818; AVE = 0.530; F. = 0.728 > 0.354*	0.744 - 0.701
	Mercedes-Benz*: α = 0.706; CR = 0.820; AVE = 0.532; F. = 0.729 > 0.287*	0.757 - 0.690
	INTRIN & EXIS = **CEA**^{high}	
	Volkswagen*: α = 0.754; CR = 0.827; AVE = 0.551; F. = 0.742 > -0.038*	0.891 - 0.582
	Mercedes-Benz*: α = 0.754; CR = 0.825; AVE = 0.547; F. = 0.739 > -0.043*	0.910 - 0.607

CR = Composite Reliability; α = Cronbach´s Alpha; AVE = Average Variance Extracted;
F. = Fornell-Larcker Criterion (√AVE > max. Corr)

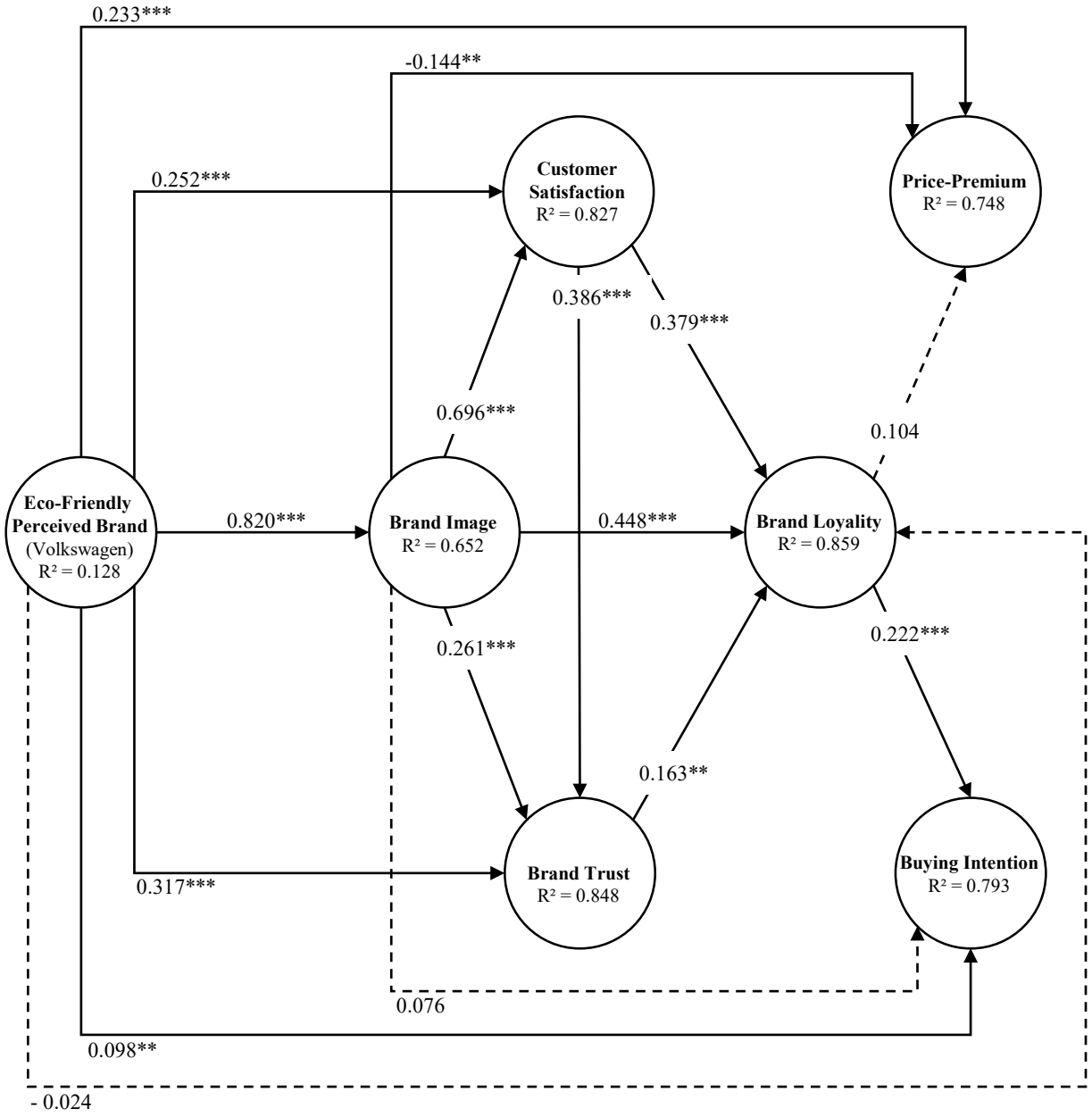
(2) Evaluation of the Structural Model (Volkswagen)

As illustrated in Figure 2, the path analysis led to statistically significant relationships. Particularly important connections include the following: The strong relationship between the *eco-friendly perceived brand (Volkswagen)* and *brand image* (0.820) stands out. Accordingly, it can be assumed that a green car brand or marketing measures that promote a green car brand have a direct and positive influence on *brand image*. In comparison, the strength of the paths between the *eco-friendly perceived brand (Volkswagen)* and *brand trust* (0.317) and between the *eco-friendly perceived brand (Volkswagen)* and *customer satisfaction (0.252)* drop significantly. This drop could be related to the effects of Dieselgate on the Volkswagen brand. Potential consumers are thus less willing to build up *trust* because of the environmentally-friendly perception of the Volkswagen brand or even to pay a *price premium* (0.233). In addition, the *eco-friendly perceived brand (Volkswagen)* has no relevant impact on the remaining behavioral factors *buying intention* (0.098) and *brand loyalty* (-0.024).

Consumers' lack of trust in the brand itself is moreover reflected in the extremely weak link between *brand trust* and *brand loyalty* (0.163). To maintain the customer's commitment to the Volkswagen brand and thus to increase the probability of a future rebuy (OLIVER 1999), it is advisable to strengthen the *customer satisfaction* construct since the relationship between *customer satisfaction* and *brand loyalty* (0.379) is much stronger than the relationships with the other constructs. Accordingly, Volkswagen should focus more on *customer satisfaction* since this construct has a significantly higher influence on *brand loyalty* than it does on *brand trust* and because *customer satisfaction* and *brand trust (0.386)* are likewise well connected. In addition,

brand loyalty has a comparatively solid influence on *buying intention* (0.222) and is therefore of significance for automotive brand managers.

Figure 2: Path-model Volkswagen[36]



*** p = 0.01; ** p = 0.05; * p = 0.1

[36] Path coefficients that are significant and relevant (i.e., values > 0.1) are shown in solid lines, while (significant and) less relevant relationships are shown in dashed lines.

With regard to the important factor of *customer satisfaction*, it is evident that an increase in *brand image* (0.696) is more likely to increase this construct than is the direct link to the *eco-friendly perceived brand (Volkswagen)* (0.252). According to this phenomenon, a positive *brand image* is more necessary for Volkswagen to ensure *consumer satisfaction* (and thus *brand loyalty*) than an *environmentally-friendly perceived car brand*. Since the *eco-friendly perceived brand (Volkswagen)* has a major effect on *brand image* (0.820) and this construct in turn has a major impact on *customer satisfaction* (0.696) and *brand loyalty* (0.448), the relevance of a green brand is undeniable.

An observation of the relationship between the individual *brand image* construct and *price premium* (-0.144) again reveals a very weak (and even negative) connection. The effects of the diesel scandal may also play a role in this phenomenon.

With regard to the quality of the model, the following can be observed: Since there is no generally-accepted global quality measure for PLS, the assessment of the causal model is based on a cumulative consideration of different quality criteria (NITZL 2010). In addition to the PLS path coefficients, the coefficient of determination R^2 is an important criterion in this context (CHIN and NEWSTED 1999). The R^2 values are satisfactory for our model (ranging between *brand image* with a value of 0.652 and *brand loyalty* with a value of 0.859)[37].

Stone-Geisser´s Q^2 (GEISSER 1974; STONE 1974) can be calculated by using a blindfolding procedure, and tests the aptitude of the constructs and models to reconstruct empirical data (TENENHAUS et al. 2005). Values larger than zero were shown for all endogenous latent variables, indicating the predictive relevance of the explanatory variables. With respect to the model fit, the standardized root mean square residual (SRMR) (0.047) and the normed fit index (NFI) (0.843) also delivered satisfactory results.

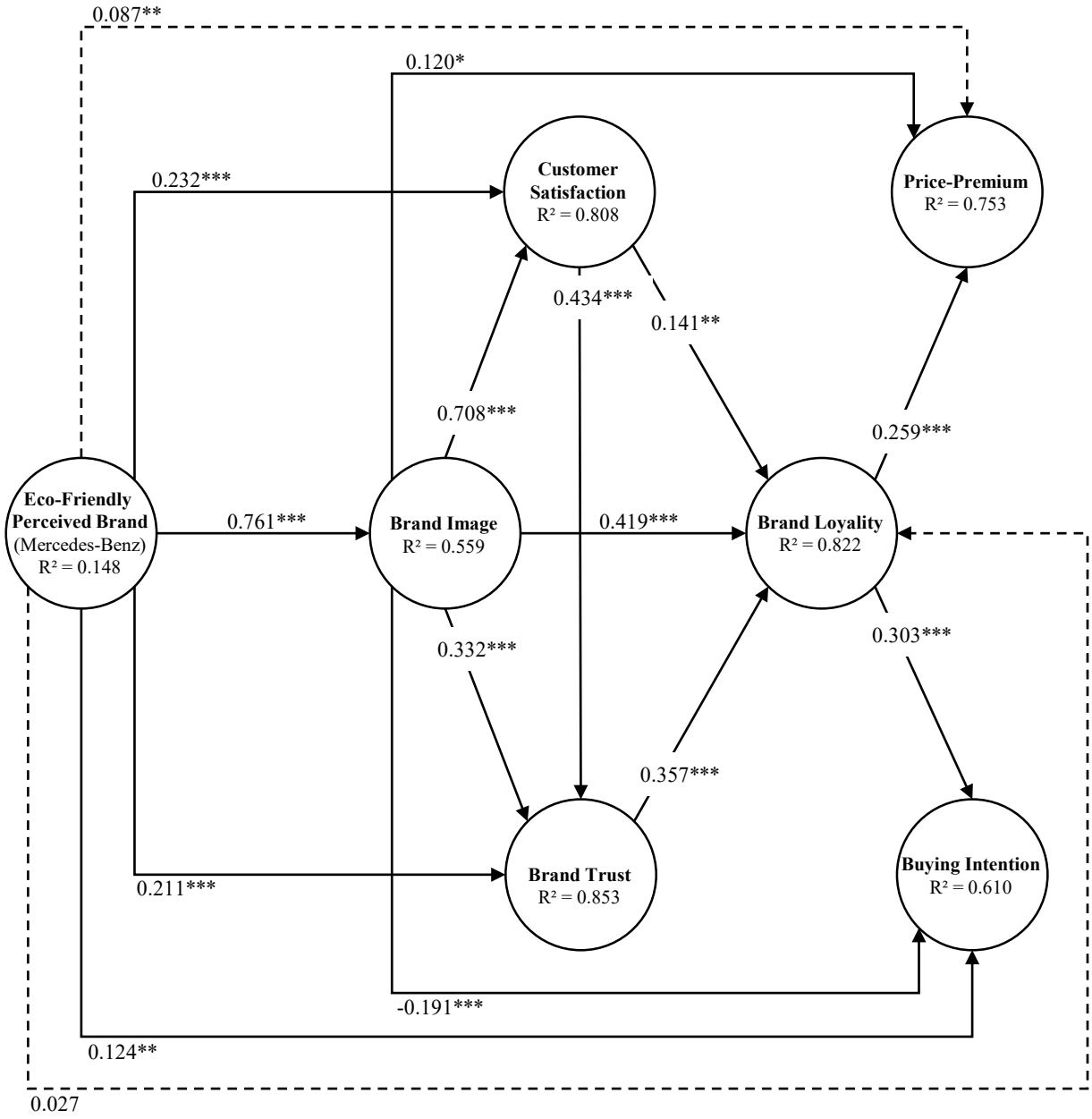
(3) Brand Comparison: Volkswagen vs. Mercedes-Benz

A brand comparison between Volkswagen and Mercedes-Benz offers various advantages for the study conducted in this paper. First, the integration of an additional dataset could help to confirm the robustness of the developed research model. Second, it could be ascertained whether the brands are subject to significantly different perceptions and whether different behavioral responses could be derived. Third, the subsequent findings allow conclusions to be drawn about potential target

[37] *Eco-friendly perceived brand (Volkswagen)* with a weak R^2 value (0.128).

markets and thus probably offer practical advantages for brand management (e.g., marketing measures such as advertising).

Figure 3: Path-model for Mercedes-Benz[38]



*** p = 0.01; ** p = 0.05; * p = 0.1

[38] Path coefficients that are significant and relevant (i.e., values > 0.1) are shown in solid lines, while (significant and) less relevant relationships are shown in dashed lines.

With regard to Figure 2 and Figure 3, it can be observed that the pathways shown are in most cases significant and strong and that there are no significant differences in the characteristics of the R^2, SRMR[39] and NFI[40] values. Therefore, a certain level of robustness of the established research model could be confirmed.

Nevertheless, some important differences are noticeable. The links between *eco-friendly perceived brands (Volkswagen and Mercedes)* and *brand image* (Volkswagen: 0.820; Mercedes-Benz: 0.761) are remarkably strong in both path models. The *brand image* of both manufacturers in turn has a powerful impact on *customer satisfaction* (Volkswagen: 0.696; Mercedes-Benz: 0.708). However, the link between *customer satisfaction* and *brand loyalty* is quite different. In the case of Volkswagen, high *customer satisfaction* can generate a comparatively strong commitment to the manufacturer in the form of *brand loyalty* (0.379). In contrast, for Mercedes-Benz, *brand loyalty* is achieved more through *brand image* (0.419) and *brand trust* (0.357; in the Volkswagen path model: 0.163) than through *customer satisfaction* (0.141). Furthermore, Mercedes-Benz' *brand loyalty* exerts a much stronger influence on *buying intention* (0.303) compared with that of the Volkswagen brand (0.222) and even strengthens the factor *price premium* (0.259; in the Volkswagen path model: 0.104).

Moreover, it could be pointed out that the brands are addressing different target markets: While the analysis of the Volkswagen path model shows that the brand should focus on *customer satisfaction* since this factor has a strong influence on other constructs (e.g., *brand loyalty*), the Mercedes-Benz path model demonstrates that *brand trust* plays a more important role in regard to the Mercedes-Benz brand. This outcome might underscore an opportunity for the company to demonstrate that Mercedes-Benz as an automobile manufacturer continues to be trusted by its potential customers. Another important connection stands out: The individual *eco-friendly perceived brands (Volkswagen and Mercedes)* have a varying influence on the *willingness to pay a price premium*. This linkage is more pronounced at Volkswagen (0.233) than at Mercedes-Benz (0.087). This outcome is most likely as such because Mercedes-Benz is still perceived as a luxury brand (VIGNERON and JOHNSON 2004), so their potential customers are fundamentally less price sensitive; thus, the brand is comparatively less responsive to green marketing measures than Volkswagen.

