# MODELLING GERMAN FEMALE CUSTOMERS' CAR PURCHASE DECISION MAKING: AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOUR

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# ABSTRACT

Today's society is within a lasting process where old structures and task division into groups are changing constantly. One part of the process is the fact that female customers are becoming more independent and self-reliable and therefore their importance within product decision processes increases. However within car purchase processes still female customers only seldom are addressed well-aimed by car manufacturers (Bay, 2012).

This thesis aims to develop a model of German female customers' car decision making process. This model includes variables and indicators which are important to women within their car decision making process in order to offer opportunities to car manufacturers to optimise and refine their ways of addressing women within the car choice process. As a result, also concrete suggestions to optimise marketing measures as a car configurator are presented.

In doing so, in a first step a review of different areas of literature which are relevant to the female car choice decision making process was presented. These areas of literature were gender research, purchase, search of information and car usage. As a result different variables and beliefs could be presented which have to be taken into account within modelling of the female car choice process.

The choice of the Theory of Planned Behaviour (TPB) as basis of the conceptual research model results from a review of existing expectancy theories. In the following, TPB was used as foundation of the research methodology.

The study of the present research was divided into two parts resulting in a mixed-methods survey approach. Within the first part, a qualitative approach using interviews was conducted in order to underpin the choice of the present research's conceptual model's indicators. In a second part, a quantitative approach using a structured questionnaire was utilised.

The application of Structural Equation Modelling (SEM) enabled the modelling of key influencers on the female car decision making process. The Confirmatory Factor Analysis (CFA) was utilised in working out a comparison between a model which resulted from an Exploratory Factor Analysis (EFA) and the conceptual research model. As a result, the conceptual research model revealed to be more appropriate to model female customers' car choice process. Therefore, the TPB was found to be an effective method for the determination of influencers on the female car decision making process. The latent variable attitude was found to be the key influencer on female customers' intention to choose a car but also the latent variables subjective norm and perceived behavioural control could be determined as significant influencers. Important and not important indicators within the female car choice decision making process were determined. Important indicators were car characteristics as upholstery, environmental friendliness and attractive styling. The participants' age and income had a significant influence on their stated car choice behavior.

The research is concluded with an explanation of the present research's contribution to knowledge and to practice including implications for marketing professionals. Additionally, limitations of the present research and opportunities for further research are presented.

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# LIST OF ABBREVIATIONS AND SYMBOLS

| | |
|---|---|
| AMOS | Analysis of Moment Structures |
| AVE | average value |
| BRT | behavioural reasoning theory |
| CAPI | Computer Assisted Personal Interviews |
| CCTV | closed circuit television |
| CEO | Chief Executive Officer |
| CFA | Confirmatory Factor Analysis |
| $CO_2$ | Carbon Dioxide |
| EFA | Exploratory Factor Analysis |
| IIA | Independence from Irrelevant Alternatives |
| KMO | Kaiser-Meyer-Olkin |
| MIMIC | Multiple Indicators Multiple Causes |
| OEM | Original Equipment Manufacturer |
| PBC | Perceived Behavioural Control |
| Porsche | Dr. Ing. h.c. F. Porsche AG |
| SARi | Sample of Anonymised Records of individuals |
| SEM | Structural Equation Modelling |
| SN | Subjective Norm |
| SPSS | Statistical Package for the Social Sciences |
| SUV | Sports-Utility-Vehicle |
| TPB | Theory of Planned Behaviour |
| TRA | Theory of Reasoned Action |
| TÜV | German technical vehicle inspection |

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# 1 INTRODUCTION

The following chapter presents the introduction into the topic of female customers' car purchase behaviour. The thesis' research question and objectives are highlighted. The key themes of the thesis are outlined and the organisational context of the present research is explained.

## 1.1 Topic of thesis

Today's society is within a lasting process where old structures and task division into groups are changing constantly. Underhill (2010) describes that one part of the process is the fact that women are becoming more independent and self-reliable. Due to that, today's companies are facing a changing structure of their direct customers but also women as more independent customers are facing a mainly men-built society. Within this process women act as consumers of originally women-associated products as cosmetics, food or clothing but on the other hand they also have to make purchase decisions of mainly men-associated products as electronics or cars. Silverstein and Sayre (2009b) state that today the success of many products already is depending on women. Worldwide women are responsible for 70 % of all consumption purchases. Silverstein and Sayre (2009b) declare that economic experts expect that until the year 2019 women will make 70 % of worldwide increase of household incomes.

In terms of the product decision process, Solomon *et al.* (2010) declares that the field of consumer behaviour is an ongoing process which does not only exist of the event of exchanging money for goods or services. Solomon *et al.* (2010) state that for companies or persons who want to sell a product or a service it is necessary to regard all factors that have before, during and after an impact on a consumption process. In this context, Ajzen (1991) describes within the Theory of Planned Behaviour (TPB) that a person's Intention of behaviour is influenced by Attitudes, Subjective Norms and Perceived Behavioural Control. King and Dennis (2006) add that the evaluation of a person's behaviour and its outcomes

is represented by a person's attitude towards behaviour. The term subjective norm is dealing with the extent to which other persons who are important to a certain person approve or disapprove certain behaviour. And finally perceived behavioural control refers to the grade of difficulty to perform certain behaviour or, in other words, it can be used to predict a behavioural achievement.

In the following parts of the research the issue of prediction of intention as one main aspect of the present research is developed. In this context, expectancy theories as TPB will be evaluated within the Literature Review of the present research.

### 1.1.1 Women within the car purchase process

In the context of women and cars, Kortus-Schultes (2005) looks at car-owners and points out that today more than a third of them are women. What is important, Kortus-Schultes (2005) states that in cases when women are not direct purchasers they do also have a big impact on the car choice. Solomon *et al.* (2010) describes that today modern women play a greater role in decision making processes which traditionally have been undertaken by male customers. Solomon *et al.* (2010) states that today women represent more than 60 % of all car buyers under the age of 50. Michon (2009) states that today 54 % of all cars in the United States are bought and that 84 % of all car purchase decisions are influenced by women. But still most women feel uncomfortable when the car purchase decision is to be made. Reasons for that are the facts that women get ignored, patronized or even just get bad deals at car dealerships (Michon, 2009). Bay (2012) also declares that within the car purchase process women get a more important role but in terms of automobile companies the right addressing of female customers is missing. Bay (2012) cites Stefan Bratzel, head of the Centre of Automotive at the University of Bergisch Gladbach who declares that in the long term the influence of women on car purchases will increase. As family structures change, women decide by themselves which car they want to drive. In Bratzel's opinion the emancipation at the passing lane already started. Bay (2012) states that times have passed when the family dad decides which car should be bought and when it is about design and colour

already today women mostly have the last word. In this context, Wessner (2007) points out that women are a success deciding target group in the automobile market. Reasons for that are a better educational and professional options and so an increase of salary. What is more, already today women are involved in 75 % of all car purchase decisions with an increasing tendency and women are a source of ideas for innovation which make cars more comfortable, trendy and more secure. In this context, Dudenhoeffer (2012, b) presents that in 2011 in Germany in average 33.4 % of all car owners are women.

### 1.1.2 Information sources

In terms of sources for decision making Wessner (2007) evaluated within a study that that to women family and friends are most important when information is to be gathered. Only as second important professional car sellers were named by women. As a next important fact of the study as worked out by Wessner (2007) it is pointed out that many car dealers do not respect women's desires when a car's features and details are chosen. Kortus-Schultes (2007) also states that within the female car choice process it is important to consider the fact that many women do not like to go to the car dealer. In this context Förster (2006) emphasises that if women finally go to a car dealer then only when a car purchase is urgent. Förster (2006) also points out that many women feel uncomfortable in car showrooms. In this context, Bay (2012) declares that if the automobile industry wants to attract female customers the advertisement strategy has to be changed as even though being a customer group with big sales potentials female customers only seldom are addressed well-aimed. Michon (2009) presents two economists who found in Chicago, USA that when women go to a car dealership with the same knowledge background as men they get worse deals even when following the same negotiation script. Michon (2009) states that this happens as salespeople believe that women do not know much about cars and the car purchase process. According to Michon (2009) some women report that salespersons talk to them a long time about insignificant features without providing the information about the things that are more important to them. Due to that in situations when women believe that a salesperson does not give them the right service Michon (2009) advices women

who to find another salesperson or even to go to another car dealership. In this context, Waters (2012) asks a question if women are better at buying cars. Waters (2012) offers results of a new survey conducted by LeaseTrader showing that women believe that it is important to ask all necessary questions even then when they believe to know the answer already. As a group women are more pragmatic in their car choice and they do more research before a purchase decision. Tuttle (2012) also refers to the study by LeaseTrader and states that women are better in many decision-making processes. Within the car purchase process men are more confident and women are more careful, "they seem to be more thorough when a car is bought" (Tuttle, 2012). In this context, Motavalli (2009) points out that 90 % of women answering to a NBC/Universal polling stated that they want to be involved in all stages of a car purchase process, more than 75 % even want to be very involved.

In terms of other information sources today the internet has to be taken into account. Here, Michon (2009) emphasises the importance of information search before going to a car dealership and states that for women this importance even is doubled. Within this process especially web sites shall be examined to be better able to decide which car can be the right one. Here, according to Michon (2009) lifestyle, driving habits and the financial situation shall be taken into account to narrow the number of cars that match a person's needs. In this context, Byung-Do and Sun-Ok (2001) state that due to the large number of available product alternatives and the large number of information in the internet customers often get confused. Schafer, Konstan and Riedl (2004) describe the overwhelming number of available options in the internet as an ocean of choices.

Today, car configurators represent a popular product information tool which shall help customers within their car decision process. Almost all automobile OEMs[1] offer this opportunity on their web sites. In terms of existing car configurators in most cases potential car purchasers already have to have a certain amount of car knowledge when starting to use these tools. As an

[1] OEM: original equipment manufacturer

example the car configurators of Vauxhall (Vauxhall-UK, 2015) and Porsche UK can be named (Porsche-UK, 2015). In the first step the user has to decide which model is to be configured. This means that the car manufacturer expects that the user of the car configurator already knows how all cars in the company's portfolio differentiate from each other and which model is the most suitable for the user. As a development step Volkswagen's German car configurator (Volkswagen-DE, 2015) offers a filter function. In this case, filters at the start of the car configurator allow a narrowing of the company's car portfolio. But also this filter option assumes that the user knows which car body style, engine and transmission type are the desired ones. Volkswagen's British car configurator (Volkswagen-UK, 2015) offers a next step of development of a car configurator's usage. In this case, in a first step a basic filter function of the company's car portfolio is possible. In a second step five defined questions in terms of driven distances and necessary space in the car can be answered. In a third step the user can define necessary options before in a fourth step a resulting selection of the company's car portfolio is presented to the user of the car configurator. In this context, Vickerstaff (2008) describes that Volkswagen UK developed a car configurator which offers the most life-like experience of choosing a car in the internet. Fifty people worked 18 months full-time to create "the most simple yet most comprehensive, intuitive and engaging experience in this market" (Vickerstaff, 2008, p.1). Explaining the reason for this effort Vickerstaff (2008) cites Marianne Nicholas, Volkswagen's Relationship Marketing Manager, stating that Volkswagen's research shows that today potential customers do most of their information search in the internet. The average number of visits of showrooms has gone down from five to two. In this context, Konstanzer, König and Andrei (2008) describe this process of the modification of the original Volkswagen Car Configurator. One of their main tasks of the modification was that the new programme should be suitable for different users' skill levels. For doing so, potential users have been categorised into different groups by identifying their knowledge about computers and cars (see Figure 1).