[39] SRMR (Mercedes-Benz): 0.049
[40] NFI (Mercedes-Benz): 0.850

Based on these insights, automotive managers must set different priorities for their individual brand management and marketing activities. First, it can be stated that the *brand images* of both brands are influenced by a green brand perception; therefore, green marketing can have positive effects on brand image. Moreover, for Volkswagen, it would be more appropriate to promote *customer satisfaction* with targeted marketing measures (e.g., lifetime warranty, discounts on maintenance, etc.), while Mercedes-Benz can continue to rely on its *brand trust*.

(4) Moderation Effects of CEA

With regard to hypothesis H3, some significant moderating effects were demonstrated (s. Table 5). With respect to the Volkswagen brand, the following observations can be made: CEA^{low} has a negative moderation effect on the relationship between the *eco-friendly perceived brand* and *brand image*. Appropriately, CEA^{high} moderates the same linkage positively. In other words, the promotion of a green brand has a greater impact on the *brand image* for environmentally-conscious consumers than it does for less environmentally-conscious consumers. At this point, Volkswagen could strengthen its image with targeted green marketing activities, especially among green consumers. Regarding Mercedes-Benz, the buying public with a higher degree of environmental awareness (CEA^{high}) is not willing to pay a *price premium* based on an *eco-friendly perceived brand*. The question could be explored of whether these consumers view environmentally-conscious products as a desirable status quo within society or they already see themselves as *price premium* customers, and thus already expect the brand to be environmentally-conscious and accordingly do not want to pay a *price premium* for this feature. These moderation effects should be investigated more closely in future research.

Table 5: Moderation Effects of Environmental Awareness

	CEA^{low}		CEA^{high}	
	Est.	t-Stat.	Est.	t-Stat.
Volkswagen*: Eco-Friendly Perceived Brand → Customer Satisfaction*	0.004	0.070	0.007	0.146
Mercedes-Benz*: Eco-Friendly Perceived Brand → Customer Satisfaction*	0.047	0.971	-0.029	0.695
Volkswagen*: Eco-Friendly Perceived Brand → Brand Image*	**-0.063**	**2.941*****	**0.048**	**1.772***
Mercedes-Benz*: Eco-Friendly Perceived Brand → Brand Image*	-0.035	1.114	-0.006	0.189
Volkswagen*: Eco-Friendly Perceived Brand → Brand Trust*	0.008	0.211	-0.066	1.442
Mercedes-Benz*: Eco-Friendly Perceived Brand → Brand Trust*	-0.023	0.615	-0.046	1.115
Volkswagen*: Eco-Friendly Perceived Brand → Price Prem.*	-0.039	0.802	-0.066	1.145
Mercedes-Benz*: Eco-Friendly Perceived Brand → Price Prem.*	0.028	0.756	**-0.080**	**1.672**
Volkswagen*: Eco-Friendly Perceived Brand → Brand Loyalty*	0.011	0.335	-0.029	0.626

Mercedes-Benz*: Eco-Friendly Perceived Brand → Brand Loyalty*	-0.006	0.176	-0.024	0.622
Volkswagen*: Eco-Friendly Perceived Brand → Buy. Intention*	-0.001	0.021	-0.048	0.988
Mercedes-Benz*: Eco-Friendly Perceived Brand → Buy. Intention*	0.071	1.504	-0.046	0.850
Volkswagen*: Customer Satisfaction → Brand Trust*	0.068	1.072	0.034	0.459
Mercedes-Benz*: Customer Satisfaction → Brand Trust*	0.033	0.633	-0.020	0.332
Volkswagen*: Customer Satisfaction → Brand Loyalty*	0.028	0.437	-0.041	0.523
Mercedes-Benz*: Customer Satisfaction → Brand Loyalty*	0.005	0.068	0.014	0.146
Volkswagen*: Brand Image → Customer Satisfaction*	-0.004	0.060	-0.020	0.377
Mercedes-Benz*: Brand Image → Customer Satisfaction*	-0.057	1.004	0.015	0.327
Volkswagen*: Brand Image → Brand Loyalty*	0.003	0.043	-0.113	1.528
Mercedes-Benz*: Brand Image → Brand Loyalty*	-0.058	0.946	-0.084	1.136
Volkswagen*: Brand Image → Brand Trust*	-0.068	1.061	0.009	0.125
Mercedes-Benz*: Brand Image → Brand Trust*	-0.013	0.252	0.061	0.994
Volkswagen*: Brand Image → Price Premium*	**0.151**	**1.818***	**0.171**	**1.853***
Mercedes-Benz*: Brand Image → Price Premium*	**0.123**	**2.301****	0.127	1.475
Volkswagen*: Brand Image → Buying Intention*	0.077	1.081	0.083	1.073
Mercedes-Benz*: Brand Image → Buying Intention*	0.086	1.459	0.058	0.724
Volkswagen*: Brand Trust → Brand Loyalty*	-0.043	0.720	**0.178**	**2.282****
Mercedes-Benz*: Brand Trust → Brand Loyalty*	0.042	0.555	0.093	0.916
Volkswagen*: Brand Loyalty → Price Premium*	-0.091	1.102	-0.086	0.924
Mercedes-Benz*: Brand Loyalty → Price Premium*	**-0.148**	**2.863*****	-0.076	0.975
Volkswagen*: Brand Loyalty → Buying Intention*	-0.021	0.296	-0.021	0.260
Mercedes-Benz*: Brand Loyalty → Buying Intention*	-0.074	1.268	-0.035	0.477

*** p = 0.01; ** p = 0.05; * p = 0.1

Notes: The undulated dividing line separates *eco-friendly perceived brand*-related relationships from other investigated pathways within the study.

Additionally, some other effects point to remarkable observations and should be discussed in future research. All questioned customers (CEA^{low} and CEA^{high}) positively influence the relationship between *brand image* and *price premium* for Volkswagen. For Mercedes-Benz, this connection is also positively moderated by CEA^{low} clients. Moreover, CEA^{high} customers positively moderate the relationship between *brand trust* and *brand loyalty* for Volkswagen, and CEA^{low} consumers negatively moderate the relationship between *brand loyalty* to *price premium* for Mercedes-Benz.

Overall, the moderation analysis prompts the conclusion that some of the analyzed relationships are susceptible to different environmental awareness profiles. With regard to hypothesis H3, important moderator effects could be demonstrated, but the interconnections of perceptual and behavioral metrics should definitely be taken into account in future research.

CONCLUSIONS AND IMPLICATIONS FOR THEORY AND PRACTICE

Environmental issues are becoming increasingly relevant to people's perceptions and behavior, as they affect the entire planet and therefore the lives of every individual (OSKAMP 2000). The awareness of such global issues is forcing both individuals and organizations to change their attitudes and patterns. Given that automotive brands are attracting increasing public attention as one of the main drivers of environmental degradation (EDENHOFER 2015), this global awareness poses major strategic challenges for their actions and thus their implementation of marketing strategy. Today, and in the future, a balancing act is required of these organizations between being environmentally friendly and achieving economic targets.

In terms of meeting economic goals, the integration of more environmentally-friendly products and, in particular, green marketing measures or the development of a green brand can bring multilayered benefits (POLONSKY 1994). Many researchers (e.g., CHABOWSKI et al. 2011; CONNELLY et al. 2011) have demonstrated that green brand management can improve corporate image, brand value, and the positioning of the brand and can further positively influence brand awareness, consumer perception and consumer behavior. This outcome is as such because, in the consumers' mind, a green brand is closely linked to the development of green products, and this link can make the company become consumers' first choice. In addition, offering green brands and products could be advantageous since companies respond to the demands and needs of potential consumers and thus create a benefit for society (such as corporate social responsibility).

The primary goal of this paper was 1) to show the effects of a green perceived automotive brand on prominent consumer metrics such as perception (brand image, customer satisfaction, and brand trust) (H1) and behavior (willingness to pay a price premium, brand loyalty, and buying intention) (H2) and 2) to analyze the possible moderating effects of consumer environmental awareness (CEA) on these relationships (H3). While exploring this framework with a special focus on the automotive industry (using the brands Volkswagen and Mercedes-Benz), a PLS path modeling approach was applied. The following sections of this chapter are intended to provide the main findings of this paper.

Theoretical Contributions

Regarding the hypotheses (H1.a; H1.b; H1.c), it was found that a green perceived automotive brand has a consistently positive influence on constructs such as *customer satisfaction*, *brand image* and *brand trust*. Other results were obtained for the behavior-related hypotheses. (H2.a; H2.b; H2.c). While the factors of *willingness to pay price-premium* and *buying intention* were weak but significantly and positively affected by an *eco-friendly perceived brand (Volkswagen)*, this outcome did not apply to the factor of *brand loyalty* (s. Table 6).

In addition to the testing of the hypotheses (i.e., the impact of eco-friendly perceived brands), other interesting observations were made. The established structural equation models showed that good marketing is not only based on the simple integration of green marketing measures. Rather, it is also important to consider the path relationships of the individual perceptual and behavioral constructs. For instance, *brand image* has, compared to the *eco-friendly perceived brands (Volkswagen and Mercedes-Benz)*, in most cases, a much stronger influence on *customer satisfaction*, *brand loyalty* and *brand trust*. Moreover, the brand comparison (Volkswagen vs. Mercedes-Benz) showed that the interaction between *customer satisfaction* and *brand trust* could be of considerable relevance for an automotive manufacturer. While for Volkswagen, the construct of *customer satisfaction* seems to be much more important because it has a major impact on *brand loyalty*, the construct of *brand trust* seems to be of major relevance for Mercedes-Benz. The situational approach of this study clarifies the individual strengths and weaknesses of the respective automotive brands and shows that it is possible to implement managerial implications based on these findings.

We must also take into account that *brand image*, *customer satisfaction* and *brand loyalty* should be tested for mediating effects in future research since these factors have an important impact on other constructs.

The next point to be considered is the moderation or rather the influence of CEA. In contrast with the theoretically assumed CEA profiles according to Wingerter (2014), only two factors were confirmed. Nevertheless, at this point, it is appropriate to discuss the constitution and applicability of Wingerter's theoretical approach. Based on the results of the PCA, it is reasonable to question whether complex CEA approaches are meaningful or whether more robust scientific theories with fewer dimensions (such as Environmental Knowledge (EKN)) offer a more practical solution for marketing research. However, further analysis with the two new named profiles used in this study

(CEA^{low} and CEA^{high}) could subsequently show that these profiles are meaningful in terms of content and that their further empirical use is possible. As our study demonstrated certain moderating effects (s. Table 6), it yielded detailed insights into how CEA influences consumers' perception and behavior in an automotive context.

Considering the established research models (Figure 2 and Figure 3), it should be mentioned that while most of the R^2 values are satisfactory (ranging between Volkswagen´s *brand image* with a value of 0.559 and Mercedes-Benz´ *brand loyalty* with a value of 0.859), both constructs around the *eco-friendly perceived brands* show weak R^2 values (Volkswagen: 0.128; Mercedes-Benz: 0.148). On the one hand, this outcome suggests a solid robustness of the established research model, as it seems to be brand independent. On the other hand, the reasons for the weak R^2 values should be investigated, and the implementation of other eco-related indicators should be examined. In the context of automotive marketing, this research provides new insights into the effects of eco-friendly perceived automotive brands on consumer perception and consumer behavior and therefore enables future research initiatives to build on this conceptual model.

Table 6: Results: Verification of the Hypotheses

	Independent Variable	Dependent Variable	Moderator Variable	Est.	S.E.	t-Stat.	p-Value	Decision
H1.a	Eco-Friendliness (VW)	Customer Satisfaction	-	**0.252**	0.042	**5.914*** **	**0.000**	**supported**
	Eco-Friendliness (MB)	Customer Satisfaction		**0.232**	0.039	**6.013*** **	**0.000**	
H1.b	Eco-Friendliness (VW)	Brand Image	-	**0.820**	0.024	**34.317*** **	**0.000**	**supported**
	Eco-Friendliness (MB)	Brand Image	-	**0.761**	0.027	**28.692*** **	**0.000**	
H1.c	Eco-Friendliness (VW)	Brand Trust	-	**0.317**	0.043	**7.302*** **	**0.000**	**supported**
	Eco-Friendliness (MB)	Brand Trust	-	**0.211**	0.038	**5.566*** **	**0.000**	
H2.a	Eco-Friendliness (VW)	Price Premium	-	**0.233**	0.058	**3.948*** **	**0.000**	**supported**
	Eco-Friendliness (MB)	Price Premium	-	**0.087**	0.043	**2.052*** **	**0.040**	
H2.b	Eco-Friendliness (VW)	Brand Loyalty	-	-0.024	0.042	0.578	0.567	**rejected**
	Eco-Friendliness (MB)	Brand Loyalty	-	0.027	0.039	0.684	0.493	
H2.c	Eco-Friendliness (VW)	Buying Intention	-	**0.098**	0.049	**2.015** **	**0.044**	**supported**
	Eco-Friendliness (MB)	Buying Intention	-	**0.124**	0.055	**2.278** **	**0.023**	
H3	Eco-Friendliness (VW)	Customer Satisfaction	CEA^{high}	0.007	0.051	0.149	0.884	**(partly) supported**
	Eco-Friendliness (VW)	Brand Image	CEA^{high}	**0.048**	0.027	**1.772***	**0.079**	
	Eco-Friendliness (VW)	Brand Trust	CEA^{high}	-0.066	0.046	1.442	0.158	
	Eco-Friendliness (VW)	Price Premium	CEA^{high}	-0.066	0.058	1.145	0.255	
	Eco-Friendliness (VW)	Brand Loyalty	CEA^{high}	-0.029	0.047	0.626	0.537	
	Eco-Friendliness (VW)	Buying Intention	CEA^{high}	-0.048	0.049	0.988	0.327	
	Eco-Friendliness (VW)	Customer Satisfaction	CEA^{low}	0.004	0.050	0.070	0.944	
	Eco-Friendliness (VW)	Brand Image	CEA^{low}	**-0.063**	0.021	**2.941*** **	**0.003**	
	Eco-Friendliness (VW)	Brand Trust	CEA^{low}	0.008	0.036	0.211	0.832	
	Eco-Friendliness (VW)	Price Premium	CEA^{low}	-0.039	0.048	0.802	0.421	

	Eco-Friendliness (VW)	Brand Loyalty	CEA^{low}	0.011	0.033	0.335	0.741	
	Eco-Friendliness (VW)	Buying Intention	CEA^{low}	-0.001	0.041	0.021	0.984	
	Eco-Friendliness (MB)	Customer Satisfaction	CEA^{high}	-0.029	0.042	0.695	0.487	
	Eco-Friendliness (MB)	Brand Image	CEA^{high}	-0.006	0.030	0.189	0.850	
	Eco-Friendliness (MB)	Brand Trust	CEA^{high}	-0.046	0.041	1.115	0.265	
	Eco-Friendliness (MB)	Price Premium	CEA^{high}	**-0.080**	0.048	**1.672***	**0.095**	
	Eco-Friendliness (MB)	Brand Loyalty	CEA^{high}	-0.024	0.039	0.622	0.534	
	Eco-Friendliness (MB)	Buying Intention	CEA^{high}	-0.046	0.054	0.850	0.395	
	Eco-Friendliness (MB)	Customer Satisfaction	CEA^{low}	0.047	0.049	0.971	0.331	
	Eco-Friendliness (MB)	Brand Image	CEA^{low}	-0.035	0.032	1.114	0.265	
	Eco-Friendliness (MB)	Brand Trust	CEA^{low}	-0.023	0.037	0.615	0.539	
	Eco-Friendliness (MB)	Price Premium	CEA^{low}	0.028	0.037	0.756	0.450	
	Eco-Friendliness (MB)	Brand Loyalty	CEA^{low}	-0.006	0.033	0.176	0.860	
	Eco-Friendliness (MB)	Buying Intention	CEA^{low}	0.071	0.047	1.504	0.133	

*** p = 0.01; ** p = 0.05; * p = 0.1

Managerial Implications

The presented study focused on the benefits associated with improvements made through the development of a green brand. It was found that the construct of an *eco-friendly perceived brand* has an effect on meaningful, perceptual and behavioral constructs and that an environmentally-conscious brand therefore has a strong impact within automotive marketing. The development of a green brand can be understood as a "set screw" that has, for instance, positive effects on *brand image*, *brand trust* and willingness to pay a *price premium*. In support of this understanding, it is worth mentioning the research of Ginsberg and Bloom (2004), Chabowski et al. (2011), Connelly et al. (2011) or Luo and Bhattacharya (2006), as they also recommend that managers implement ecological marketing options.

Despite these advantages, further interactions between the perceptual and behavioral constructs involved cannot be ignored. Regardless of the environmental friendliness of the individual brand, it was found that good marketing is based not only on the simple implementation of green marketing measures but also on being aware of one's individual strengths and weaknesses. In the course of this paper, significant shortcomings regarding the *brand trust* of Volkswagen were observed. In this respect, the integration of trust-promoting marketing activities (e.g., qualified customer support and after sales services, open dialogues with customers, quality improvement) could be recommended.

Considering the important consumer aspect, the current social change towards a more sophisticated consumer can be observed. As a result, expectations of companies are growing as consumers shift

their attention from innovative products to eco-friendly products (GREEN 2008). This "social pressure" is responsible for the rising trend of companies seeking to differentiate themselves (in a strong competitive field) through green methods (ARMSTRONG and LEHEW 2011). This trend offers the opportunity for businesses to focus on strategies that capitalize on consumers' choices, as greater CEA leads to greater demand for eco-friendly purchases (CHAN and LAU 2002; MAINIERI et al. 1997). In addition, a firm's green marketing can result in corporate social responsibility that stimulates the ecological awareness of its consumers and strengthens the eco-knowledge of its clients with regard to environmentally-friendly products and services (LEE 2017). Given the advantages mentioned above, firms have various motives to invest in green marketing or green branding but should continue to monitor and strengthen perceptual and behavioral marketing constructs such as *customer satisfaction*, *brand trust*, and *brand loyalty*. When creating their future strategies, marketing and brand managers may take into account that the present research model could help in understanding the effects of eco-friendly automotive brands and the uniqueness of different CEA profiles.

Limitations and Future Research

Some limitations of this study must be mentioned. First, future studies should focus on extending to other brands or industries to contribute to the further investigation of the causal relationships and moderating effects. In addition, the sample size of this study may be considered relatively small (n = 446). Future studies should therefore enlarge the sample size and collect data from different countries so that the results can be more generalized. Furthermore, it must be mentioned that the discussion was limited on Wingerter´s General Environmental Awareness approach. Although these techniques (as they are descended from the well-known NEP approach) continue to have great and tested influences, there are other theories that could be considered for research (e.g., Environmental Collective Efficacy (ECE), Environmental Knowledge (EKN), Green Purchase Intention (GPI)). It was also shown that less sophisticated models might be beneficial in terms of measuring consumer environmental friendliness since this study ascertained that the theoretically assumed eco-levels could not be reproduced. Finally, the measurement of environmental awareness turns out to be somewhat problematic. CEA represents an abstract idea and not a standardized theorem. When people were asked in a survey about their ecological awareness, the concept would suddenly become salient to them. This phenomenon is caused by

the fact that being green is actually seen as a kind of social trend and is accompanied by a higher social norm. As part of a survey, most people would thus indicate that they have a high level of environmental awareness, which they have not necessarily established in their everyday actions. Future studies should therefore attempt to set up a more detailed and multidimensional questionnaire to measure both environmental awareness and related daily behaviors.

We hope that the findings of this paper will encourage future research to further focus on the effects of eco-friendly brands and the impacts of CEA as interesting aspects of marketing research.

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APPENDIX

Table A7: Bootstrapping Results for Path Coefficients (Volkswagen) (Part 1)

Path	Est.	t-Statistics
Brand Image → Brand Loyalty	0.448	7.964***
Brand Image → Brand Trust	0.261	4.280***
Brand Image → Buying Intention	0.076	1.128
Brand Image → Customer Satisfaction	0.696	16.261***
Brand Image → Price Premium	-0.144	1.909*
Brand Loyalty → Buying Intention	0.222	3.516***
Brand Loyalty → Price Premium	0.104	1.403
Brand Trust → Brand Loyalty	0.163	2.619***
Brand Trust → Buying Intention	0.309	4.439***
Brand Trust → Price Premium	0.425	5.720***
Customer Satisfaction → Brand Loyalty	0.379	5.844***
Customer Satisfaction → Brand Trust	0.386	6.153***
Customer Satisfaction → Buying Intention	0.215	3.004***
Customer Satisfaction → Price Premium	0.249	2.922***
Eco-Friendly Perceived Brand (Volkswagen) → Brand Image	0.820	34.317***
Eco-Friendly Perceived Brand (Volkswagen) → Brand Loyalty	-0.024	0.578
Eco-Friendly Perceived Brand (Volkswagen) → Brand Trust	0.317	7.302***
Eco-Friendly Perceived Brand (Volkswagen) → Buying Intention	0.098	2.015**
Eco-Friendly Perceived Brand (Volkswagen) → Customer Satisfaction	0.252	5.914***
Eco-Friendly Perceived Brand (Volkswagen) → Price Premium	0.233	3.948***
CEA_low mod. Customer Satisfaction → Brand Loyalty	0.028	0.437
CEA_low mod. Customer Satisfaction → Brand Trust	0.068	1.072
CEA_low mod. Eco-Friendly Perceived Brand (Volkswagen) → Buying Intention	-0.001	0.021
CEA_low mod. Eco-Friendly Perceived Brand (Volkswagen) → Customer Satisfaction	0.004	0.070
CEA_low mod. Eco-Friendly Perceived Brand (Volkswagen) → Brand Image	-0.063	2.941***
CEA_low mod. Eco-Friendly Perceived Brand (Volkswagen) → Brand Loyalty	0.011	0.335
CEA_low mod. Eco-Friendly Perceived Brand (Volkswagen) → Price Premium	-0.039	0.802
CEA_low mod. Eco-Friendly Perceived Brand (Volkswagen) → Brand Trust	0.008	0.211
CEA_low mod. Brand Image → Buying Intention	0.077	1.081
CEA_low mod. Brand Image → Customer Satisfaction	-0.004	0.060
CEA_low mod. Brand Image → Brand Loyalty	0.003	0.043
CEA_low mod. Brand Image → Brand Trust	-0.068	1.061
CEA_low mod. Brand Image → Price Premium	0.151	1.818*
CEA_low mod. Brand Loyalty → Buying Intention	-0.021	0.296
CEA_low mod. Brand Loyalty → Price Premium	-0.091	1.102
CEA_low mod. Brand Trust → Brand Loyalty	-0.043	0.720
CEA_high mod. Eco-Friendly Perceived Brand (Volkswagen) → Buying Intention	-0.048	0.988
CEA_high mod. Eco-Friendly Perceived Brand (Volkswagen) → Brand Image	0.048	1.772*
CEA_high mod. Eco-Friendly Perceived Brand (Volkswagen) → Brand Loyalty	-0.029	0.626
CEA_high mod. Eco-Friendly Perceived Brand (Volkswagen) → Price Premium	-0.066	1.145
CEA_high mod. Eco-Friendly Perceived Brand (Volkswagen) → Brand Trust	-0.066	1.442
CEA_high mod. Brand Image → Customer Satisfaction	-0.020	0.377
CEA_high mod. Brand Image → Brand Loyalty	-0.113	1.528

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A8: Bootstrapping Results for Path Coefficients (Volkswagen) (Part 2)

Path	Est.	t-Statistics
CEA_high mod. Brand Image → Price Premium	0.171	1.853*
CEA_high mod. Brand Image → Buying Intention	0.083	1.073
CEA_high mod. Brand Loyalty → Buying Intention	-0.021	0.260
CEA_high mod. Brand Loyalty → Price Premium	-0.086	0.924
CEA_high mod. Brand Trust → Brand Loyalty	0.178	2.282**
CEA_high mod. Customer Satisfaction → Brand Loyalty	-0.041	0.523
CEA_high mod. Customer Satisfaction → Brand Trust	0.034	0.459
CEA_high mod. Eco-Friendly Perceived Brand (Volkswagen) → Customer Satisfaction	0.007	0.149
CEA_high mod. Brand Image → Brand Trust	0.009	0.125
CEA_low → Brand Image	-0.011	0.307
CEA_low → Brand Loyalty	-0.019	1.018
CEA_low → Brand Trust	0.023	1.096
CEA_low → Buying Intention	0.036	1.524
CEA_low → Customer Satisfaction	-0.000	0.006
CEA_low → Eco-Friendly Perceived Brand (Volkswagen)	0.352	6.451***
CEA_low → Price Premium	0.094	3.367***
CEA_high → Brand Image	0.051	1.379
CEA_high → Brand Loyalty	-0.005	0.237
CEA_high → Brand Trust	-0.017	0.807
CEA_high → Buying Intention	0.038	1.386
CEA_high → Customer Satisfaction	-0.017	0.739
CEA_high → Eco-Friendly Perceived Brand (Volkswagen)	-0.019	0.276
CEA_high → Price Premium	0.076	2.439**

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A9: Bootstrapping Results for Path Coefficients (Mercedes-Benz) (Part 1)

Path	Est.	t-Statistics
Brand Image → Brand Loyalty	0.419	6.979***
Brand Image → Brand Trust	0.332	6.199***
Brand Image → Buying Intention	-0.191	2.544**
Brand Image → Customer Satisfaction	0.708	18.243***
Brand Image → Price Premium	0.120	1.665*
Brand Loyalty → Buying Intention	0.303	4.141***
Brand Loyalty → Price Premium	0.259	3.571***
Brand Trust → Brand Loyalty	0.357	5.149***
Brand Trust → Buying Intention	0.303	3.447***
Brand Trust → Price Premium	0.197	2.395**
Customer Satisfaction → Brand Loyalty	0.141	1.987**
Customer Satisfaction → Brand Trust	0.434	7.706***
Customer Satisfaction → Buying Intention	0.239	2.946***
Customer Satisfaction → Price Premium	0.245	3.061***
Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Image	0.761	28.692***
Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Loyalty	0.027	0.686
Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Trust	0.211	5.566***
Eco-Friendly Perceived Brand (Mercedes-Benz) → Buying Intention	0.124	2.278**
Eco-Friendly Perceived Brand (Mercedes-Benz) → Customer Satisfaction	0.232	6.013***
Eco-Friendly Perceived Brand (Mercedes-Benz) → Price Premium	0.087	2.052**
CEA_low mod. Customer Satisfaction → Brand Loyalty	0.005	0.068
CEA_low mod. Customer Satisfaction → Brand Trust	0.033	0.633
CEA_low mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Buying Intention	0.071	1.504
CEA_low mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Customer Satisfaction	0.047	0.971
CEA_low mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Image	-0.035	1.114
CEA_low mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Loyalty	0.028	0.756
CEA_low mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Price Premium	-0.023	0.615
CEA_low mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Trust	-0.006	0.176
CEA_low mod. Brand Image → Buying Intention	0.086	1.459
CEA_low mod. Brand Image → Customer Satisfaction	-0.057	1.004
CEA_low mod. Brand Image → Brand Loyalty	-0.058	0.946
CEA_low mod. Brand Image → Brand Trust	0.123	2.301**
CEA_low mod. Brand Image → Price Premium	-0.013	0.252
CEA_low mod. Brand Loyalty → Buying Intention	-0.074	1.268
CEA_low mod. Brand Loyalty → Price Premium	-0.148	2.863***
CEA_low mod. Brand Trust → Brand Loyalty	0.042	0.555
CEA_high mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Buying Intention	0.014	0.146
CEA_high mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Image	-0.020	0.332
CEA_high mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Loyalty	-0.046	0.850
CEA_high mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Price Premium	-0.029	0.695
CEA_high mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Brand Trust	-0.006	0.189
CEA_high mod. Brand Image → Customer Satisfaction	-0.024	0.622
CEA_high mod. Brand Image → Brand Loyalty	-0.080	1.672*

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A10: Bootstrapping Results for Path Coefficients (Mercedes-Benz) (Part 2)

Path	Est.	t-Statistics
CEA_high mod. Brand Image → Price Premium	0.015	0.327
CEA_high mod. Brand Image → Buying Intention	0.127	1.475
CEA_high mod. Brand Loyalty → Buying Intention	0.061	0.994
CEA_high mod. Brand Loyalty → Price Premium	-0.035	0.477
CEA_high mod. Brand Trust → Brand Loyalty	-0.076	0.975
CEA_high mod. Customer Satisfaction → Brand Loyalty	0.093	0.916
CEA_high mod. Customer Satisfaction → Brand Trust	-0.046	1.115
CEA_high mod. Eco-Friendly Perceived Brand (Mercedes-Benz) → Customer Satisfaction	0.058	0.724
CEA_high mod. Brand Image → Brand Trust	-0.084	1.136
CEA_low → Brand Image	-0.022	0.585
CEA_low → Brand Loyalty	0.011	0.379
CEA_low → Brand Trust	0.011	0.471
CEA_low → Buying Intention	0.069	2.047**
CEA_low → Customer Satisfaction	0.002	0.069
CEA_low → Eco-Friendly Perceived Brand (Mercedes-Benz)	0.387	7.976***
CEA_low → Price Premium	0.043	1.513
CEA_high → Brand Image	0.021	0.491
CEA_high → Brand Loyalty	0.006	0.221
CEA_high → Brand Trust	-0.039	1.622
CEA_high → Buying Intention	-0.057	1.392
CEA_high → Customer Satisfaction	-0.005	0.168
CEA_high → Eco-Friendly Perceived Brand (Mercedes-Benz)	0.012	0.206
CEA_high → Price Premium	0.039	1.304

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A11: Bootstrapping Results for Outer Loadings (Volkswagen)