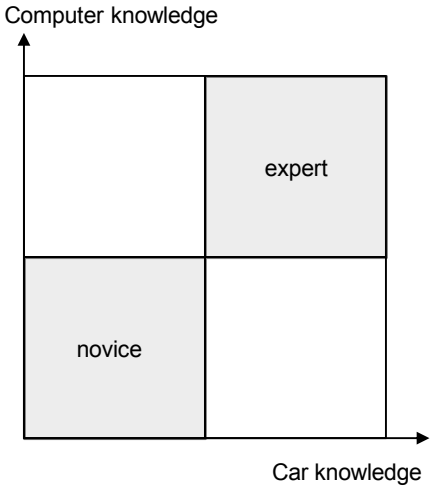



**Figure 1: Volkswagen Car Configurator user groups (Konstanzer, König and Andrei, 2008)**

In terms of the description of the result which is offered by Konstanzer, König and Andrei (2008) it is evident that the new car configurator still is highly technique related. There is no really new approach included in the programme which offers car novices a new opportunity to configure the right and optimally suitable car. In terms of car configurators it may be stated that today different solutions of this tool are available in the internet and most of these car configurators are highly technique related and demand a high amount of background knowledge about cars and the companies' car portfolio. Therefore, a new approach to generate also a better involvement of car novices or female customers is missing.

### 1.1.3 Women's preferences

Hofmann (2012) states that sales people have to use different languages when talking to men and women and that they have to find out what women really want. This statement easily can be transferred to car configurators. It simply can mean that men and women have to be addressed in different ways by car configurators. To be able to create a women friendly car configurator at first attributes have to be defined which are important to women. Hofmann (2012) states that women and men assess values in different ways. To women money does not mean that much but on the other hand security and provision are

important. This results from different roles of men and women. In general, women are responsible for education of children and for family life (Hofmann, 2012). What is more, Hofmann (2012) emphasises that the need for security has an impact on product choice of women. In this context Bay (2012) cites Stefan Bratzel who presents that in contrast to men women are not blinded by horse power values or nice presentations. To them cars have to be practical, economic and nice looking. And these are the reasons why the percentage of female customers in Germany is so high among companies who already offer cars which match these criteria quite fine as Mini (50 %), Daihatsu (48 %) and Fiat (46 %). Last places in this list are filled with car companies offering powerful status symbols as Ferrari (9 %), Jaguar (15 %) and Mercedes (18 %). Bay (2012) states that in terms of Mini and Alfa Romeo a proof can be found that women do not only buy cheap cars. An attractive design and women orientated marketing are better arguments than a low price. In this context, Waters (2012) states that in opposition to men who are interested in a car's horsepower and acceleration women are more concerned about a car's safety and reliability. What is more, Wessner (2007) offers an evaluation of a study of the Puls Marktforschung GmbH showing which criteria women are interested in at first when buying a car. According to this study car model and technical data are most important, aesthetical aspects as interior, front and back are following. Unfortunately, most women are not well informed about a car's technical features. Wessner (2007) also shows that when asked about a car's technical features significantly less women than men feel sufficiently informed about them. Only 20 - 58 % of women compared to 60 - 88 % of men felt well informed. Additionally Wessner (2007) presents that women have a more emotional relationship to their car. More women than men state that a car gives them a feeling of freedom (72 % vs. 67 %), that they love their car (65 % vs. 52 %) and that they have a nick name for their car (24 % vs. 14 %). What is also important, to women a car does not represent that strongly a status symbol as it does to men (35 % vs. 41 %).

### 1.1.4 Recommender systems

Looking for possibilities to match consumers' preferences and products' attributes then recommender systems meanwhile become more popular. However, recommender systems are differently used. In this context, Pathak et al. (2010) state that recommender systems are a popular example to reduce consumers' search costs and uncertainty which are created when unfamiliar products are to be purchased. Jannach, Zanker and Konstan (2008) state that the research area of recommender systems is more active than ever. A reason for this is the fact that the amount of information that is available in the internet is immense and so recommender systems shall help users to make a right purchase decision. Pathak et al. (2010) state that product sellers usually use two different types of recommender systems. Firstly, content based systems which regard product attributes. Here a product recommendation is created by choosing products which are similar to ones a consumer has used in the past. To be able to do so, Ozok, Fan and Norcio (2010) state that customers have to describe specific attributes of products they search for. Secondly, Pathak et al. (2010) describe that through collaborative filtering systems products are recommended by comparing a consumer's preferences to other consumers and so products are offered which similar consumers have liked. Or as Ozok, Fan and Norcio (2010) describe, products are recommended according to similarity between different customers. Byung-Do and Sun-Ok (2001) describe this process as an "automated process of word-of-mouth communication between consumers". In this context, Solomon et al. (2010) state that the collaborative filtering approach still is at its beginning and in the next years a development of web-based software solutions which will help to simplify consumers' decision-making processes is expected. Pathak et al. (2010) state that online retailers mostly use algorithms which are based on collaborative filtering. Ozok, Fan and Norcio (2010) list Amazon.com as a popular example for this method. Here, users can find information about different products other customers bought who were interested in similar products. Aïmeur et al. (2008) present additional popular approaches to recommender systems. Within demographic filtering recommendations are created based on demographic information by assigning customers to certain customer groups. Utility-based filtering uses a product's

features to define its utility. A customer describes his preferred utility of a product and due to this information a product recommendation is generated. Finally, within knowledge-based filtering recommendations are based on the comparison of products' attributes and customers' needs and interests. What is more, in past years a new version of recommender systems has emerged. Hybrid recommender systems combine several approaches with each other. However, mostly the content-based approach and the collaborative filtering approach are combined. For example Byung-Do and Sun-Ok (2001) developed a recommender system with such a hybrid approach trying to generate more accurate recommendations and also to overcome problems of traditional approaches.

In terms of limitations of recommender systems Byung-Do and Sun-Ok (2001) offer a deeper look into limitations of recommender systems. Content-based approaches often provide bad recommendations as they only consider specified product or service attributes. What is more, they tend to limit the range of product recommendations which are similar to those a consumer has used or rated in the past. Finally, a recommendation for new customers cannot be created as no preferences are known. In terms of collaborative filtering approaches Byung-Do and Sun-Ok (2001) describe that this approach does not work very well when the number of evaluators compared to offered products or services is limited. What is more, this approach has a cold-start problem. This means that a product only can be recommended when consumers have rated it. This is a big problem for recommendation of new products. Byung-Do and Sun-Ok (2001) describe that an important issue about both mentioned approaches is the fact that recommendations only can be generated when data bases including private customer data are available and connected to or included in the recommender system. In the context of usage of limited customer data Aïmeur et al. (2008) present a new approach to recommender systems which is based on the issue of privacy protection. Here Aïmeur et al. (2008) present that a big problem within recommender systems is the fact that to be able to create a profound recommendation traditional recommender systems need to use lots of customers' private information. Data about identity, demographic characteristics, previous buying behaviour and much more is used. Aïmeur et

al. (2008) create a recommender system which enables the creation of recommendations without knowing a customer's profile or identity. This is possible by installation of a semi-trusted third party. The system is created in such a way that both, the merchant and the third party, only learn about the customer what is necessary for the recommendation on the basis of the "division of trust" principle. Here the merchant is told what a consumer is looking for and the third party is provided with private consumer data. But still to be able to create a recommendation the third party must be able to use a large data base to provide necessary customer information when a recommendation is created. Therefore, this principle cannot be used within the present research. In terms of the issue of transparency within the topic of recommender systems Pathak et al. (2010) emphasise that results of their research showed that recommender systems have such a positive effect that they even outweigh opinions of other consumers. But what is important to regard is the fact that consumers discount the credibility of recommender systems which are seller-implemented. A fact that has to be regarded in the context of car configurators which are offered directly on web sites of car manufacturers. Additionally Pathak et al. (2010) declare that despite the fact that recommender systems provide high-quality and useful information to customers the resulting recommendation may not be trusted if the rationale is not explained properly enough. Therefore, when creating a recommender system transparency of the recommendation is important. In this context Hofmann (2012) states that women want to have the secure feeling that sales people and in this case a recommender system are honest or transparent in their recommendation and that the consulting is correct. Women do not want to have the feeling of being talked into buying something.

In terms of benefits of recommender systems Jannach, Zanker and Konstan (2008) state that online shop owners can use recommender systems to differentiate from other online shops by offering users a recommender system to make a purchase decision easier. In this context, Aïmeur *et al.* (2008) present that a seller's ability to offer recommendations can be a competitive advantage which has to be preserved. In this context, Byung-Do and Sun-Ok (2001) state that the implementation of a recommender system has benefits for

companies as revenues can be increased. Also Pathak *et al.* (2010) found in their research that recommender systems have a positive effect on product sales.

## 1.2 Aim of thesis

As described in the preceding introduction the field of recommender systems today is focused on the usage of data bases. What is more, transparency of creation of recommendations mostly is not evident to customers. Within the present research the development of a recommender system is not in focus as data bases are not available to the researcher. As mentioned before to be able to develop a new or women-friendly car configurator including a recommender system an evaluation of factors which influence female customers' car decision making process is necessary. The evaluation of these factors represents the basis for further development of a new or women friendly car configurator.

Presently, in literature a model which represents the female customers' car choice process cannot be found. Therefore, the central aim of the present research can be formulated as follows: "Development of a model which represents the German female customers' car purchase decision making process". In doing so, variables and indicators shall be presented which are important to women within their car decision making process in order to offer opportunities to car manufacturers to optimise and refine their ways to address women within the car choice process. As a result, also concrete suggestions to optimise marketing measures as a car configurator shall be presented.

## 1.3 Research objectives and questions

In the following, the initial objectives of the research and the research questions are specified. The initial objectives of the research are:

- To assess which indicators are important to women when they want to make a car purchase decision.
- To assess which indicators are not important to women when they want to make a car purchase decision.

- To evaluate the issue of gender within the car choice process.
- To investigate if and to which extent the Theory of Planned Behaviour or other expectancy theories can be applied to the car choice process of female customers.
- To develop a theoretical framework for the investigation of female customers' car choice behaviour.

As a result of objectives of the present thesis the following research questions can be formulated:

- How can the female car purchase decision making process be modelled?
- Which theories have to be regarded when the car choice behaviour of female customers is to be investigated?
- How is the methodology of the thesis to be developed?