Loading	Est.	t-Statistics
VWeco_1 ← Eco-Friendly Perceived Brand (Volkswagen)	0.885	64.096***
VWeco_10 ← Eco-Friendly Perceived Brand (Volkswagen)	0.549	15.806***
VWeco_11 ← Eco-Friendly Perceived Brand (Volkswagen)	0.922	101.165***
VWeco_12 ← Eco-Friendly Perceived Brand (Volkswagen)	0.872	58.985***
VWeco_13 ← Eco-Friendly Perceived Brand (Volkswagen)	0.790	38.668***
VWeco_2 ← Eco-Friendly Perceived Brand (Volkswagen)	0.908	95.197***
VWeco_4 ← Eco-Friendly Perceived Brand (Volkswagen)	0.686	17.592***
VWeco_5 ← Eco-Friendly Perceived Brand (Volkswagen)	0.903	76.407***
VWeco_6 ← Eco-Friendly Perceived Brand (Volkswagen)	0.893	69.410***
VWeco_7 ← Eco-Friendly Perceived Brand (Volkswagen)	0.890	71.842***
VWeco_8 ← Eco-Friendly Perceived Brand (Volkswagen)	0.916	106.045***
VWeco_9 ← Eco-Friendly Perceived Brand (Volkswagen)	0.876	65.136***
VWimage_1 ← Brand Image	0.967	199.014***
VWimage_2 ← Brand Image	0.967	221.213***
VWpricePrem_1 ← Price Premium	0.962	219.720***
VWpricePrem_2 ← Price Premium	0.964	231.552***
VWpurchInt_1 ← Buying Intention	0.972	245.761***
VWpurchInt_2 ← Buying Intention	0.970	180.992***
VWsatisfa_1 ← Customer Satisfaction	0.968	266.892***
VWsatisfa_2 ← Customer Satisfaction	0.969	291.386***
VWloya_1 ← Brand Loyalty	0.933	116.254***
VWloya_2 ← Brand Loyalty	0.949	200.911***
VWtrust_1 ← Brand Trust	0.956	194.180***
VWtrust_2 ← Brand Trust	0.956	182.435***
exis_2 ← CEA_high	0.707	3.433***
exis_3 ← CEA_high	0.891	3.824***
instru_1 ← CEA_low	0.741	16.113***
instru_2 ← CEA_low	0.701	14.248***
instru_3 ← CEA_low	0.724	17.818***
instru_4 ← CEA_low	0.744	19.190***
intrin_3 ← CEA_high	0.582	2.455**
intrin_4 ← CEA_high	0.755	3.809***

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A12: Bootstrapping Results for Outer Loadings (Mercedes-Benz)

Loading	Est.	t-Statistics
MBeco_1 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.915	86.270***
MBeco_10 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.574	15.305***
MBeco_11 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.912	98.266***
MBeco_12 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.881	60.493***
MBeco_13 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.671	20.296***
MBeco_2 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.915	101.825***
MBeco_4 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.821	37.071***
MBeco_5 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.907	94.865***
MBeco_6 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.914	93.322***
MBeco_7 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.898	68.653***
MBeco_8 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.922	105.700***
MBeco_9 ← Eco-Friendly Perceived Brand (Mercedes-Benz)	0.910	82.446***
MBimage_1 ← Brand Image	0.963	212.292***
MBimage_2 ← Brand Image	0.964	231.766***
MBpricePrem_1 ← Price Premium	0.945	149.867***
MBpricePrem_2 ← Price Premium	0.949	156.601***
MBpurchInt_1 ← Buying Intention	0.977	283.686***
MBpurchInt_2 ← Buying Intention	0.975	241.547***
MBsatisfa_1 ← Customer Satisfaction	0.958	195.020***
MBsatisfa_2 ← Customer Satisfaction	0.960	216.017***
MBloya_1 ← Brand Loyalty	0.926	108.017***
MBloya_2 ← Brand Loyalty	0.940	158.285***
MBtrust_1 ← Brand Trust	0.954	151.188***
MBtrust_2 ← Brand Trust	0.956	171.808***
exis_2 ← CEA_high	0.753	3.832***
exis_3 ← CEA_high	0.910	3.927***
instru_1 ← CEA_low	0.757	17.624***
instru_2 ← CEA_low	0.725	16.648***
instru_3 ← CEA_low	0.690	13.575***
instru_4 ← CEA_low	0.743	18.913***
intrin_3 ← CEA_high	0.607	2.955***
intrin_4 ← CEA_high	0.649	2.778***

*** p = 0.01; ** p = 0.05; * p = 0.1

CHAPTER 3: CONCLUSION AND OUTLOOK

The automotive industry is going through a historical transformative phase. Significant and globally effective megatrends, new mobility requirements in urbanizing markets and previously unknown competitors are intimidating this branch of industry in many ways. Involved actors, such as politics, manufacturers, unions and consumers, have accelerated the successive reform process in recent decades and thus reconfigured the nature of today's automobility. From the manufacturer's point of view, the primary task is to accept the inevitable industry change, to develop, as quickly as possible, a new self-image as a future provider of mobility and services and to understand that the challenging transformation needs are an opportunity to reinvent themselves. To continue to be successful, it is more appropriate than ever for established automotive groups to focus on determining market demands as precisely as possible. In particular, the analysis of customer behavior is considered an enormously important tool for automobile manufacturers and is increasingly receiving attention in these dynamic times. Detailed behavioral analyses offer the opportunity to accurately identify the needs of international mobility users, to implement them in the form of products or brand strategies, and thus to satisfy both customer and corporate (or even public) interests.

Against this background, this doctoral thesis aimed to fill marketing-specific research gaps. With regard to the three research questions, the primary goals of this dissertation were 1) to investigate the influence of consumer culture, personality and environmental awareness in the context of an automotive purchase decision, 2) to analyze the relevance and potential of (behavioral) scientific theories (in automotive marketing) and 3) to identify differentiators in automotive brand management that significantly influence central consumer metrics (e.g., perception and behavior). With regard to the first research question, the following could be noted. As marketing specialists continue to strive for creative solutions to capture detailed information about dominant influencing factors of their consumers, the constructs of culture, personality (Essay 1 and Essay 2) and environmental awareness (Essay 3) should definitely be more considered in their analyses. Interesting interdependencies between the constructs and the behavioral purposes (e.g., customer satisfaction, brand loyalty, buying intention) were analyzed, and important moderation effects of culture, personality and CEA was documented. The results were strengthened by multiple post hoc analyses, which gave detailed insights into how the investigated constructs influence the

perception, the behavior, and therefore the decision-making process of a potential customer. The results indicate that automotive managers need to be aware that the consumer's culture, personality and environmental awareness influence the effectiveness of their product and brand strategies. Moreover, it was shown that car manufacturers can use the research models established throughout the three essays to obtain valuable information for the prediction of customer behavior and brand management in their target markets.

Parallel to this, the second research question was considered. Behavioral theories (e.g., COSTA and MCCREA 1992, HOFSTEDE 1980/2011, WINGERTER 2014) helped to quantify the concepts of culture, personality and environmental awareness and served to integrate them as measurable constructs. It has been proven that (traditional) theories of behavioral science continue to offer interesting approaches (both in theory and in practice) for the investigation of automotive marketing-specific problems. However, it should be noted that some of the considered theories could not be exactly reproduced using exploratory factor analyses (e.g., culture according to Hofstede (1980/2011), CEA according to Wingerter (2014)); thus, the universal applicability of these theories should be treated with caution (Essay 1 and Essay 3). In some cases, and with regard to the analysis, it is therefore reasonable to question whether advanced approaches, such as Wingerter's (2014) CEA concept, are of importance or whether "more robust" scientific theories offer a more practicable solution in marketing research. Nevertheless, in terms of content, the inclusion of classical theories in (automotive) marketing practice offers a good opportunity and extends a further market research facet for the in-depth analysis of potential target markets and consumer groups.

With regard to the third research question, certain brand management insights were demonstrated while concentrating on differentiators in automotive marketing. When investigating automobile brands, it was possible to connect theoretically existing personality traits and purchase motivations with the brand Volkswagen (Essay 1). Moreover, the brand management theorem around self-congruity was identified as a mediator and thus represents an important differentiator in the context of an automobile purchase (Essay 2). Both studies suggest that manufacturers or car/brand managers need to be aware that by emphasizing specific and precise marketing measures (e.g., through advertising) in terms of buying motivations or brand/personality characteristics, they can target certain types of consumers but at the same time become less attractive to others. These findings could be useful for managing and positioning brands. Moreover, these theorems (e.g.,

brand personality, self-congruity) could provide benefits in the assessment of possible brand cooperations and the associated specification of target groups.

The creation of a "green" brand (as common trend) is also considered a differentiator in this context, as it could be confirmed that essential consumer metrics (e.g., perception and behavior) are influenced by environmentally friendly perceived brands (Essay 3). Since strong connections between eco-friendly perceived brands (in this case, Volkswagen and Mercedes-Benz were analyzed) and customer satisfaction, brand image, brand trust, willingness-to-pay a price premium, brand loyalty and buying intention could be demonstrated with the help of PLS-SEM, it can still be assumed that successful green brand management can improve the corporate image, the brand value and the positioning of the brand. The development of a green brand can therefore be associated with important economic benefits because such development is closely linked to environmentally conscious products and can thus make the company become the consumer's first choice. Given these advantages, companies have various motives to invest in green marketing or green branding.

Furthermore, the proven path models show that successful marketing is not solely grounded on the plain integration of green marketing activities. In most cases, it is valuable to observe the interrelationships of the specific perception and behavioral constructs and to be able to concentrate on individual strengths and weaknesses in this regard. For example, deficiencies with regard to the brand trust of Volkswagen were detected, and the realization of trust-promoting marketing measures (e.g., qualified customer support and after sales services, open dialogues with customers, quality improvement) were recommended.

The integration of the (theoretical) thesis insights into practical day-to-day marketing presents some barriers. On the one hand, there is a risk that market research and the existing surveys will become increasingly bloated through the integration of increasingly more scientific constructs and thus drive related marketing budgets upward. On the other hand, the inclusion of scientific theories requires a certain know-how about both the academic approaches per se and the subsequent advanced analysis tools used to evaluate the collected data. At this point, PLS-SEM appears to be a suitable methodology. Across all the studies, action-oriented research models were established and verified with the help of impact models, which in turn contributed to providing substantial support for automotive management in decision-making. Knowledge-driven management can use such an analysis tool, such as SmartPLS 3.2.8, to obtain specific information based on a few key

figures, analysis criteria, and relatively small datasets to answer various industry-specific questions.

However, the current essays include some limitations that provide potential starting points for future research. In this regard, the following indications have been gathered. First, there is a need to generalize the existing results. While the first two essays are based on a relatively large international survey, the third study is limited to a smaller country-specific data set. The research models and therein-included relationships were tested in a first step on a limited sample. Further studies should therefore validate the results for larger datasets. Second, the usage and further validation of the established research models should be tested even more by adding diverse brands or industries. In this respect, various theoretical approaches should also be considered to further evaluate the "elusive" constructs of culture, personality and environmental awareness. While in this thesis, merely one theoretical approach per construct was used, it could be worthwhile to extend future research with other academic concepts (e.g., for cultural values: HOUSE et al. 2004, HAMPDEN-TURNER and TROMPENAARS 2011; for personality traits: the ten-item personality inventory (TIPI) and the positive and negative affect schedule (PANAS); for environmental awareness: environmental collective efficacy (ECE), environmental knowledge (EKN), and green purchase intention (GPI)). Third, this dissertation uses various statistical analyses, such as SEM and PCA, to investigate the relationships between marketing- and consumer-related constructs. Future research may use further analysis methods (e.g., neural networks) and should think about lab experiments to explore established theories in a more controlled environment.

Considering all the results, the different studies herein provide relevant theoretical and practical insights into the fields of behavioral research and brand management. It was shown that the detailed acquisition and analysis of customer-specific data (especially in the form of culture, personality and environmental awareness) would be indispensable in the future for automotive manufacturers. The overall characteristics of mobility practices and associated interrelationships with the societal, infrastructural, cultural, political, economic and personal contexts of potential consumers is an increasingly important success criterion, and only those companies that are familiar with the in-depth market-research repertoire will be able to properly manage the upcoming transformation of this branch of industry.

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APPENDIX

A1: Paper publication in the proceedings of the 19th International Marketing Trends Conference (Paris, France / 16-18 January 2020).

Analyzing The Behavior Of Automotive Customers. - Which Theories Are Of Significance In Marketing Practice and Science Today?

19th International Marketing Trends Conference (Paris)

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ABSTRACT
In a representative study, potential consumers (n=800) from four different countries (Germany, Austria, UK, USA) were questioned about their personality, motivations and cultural values. The main objective of the study was to find out whether the knowledge about personality structures (COSTA and MCCRAE 1992), motivational systems (BISCHOF 1985, 1993) and cultural values (HOFSTEDE 1980, 2011) is useful for an automobile manufacturer and if meaningful marketing and sales measures can be derived from this information.
Against the background of a broad empirical study, it can be shown that there are interesting interaction effects between consumer personality and their motivation in purchasing a car and that cultural values had moderating effects on customer behavior. The findings indicate that the considered theories around motivation and culture could not be replicated as well as in theory and that a universal applicability of these theories should be treated with caution.

Keywords: Hofstede, Zurcher Model, Big Five, NEO-FFI, Automotive Marketing

INTRODUCTION

From the marketing practitioners point of view, the question arises repeatedly whether and, if so, to what extent they can fall back on existing theories in the investigation of the behavior of relevant customers. Are the influencing factors and their significance, which have been identified within the framework of theoretical approaches, of significance in the specific problem context? Of course, this question arises in a special way when it comes to analyzing the behavior of customers in an international context. What significance does the cultural dimensions have here, as they are emphasized e.g. in the Hofstede model (HOFSTEDE 1980, 2011) which, despite all criticism, is mostly used in studies in marketing science and practice? Moreover, which role do cultural influences play in comparison to other influencing factors, such as personality factors and specific motive structures? Do personality factors, as recorded in the »Big Five« model (COSTA and MCCRAE 1992), or the basic motivational structures derived from Bischof (1985, 1993), which are given special attention in neuro marketing research today, explain the behavior of customers better? Specifically the analysis of potential consumers in the automotive industry proves to be a particular challenge, as this complex sector combines forward-looking technological trends (e.g. electrification, autonomous driving, alternative mobility) with economic and socio-political changes (e.g. oil prices, urban access regulations, environmental reforms). Therefore, marketing specialists in this industry continue to strive for creative solutions to capture detailed information about dominant influencing factors of their consumers.

CONCEPTUAL FRAMEWORK & RESEARCH MODEL

In the case of a purchase decision, the consumer faces a complex task of processing a wide variety of information. Referring to Lewin's field theory [B= f (P, E)], the variables accentuated before can be integrated into a theoretical model whereby personality and motives can be understood as internal factors and culture as a dominant external influence. Lewin holds the view that behavior (B) is a fundamental result of the person (P) (e.g. personality, motivations) and the environment (E) (e.g. culture) (LEWIN 1936).

Role of Personality

Various studies have shown that personality traits can explain an important part of the perception, judgement and behavior of consumers. Accordingly, it becomes clear that a person's personality influences the buying behavior and that research can be useful for product and marketing decisions.

This paper will focus on the popular personality test NEO Five Factor Inventory (NEO-FFI). The included factors of the (also called) »Big Five« are characterized *neuroticism*, *extraversion, openness to experience*, *agreeableness*[41] and *conscientiousness* (COSTA and MCCRAE 1992).
The NEO-FFI has proved to be particularly useful in predicting human perception and behavior in various domains. In the field of health research, for example, the integration of the test has made it possible to derive special insights into a higher life expectancy (e.g. WILSON et al. 2004). In the field of political science, it was able to ascertain that personality correlates strongly with voting behavior and party affiliation (VECCHIONE et al. 2011). Successful studies in the field of marketing include research on brand loyalty (MATZLER et al. 2005) and customer satisfaction (MOORADIAN and OLVER 1997).
In order to test benefits for research in automotive buying behavior the following hypotheses arise:
H1.a: *Theoretically assumed **personality** traits (COSTA and MCCRAE 1992) can be reproduced within an automotive context.*
H2.a: *Theory of **personality** (COSTA and MCCRAE 1992) offers indications for applicability within an automotive context, since its factors have a significant influence on consumer behavior.*

Role of Motivation
Motives explain stable personality traits that stimulate, select and control behavior within a certain situational context and offer extremely important behavioral insights for the marketing of a company. The »Zurcher Model of Social Motivation« (BISCHOF 1985, 1993) has already attracted attention in fields of motivational psychology (e.g. SCHÖNBRODT and ASENDORPF 2011) and is used in this paper. It describes three social motivation systems, which belong to the basic human equipment: *security*, *arousal* and *autonomy*. Each motive is present within a human being, but individually developed based on different experiences (SCHEIER and HELD 2018).
The aim of this paper is to examine whether the motivational structures can be useful for research in the automotive buying behavior:
H1.b: *Theoretically assumed **motives** (BISCHOF 1985, 1993) can be reproduced within an automotive context.*
H2.b: *Theory of **motivation** (BISCHOF 1985, 1993) offers indications for applicability within an automotive context, since its factors have a significant influence on consumer behavior.*

Role of Culture
In 2019 Google lists more than 5.8 billion entries under the term »culture«. It is not surprising that global acting companies have a growing need for cultural knowledge to adapt their marketing strategies accordingly. Hofstede's cultural dimensions are defined as *individualism (IDV) vs. collectivism*, *uncertainty avoidance (UA)*, *power distance (PD)*, *masculinity (MAS) vs. femininity* and *long-term orientation (LTO) vs. short-term orientation* (HOFSTEDE 2011). Although this approach is repeatedly criticized and questioned (e.g. BREWER and VENAIK 2011; MCSWEENEY 2002) and researchers have developed different level characteristics (e.g. HOUSE et al. 2004), studies in scientific and practical marketing research often refer back to this theory. For example Baptista & Oliveira (2015) (acceptance of mobile banking) and Krishnan et al. (2013) (use of virtual social networks) have shown moderator effects of the country-specific culture in their articles.
Therefore, the following hypotheses arise in the context with this paper:

[41] The items used in this study to assess *agreeableness* all measured the negative dimension (*non-agreeableness*).

H1.c: *Theoretically assumed **cultural** dimensions (HOFSTEDE 1980, 2011) can be reproduced within an automotive context.*
H3: *Theory of **culture** (HOFSTEDE 1980, 2011) offers indications for applicability within an automotive context, since its factors have moderating effects on the potential consumer.*

METHOD

Participants (n=800) of the survey were car owners from Germany, Austria, the USA and the UK (200/country)[42]. A short version with 30 items (KÖRNER et al. 2008) offered a perfect solution for measuring the »Big Five« personality traits (COSTA and MCCRAE 1992). With regard to the consumers' buying motives (BISCHOF 1985, 1993), 13 items were assessed. To make the cultural dimensions (HOFSTEDE 1980, 2011) measurable, 18 items (SRITE and KARAHANNA 2006) were included in the questionnaire.
For all items the participants had to indicate their extent of agreement based on a 5-step Likert scale (where 1 = Disagree strongly and 5 = Agree strongly). Influencing factors were tested with the help of Principal Component Analysis (PCA) and Structural Equation Modeling (SEM).

FINDINGS & DISCUSSION[43]

PCAs were carried out to test H1 (a; b; c). Only items which clearly loaded on one factor and with a loading exceeding 0.4 were considered for factor interpretation. The PCA for personality revealed that the five factors, i.e. personality traits, of the NEO-FFI were found in our study as well. 59.05% of the initial variance of the items was explained by the five factors.
With the PCA for buying motives, only two buying motivations were analyzed. In contrast to the theoretically assumed purchasing motives, it was not possible to reproduce a three factor solution. While the *security* factor could be verified, the »fusion« of *autonomy* and *arousal* items led to the formation of the factor »*social signaling*«. 52.16% of the initial variance of the items was explained by the two factors.
Another PCA tested the cultural dimensions. Two *UA*-items were dropped due to low factor loading. Again, it was not possible to replicate the five theoretically assumed dimensions. Only four factors could be reproduced and a fusion of the *PD* and the *MAS* dimensions could be observed. 61.34% of the initial variance of the items was explained by the four factors.
The KMO-values (Kaiser-Meyer-Olkin-Criterion) can be described as »marvelous« (personality: 0.906) and »meritorious« (motivation: 0.864; culture: 0.860) (KAISER and RICE 1974). The Cronbach´s Alpha values for all factors are higher than 0.7, which indicates a »good« internal consistency (CRONBACH 1951).
The SEM-analysis faces several steps. Starting with the reliability and validity evaluation of the measurement model, the structural model is assessed. This procedure is important to face H2 (a; b). Then it is recommended to test moderators (H3).

(1) Evaluation of the Measurement Models

All constructs have sufficient values in the area of composite reliability and Cronbach´s Alpha (>0.7), that a construct reliability can be concluded (STRAUB 1989). The indicator reliability was evaluated on the basis that factor loads must be greater than 0.7 and all loads below 0.4 should be eliminated (CHURCHILL 1979). Convergence validity was tested with the help of the AVE (>0.5) (HENSELER et al. 2009). Discriminant validity was successfully analyzed with the Fornell-Larcker-

[42] Detailed demographic profile see appendix.
[43] Detailed results of the empirical analysis see appendix.

Criterion (FORNELL and LARCKER 1981). Overall, the results guaranteed that the constructs could be used to test the structural model.

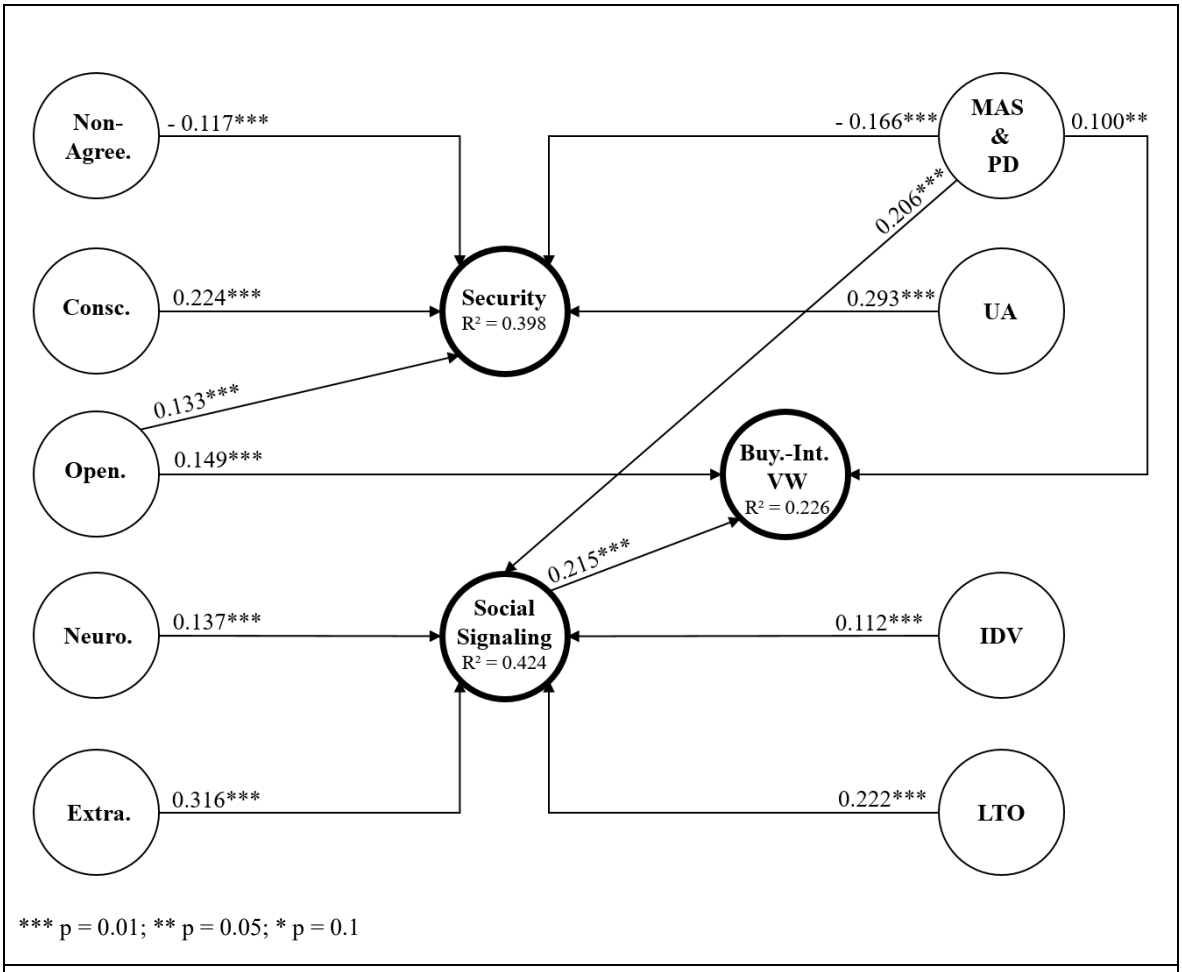

Figure 1. Outcomes of SEM

(2) Evaluation of the Structural Model

The assessment of the personality-related path coefficients leads to statistically significant relationships (s. Figure 1). The strong (positive) relationships of *conscientiousness* (0.224) and *openness to experience* (0.133) and the (negative) influence of *non-agreeableness* (-0.117) to the *security* motive stand out. Furthermore, strong (positive) paths between *extraversion* (0.316) and *neuroticism* (0.137) towards *social signaling* can be observed. With regard to the *buying intention (Volkswagen)*, strong (positive) bonds can be identified with *openness to experience* (0.149) and *social signaling* (0.215).

Considering the culture variables, it was also possible to discover statistically significant relationships. While *IDV* (0.112)*, LTO* (0.222) and *MAS & PD* (0.206) show strong (positive) relationships to the *social signaling* motive, only one strong (positive) connection between *UA* (0.293) and the *security* motive can be observed. *MAS & PD* stands in a (negative) connection to the *security* motive (-0.166) and in a (positive) connection to the *buying intention (Volkswagen)* (0.100).

Since there is no generally accepted global quality measure for SEM, the assessment is based on a cumulative consideration of different quality criteria: The R^2 values of all constructs show »mediocre« levels ranging from 0.226 to 0.424. Determined by blindfolding, the Stone-Geisser´s Q^2 results (GEISSER 1974; STONE 1974) show values larger than zero for all the endogenous latent variables, suggesting the predictive relevance of the explanatory variables. The Standardized Root Mean Square Residual (SRMR) with a value of 0.071 and the Normed Fit Index (NFI) with a value of 0.740 also delivered »good« results with respect to the model fit.

(3) Moderation Effect of Culture

Considering H3, the cultural dimension *PD & MAS* shows a (positive) moderating influence on the *conscientiousness* to *security* path and a (positive) moderating influence on the *neuroticism* to *social signaling* relationship. *LTO* has a (positive) moderating effect on the *non-agreeableness* to *security* and the *extraversion* to *social signaling* bond.

(4) Post-Hoc Analysis

For detailed insights into cultural issues, the research model was calculated on the individual country data-basis. The differentiation of the groups is significant if the estimate of the considered group does not fall within the confidence interval of the group to be compared and vice versa (SARSTEDT et al. 2011)[44].

Post-hoc analysis shows five significant differences: Compared to the overall model, Austria shows much weaker estimates with *conscientiousness* to *security* (0.412 vs. 0.225), *neuroticism* to *buying intention* (0.112 vs. -0.126) and *neuroticism* to *security* (0.071 vs. -0.194). Germany reveals differences with the *extraversion* to *buying intention* (0.412 vs. 0.107) and the USA with *openness to experience* to *social signaling* (0.030 vs. 0.187).

There are also disparities on how the nations differ compared to each other: 14 of 20 relationships show significant differences. The model for Austria shows the most differences (17) followed by Germany (13), the USA (13) and the UK (10).

The post-hoc analysis allows the conclusion that most of the relationships are susceptible to cultural influences. The fact that the overall model shows only five significant differences compared to the country-specific models suggests a fairly good integration of the national models within the overall model.

CONTRIBUTIONS

All three accentuated theories are generally relevant in the investigation of customer behavior within an international automotive context (H2.a; H2.b; H3). However, while the theoretically assumed personality traits could be reproduced (H1.a), this does not apply to the results for motivation (H1.b) and culture (H1.c). In contrast to theory, there are only two confirmed factors for motives and four for culture. Taking a closer look at the »new« factors, it shows that they are meaningful in terms of content and further empirical use is still possible.

Considering the research model, it should be mentioned that the »mediocre« values of R^2 (0.226 to 0.424) are not sufficient. With reference to the individual nation models, in some cases far better R^2 values can be shown (e.g. USA: 0.324 to 0.521). The aim here is to investigate more closely whether and to what extent the factors will be relevant in the future.

It remains that in some cases the addition of the tested theories could add certain facets to the market research of an internationally active company and enrich the detailed research of consumer

[44] 97.5% bias-corrected bootstrap intervals. Calculations based on 5.000 bootstraps.

behavior. Hofstede's work helped to quantify the previously vague concept of culture and served to integrate culture as a measurable construct.

LIMITATIONS & FURTHER RESEARCH

First, it must be taken into account that the research was conducted for merely one brand and one industry. Future studies should focus on demonstrating the robustness of the research model. Second, it should be noted that this study only includes a small sample of cultures. Future studies should not concentrate on the observation of more countries, but rather draw on supposedly different cultures. Finally, it must be borne in mind that the discourse was limited on Hofstede´s cultural values. Although these dimensions continue to have great influence, there are other theories that could be considered (e.g. HOUSE et al. 2004). This limitation also applies to personality and motivation.