## 1.4 Scope of thesis

Many components influence the female customers' car purchase decision making process. The present thesis evaluates this decision making process by investigation of different areas of theory as presented in Figure 2. The main literature areas which are regarded according to their relevance to the present research are gender research, purchase, search of information and car usage. In the last part, a literature review to expectancy theories is to be offered explaining the choice of theory which is to be used as a basis of the model of female customers' car choice decision making process which is to be developed within the present research.

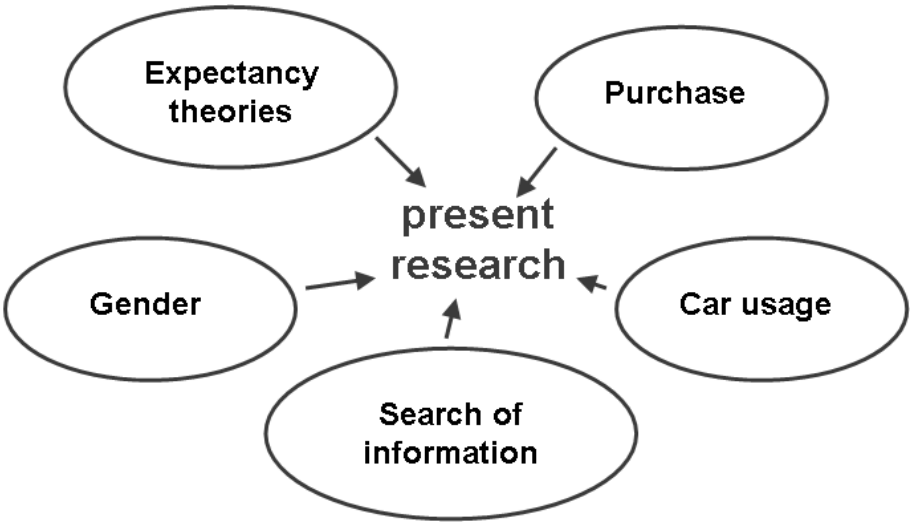



**Figure 2: Areas of theory of present research**

## 1.5 Organisational context of the research

The author of the research has been working within the drive train department of the company Dr. Ing. h.c. F. Porsche AG (Porsche AG) since October 2002. He started as a designing and application engineer, later worked in the project management of a transmission project and presently is managing the company's drive train strategy department. The author of this research argues that the organisational context of the research will be an improvement of car manufacturers' marketing strategy. This will be possible by better regarding female customers as potential car buyers by development of a model of female customers' car purchase decision making process. This model can be used as basis for the development of a new female friendly car configurator. Therefore, the present research can contribute to an increase of car manufacturers' revenues. Due to the background of the present research's author the implications of the present research's outcomes to the company Porsche AG will be explained in detail.

In this context, Dudenhoeffer (2012, a) states that despite the fact that in the past 20 years women's economical independence increased their potential as car buyers only little is regarded by automobile companies. Dudenhoeffer

(2012, a) emphasises that car manufacturers currently seem not to have a clear concept how to address young women correctly. In another publication Dudenhoeffer (2012, b) states that in Germany a potential of about 400.000 additional automobile sales a year exists if car manufacturers manage to reach female customers better. In terms of Porsche, Waters (2012) states that in 2011 the company sold 21 % more cars to women compared to 2010. What is also interesting, 71 % of this increase came from sales of the four-door models Cayenne and Panamera which might be described as more practical cars with high safety standards. Therefore, women as a customer group become more important to Porsche.

In terms of organisational context of the topic of the present research Doll (2015) cites the CEO of Daimler AG, Dieter Zetsche, who states that in his point of view women represent a comparable cars sales potential as the rising market in China. Therefore, the Daimler AG plans to develop a car configurator which is adapted to female customers' car choice behaviour.

## 1.6 Thesis structure

The first chapter "Introduction" offers an introduction into the topic of women as participants within the car decision making process and also presents an overview of some facts in terms of women and their attitudes towards cars. What is more, the research aim, research objectives, research questions, scope of the thesis and the organisational context of the present research are offered.

Within the second chapter "Literature Review" a deep look into presently existing literature to the topic of the present research is offered. In order to offer an extensive evaluation of the research topic, in total four fields of knowledge are described, gender research, purchase, search of information and car usage. Additionally, a literature review into the field of expectancy theories is offered in order to choose the right theory as basis for the model of the present research.

The third chapter "Research Methodology" provides information about the present research's philosophy and methods. In terms of research philosophy,

the topic of research paradigm with its components epistemology, ontology and axiology is described. In a next step, the research approach is explained before in the following the present research's methods are described. Furthermore, the working out of the present research's pilot study is explained before the description of the pilot study is finished with an insight into the issues of Content Validity, Construct Validity and Reliability. Finally, the chapter "Research Methodology" ends with an explanation to the topic of Factor Analysis and Structural Equation Modelling. Further content of this chapter is the presentation of the initial model of the present research including the hypothesis of the present research.

The following fourth chapter describes "Findings and Data Analysis" of the main study of the present research. In a first step, the main study's operationalization is explained followed by an explanation of the main study's demographics. What is more, an analysis of car data is described before the topics of descriptive statistics and outliners are evaluated. The final part of the chapter "Findings and Data Analysis" offers a factor analysis including an Exploratory Factor Analysis and a Confirmatory Factor Analysis. As a result of this section, a final model of the present research is offered which is used for an operationalization of the present research's hypothesis.

The fifth chapter "Discussion of Findings" offers an evaluation of the present research's findings and outcomes. In a first step, a comparison of specific findings of the present research to findings of former research is offered. In a second step, present research's outcomes and findings are discussed in terms of the topics of "women as car buyers", "women and Porsche cars", "the Porsche car selling process to women" and "car configurators".

Finally, the sixth chapter "Conclusion and Recommendations" offers an evaluation of achievement of research objectives and answering of research questions. What is more, the research' contribution to knowledge and practice is presented. The research is finished with a description of present research's limitations and implications for further research before a conclusion is offered.

# 2 LITERATURE REVIEW

After explaining the structure of the thesis and its aims the following chapter's purpose is to offer a theoretical framework for the development of the present research's model. This is reached by a literature review into the fields of literature to gender research, purchase, search of information, car usage and expectancy theories.

## 2.1 Introduction into the chapter

Caminiti (1993) states that the key success factor for marketers is to know their male and female customers' needs and to offer products and services which meet these changing needs. In this context, Berry and Gresham (1986) state that many companies are facing special sales challenges as it becomes more difficult to offer products and services which differentiate from other companies. In this situation, product and process quality become an increasingly important factor to differentiate from other products or services. What is more, Lee and Tai (2009) emphasise that people all over the world, in emerging markets and in western markets, share similar basic needs and motivations for purchases. Therefore marketing messages can and should be standardized. These statements are supporting the key motivation of the present research where the female customers' car purchase decision making process is to be modelled.

Within the following part of the research a Literature Review to the topic of the female car purchase decision making process is offered.

## 2.2 Gender research

Kacen (2000) states that in the middle of the 20$^{th}$ century marketing and gender were separate topics. Men were the ones who developed and produced products and women were the ones who consumed these products. Later in the post-modern era a destruction of these masculine-feminine differences began and both genders were seen as potential consumers. Today, research calls

professional marketers to develop a greater understanding and more responsibility in targeting women (Tuncay Zayer and Coleman, 2015).

In the following chapter an overview into gender research is to be offered. This is done by first giving an overview about the historical development of gender research followed by gender and technology then giving an insight into gender identity, gender and commerce, gender and loyalty and finally gender and the decision making process.

### 2.2.1 Historical development of gender research

In their article Bettany *et al.* (2010) describe that the field of marketing is implemented into the lasting process of gender inequality and that the investigation of the relationship of marketing, gender issues and feminism will be a significant research area in the 21st century. In this context, Meyers-Levy (1989b) adds that male and female consumers process marketing messages differently and therefore the exploration of the reasons of these differences has been and is the topic of much research. In their researches Catterall, Maclaran and Stevens (2006) and Joshi *et al.* (2015) explore feminism in its developments in theory and practice and how these developments have changed the understanding of gender differences in the area of consumption. In this context, Caterall and Maclaran (2002) state that for many years marketers strongly believed that consumers were female. Here, Kacen (2000) adds that consumption always has been gendered defining the perfect consumer being female. Before the 1980s consumer research had in focus buyer behavior and processes before a purchase. Catterall, Maclaran and Stevens (2006) describe that in the 1970s consumer research on gender focussed on topics as how gender is portrayed in advertising and how the identity of gender can be useful to comprehend, develop and foresee behaviour of consumers. According to Caterall and Maclaran (2002) in advertising women were portrayed more as decorative objects or in traditional roles as mothers and housewifes. Joshi *et al.* (2015) add that in the 1970s also differences in leadership styles between men and women were investigated. In the 1980s then research on gender began to change (Catterall, Maclaran and Stevens, 2006, Joshi *et al.*, 2015).

Researchers started to be interested in topics as why do consumers purchase products and services they purchase and how they use these products and serivces in order to build up and sustain their identity and self-concept (Catterall, Maclaran and Stevens, 2006). The whole experience that surrounds before, during or after a purchase of a service or a product came into the focus of research. What is more, researchers widened their research. Functional benefits of a purchase of a service or product such as product features or price were supplemented by social aspects asking the question which meaning the purchase of a special service or product has to consumers. What is more, Joshi *et al.* (2015) present that in this time articles appeared which identified the differences in salary and promotions between men and women and which investigated unique challenges women had to face when they wanted to advance their career. In this context, Arnould and Thompson (2005) describe a fresh and new view on consumer behaviour which came up in the 1980s and which considers wider consumption issues as Consumer Culture Theory. Within the Consumer Culture Theory meanings are investigated which are attached by consumers to the purchase of a special service or product, the way services and products are consumed and how these services and products help consumers to build up and maintain their self-concept and identity. Catterall, Maclaran and Stevens (2006) state that after feminist voices have been more intensively heard and considered by research on gender in the 1980s and 1990s this development was followed by a deep lull in recent years. This decline of gender research after the 1990s also is identified by Joshi *et al.* (2015). Result of this development is the fact that today women are presented in more domestic, non-active roles and they are portrayed more often than men in relation with household cleaning products and body care (Nassif and Gunter, 2008). In this context, Buysse and Embser-Herbert (2004) found that within advertisements including British active sports participants it is less possible that women are portrayed in active situations. It is more possible that women are presented in passive and traditional feminine roles.

In their research Catterall, Maclaran and Stevens (2005) explore the reasons for the muting of critical feminist voices since the 1990s. Many advertising studies were conducted to explore whether the way women are portrayed in advertising

is outdated as it did not adopt to the female role changes in modern society. In this context, Kacen and Nelson (2002) only found small changes and development in the way how women were portrayed through the years. In the context of changes in gender research over the years, Bettany *et al.* (2010) offer a summary of all articles which have been published throughout nine gender conferences in the years 1991 to 2008. Interestingly, the topics as identity, gender roles, technology and influence of female and male differences on marketing variables remained similar over the years. What changed were the focus of research and the distribution of presented articles among these different topics. In the beginning and mid of the 1990s articles focussed on portrayal of women, international perspectives and technology. Within the topic of technology the focus was on computer usage and video games. Later at the end of the 1990s the focus of research moved to presentations related to sexual orientation and later in 2002 to the research of intersection of gender and identity. In 2004 the focus lay on participation in Goth subculture, female drug addicts, fantasy game participants and overweight consumers. Later in 2006 one of the main topics was the construction and maintenance of masculinity in consumer culture. In terms of the presented articles it becomes evident that the topic technology was present but only to a limited extend. Other topics as influence of gender and culture on consumer behaviour, influence of gender on fashion, general specifics of feminism and masculinity or influence of gender on drug consumption, overweight and game participation find higher attention.

In terms of the shift in research approaches Sherry (1991) shows that in the 1980s also a paradigm shift from positivistic research approaches to interpretivist approaches began. Researchers put more focus on in-depth interviews and participant observation to collect more qualitative than quantitative data. In her research Hirschman (1993) investigated articles which were released in the Journal of Consumer Research in the eighties and nineties of the last century and found that the predominating ideology is masculine and that in both volumes a machine metaphor is used to describe the behaviour of men and women. Joy and Venkatesh (1994) state that a machine metaphor privileges the mind and cognitive activities which are more related to males over the body and emotions which are more related to females. Therefore, Penaloza

(1994) recommends different ways of research which are more dialogic and participatory such as in-depth interviews and participant observation. These different ways of research differ from known models which process information in a machine-like way.

### 2.2.2 Gender and technology

In her research Starr (2004) investigates how women's changing labour force participation which was increased to a high extent between the 1960s and 1990s is related to questions of shifts in patterns of consumption and identity. In this context, Figure 3 presents the change of women's labour force participation rate in the U.S. in the years 1955 to 2000 as it is delivered by the U.S. Bureau of Labour Statistics. In her research Starr (2004) describes that until the 1960s women had traditional roles in media. Only the climate of critique which emerged in the 1960s started to ask questions how the role of women can change away from the bounds to the domestic sphere. One way for women how to overcome these repressions and limitations was to develop own identities and to have jobs which would be seen as meaningful to society within the paid labour force (Friedan, 2001).

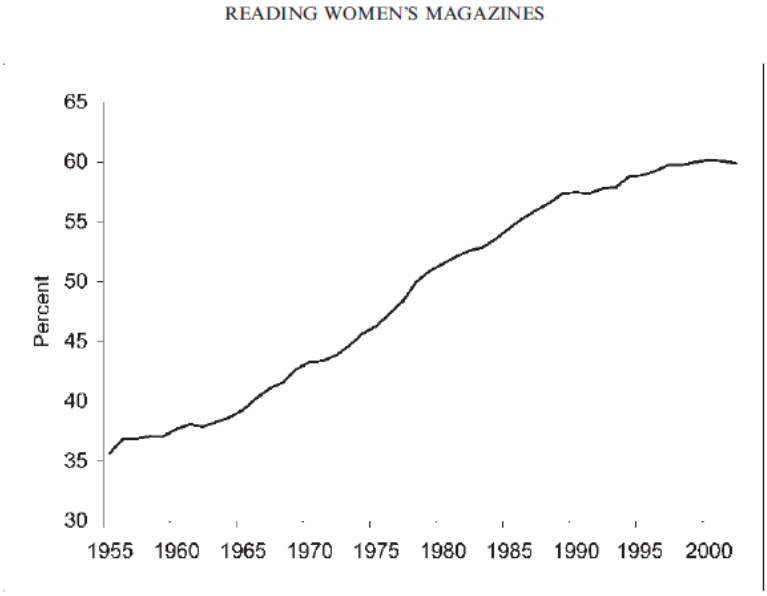



**Figure 3: Women's Labour Force participation rate in the U.S. (Starr, 2004)**

Faulkner (2001) states that traditionally technology was male dominated. The reason for this was that the development of technology mostly was influenced by the dominant gender, the male gender. In the 1980s' literature the investigation of this traditional relationship was introduced. In this context, Cockburn (1983) found a two-way relationship between technology and gender where gender relations are a consequence and a source of technology and also the other way round. Later in the 1990s this perspective was developed showing that gender and technology are co-produced (Lerman, Mohum and Oldenziel, 1997). Additionally, Faulkner (2001) investigates which possibilities exist to gender technology and extends the two-way relationship by emphasising that consumer researchers often overlook a three-way connection between gender, consumption and production. According to Faulkner (2001) one of the main outcomes of feminist literature is the evidence that producing and consuming technology increases gender stereotypes. In this case production describes the design, manufacturing and also marketing of a technological product. Therefore, gender issues have to be considered when marketers assess the usage of a product by consumers but also when it is about the design and marketing of this special product. In this context, Arnold and Faulkner (1985) add that mostly women are in the position to purchase and use technology rather than in the position to develop and create technology. Key decisions within the development process of technology mostly are taken by men. Frissen (1994) describes that the domestic use of the telephone is a good example for a reinterpretation of technology. A domestic usage of telephone originally was introduced to give businessmen the possibility to call colleagues from home. Later wives of the businessmen found this technology very practical to maintain their social contacts and to call friends and family.

Faulkner (2001) describes that women often have an ambivalent attitude towards technology. It is either optimistic or pessimistic. Therefore, an important issue within the relationship of gender and technology is technology anxiety. Divers studies have shown that a correlation between gender and technology anxiety exists and that among women technology anxiety is higher than among men (Brosnan and Davidson, 1996, Farina *et al.*, 1991, Igbaria and Chakrabarti, 1990, Okebukola and Woda, 1993).In this context, results of the research as

presented by Gilbert, Lee-Kelley and Barton (2003) are that technology anxiety is related to demographic characteristics as gender, age and education level. What is more, an early experience with computers can help to reduce technology anxiety and improve women's attitude towards technology. Brosnan (1998) describes that women do not have fundamentally a negative attitude towards technology and computers. If women have the feeling that technology or computers can help them in managing their lives then they are more open to accept it. According to Brosnan (1998) the biggest impact on technophobia has masculinisation of technology which means that technology products mostly are adapted to male customers. In this context, Evans (1985) shows that during the pregnancy phase pregnant women have an ambivalent attitude towards technology. At the beginning they appreciate technology which is used for diagnostics and which is available at the hospital as it makes them feel safer to give birth at the hospital than at home. On the other hand, during delivery the usage of technology is a signal of danger to them and they often would refuse the usage of technology and prefer giving birth in a natural manner. Gershuny (1982) states that in modern households technology is used differently by women and men and only a small part of technology is used in the same way by both genders. Technology which is mainly used for repeating tasks as cleaning and cooking mainly is used by females and technology for non-routine tasks as maintenance, gardening or media-systems mainly is used by males. Murphy (1990) shows that usually girls are less satisfied than boys when they use technology. What is also important, Murphy (1990) states that usually it is easier for girls than for boys to handle tables of data which concern domestic situations or health. On the other hand, girls are lost when they have to work with tables concerning machines or cars. In their study Rubin and Greene (1991) describe that sex differences rather can be grounded in psychology than in biology and that this attitude has an effect on technology anxiety and also the consumer decision making process. For example, women who have a more male orientated psychology also tend to have a more positive attitude towards technology and computers. According to Gilbert, Lee-Kelley and Barton (2003) the differences between male and female characteristics of customers' psychology have to be regarded within the process of technological hardware

and software design. This important issue of gender identity is to be worked out in the following chapter 2.2.3.

### 2.2.3 Gender identity

According to Kacen (2000) gender describes a person's masculinity or femininity in relation with a person's behaviour, attributes and feelings. What is more, a person's gender identity finds expression in physical characteristics, occupation and traits of a person's personality. The definition and awareness of gender occurs in a very early age of a human being and when the core of the gender identity is defined any changes of it are very hard to happen (Kacen, 2000, Katz, 1986, West and Zimmerman, 1998). According to Kacen (2000) a person's activities are determined by social ideals of masculinity and femininity. Existing publications in the topic of advertising research show that a correlation between consumption of advertising and gender exists (Elliott and Ritson, 1995, Stern, 1994, Stern and Holbrook, 1994). Cramphorn (2011) found a correlation between information processing and the individuals' identification with gender groups as masculine, feminine and androgynous. According to Cramphorn (2011) masculine, feminine and androgynous persons perceive and understand advertising messages differently.

In their research Caterall and Maclaran (2002) review over thirty years of consumer and gender research. Caterall and Maclaran (2002) show how gender research has changed over this period and anticipate in which direction coming research on these topics will move. Outcomes of the research as developed by Caterall and Maclaran (2002) are that gender identity is a better indication for a person's purchase behaviour than the biological sex. In this context, Hogg and Garrow (2003) investigate within their research the relationship of the psychology of gender and consumption of advertising. To do so, a correlation between differences in identity of gender within self-schemas of 25 young adults and the perception of advertising contents is created. The sample consists of 12 men and 13 women and all persons are in the age between 19 and 22 years. The recruitment of participants was done with using a snowballing technique. Results of the research as presented by Hogg and

Garrow (2003) are that respondents' identification with a feminine, masculine, androgynous or undifferentiated sex group not always correlates with the respondents' biological sex. In terms of the influences of gender identity to marketing interesting findings of research can be presented. Hogg and Garrow (2003) found that feminine respondents enhance advertising messages beyond what is stated explicitly in advertisements. An example is that female respondents who see an advertisement for a Volkswagen Golf where a male character is missing state that the car must have been a present from a man to that woman being shown in the advertisement. Additionally, feminine respondents use their external information when they analyse advertisements. They associate thoughts and images from experiences they made or to topics they came in contact with before to advertisements, products and brands. According to Hogg and Garrow (2003) people who feel belonging to the masculine group rather focus on objective cues than on subjective cues when they watch and judge advertisements. In this context, Anastasi and Foley (1949) add that women have a greater potential for imagery and that they have a higher capacity to process numerous cues. Arcand and Nantel (2012) also describe that for women the level at which their capacity for visual stimulation is overloaded and at which the ability to process information decreases is higher than for men. One explanation for this phenomenon is delivered by Glixman (1965) who states that women create more subcategories when they receive, process and store information.

According to Hogg and Garrow (2003) the interest threshold of female typed individuals is much lower than of male typed ones and therefore female typed individuals engage more often in an elaborative processing of advertising. On the other hand, male typed persons often are not interested enough to process in detail advertised information about a product or a service. However, Hogg and Garrow (2003) emphasise that the differences in processing of advertising messages between male and female typed individuals decrease when the grade of importance of the advertised message to the individual increases. What is more, Leiss, Kline and Jhally (1990) state that feminine typed persons and also male typed persons if a stimulus goes beyond the threshold of their interest describe advertisements as incongruent and conflicting if advertising

messages are transported in different subcategories. For example, if an advertised car and its owners in the advertisement do not belong to the same subcategory. In this context, several authors describe that female customers often ask “why” questions to find implausibilities and specialities of situations (McGuinness, 1976, Penelope and Wolfe, 1983, Smith, 1980). In their research Arcand and Nantel (2012) show that men process information logical and look for a focused way to resolution, just as math problems, whereas women process information more all-embracing.