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APPENDIX

Variable	n	Percent
Country		
USA	200	25.0
Germany	200	25.0
Austria	200	25.0
United Kingdom	200	25.0
Age (in years)		
16-29	88	11.0
30-39	172	21.5
40-49	147	18.4
50-59	169	21.1
60-99	224	28.0
Gender		
Male	400	50.0
Female	400	50.0
Martial Status		
Single	212	26.5
Married	471	58.9
Widowed	24	3.0
Divorced	93	11.6
Net income (in euros per month)		
less than 1000	39	4.9
1,001-2,000	157	19.6
2,001-3,000	182	22.8
3,001-4,000	145	18.1
4,001-5,000	83	10.4
5000 and over	138	17.3
No answer	56	7.0

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Table A1. Demographic Profile of the Sample

Personality trait (Cronbach´s Alpha)	Items (according to Körner et al. (2008))	Factor 1	2	3	4	5
Neuroticism (0.910)	I often feel helpless and wish for a person to solve my problems.	0.813				
	Sometimes I feel completely worthless.	0.809				
	I often feel tense and nervous.	0.807				
	When I'm under a lot of stress, sometimes I feel like I'm breaking down.	0.805				
	I often feel inferior to others.	0.783				
	Too often I am discouraged and want to give up if something goes wrong.	0.771				
Non-Agreeableness (0.842)	Some people think I'm selfish and egotistic.		0.794			
	Some people think I'm cold and calculating.		0.792			
	To get what I want, I'm willing to manipulate people if necessary.		0.752			
	I rarely try to be considerate and sensitive.		0.632			
	I get into fights with my family and colleagues more often.	0.442	0.603			
	I am rather cynical and sceptical about the intentions of others.		0.580			
Conscientiousness (0.820)	I'm a conscientious person who always do his job.			0.804		
	I try to do all the tasks assigned to me very conscientiously.			0.761		
	If I make a commitment, I'm sure I can be relied upon.			0.717		
	I can manage my time quite well so that I can finish my business on time.			0.681		
	I am always able to bring order into my life.			0.637		
	I keep my things neat and tidy.			0.581		
Openness-to-Experience (0.827)	When I read literature or look at a work of art, I sometimes feel a thrill or a wave of enthusiasm.				0.731	
	Philosophical discussions are not boring for me.				0.719	
	I often enjoy playing with theories or abstract ideas.				0.704	
	I am fascinated by the motives I can find in art and nature.				0.683	0.331
	I am interested in speculating about the nature of the universe or the situation of mankind.				0.682	
	Poetry impresses me.				0.671	
Extraversion (0.803)	I like to have a lot of people around me.					0.772
	I'm a cheerful, joyful person.		0.313			0.666
	I like to be in the centre of the action.					0.666
	I often have the feeling that I'm overflowing with energy.					0.647
	It is easy to make me laugh.					0.588
	I am a very active person.					0.581

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Table A2. PCA: Personality

Buying Motive (Cronbach´s Alpha)	Features that influence me while buying a car…	Factor 1	Factor 2
Arousal & Autonomy = **Social Signaling** (0.833)	The car has to express my social position.	0.829	
	Brand image ("public opinion").	0.792	
	For me, a car is a reflection of economic strength (assets, income, etc.).	0.771	
	Brand origin / Production location.	0.623	
	Sportiness / Driving pleasure.	0.619	
	Modern technology / Progressiveness.	0.567	0.420
	Design / Styling.	0.554	0.442
Security (0.780)	Safety / Reliability.		0.782
	Driving comfort / Convenience.		0.741
	Functionality / Flexibility.		0.727
	Price-performance ratio.		0.641
	(Positive) Brand experience.		0.613
	Environmental friendliness (e.g. low fuel consumption / emissions,).		0.565

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Table A3. PCA: Buying Motives

Cultural Dimension (Cronbach´s Alpha)	Items (Items according to Srite and Karahanna (2006))	Factor 1	2	3	4
MAS & POW (0.879)	It is preferable to have a man in a high level position rather than a woman.	0.817			
	Solving organizational problems requires the active forcible approach which is typical of men.	0.785			
	It is more important for men to have a professional career than it is for women to have one.	0.760			
	Manager should not ask subordinates for advice, because they might appear less powerful.	0.741			
	Women do not value recognition and promotion in their work as much as men do.	0.717			
	Managers should make most decisions without consulting subordinates.	0.672			
	Employees should not question their manager's decision.	0.662			
	Decision making power should stay with top management in the organization and not delegate to lower level employees.	0.645			
IDV (0.736)	Group success is more important than individual success.		0.790		
	Being loyal to a group is more important than individual gain.		0.763		
	Individual rewards are not as important as group welfare.		0.750		
	Being accepted as a member of a group is more important than having autonomy and independence.		0.601		
UA (0.716)	It is better to have a bad situation that you know about, than to have an uncertain situation which might be better.			0.811	
	People should avoid making changes because things could get worse.			0.794	
LTO (0.603)	I work hard for success in the future.				0.755
	I plan for the long term.				0.749

Table A4. PCA: Cultural Dimensions

		Factor Loadings	AVE	Cronbach´s Alpha	Composite Reliability	Fornell-Larcker Criterion (AVE > Max. Corr²)
Personality	Non-Agree.	0.580 - 0.794	0.562	0.842	0.883	0.562 > 0.338
	Open.	0.671 - 0.731	0.535	0.827	0.873	0.535 > 0.245
	Extra.	0.581 - 0.772	0.502	0.803	0.857	0.502 > 0.257
	Neuro.	0.771 - 0.813	0.689	0.910	0.930	0.689 > 0.271
	Consc.	0.581 - 0.804	0.532	0.820	0.872	0.532 > 0.239
Motives	Security	0.565 - 0.782	0.491	0.780	0.852	0.491 > 0.239
	Soc. Sig.	0.554 - 0.829	0.500	0.833	0.874	0.500 > 0.257
Culture	MAS & POW	0.645 - 0.817	0.542	0.879	0.904	0.542> 0.338
	IDV	0.601 - 0.790	0.556	0.736	0.833	0.556 > 0.213
	UA	0.794 - 0.811	0.777	0.716	0.875	0.777 > 0.229
	LTO	0.749 - 0.755	0.712	0.603	0.832	0.712 > 0.275
Behavior	Buy. Int. VW	0.939 - 0.946	0.887	0.936	0.959	0.887 > 0.153

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Table A5. Assessing the Measurement Models

	Moderator: UA		**Moderator: IDV**	
	Estimate	t-Stastistics	Estimate	t-Stastistics
Non-Agree → Security	0.012	0.312	-0.000	0.005
Consc → Security	-0.041	0.833	-0.011	0.185
Open → Security	-0.019	0.587	0.010	0.331
Extra → Social Sign.	0.042	1.269	0.026	0.748
Neuro → Social Sign.	-0.020	0.679	0.051	1.493
	Moderator: PD & MAS		**Moderator: LTO**	
	Estimate	t-Stastistics	Estimate	t-Stastistics
Non-Agree → Security	-0.022	0.638	**0.080**	**2.050****
Consc → Security	**0.086**	**2.014****	0.079	1.644
Open → Security	0.006	0.173	0.024	0.736
Extra → Social Sign.	0.027	0.764	**0.056**	**1.687***
Neuro → Social Sign.	**-0.129**	**4.160****	-0.005	0.146

*** p = 0.01; ** p = 0.05; * p = 0.1

Table A6. Moderation Effect of Culture

	Overall Model		**Germany** (G)		**Austria** (A)		**USA**		**UK**		**Δ**
	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	
Consc.→ Buy.Int.	0.017	-0.068 - 0.099	0.134	-0.061 - 0.309	0.051	-0.123 - 0.192	0.040	-0.167 - 0.226	-0.128	-0.274 - 0.038	
Consc.→ Security	**0.412*****	0.318 - 0.492	0.422***	0.272 - 0.552	**0.225****	-0.002 - 0.403	0.545***	0.322 - 0.693	0.419***	0.255 - 0.542	**OM > A**
Consc.→ Soc.Sig.	0.099	0.007 - 0.185	0.236**	0.035 - 0.404	-0.023	-0.240 - 0.158	0.064	-0.082 - 0.197	0.142	-0.005 - 0.291	
Extra. → Buy.Int.	**0.107**	0.018 - 0.190	**-0.173***	-0.339 - 0.008	0.016	-0.162 - 0.193	0.150	0.015 - 0.292	0.313***	0.122 - 0.495	**OM > G**
Extra.→ Security	0.057	-0.020 - 0.131	0.076	-0.070 - 0.228	0.109	-0.075 - 0.231	-0.103	-0.273 - 0.073	0.065	-0.089 - 0.215	
Extra.→ Soc.Sig.	0.454***	0.374 - 0.530	0.402***	0.232 - 0.549	0.464***	0.278 - 0.592	0.397***	0.240 - 0.540	0.523***	0.366 - 0.660	
Neuro. → Buy.Int.	**0.112**	0.033 - 0.189	0.105	-0.075 - 0.280	**-0.126**	-0.361 - 0.079	0.091	-0.078 - 0.243	0.125	-0.046 - 0.273	**OM > A**
Neuro.→ Security	**0.071**	-0.008 - 0.148	-0.005	-0.159 - 0.153	**-0.194***	-0.430 - -0.069	0.264***	0.102 - 0.411	0.032	-0.131 - 0.201	**OM > A**
Neuro. → Soc.Sig.	0.209**	0.123 - 0.286	0.210**	0.015 - 0.403	0.132	-0.162 - 0.347	0.243**	0.066 - 0.401	0.158	-0.031 - 0.326	
Non.Agree.→Buy.Int.	0.060	-0.016 - 0.137	-0.020	-0.183 - 0.157	-0.083	-0.235 - 0.114	0.207**	0.059 - 0.360	0.110	-0.068 - 0.281	
Non-Agree.→ Security	-0.191*	-0.255 - -0.120	-0.162	-0.275 - -0.031	-0.150	-0.272 - 0.086	-0.245**	-0.391 - -0.095	-0.206**	-0.373 - -0.016	
Non-Agree. → Soc.Sig.	0.078	-0.001 - 0.158	0.085	-0.062 - 0.230	-0.004	-0.155 - 0.222	0.080	-0.103 - 0.270	0.051	-0.109 - 0.195	
Open.→ Buy.Int.	0.131	0.048 - 0.203	0.048	-0.125 - 0.210	0.063	-0.142 - 0.214	0.219**	0.061 - 0.367	0.098	-0.061 - 0.243	
Open.→ Security	0.158	0.083 - 0.232	0.222**	0.098 - 0.322	0.085	-0.119 - 0.223	0.194*	0.022 - 0.370	0.116	-0.042 - 0.255	
Open.→ Soc.Sig.	**0.030**	-0.048 - 0.105	0.063	-0.100 - 0.203	-0.074	-0.246 - 0.092	**0.187***	0.039 - 0.328	-0.037	-0.203 - 0.098	**US > OM**
Security→ Buy.Int.	-0.034	-0.113 - 0.043	-0.065	-0.234 - 0.110	-0.035	-0.211 - 0.121	-0.100	-0.245 - 0.064	0.056	-0.119 - 0.216	
Soc.Sig.→ Buy.Int.	0.265***	0.185 - 0.355	0.420***	0.239 - 0.565	0.333***	0.204 - 0.492	0.251**	0.064 - 0.439	0.092	-0.091 - 0.275	
R² (Security)	0.282***		0.426***		0.209**		0.324***		0.285***		
R² (Soc.Sig.)	0.322***		0.261***		0.189*		0.521***		0.342***		
R² (Buy.Int.)	0.210**		0.172*		0.148		0.501***		0.236**		

*** p = 0.01; ** p = 0.05; * p = 0.1

Δ = Significant group differences (Overall Model vs. Nation Models) at the 2,5% level

Table A7. Overall Model vs. Individual Nation Models

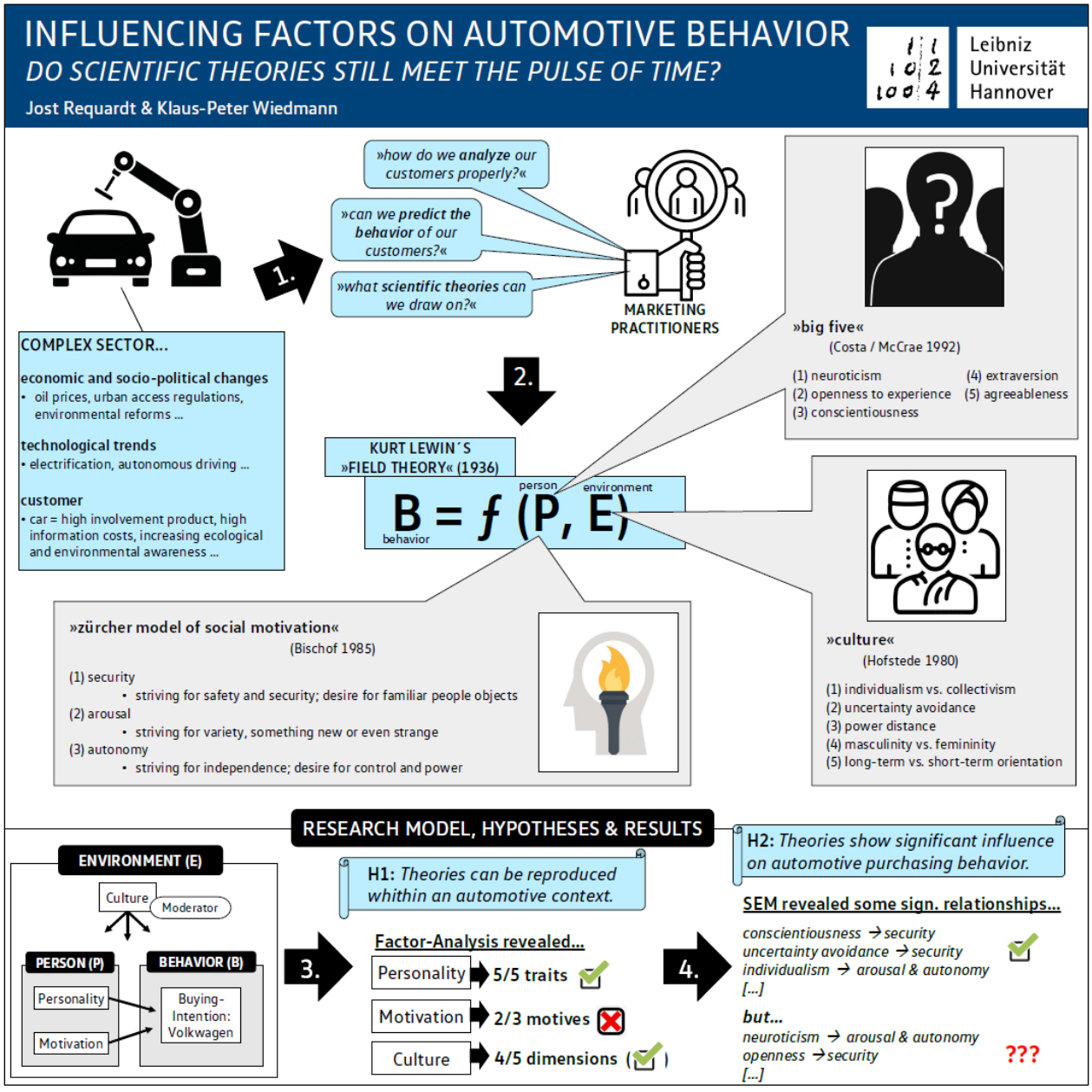
	Germany (G)		**Austria** (A)		**USA**		**UK**		**Δ**
	Est.	BC CI	Est.	BC CI	Est.	BC CI	Est.	BC CI	
Consc.→ Buy.Int.	0.134	-0.061 - 0.309	0.051	-0.123 - 0.192	0.040	-0.167 - 0.226	-0.128	-0.274 - 0.038	**G > UK A > UK USA > UK**
Consc.→ Security	0.422***	0.272 - 0.552	0.225**	-0.002 - 0.403	0.545***	0.322 - 0.693	0.419***	0.255 - 0.542	**G > A USA > A UK > A**
Consc.→ Soc.Sig.	0.236**	0.035 - 0.404	-0.023	-0.240 - 0.158	0.064	-0.082 - 0.197	0.142	-0.005 - 0.291	**G > A**
Extra. → Buy.Int.	-0.173*	-0.339 - 0.008	0.016	-0.162 - 0.193	0.150	0.015 - 0.292	0.313***	0.122 - 0.495	**A > G USA > G UK > G UK > A**
Extra.→ Security	0.076	-0.070 - 0.228	0.109	-0.075 - 0.231	-0.103	-0.273 - 0.073	0.065	-0.089 - 0.215	**G > USA A > USA**
Extra.→ Soc.Sig.	0.402***	0.232 - 0.549	0.464***	0.278 - 0.592	0.397***	0.240 - 0.540	0.523***	0.366 - 0.660	
Neuro. → Buy.Int.	0.105	-0.075 - 0.280	-0.126	-0.361 - 0.079	0.091	-0.078 - 0.243	0.125	-0.046 - 0.273	**G > A USA > A UK > A**
Neuro.→ Security	-0.005	-0.159 - 0.153	-0.194*	-0.430 - -0.069	0.264***	0.102 - 0.411	0.032	-0.131 - 0.201	**G > A USA > G USA > A UK > A**
Neuro. → Soc.Sig.	0.210**	0.015 - 0.403	0.132	-0.162 - 0.347	0.243**	0.066 - 0.401	0.158	-0.031 - 0.326	
Non.Agree.→Buy.Int.	-0.020	-0.183 - 0.157	-0.083	-0.235 - 0.114	0.207**	0.059 - 0.360	0.110	-0.068 - 0.281	**USA > G USA > A**
Non-Agree.→ Security	-0.162	-0.275 - -0.031	-0.150	-0.272 - 0.086	-0.245**	-0.391 - -0.095	-0.206**	-0.373 - -0.016	
Non-Agree. → Soc.Sig.	0.085	-0.062 - 0.230	-0.004	-0.155 - 0.222	0.080	-0.103 - 0.270	0.051	-0.109 - 0.195	
Open.→ Buy.Int.	0.048	-0.125 - 0.210	0.063	-0.142 - 0.214	0.219**	0.061 - 0.367	0.098	-0.061 - 0.243	**USA > G**
Open.→ Security	0.222**	0.098 - 0.322	0.085	-0.119 - 0.223	0.194*	0.022 - 0.370	0.116	-0.042 - 0.255	
Open.→ Soc.Sig.	0.063	-0.100 - 0.203	-0.074	-0.246 - 0.092	0.187*	0.039 - 0.328	-0.037	-0.203 - 0.098	**USA > A USA > UK**
Security→ Buy.Int.	-0.065	-0.234 - 0.110	-0.035	-0.211 - 0.121	-0.100	-0.245 - 0.064	0.056	-0.119 - 0.216	
Soc.Sig.→ Buy.Int.	0.420***	0.239 - 0.565	0.333***	0.204 - 0.492	0.251**	0.064 - 0.439	0.092	-0.091 - 0.275	**G > UK A > UK**
R² (Security)	0.426***		0.209**		0.324***		0.285***		
R² (Soc.Sig.)	0.261***		0.189*		0.521***		0.342***		
R² (Buy.Int.)	0.172*		0.148		0.501***		0.236**		
									→ G = 13; A = 17; USA = 13; UK = 10