### 2.2.4 Gender and commerce

In their study Rodgers and Harris (2003) investigate the grade of satisfaction of women and men with their experiences with online shopping. Here, perceptual differences between women and men are investigated to be able to understand gender differences. Within their research, Rodgers and Harris (2003) animated advertising students from a University in a middle-sized city in the Midwest of the United States of America by giving them extra credits for the recruitment of the study’s participants with a snowball method. In total 227 participants from the city in the Midwest of the United States of America who were no students, equal or more than 18 years old and who already have done at least one online purchase took part at the survey. In the following Figure 4 sample characteristics of the research as conducted by Rodgers and Harris (2003) are presented. Rodgers and Harris (2003) state that these demographics are similar to the population which in general uses internet and therefore Rodgers and Harris (2003) consider their recruitment of participants as suitable for their research.

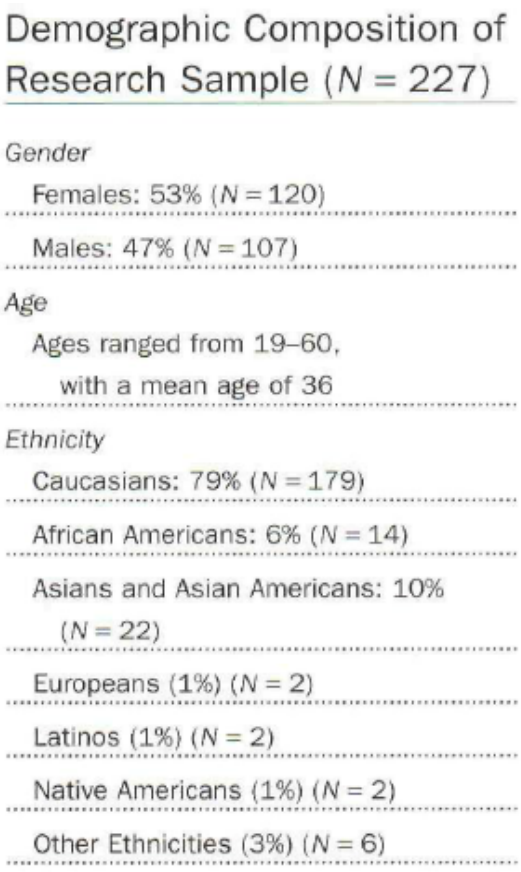



**Figure 4: Demographic profile of the research as conducted by Rodgers and Harris (2003)**

Results of the research as presented by Rodgers and Harris (2003) show that the three most important determinants within the online shopping experience are emotion, trust and convenience.

#### 2.2.4.1 Emotion

Rodgers and Harris (2003) state that cognition towards a product or a company can be increased by positive emotions. What is more, positive emotions speed up consumer decision making processes, make consumers come back to a company or brand in future and, in terms of internet, are able to make users think positively about websites and so make users spend more time surfing these websites. In this context, Rodgers and Harris (2003) show that many consumers describe their shopping experiences within internet emotionally stating terms as innovative, impulsive and adventure-seeking. The importance of emotion for online shopping experiences is even that high that online

processing models have included emotionality as one central determinant to investigate users' online involvement while surfing websites. What is more, Rodgers and Harris (2003) state that emotionality is a critical determinant when users decide whether they buy within an online environment. Here, Rodgers and Harris (2003) point out findings of previous research which show that female internet users expect more than male internet users to be emotionally satisfied by websites. What is important in this context, Rodgers and Harris (2003) found in their research that female internet users are emotionally less satisfied with online purchases than male internet users.

#### 2.2.4.2 Trust and privacy

Considering the second determinant, trust, Rodgers and Harris (2003) state that in a society which sees the customer as a king the building of trust is an important factor to success. Especially for online marketers it is important to gain consumers' trust as within this market area trick marketing with e.g. trick banners which cause consumers' distrust is widely spread. In this context, Wolin and Korgaonkar (2005) found in their research that to women more than to men web advertising is more disturbing. Rodgers and Harris (2003) state that scepticism and lack of trust belong to the biggest problems within e-commerce. In this context Rodgers and Harris (2003) emphasises that former research has shown that female consumers are more sceptical and less trusting of internet activities compared to male users.

In terms of the reasons for being online, Rodgers and Harris (2003) present that male consumers tend more to utilise the online environment for practical reasons whereas female consumers tend to use the internet for social or non-shopping purposes. In this context, Rodgers and Harris (2003) found in their research that female participants' perceptions of online shopping were not so positive as those of male participants. Here, an important difference is the fact that female participants have a higher scepticism or a lower trust towards e-commerce in comparison to their male counterparts. What is more, men find shopping online more practical than women do. Therefore, an important issue within the research area of gender and commerce is privacy. The research as

conducted by Wolin and Korgaonkar (2005) is focussed on advertising. Here, female attitudes, beliefs and behaviour are investigated in the context of advertising in television, magazines and internet. The focus lies on determination of differences in attitudes towards and beliefs about web advertising and other media. Within their research, Wolin and Korgaonkar (2005) developed a questionnaire which was presented to a sample of 420 consumers from a big metropolitan area with 1.6 million people in the south east of the United States of America. The questionnaire was filled out as a manual survey where participants answered the questions during personal interviews which did not happen at the same times of a day and not at the same days of a week. Out of 420 collected questionnaires in total 388 were usable for the analysis within the research which represents a net rate of over 92 %. The gender split of participants was nearly equal with 51.5 % male respondents and 48.5 % female respondents. In the following Figure 5 the sample characteristics of the research as conducted by Wolin and Korgaonkar (2005) are presented. Results of the research as conducted by Wolin and Korgaonkar (2005) are that female customers are more concerned about online privacy than male consumers. This concern results in the fact that women are more reluctant than men to make an online purchase. What is more, Wolin and Korgaonkar (2005) found that women are more likely to go online to browse before a purchase to get information about a product or a service but it is more likely that men make a web purchase. According to Wolin and Korgaonkar (2005) the reason for this can be that women more than men are concerned about privacy in an online environment.

| Characteristic | Percent |
|---|---|
| *Gender* | |
| Male | 51.5 |
| Female | 48.5 |
| *Age* | |
| Under 20 years | 5.2 |
| 20-30 years | 50.5 |
| 31-40 years | 23.0 |
| 41-50 years | 14.2 |
| 51-60 years | 5.9 |
| Over 60 years | 1.2 |
| *Education Level* | |
| High school | 7.5 |
| Trade school | 2.3 |
| Some college | 41.0 |
| College graduate | 29.7 |
| Post graduate | 19.5 |
| *Occupation* | |
| Unskilled labor | 2.1 |
| Clerical | 7.2 |
| Supervisory/sales | 7.5 |
| Technical | 6.4 |
| Managerial | 7.5 |
| Professional | 30.4 |
| Student | 26.5 |
| Other | 12.4 |
| *Annual Household Income* | |
| Under $20,000 | 15.2 |
| $20,000 - $40,000 | 29.9 |
| $40,001 - $60,000 | 24.0 |
| $60,001 - $80,000 | 13.7 |
| $80,001 - $100,000 | 8.5 |
| Over $100,000 | 8.7 |
| *Ethnicity* | |
| African-American | 13.5 |
| Anglo-American | 44.1 |
| Asian-American | 7.2 |
| Hispanic-American | 16.2 |
| Other | 19.0 |

[a] n = 388

**Figure 5: Demographic profile of the research as conducted by Wolin and Korgaonkar (2005)**

#### 2.2.4.3 Convenience

In terms of the last determinant, convenience, Rodgers and Harris (2003) point out that according to previous studies this is the main reason for online shopping. Reason for this is the change in our society where time is becoming an increasingly critical factor and so many consumers try to simplify their lives, for example by internet shopping. Here, Rodgers and Harris (2003) point out that several previous studies have shown that factors as shopping in the convenient atmosphere of staying home without queuing up and having shopping articles sent directly at home are highly appreciated benefits for

consumers. Oumlil and Erdem (1997) state that for working women within the purchase process aspects as convenience, time savings, availability and service are becoming important. In this context, Silverstein and Sayre (2009a) state that that to women time efficiency is an important factor within the purchase process of products or services. Reason for this is the fact that today still women are much more involved in household tasks than men. Silverstein and Sayre (2009a) present that today few companies respond to women's need for time saving and offer services or products which are designed specifically to this customer group. Here, Silverstein and Sayre (2009a) mention that even though women are involved in spending money for products and services for most consumer goods still most companies act as if women had no influence on purchasing decisions. For example, Silverstein and Sayre (2009a) show that the car industry still is focussed on male customers emphasising power and speed of vehicles instead of showing utility issues. In the context of convenience, Silverstein and Sayre (2009a) show how the US fitness chain Curves has become very quickly very successful. Curves offers cheap and fast exercises which are adjusted to middle-aged women with an average body. Every female customer can require the help of a trainer who stands aside while they are working through the 30 min circuit.

### 2.2.5 Gender and loyalty

In their research Melnyk, van Osselaer and Bijmolt (2009) investigate gender differences considering loyalty to companies and products. In this context Melnyk, van Osselaer and Bijmolt (2009) write that traditional theories to this topic see women as being more interdependent than men and so women tend more to maintain networks and relationships and also tend more to stay connected to other people. Melnyk, van Osselaer and Bijmolt (2009) also show that recent theories to the topic of loyalty make a distinction between relational and collective interdependencies. The theories claim that women are more focussed on establishing only few but close relationships with specific individuals. This behaviour is described as relational interdependence. On the other hand men tend to create relationships with bigger groups of people. This behaviour is described as collective interdependence. To investigate the issue

of loyalty, Melnyk, van Osselaer and Bijmolt (2009) built their research with leading through five studies. The first study tests the validity of the hypothesis that men tend to be more loyal to groups whereas women tend to be more loyal to individuals. Here, 89 male undergraduate students from a University in the Netherlands could be found as participants with giving them a 7 € participation fee. Participants of study one randomly were assigned to a shopping scenario with a group condition and a shopping scenario with an individual condition and had to assess how possible it is that they would purchase a product in that situation. Then, study two investigates the hypothesis that differences in women's and men's objects of loyalty exist stating that men's objects of loyalty more likely are groups whereas women's objects of loyalty more likely are individuals. Therefore, participants had to state words like "I am loyal to" to find participants' real-life loyalties. Within study two 19 male and 19 female graduate students from a University in the Netherlands took part with giving them extra course credits for the participation. In the next step, study three tests the hypothesis that in terms of service providers male consumers tend more than female consumers to be loyal to companies than to individual service providers. For this purpose, 39 male and 41 female master's students from a University in the Netherlands took part giving them an extra course credit. Here, participants were asked to judge their level of loyalty to a service provider in the context of seven different categories. Here, the one choice was an individual and the other choice a company. The categories were for example hairdresser versus a hairdressing salon, a bartender versus a bar, a fashion salesperson versus a fashion store, a sports trainer versus a fitness club and a medical doctor versus a hospital. Within the fourth study shoppers in a city of New Zealand were asked to assess their loyalty towards employees of a company and towards the company itself within seven categories of service such as for example hairdressing salon and hairdresser, physiotherapy clinic and physiotherapist, law company and lawyer and fashion store and fashion salesperson. Here, 67 male and 65 female shoppers took part in a pen-and-paper study with giving them a chocolate bar for the participation. Finally, study five was a replication of results of study four. Here, again shoppers from New Zealand were asked to assess their loyalty towards individual employees and companies within three categories of service. Here, 79 male and 71 female participants were given

chocolate eggs for participation. Within their research Melnyk, van Osselaer and Bijmolt (2009) found proofs for this theory. Within all five conducted studies female consumers tended more than men to create one-to-one relationships. Melnyk, van Osselaer and Bijmolt (2009) suggest that when women are the focus group then products and services should be offered via small boutiques rather than by big chain-shops. What is more, marketers should be aware that advertising themes which focus on personal relationships are more appropriate when female customers represent the customer group.

### 2.2.6 Gender and the decision making process

According to former research, women want to take part within decision making processes (Eagly and Johnson, 1990, McColl-Kennedy, Daus and Sparks, 2003, Oakley, 2000) and they want to have their voices heard (McColl-Kennedy, Daus and Sparks, 2003, McColl-Kennedy and Sparks, 2003). In their research Mitchell and Walsh (2004) investigate how male and female consumers purchase products and services and how gender affects the consumer decision making process. For this purpose Mitchell and Walsh (2004) interviewed 358 shoppers in two different German cities. The gender split was nearly 50 % to 50 % with 180 women and 178 men. In the following Figure 6 the sample characteristics of the research as conducted by Mitchell and Walsh (2004) are presented.

| | | Sample's demographic profile (%) |
|---|---|---|
| Age | 18–31 | 34 |
| | 32–44 | 31 |
| | 45–57 | 15 |
| | 58+ | 20 |
| Gender | Male | 44 |
| | Female | 56 |
| Education* | More educated | 46 |
| | Less educated | 54 |

**Figure 6: Demographic profile of the research as conducted by Mitchell and Walsh (2004)**

Mitchell and Walsh (2004) present the following interesting results. In terms of the issue of perfectionism, Mitchell and Walsh (2004) state that female

consumers have higher expectations considering product quality than male consumers. Female consumers tend to purchase at up-market stores and to buy products from well-known home market brands. Considering the issue of over choice, Mitchell and Walsh (2004) state that female consumers are more confused than male consumers by over choice. Women prefer being informed about few but good product or service choices. Men are more likely to look for variety within the product choice process than women. In terms of satisfaction Mitchell and Walsh (2004) present that working women more than men have a feeling that shopping is an activity that makes them relax and lets them spend time with friends. What is more, when it is about time-efficiency according to Mitchell and Walsh (2004) especially female consumers stated that they want to make their shopping trips fast. When female consumers are in the product decision making process then time has to be used efficiently.

According to Williams (2002) to women evaluative criteria are more important than to men within the product and service decision process. In this context, Mattila (2010) investigates which benefits can be found when customers are given the choice of a compensation method after having had a problem with a product. Mattila (2010) chooses a casual dining situation as a basis for her research as this is a service which is chosen by many potential respondents and because former research indicates that within restaurants service failures happen frequently (Hoffmann, Kelley and Rotalsky, 1995). What is also important, a casual dining situation enables the researcher to manipulate easily the interesting variables of the research. Within her research, Mattila (2010) leads through a pilot test to make sure that chosen hedonic and utilitarian methods of compensation are accepted by consumers. Here, in total 45 undergraduate students randomly were offered hedonic or utilitarian compensation offers. The gender split within this pilot test was 43 % male and 57 % female participants. In the second step a test with 76 participants was lead through aiming to make sure that options of service recovery are accepted by consumers. Within the pre-test the gender split was 48 % male and 52 % female participants. Finally, the main research was designed as a 2 x 2 x 2 (choice vs. imposed-choice x male vs. male x low vs. high importance) failure experiment. In total 195 respondents who were randomly chosen from a music

event in the United States of America were opposed to one of the eight possible conditions of the experiment. Data collection was lead through within a period of four days and the participants' split by gender was 42 % men and 58 % women with a mean age of 41 years. As results Mattila (2010) found that the act of choosing seems to be more important to female participants than to male participants and that women's satisfaction with a compensation method is higher when they had the opportunity to make a choice from alternatives. In terms of services an interesting result as presented by Mattila (2010) is that for women the act of choosing a compensation method after having had problems with a service reduces negative emotions which have been created through that particular service problem. The research as conducted by Mattila (2010) also offers findings concerning the compensation method. Former research in the topic of loyalty reward programs offers the result that feelings of guilt and therefore difficulties of justification are created by hedonic choices (Prelec and Loewenstein, 1998, Thaler, 1985). Nevertheless, results of the research as conducted by Mattila (2010) show that it can be a benefit for service organisations to offer a mix of utilitarian and hedonic compensation methods. In this context, former research shows that women more than men favour gifts (Areni, Kieker and Palan, 1998, Wallendorf and Arnould, 1988).

In terms of the issue of involvement former research shows that persons who are proposed choices are involved to a high extent in a decision making process and thoughts about a positive choice result in a positive affect (Beattie *et al.*, 1994, Burger, 1989, Weiner, 1985). In this context, Payne, Bettman and Johnson (1993) state that non-choosers only have a low feeling of involvement in a decision making process and therefore do not benefit from positive emotions that are created by a high feeling of involvement. Payne, Bettman and Johnson (1993) emphasize that offering choices results in a better correlation between a person's personal preferences and the effects of the product or service choice.

### 2.2.7 Critique of gender research

As presented in the chapters before, Caterall and Maclaran (2002) and Hogg and Garrow (2003) found that gender identity is a better indication for a person's purchase behaviour than the biological sex. For future research, Caterall and Maclaran (2002) suggest that gender researchers have to stay open to new views on the research of gender and consumption in coming years as this is still a young area of research which offers many opportunities for ground breaking outcomes and studies. However the assumption as presented by Caterall and Maclaran (2002) and Hogg and Garrow (2003) has to be treated carefully as according to Palan (2001) research on gender identity investigating how much a person identifies with feminine or masculine traits has shown inconclusive results throughout a big number of studies as the complexity of the connections between consumer behaviour and gender could not be addressed correctly. In this context, Kacen (2000) investigates how historically significant gender identity was to marketing and looks for a paradical vision how significant gender identity will be for consumer society in future. As a result, Kacen (2000) found that women have a tendency not to show their gender identity therefore it can be difficult to implement this aspect in marketing strategies. Faulkner (2001) states that a huge need for research exists in terms of the relationship between technological knowledge and gender or in other words the relationship of gender differences and the usage of technology. In terms of possible future research topics Faulkner (2001) suggests that one way to decrease technology rejection by women is to develop non-threatening ways for women which enable them to improve their knowledge about specific technologies and which make them become less reliant on men's knowledge about these special technologies. In other words, technology products have to be more useful to females so that women accept and utilise them. In terms of online purchases Rodgers and Harris (2003) investigate if male and female consumers differ in their e-commerce attitudes and experiences and search for the answer to the question why female consumers are less satisfied with e-commerce. As a result, Rodgers and Sheldon (1999) emphasise that women tend more than men to use internet for socializing and non-shopping activities and therefore the online purchase experience is not in focus. What is more, Rodgers and Harris (2003) state that female consumers' perception of the online shopping

experience in general is less positive than of male consumers and that female consumers are more sceptical when shopping online. An important result is that female consumers are less emotionally satisfied with online purchases and that they do not trust online purchases as much as men do. In this context, Rodgers and Harris (2003) state that female customers are looking for an emotional connection within the e-shopping experience. This can be generated by offering real-life testimonials, personalised product searches and an option for a personal interaction with a human being within the online shop. In this context, McGoldrick, Keeling and Beatty (2008) state that a human interaction within an online shopping situation is difficult as online shoppers do not enter a classic shop where a salespersons is present which provides information and assistance to customers and beyond that also can build a relationship to customers and therefore influence sales. In their research, McGoldrick, Keeling and Beatty (2008) investigate a solution to this problem by introduction of avatars in online shop environments. Results of this research are that women appreciate more the presence of avatars than men in online shopping situations due to relational benefits and a decreased feeling of risk. However, McGoldrick, Keeling and Beatty (2008) state that the introduction of an avatar in an online shopping situation has to be done carefully with an adaptation to particular requirements of a particular online shop. In this context, Rodgers and Harris (2003) state that online shopping is inconvenient in terms of taking products into hand and trying them on before a purchase as for example clothes. Especially to women a possibility of being informed about experiences of other consumers with special products or the ability to simulate the usage of special products would be important as female consumers are trying to generate an emotional connection to the product, brand or commerce site. Rodgers and Harris (2003) emphasise that especially for women who are seeking an emotional connection while shopping a personal interaction within online shopping is important.

What is also important, Rodgers and Harris (2003) point out that the issue of trust must be focussed by e-commerce marketers to a high degree. Women are more sceptical than men when shopping online as they cannot build up their necessary emotional connection within the online environment. Here, Rodgers and Harris (2003) propose usage of live testimonials to create a two-way

dialogue for female customers. In this context, results of the research as conducted by Aagerup (2011) considering the relationship of model weight and the following brand perception are interesting. One important finding of the research as presented by Aagerup (2011) is that if a fashion brand wants to create a picture of competence then it should develop campaigns with thin models. This aspect of good appearance should be taken into account when live testimonials are chosen.

Khuong and Tram (2015) state that cognition towards a brand or a product can be increased by positive emotions. But this creation of emotions has to be done thoroughly as results of the research as conducted by Rodgers and Harris (2003) show that female consumers find soft graphics and colours on women orientated e-commerce sites as condescending. Female respondents state that more than soft colours are necessary to bring emotions into an e-commerce shopping experience. In this context, Meyers-Levy (1994) found that when targeting women then technical product information should be presented more in verbal form as this is more compatible with the way female consumers cognitively process information. Here, Rodgers and Harris (2003) add that for marketers it is important to consider that male and female consumers might have to be targeted differently and in alternative ways by e-commerce sites. Rodgers and Harris (2003) suggest that for example technical data should be presented to male consumers in graphical form and to female consumers in verbal prose. In terms of the issue of different targeting of men and women by marketing Silverstein and Sayre (2009a) describe Dell's attempt to introduce laptops which were designed especially for women. Here, the company offered a special website offering special colours and computer accessories as well as information how to track calories and how to find food recipes in the internet. As a result, big resistance among women against Dell products was created as female consumers felt the offer to be disconcerting and condescending. Here, Holmlund, Hagman and Polsa (2011) add that campaigns which are too inclusively or too exclusively adapted to certain customer groups are in danger of failing. For example mature women do not want to be addressed with vocabulary as "mature", "senior" or "elderly". Usage of these words in advertising may cause offence. In this context, Silverstein and Sayre (2009a)

state that women are dissatisfied with the business areas financial services and health care. In terms of financial services for example, female customers are dissatisfied with level of service quality that they receive, they feel stereotyped by their gender and they feel patronised.