*** p = 0.01; ** p = 0.05; * p = 0.1

Δ = Significant group differences (Nation Model Differences) at the 2,5% level

Table A8. Differences between Individual Nation Models

A2: Poster presentation for 2020 American Marketing Association Winter Academic Conference (San Diego (CA), United States / 14-16 February 2020).



A3: Paper publication in the proceedings of the 2020 Academy of Marketing Science Annual Conference (Coral Gables (FL), United States / 20-22 May 2020; Due to the COVID-19 crisis, the annual conference was rescheduled to 15-17 December 2020). *(forthcoming)*.

Self-Congruity as the Bottleneck Within an Automotive Purchase. - What Impact do the Consumers' Personality and Culture Have?

ABSTRACT

Given the assumption that brands also have personalities, consumers are likely to choose brands with personalities that match their own. In this case, the focus was on the automotive brand Volkswagen. In a representative study, potential consumers (n=800) from four different countries (Germany, Austria, UK, USA) were questioned about brand personality, self-congruity, buying intention, culture and personality. With the support of cultural dimensions according to Hofstede (1980, 2011) and the NEO-FFI according to Costa and McCrae (1992), culture and personality profiles were measured.
The main objective of the study was to investigate relationships among brand personality, self-congruity and the automotive buying intention. Brand self-congruity was tested as a mediator of the relationship between brand personality and the car purchase intention. It was further analyzed whether culture and personality had moderating effects.
The findings suggest that self-congruity should be seen as a differentiator in the context of automotive marketing because (almost) every considered brand personality brings a complete mediation. Furthermore, the study shows some significant moderation effects of culture and personality. In addition, a post-hoc analysis yielded detailed insights into how culture influences the relationships between brand personality, brand self-congruity and consumer behavior.

Keywords: Brand Personality, Consumer Behavior, Self-Congruity, Big Five, NEO-FFI, Automotive Marketing

INTRODUCTION

In the age of urbanization and digitization, manufacturers of traditional industries are facing a new field of challenges. The automotive industry, in particular, appears to be the one that is suffering the most. While this complex sector has always been exposed to a wide variety of economic and socio-political changes (e.g. oil prices, urban access regulations, environmental reforms), it now appears that the simple integration of technological trends (e.g. electrification, autonomous driving, connectivity) can probably no longer be regarded as the sole solution to various issues. It can rather be observed that new trends in the area of consumer behavior should be analyzed. The hype around the »Dieselgate« can be seen as a trigger for an increasing ecological and environmental awareness of the automotive customer and is now putting manufacturers under pressure. For most residents of the urban living space (5 billion people in 2030[45]) the idea of a »Sharing Economy« is booming, alternative mobility concepts are drawing more and more

[45] According to reports of the United Nations Population Fund (MONTGOMERY 2007).

attention and the ownership of an own automobile is becoming less and less interesting. In addition, potential car buyers are confronted with an increasing number of vehicles which, as a result of cooperations between manufacturers, can only be distinguished by their brand logo, but not by their basic vehicle characteristics or even their design. In order to stay successful in the crisis-ridden industry, manufacturers must ask themselves which differentiator they have to offer compared to their competitors. For the established companies on the market, it is of course worthwhile at this point to put their brand into the focus of analyses and to perceive this as the »bottleneck« of success. - If a customer today is still willing to buy their own car, it can be assumed, that the brand, or the matching between the self-image/self-concept and the brand, is more important than ever. Based on the assumption that products and brands are preferred to be as congruent as possible with the individuals own self-image (SIRGY 1982) and due to the fact that the congruence between the brand and the individuals own personality increases the probability of purchase significantly (USAKLI and BALOGLU 2011), it can also be expected that brand self-congruity (BSC) plays an enormously important role. Consequently, various studies have investigated the BSC phenomenon and it´s direct influence on consumer attitudes and behavior. However, the present study should rather explore it´s »mediating« role in the context of a car purchase. In addition, moderator effects of various cultural dimensions according to Hofstede (1980, 2011) and »Big Five« personality attributes according to Costa and McCrae (1992) are to be researched within this context. Based on the data of 800 car owners from four different countries (Germany, Austria, UK, USA) the primary object of investigation was the automotive brand Volkswagen.

THEORETICAL BACKGROUND

In the case of an automotive purchase decision, the consumer faces a complex task of processing a wide variety of information. The idea is to analyze the behavior of a potential consumer with regard to BSC, personality and culture. The following sections of this chapter serve to create a mutual understanding of considered theorems and to develop the hypotheses.

Mediating Brand Self-Congruity

In order to gain a clear definition of the BSC theorem, it is helpful to focus on the concept of brand personality. Brand personality is usually defined as »*set of human characteristics associated with a brand*« (AAKER 1997). It can serve as a strategic instrument for market positioning by helping to create differentiation from competing brands and it has a tactical function that offers a brand manager an orientation in marketing, advertising and design (SUNG and KIM 2010). Many researchers attribute psychological effects like consumer feelings towards a brand and brand-related behavior (purchasing decisions, brand loyalty and brand love) to the brand personality theorem. The most common view of the brand personality refers to the so-called »self-concept«. Theory points out that consumers have a firmly rooted idea of who they are and who they want to be, and that they are constantly trying to maintain this idea (SIRGY 1982). Therefore, researchers assume that the consumers purchasing decisions are dependent on the image of the brand as well as their willingness to »express« themselves through the brand (KARDES et al. 2011).
Accordingly, the self-concept approach is the basis of the BSC theorem. It combines a concept that describes the match between the brand personality and the consumer´s self-concept. Assuming that consumers seek this congruence between the brand and their own personality, various studies

have already demonstrated the mediating influence of BSC on the purchase decision (e.g. EISEND and STOKBURGER-SAUER 2013; USAKLI and BALOGLU 2011). In this paper, the same is to be expected within an automotive context. Therefore, the first hypothesis pursues the previous theoretical findings as follows:

Hypothesis 1: BSC mediates the relationship between brand-personality perceptions and automotive purchase intention.

Moderating Personality

Various studies have shown that personality traits can explain an important part of the perception, judgement and behavior of consumers. Accordingly, it becomes clear that a person's personality influences the buying behavior and that research can be useful for product or marketing decisions. »Trait theories« are considered to be an important approach in personality research due to the fact that they deal with the search for stable characteristic traits of individuals. This paper will focus on trait theories and will use the popular personality test NEO Five Factor Inventory (NEO-FFI). The included factors of the (also called) »Big Five« are characterized *neuroticism*, *extraversion*, *openness to experience*, *agreeableness*[46] and *conscientiousness* (COSTA and MCCRAE 1992).
The NEO-FFI has proved to be particularly useful in predicting human perception and behavior in various domains. In the field of health research, for example, the integration of the test has made it possible to derive special insights into a higher life expectancy (e.g. WILSON et al. 2004). In the field of political science, it was able to ascertain that personality correlates strongly with voting behavior and party affiliation (VECCHIONE et al. 2011). Successful studies in the field of marketing include research on brand loyalty (MATZLER 2005) and customer satisfaction (MOORADIAN and OLVER 1997).
This study is intended to examine which personality trait has a moderator effect on the connection between the brand personality, BSC and the automotive purchase intention:

Hypothesis 2: The personality traits according to Costa and McCrae (1992) will have moderating effects on the relationship between brand personality, BSC and automotive purchase intention.

Moderating Culture

In 2019 Google lists more than 5.8 billion entries under the term »culture«. It is not surprising that global acting companies have a growing need for cultural knowledge to adapt their marketing strategies accordingly. With regard to literature, it is clear that various models and approaches can be used to illustrate cultural differences. Hofstede´s cultural dimensions are based on data collected in more than 50 countries. They are defined as *individualism (IDV) vs. collectivism*, *uncertainty avoidance (UA)*, *power distance (PD)*, *masculinity (MAS) vs. femininity, long-term orientation (LTO) vs. short-term orientation* and *indulgence vs. restraint* (HOFSTEDE 1980, 2011). Although this theoretical approach is repeatedly criticized and questioned (e.g. BREWER and VENAIK 2011) and researchers have developed different level characteristics (e.g. HOUSE et al. 2004; HAMPDEN-TURNER and TROMPENAARS 2011), studies in both scientific and practical marketing research often refer back to Hofstede. For example Baptista and Oliveira (2015) (acceptance of mobile banking)

[46] The items used in this study to assess *agreeableness* all measured the negative dimension (*non-agreeableness*).

and Krishnan et al. (2013) (use of virtual social networks) have shown moderator effects of the country-specific culture in their articles.
The aim of this study is to prove that Hofstede's cultural dimensions have a moderating effect in connection with brand personality, BSC and purchasing decisions in the automotive sector. The dimensions of IDV and UA are particularly suitable for this purpose, as these dimensions have already been confirmed in a brand-related context (LAM et al. 2012). Since people of IDV cultures are focused on putting their own well-being above the welfare of the group, it can be assumed that the self-concept of a consumer enjoys priority. Cross et al. (2003) see this confirmed in the demand for consistency in IDV cultures. The congruence between the brand personality and the self-concept can therefore be regarded as a form of consistency. A high IDV index consequently suggests that potential car buyers prefer brands that are oriented towards their self-concept. Based on this assumption, the following hypothesis can be derived:

Hypothesis 3.a: Hofstede´s (1980, 2011) cultural dimension of IDV positively moderates the relationship between BSC and automotive purchase intention.

The UA dimension refers to »*the extent to which the members of a culture feel threatened by uncertain or unknown situations*« (HOFSTEDE 1980). In addition, UA cultures have a tendency towards clarity and structured behavior (HOFSTEDE 2011) which implies that low risk tolerance enjoys priority. Unknown brands are associated with high information costs and entail a certain risk. The fact that people with a high degree of UA rarely experiment with unknown brands was hence demonstrated in earlier papers (e.g. BRODERICK 2007). A high UA index consequently suggests that potential car buyers prefer brands that signal familiarity, i.e. a high degree of BSC. Based on this assumption, the following hypothesis can be derived:

Hypothesis 3.b: Hofstede´s (1980, 2011) cultural dimension of UA positively moderates the relationship between BSC and automotive purchase intention.

Since IDV and UA in this context offer sufficient reason to investigate moderator effects, the remaining cultural dimensions according to Hofstede (1980, 2011) will also be the subject of an analysis. Therefore, the following hypotheses can be derived:

Hypothesis 3.c; .d; .e: Hofstede´s (1980, 2011) cultural dimensions of (c) PD, (d) MAS and (e) LTO will have moderating effects on the relationship between brand personality, BSC and automotive purchase intention.

METHODOLOGY

In a broad questionnaire, participants were asked about brand personality, self-congruity, buying intention, culture and personality. The survey took place between 09/11/2018 and 14/11/2018 and included a sample size of n=800 (400 women, 400 men). The participants of the survey are car owners aged between 16 and 84 years (Ø = 49 years) from Germany (n=200), the USA (n=200), Austria (n=200) or the UK (n=200).
While the majority of brand personality related studies are based on the work of Aaker (1997) this paper is established on a more recent measure by Geuens et al. (2009). Their brand personality structure consists of five dimensions (*responsibility*, *activity*, *aggressiveness*, *simplicity* and *emotionality*) and was measured with 14 items (2-3 items per dimension). BSC was assessed with

four items from a previous study (USAKLI and BALOGLU 2011), which were adapted to the context of an automotive purchase (e.g., »*Volkswagen as a car manufacturer suits my personality*«). Although numerous procedures for recording the »Big Five« personality traits exist, a short version of the NEO-FFI according to Körner et al. (2008) offers a fitted trade-off in terms of reliability, validity and economic suitability. The version comprises 30 items (6 items per personality dimension). In order to gain detailed insights into cultural issues, we decided to use two different methods. First, a moderator analysis took place to test the hypotheses H3.(a; b; c; d; e) properly. For this purpose, the cultural dimensions according to Hofstede (1980, 2011) were measured by two (LTO) or four (IDV, UA, PD, MAS) items. In addition, scores provided by Hofstede (https://www.hofstede-insights.com) were used (s. Table 1) to enable a post-hoc analysis based on a significantly larger data set. The purchase intention was measured by three items (e.g., »*I can imagine to buy a Volkswagen (again).*«). For all items the participants had to indicate their extent of agreement based on a 5-step Likert scale (where 1 = Disagree strongly and 5 = Agree strongly).

	IDV	UA	PD	MAS	LTO
Germany	67	65	35	66	83
Austria	55	70	11	79	60
USA	91	46	40	62	26
UK	89	35	35	66	51

Table 1. Hofstede Cultural Scores (https://www.hofstede-insights.com)

RESULTS AND DISCUSSION[47]

The following chapters are devoted to the empirical testing of the hypotheses presented previously. To evaluate the collected data sets adequately, the software Smart PLS (3.2.8) was used to carry out Structural Equation Modeling (SEM)[48]. SEM can generally be understood as a methodology that can be used to describe a large number of statistical models to evaluate the validity of theories with empirical data (RINGLE et al. 2005). The analysis of a Partial Least Square (PLS) path model faces several steps. Starting with the reliability and validity evaluation of the measurement model, the structural model is assessed, before the analysis of mediation and moderation effects takes place.