## 2.3 Purchase

When a new product is to be developed and sold then product developers and marketers should know which aspects about this special product are important to an organisation's customers (Creusen, 2010). With doing so, an organisation can assure that the result, the developed product, fits customers' expectations. However, during the development process many conflicts are created as the fulfilment of special aspects can lead to a prevention of other important aspects. Therefore, organisations have to focus on development of product aspects which are most important to consumers (Creusen, 2010). To be able to do so, organisations have to find out which aspects are most important to their customers.

In the following chapter an insight into the purchase process of customers is to be offered with offering an insight into female buying habits and explaining some general aspects to purchase followed by a description of self-identity and self-concepts, females as customers and finally giving a short lookout to important issues within sales of automobiles.

### 2.3.1 Female buying habits

In the context of shopping differences between women and men Cunningham (2006) sates that female customers shop and male customers buy meaning that to women shopping is a leisure activity and men see shopping as work. What is more, Cunningham (2006) states that the male buying process can be described with a linear model, especially in the context of car market which is described by Cunningham (2006) as the most male purchase practice. According to Cunningham (2006) the female purchase process is different as it is more random and unreasonable. The female purchase process is described

as “a process of interconnected loops which lead, after a number of stages, to an end” (Cunningham, 2006, p.169). This description is supported by Barletta (2006) who states that within the product purchase process female customers seek more information in a spiral path contrary to men who’s decision-making process is linear (see Figure 7).

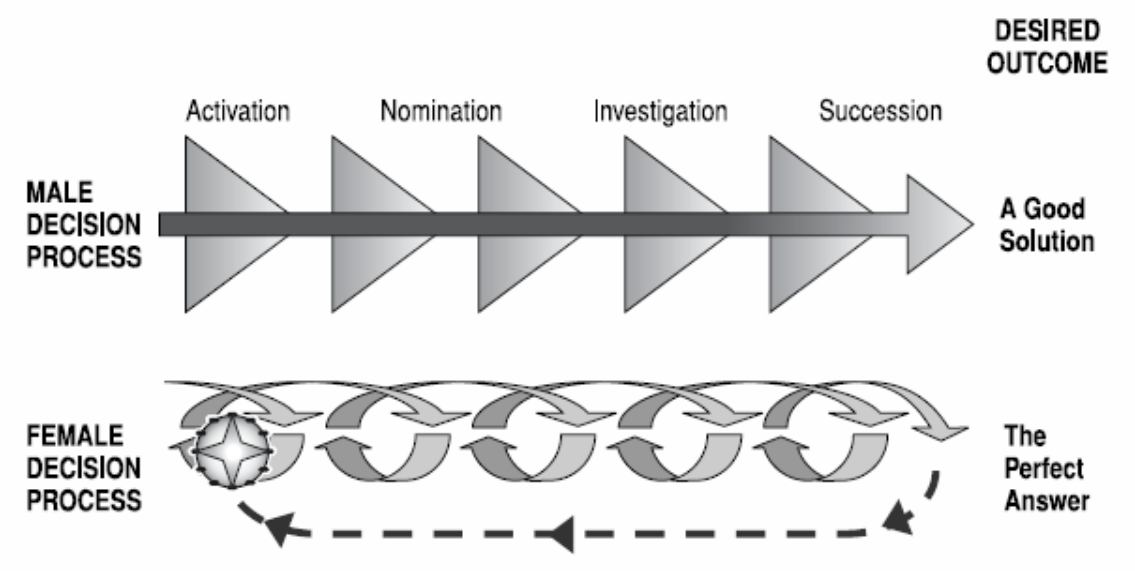



**Figure 7: The spiral path (Barletta, 2006)**

What is more, Cunningham (2006) emphasizes that women enjoy shopping and that women want to wander around a shop and to daydream, they don´t want to be hurried or put under pressure. In this context, Barletta (2006) presents the female purchase path as a process consisting of four stages. The first stage is “activation” when a female consumer enters a market of products a company sells. The second stage is “nomination” when a female consumer develops an idea of brands which may be relevant to her product or service decision. The third stage is “investigation and decision” contains a checking out of brands, going to stores and talking to salespeople. The final fourth stage “succession” means that the female consumer purchases a product or service and recommends the brand to other persons. In the context of reasons for purchase, Cunningham (2006) states that women are driven to improve their status quo and shopping is a possibility to achieve this aim. In this context Barletta (2006, p.102) adds that women want to find “the perfect answer”. However, Cunningham (2006) works out that to women the decision making process is more complicated than to men. Therefore, women want that information within

the product decision making process is accessible. As one important aspect within the information search process Cunningham (2006) states that women want to build relationships with a brand, a store or a sales person. Therefore, according to Cunningham (2006) building up of a relationship with female customers creates a short cut within the female product purchase process and represents a chance to professional marketers. In terms of information sources Barletta (2006) states that men tend to improve their knowledge prior to a product or service purchase whereas women tend more to ask people for information input instead. Those people can be sales persons but also people they know and their family.

### 2.3.2 General aspects to purchase

In the following chapter some general aspects to the topic of purchase are presented.

#### 2.3.2.1 Risk relievers

What is important to customers prior to a purchase of a product or a service especially when they are not well-informed about this particular product or service? Tan (1999) found that to respondents of his study most important purchase risk relievers were recommendations from friends and reference groups. This finding is supported by Molesworth and Suortti (2002) who highlight that most respondents of their research stated that to them recommendations from family and friends are important within the information search process. What is more, according to Husic and Cicic (2009) people do use brands as an indicator for product or service durability and quality. Here, Auty and Elliott (1998) add that as to mature women it is difficult to assess clothing quality in many situations they utilise the brand as a representative assessment criteria for product quality.

Within the process of selling through internet trust is an important component. Here, Balabanis and Vassileiou (1999) state that retailers who have a strong brand-name will have fewer problems than retailers who have a weaker brand-

name when it is about selling through internet to high-involved customers. In this context, Phau and Poon (2000) emphasise that one important aspect which determines if a product can be sold via internet is the possibility for online trial of a product.

#### 2.3.2.2 Computer assistance

In today's world where performance of products or services often is improved by usage of computer programmes or online services Reed, Story and Saker (2004) investigate in their research how the installation of a computer assisted selling programme changes the customers' view of the whole buying process. To do so, Reed, Story and Saker (2004) divided their study into two parts. In a first part structured personal interviews with consumers who just left a particular car showroom were conducted to receive participants' perceptions of the environment within a car dealership and the whole sales process. For this purpose, a questionnaire was developed including questions about reasons for the visit, participants' impression of the dealership and participants' perceptions of the sales process within the dealership. For example, for measurement of participants' attitudes towards the sales process semantic scales were used whereas for assessment of the salesperson's performance structured questions were used. As suggested in former research to test the comprehension and ease of use of the questionnaire for the interviewer and participants a pre-test with some expert participants such as academic persons or persons from the automobile industry was lead through (Churchill, 2002, Green, Tull and Albaun, 1988, Hunt, Sparkman and Wilcox, 1982). As a result, in total 200 usable questionnaires were collected by Reed, Story and Saker (2004).

In a second part, a closed circuit television (CCTV) system was used to obtain information from an observational research of the customers' experiences while their visit in the car dealership. Reed, Story and Saker (2004) concentrated on examination of body language, non-verbal communication and facial expression while customers were within the car dealership and while they had interacted with salespersons. Within the car showroom Reed, Story and Saker (2004) installed notices and special information sheets which informed customers

about the presence of cameras and video recording within the car dealership just as it is suggested in former literature (Dodd, Clarke and Kirkup, 1998). In total, 400 customers were recorded on video and analysed. Results of the research as presented by Reed, Story and Saker (2004) are that the introduction of a new computer assisted selling programme had an overall positive effect on the customers and their perception of the whole purchase process.

#### 2.3.2.3 Product price

In terms of product price, Crosby, Kenneth and Cowles (1990) state that price is only one small reason for consumers to purchase a special product or service. Additionally, Odekerken-Schröder *et al.* (2003) found that within present car industry price of a vehicle only has a small importance as a segmentation criterion. Further results of the study as conducted by Odekerken-Schröder *et al.* (2003) are that when it is about to make a car purchase most respondents assess relational aspects more important than service and price aspects. What is more, Assael (1997) states that a good service level, convenience and time efficiency within the purchase process and availability of products become more important than price level within the product decision making process. Opposed results to this topic are presented within the research as conducted by Copeland (2014) who found that a car's price has a strong impact on a customer's car purchase willingness.

#### 2.3.2.4 Involvement

Kuss and Tomczak (2007) state that involvement describes the intensity of the relation between a consumer and a product or in other words the grade of importance of the product to the consumer. Kuss and Tomczak (2007) state that the involvement concept has wide-ranging consequences for purchase processes. According to Kuss and Tomczak (2007) in this context Zaichkovsky's definition is powerful in literature. Zaichkovsky (1985, p.349) states that "involvement is a person's perceived relevance of an object based on inner needs, values and interests". Within this, Zaichkovsky (1985)

distinguishes between long-term and phase involvement. Long-term involvement means that a person is interested into a certain product or a product group as automobiles, fashion or fine wines. Phase involvement describes a situation when persons are interested into a special product or a product group only for a certain period of time, for example when a new washing machine has to be bought (see Figure 8). In this context Assael (1997) offers a differentiation between high and low involvement purchases. High involvement purchases are those which are very important to a customer. Such purchases have a firm connection to the customer's personality and self-assessment. In such situations it is worth to the consumer to invest time and energy into a thorough assessment of alternatives. On the other hand, low involvement purchases are not so much important to the customer. In such situations it does maybe not make sense to invest lots of time and energy into assessment of alternatives and collection of information about brands. Therefore, in general, low involvement purchases have only limited decision making processes.

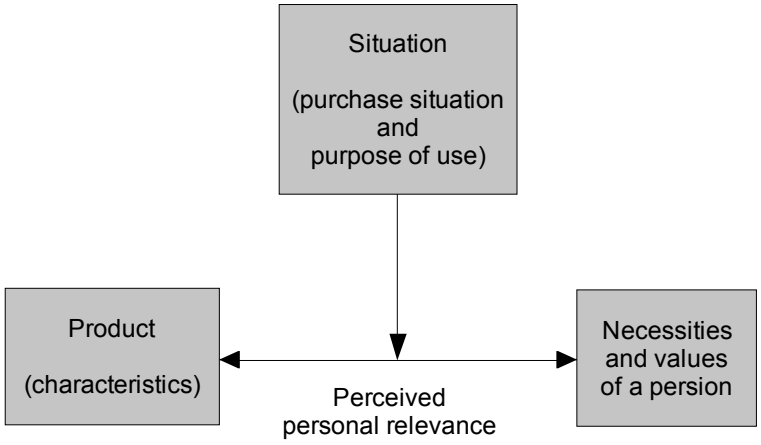



**Figure 8: Factors of Phase Involvement (Kuss and Tomczak, 2007)**

#### 2.3.2.5 Aims of customers

Kuss and Tomczak (2007) state that every person builds up or takes over certain values from his or her milieu. In the context of consumer behaviour this means that these values influence the aims that are linked to a purchase of a product or a service. Kuss and Tomczak (2007) list security, freedom or social

acceptance as typical examples for such values. To every person different values are relevant at the same time. These different values and their particular importance together build up a person's value-system. What is important in this context is the fact that changes in accepted values are linked to current changes in societies. Blackwell, Miniard and Engel (2005) list some current changes of values which are typical for industrial countries. A high living standard changed to a better living quality, a traditional separation of gender roles changed to a repeal of gender roles, the value of traditional family behaviour changed to alternative ways of living, the value of live to work changed to work to live and finally selflessness changed to an orientation to pleasure.