(1) Evaluation of the Measurement Models

With a regard to a reliable and valid measurement of the latent variables, the used measurement models were checked according to several criteria: construct reliability, indicator reliability, convergence validity, and discriminant validity. All constructs have sufficient values in the area of composite reliability and Cronbach´s Alpha (>0.7; CRONBACH 1951)[49], that a construct reliability can be concluded (STRAUB 1989). The indicator reliability was evaluated on the basis

[47] Detailed figures for SEM, mediation, moderation and post-hoc analysis are available in the full paper.
[48] Some analyses required the use of IBM SPSS Statistics (Version 25).
[49] Simplicity and *LTO* with Cronbach´s Alpha < 0.7.

that factor loads must be greater than 0.7 and all loads below 0.4 should be eliminated (CHURCHILL 1979). Each indicator loads satisfactorily high (> 0.4) on one single factor. While convergence validity was tested with the help of the average variance extracted (AVE) (>0.5)[50], discriminant validity was successfully analyzed with the Fornell-Larcker-Criterion (FORNELL and LARCKER 1981).
Overall, the evaluation of the measurement model shows sufficient results. This guaranteed that the constructs could be statistically separated and used to test the structural model.

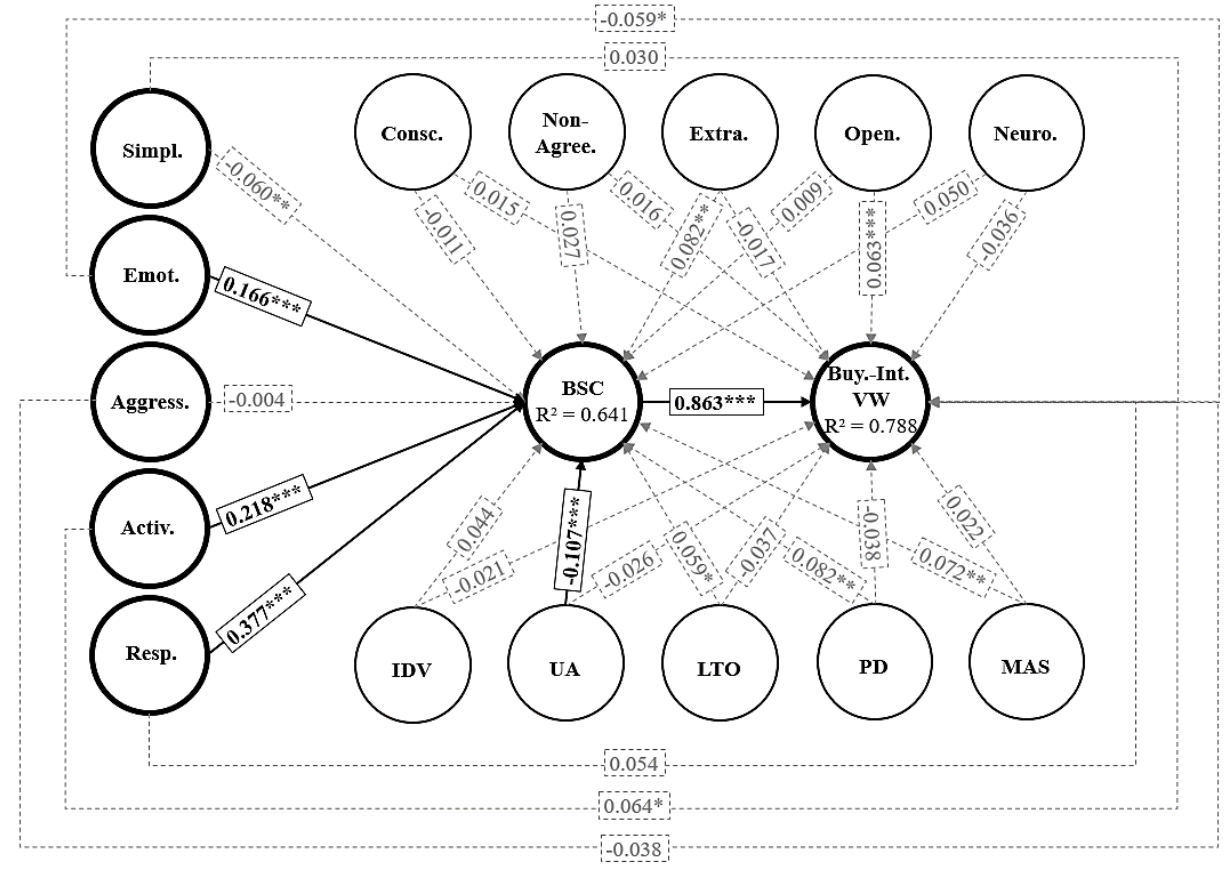


Figure 1. Outcomes of SEM[51]

[50] *Conscientiousness* with AVE < 0.5.
[51] Path coefficients that are significant and relevant (i.e. values > 0.1) are shown in solid lines, while (significant and) less relevant relationships are shown in dashed/grey lines.

(2) Evaluation of the Structural Model

The assessment of the brand personality-related PLS path coefficients leads to statistically significant relationships (s. Figure 1). Significant but weak bonds of the brand personality *activity* (positive) and *emotionality* (negative) to *buying intention (Volkswagen)* stand out. Furthermore, strong (positive) and significant paths between *emotionality, activity* and *responsibility* towards *BSC* can be observed[52]. With regard to *BSC*, a very strong connection to *buying intention (Volkswagen)* can also be identified.
Considering the personality and culture variables, it was also possible to discover statistically significant relationships. In connection with the personality, a significant but weak (positive) path between *extraversion* and *BSC* were found. *Openness to experience* also shows a significant but weak (positive) relationship to *buying intention (Volkswagen)*. With regard to culture, a significant and strong (negative) bond between *UA* and *BSC* was found. *LTO*, *PD* and *MAS* also show significant (positive) connections to *BSC*. However, it should be noted that although the relationships are significant, they are mostly not exceptionally strong.
Since there is no generally accepted global quality measure for SEM, the assessment of the causal model is based on a cumulative consideration of different quality criteria: In addition to the consideration of the path coefficients, the R^2 values of all the constructs show »mediocre« (*BSC* with 0.641) and »satisfactory« (*buying intention (Volkswagen)* with 0.788) levels. Determined by blindfolding, the Stone-Geisser´s Q^2 results (GEISSER 1974; STONE 1974) show values larger than zero for all the endogenous latent variables, suggesting the predictive relevance of the explanatory variables. The Standardized Root Mean Square Residual (SRMR) with a value of 0.062 and the Normed Fit Index (NFI) with a value of 0.760 also delivered »good« results with respect to the model fit.
The evaluations of the measurement (1) and structural model (2) demonstrate that the PLS estimates are reliable and valid according to various criteria and that significant observations were also revealed.

(3) Mediation Effect of BSC

To test the first hypothesis (H1), i.e. the assumption of the mediation effect of *BSC* on the relationship *brand personality* to *buying intention (Volkswagen)*, a method suggested by Zhao et al. (2010) was followed. In order to use this method, the following values must be derived: indirect, direct and total effects of brand personality dimensions upon the *buying intention (Volkswagen)* and the t-statistics for these effects. There is no mediation if the indirect effect is not significant. As soon as the indirect effect and the direct effect are significant, there is partial mediation. Fully mediation occurs when the indirect effect is significant but the direct effect is not. In addition, research has recommended that confidence intervals are more appropriate for investigating mediating effects. Accordingly, a 97.5% bias-corrected confidence interval[53] was calculated. A significant mediating effect occurs when the confidence interval for the indirect effect does not include »0« (ZHAO et al. 2010).
The difference between partial and fully mediation is as follows: Fully mediation exists when the integration of the mediation variable reduces the relationship between the independent and dependent variables to zero. Here, partial mediation has a weaker but still significant effect on the

[52] Another significant but weak link is the relationship between *simplicity* and *BSC*.
[53] Calculation based on 2.500 bootstraps.

relationship between the independent and dependent variables, but does not explain all aspects of this relationship. It means that the mediator can simply be shown a direct link to the relationship between the independent and the dependent variable (BARON and KENNY 1986).
In this case, the brand personality dimensions of *simplicity, activity* and *responsibility* are fully mediated. *Emotionality* is partially mediated. No mediation could be determined for *aggressiveness*. Since a mediation effect could be investigated by *BSC* for the majority of the brand personality dimensions on *buying intention (Volkswagen)*, we conclude that H1 is partially supported.

(4) Moderation Effect of Personality and Culture

Only the path coefficients were tested for a possible cultural moderation effect, which proved to be significant within the previous analysis (s. Figure 1). With regard to the hypotheses H2 and H3, some significant effects could be demonstrated. There are significant moderation effects of the cultural dimensions *PD* (negative) and *MAS* (positive) on the *BSC* to *buying intention (Volkswagen)* relationship. *PD* also negatively moderates the relationship between *emotionality* to *BSC* and *LTO* moderates (negative) the connection of *responsibility* to *BSC*.
In case of personality as a moderator, the bond between *responsibility* and *BSC* is moderated by *non-agreeableness* (positive) and *neuroticism* (negative). *Non-agreeableness* also negatively moderates the *activity* to *BSC* path.

(5) Post-Hoc Analysis

For detailed insights into cultural issues, further post-hoc analysis was carried out in addition to the moderator analysis. It should be noticed that the investigation of measurement and method differences was not an objective of this paper. The aim was to calculate the research model on the data-basis of the individual countries and to enable corresponding comparisons. In order to identify cultural differences, the relationships among constructs in one country compared to the overall model were first determined. Additionally, the extent to which the individual nations differ from each other was examined[54]. The differentiation of the groups is significant if the estimate of the considered group does not fall within the confidence interval of the group to be compared and vice versa (SARSTEDT et al. 2011)[55].
Post-hoc analysis shows four significant differences: Compared to the overall model, Germany shows a much stronger estimate with the *responsibility* to *BSC* path (0.367 vs. 0.543). The USA reveals a much weaker estimate with *responsibility* to *buying intention (Volkswagen)* (0.055 vs. -0.038). In addition, Germany (0.735) and Austria (0.759) are significantly weaker in the *BSC* to *buying intention (Volkswagen)* bond compared to the overall model (0.850).
There are also differences on how the nations differ compared to each other: All relationships show significant differences except the connections between *emotionality* to *BSC* and *activity* to *buying intention (Volkswagen)*. Regarding the *BSC* to *buying intention (Volkswagen)* path, we find that the models for Germany (0.735) and Austria (0.759) show significantly lower estimates compared to the UK (0.895) and the USA (0.912). Taking Table 1 as a reference, it can be seen that Germany (67) and Austria (55) have significantly lower *IDV* scores compared to the UK (89) and USA (91), but show higher *UA* scores (Germany: 65; Austria: 70; USA: 46; UK: 35). Based on the four

[54] The overall model was calculated without the moderator variables belonging to the origin research model.
[55] We calculated 97.5% bias-corrected bootstrap intervals. Calculations based on 5.000 bootstraps.

countries considered in this study and with regard to the hypotheses H3.a and H3.b, it can be noted that countries with high *IDV* scores (e.g. USA and UK) have a greater influence on the relationship between *BSC* and the automotive purchase intention than countries with comparatively high *UA* scores (e.g. Germany and Austria).
The post-hoc analysis therefore allows the conclusion that most of the relationships of the research model are susceptible to cultural influences. In most cases, however, the shown differences are in the strength but not in the direction of the path coefficients. In addition, the overall model shows only four significant differences compared to the country-specific models, which suggests a fairly good integration of the national models within the overall model.

CONCLUSIONS AND IMPLICATIONS FOR THEORY AND PRACTICE

First, the mediation of the brand personality (H1) was confirmed in general and it can be stated that *BSC* can certainly be seen as a »bottleneck« of success within automotive marketing. With reference to the self-concept theory, it can be stated that car buyers who have a match between the brand personality and their self-image are more motivated to buy personality-influenced car brands. According to the present research, this applies to all brand personalities except *aggressiveness*. For *emotionality* and *activity* (both partial) as well as *simplicity* and *responsibility* (both fully) a mediation could be demonstrated. The results correspond with various other studies in which similar findings of brand personality mediations could be detected (e.g. USAKLI and BALOGLU 2011). The automotive context or the brand Volkswagen per se could be responsible for the missing mediation effect of aggressiveness. This, however, need to be tested empirically in future studies.
Second, the moderation or rather the influence of personality (H2) and culture (H3) was tested. Our study shows that a moderation test could confirm some significant moderation effects of culture (e.g. *PD*, *MAS*, *LTO*) and personality traits (e.g. *non-agreeableness*, *neuroticism*). A post-hoc analysis yielded detailed insights into how culture influences the relationships between a brand personality, *BSC* and consumer behavior. Therefore, it can be seen that countries with high *IDV* scores (e.g. USA and UK) have a high influence on the relationship between *BSC* and the automotive purchase intention (with reference to H3.a). Although countries with high UA scores (e.g. Germany and Austria) also have strong path coefficients in this context (with reference to H3.b), these are significantly stronger in *IDV*-influenced countries.
This study also shows several important managerial implications. It has been found that brand personality characteristics (via *BSC*) influence the automotive purchase intention and it was demonstrated that brand personification strategies could in fact be useful in managing and positioning brands. Automotive managers should use the matching between brand personality and self-image/self-concept to build a differentiator. They must be aware that by emphasizing specific personality traits (e.g. through advertising) they can address specific consumer types but, at the same time, become less attractive to others. The study also suggests that the research model can be used to provide effective market segmentation to identify consumers with similar personality characteristics to the brand.
Finally, it has been shown that brand personification strategies might be more or less effective depending on personality and cultural differences. While more research is required to explore these effects, the results indicate that the management needs to be aware that the consumer´s personality and culture have an influence on how effective their brand personification strategies are. As the cultural post-hoc analysis indicated, managers have to mention that brand personification

strategies might not be effective to the same degree in every country. The clustering of customer segments along cultural dimensions should therefore be a practical strategy for automotive managers.

Limitations and Future Research

Even this study is not free of limitations. First, it must be taken into account that the research was conducted for merely one automotive brand and for one industry. Future studies should hence focus on demonstrating the robustness of the research model. An extension with other brands or industries could contribute to the further investigation of moderating effects and researching the reasons for the missing mediation effect of *aggressiveness* (H1). Secondly, should be noted that this study only includes a small sample of cultures. In order to identify further cultural effects, future studies should not concentrate on the observation of more countries, but should rather draw on supposedly different cultures. Thirdly, it must be borne in mind that the study had limited the discourse on the cultural dimensions according to Hofstede (1980, 2011). Although these dimensions continue to have great influence, there are other theories that could be considered for research (e.g. HOUSE et al. 2004; HAMPDEN-TURNER and TROMPENAARS 2011). And finally, it is worth taking a look at the methodology. We quantified *BSC* with a short four-item measure. In order to achieve differentiated results, it is probably worth setting up a more detailed and multidimensional survey.

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