#### 2.3.2.6 Personal characteristics, values and attributes

Kuss and Tomczak (2007) show that many of consumers' personal characteristics which influence the consumers' behaviour cannot be ascribed to consumers' environment or certain objects. These characteristics belong to aspects as demography, lifestyle, personality or self-concept. Here, demography describes obvious characteristics of consumers, for example age, sex or profession. Kuss and Tomczak (2007) describe lifestyle as patterns according to which people live their lives or spend time and money. Personality includes psychological variables that have long-term and consistent behavioural patterns. Finally, self-concept refers to a real or ideal image that a person has of oneself and therefore self-concept can have an effect on a person's consumer behaviour.

#### 2.3.2.7 Demographic characteristics

In her research Creusen (2010) investigates the relationship between demographic characteristics as gender, age, income, education and the meaning of product characteristics as symbolic or aesthetic aspects, functionality, quality, ease of use. Within her research Creusen (2010) chose ten different product categories which are familiar to most people, such as for example alarm clocks, cars, perfume bottles, electronic articles or living room

chairs. In total 285 participants from a University received a questionnaire. The return rate was around 87 % which was 247 usable questionnaires and the mean age of the participants was 49.9 years with a gender split of 60.7 % men and 39.3 % women. What is more, respondents' education level was monitored within six categories from secondary school to University degree. Results of the research as presented by Creusen (2010) are that women pay more attention to ease of use, expressive aspects and good functionalities of products than men do. What is more, women and men pay the same attention on product quality and younger people find symbolic product aspects more important than older people do. On the other side, to older people quality, ease of use and functionality are more important than to younger people. Additionally, when it is about symbolic aspects then people with higher education pay less attention to them than people with lower education and people with a lower education level find functionalities more important than people with higher education levels. Creusen (2010) states that importance of quality increases with the education level and importance of symbolic aspects increases with the income level. Additionally, to people with higher income level product quality, ease of use and functionalities are more important than to people with a lower income level.

### 2.3.3 Self-identity and self-concept

According to Starr (2004) consumption and self-identity are related to each other in several ways. Consumption offers a possibility to materialize reflection of one's preferences, it presents how a person sees herself or himself, it presents how a person wants to be perceived by other people and it can develop and prevent an access to special work possibilities and social circles. Firat and Venkatesh (1993) describe that a person's identity can be seen by others in any fragmented form of a person's consumption and not on the basis what a person produces. People purchase and consume goods and products to express their personality. Kacen (2000) writes that people try to build up and maintain a picture of who they believe to be, they would like to be or how they want to be seen by others by purchasing and consuming special products and goods. In other words, they create their personality or identity by consumption. Therefore, Starr (2004) states the location of residence, personal clothing and

appearance, the vehicle driven and leisure time activities establish a personal identity. In terms of vehicle driven, Starr (2004) states that often vehicles are chosen not primarily for their practical attributes but more for the symbol of lifestyle which they transport. For example Minivans often are chosen by family orientated persons, luxury vehicles by persons who work in an executive position and Sportscars by persons who want to make a sportive and vital appearance.

Markus *et al.* (1982) found that different gender identities and different self-concepts of men and women are the reasons for different processing of marketing messages by men and women. According to Oumlil and Erdem (1997) the self-concept theory is used to determine consumers' psychological characteristics. This theory consists of an actual self-image which is based on characteristics a person believes to inhabit and on an ideal self-image which is based on characteristics a person would like to have. According to Oumlil and Erdem (1997) self-image has a high influence on a person's behaviour and perceptions. In their research Kleine, Schultz Kleine and Kernan (1993) found that consumers usually consume products which correspond to their self-concept and social identity. High involvement products often are purchased because customers use the identification with the brand to express their own self (Ratchford, 1987, Banister and Hogg, 2004). Often consumers purchase products from brands whose characteristics and traits are consistent with the consumers' own self-concept even though in many cases this correspondence matches the desired self-image rather than the actual self-image (Aaker, 1999, Sigry, 1982). In this context Aaker (1997) adds that personalities of a brand and a consumer have to be very similar when a congruence of both self-images has to occur.

In terms of luxury products Husic and Cicic (2009) investigate in their research the luxury market in general and factors for its determination on the example of the luxury market in Bosnia Herzegovina. Husic and Cicic (2009) found that motives of people from Bosnia Herzegovina to consume luxury products do not differ from those of luxury consumers in other countries. It is interesting that luxury consumers in different countries have similar incomes, they purchase

same brands and they aim to satisfy same needs by doing so. According to Husic and Cicic (2009) luxury consumers mainly want to make a good impression to other people and by consuming luxury products they want to position themselves in a specific group they want to belong to. By using products to which other people only have limited access luxury consumers have a possibility to differentiate themselves from other groups. Phau and Prendergast (2001) state that advantages of luxury products and brands are that to consumers those brands mostly are well known and they create a feeling of exclusivity. What is more, by having high brand awareness and product quality aimed sales levels can be retained. Mortelmans (2005) states that one motivation for consumers to purchase luxury products is the desire to be able to impress other people by being able to pay high-prices. In this context, Dubois and Duquesne (1993) describe that a high-price for luxury products is necessary that those products do not lose their characteristic of exclusivity. Deeter-Schmelz, Moore and Goebel (2000) state that consumers who tend to express high prestige should consume products, services and brands which strengthen this desired and actual prestigious self-image and which support expressing this self-image to other like-minded people.

### 2.3.4 Women as customers

One important reason why shopping is so important to women is that to many women shopping is a leisure activity (Jansen-Verbeke, 1987, Martin and Mason, 1987). A reason for this fact is that in the past women did not have the resources to have special leisure activities but traditionally women have been the ones who have been responsible for buying family's goods. Therefore beside the necessity of buying goods a variation of the shopping act which became an important leisure activity to women developed (Jansen-Verbeke, 1987, Martin and Mason, 1987). In this context, Laermans (1993, p.83) states that the first department stores were "female leisure centres who supported the development of feminisation of shopping". What is more, Kelly (1991) describes that the shopping activity traditionally has been seen as complementary to women. In this context, Laermans (1993) describes that women take their role as managers of the family business seriously. According to Assael (1997)

women who are working tend to take over an increasing number of roles which traditionally were assigned to men, for example purchase of automobiles or financial services. Silverstein and Sayre (2009a) emphasise that due to this process of changing structures in society and changing task divisions women are more intensively involved in service and product purchases of traditionally men-associated business areas. In this context, Kortus-Schultes (2005) describes that today more than 33 % car owners are female and Solomon *et al.* (2010) states that 60 % of all car buyers under the age of 50 are female. Silverstein and Sayre (2009a) state that companies should not only focus on geographical growth but they also should focus on already reachable customers. Therefore, according to Silverstein and Sayre (2009) the key to success for companies lies within understanding female customers' needs and desires.

In her research Woodruffe (1997) investigates the role of compensatory consumption in women's lives and shows which experiences women made with this issue. An important finding of the research as presented by Woodruffe (1997) is that one main driver of compensatory consumption is a feeling of low self-esteem. What is more, other reason for compensatory consumption is women's wish to create more excitement in their lives.

In terms of issue of age, in their research Silverstein and Sayre (2009a) found that women are very happy in their younger and older years and that women feel stressed and unhappier in their early and mid-forties as they have to face the greatest challenges at managing home, work and kids. As a result, this group of women especially is on the search for products and services which can help in managing lives easier. In their research Thomas and Peters (2009) investigate the shopping behaviour of senior females and so give an insight into the lifestyle and apparel preferences of this group of customers. Thomas and Peters (2009) found that senior females represent a customer group which is very much concerned about their apparel and aesthetics in style. In terms of apparel senior females prefer high quality and a look that corresponds to latest trends in style but it has to be modified in such a way that it fits to physique preferences of senior females. With this, senior females want to express their

sense of style and how important social connections are to them. In their research Szmigin and Carrigan (2006) investigate how women over 40 face their future and want to work out opportunities for future theoretical research in this area. In this context, Tunaley, Walsh and Nicolson (1999) add that social science research has more or less ignored older women. Szmigin and Carrigan (2006) conducted an exploratory study interviewing two groups of women who were aged in their forties. The first group consists of five women who live in a rural area and the second group consists of six women who live in an urban area. All women were asked by friends of the researchers to participate within the research but the women themselves mostly were strangers to the researchers. The female participants were from middle class, white, only one of them had no kids and some were employed. In the following Figure 9 the sample characteristics of the research as conducted by Szmigin and Carrigan (2006) are presented. Results of the research as presented by Szmigin and Carrigan (2006) are that women who have children often are influenced in their purchase decisions and in the way they behave by their children's opinions. Another important aspect presented by Szmigin and Carrigan (2006) is that women as they become older find themselves in an ambivalence of identity and image. Women often try to make service and product choices which make them appear younger than their chronological age because they believe that these choices have an impact on their ageing process from their own and the society's perspective. In this context, Holmlund, Hagman and Polsa (2011) found in their research that mature women want to be up-to-date with their fashion and clothing but they do not want to look too conspicuous.

| Name | Age | Marital status | Education | Work |
|---|---|---|---|---|
| Pat (urban) | 43 | Married | Secondary | p-t hairdresser |
| Janette (urban) | 46 | Married | University | p-t teacher |
| Sally (urban) | 43 | Married | Secondary | Not working |
| Trish (urban) | 45 | Married | College | p-tGovt admin |
| Louise (urban) | 47 | Married | Secondary | p-t receptionist |
| Carol (urban) | 44 | Married | Secondary | Not working |
| Gail (rural) | 44 | Single | College | Designer/lecturer |
| Ellie (rural) | 46 | Married | University | Teacher |
| Lucy (rural) | 46 | Married | College | Special needs teacher |
| Lisa (rural) | 44 | Married | University | Teacher |
| Sue (rural) | 48 | Married | University | Language tutor |

**Figure 9: Demographic profile of the research as conducted by Szmigin and Carrigan (2006)**

### 2.3.5 Automobile sales

Purchase of automobiles is described as a complex purchase as on the one hand it is a high-involvement, expensive and infrequently happening purchase process and on the other hand the purchase of an automobile is risky and highly self-expressive (Kotler, 1997, Engel, Blackwell and Miniard, 1995).

In the following chapter the aspects of country of origin and loyalty within purchase of automobiles are described.

#### 2.3.5.1 Country of origin

In his research Häubl (1996) investigates the correlation of a product's new country of origin and the changes in the consumers' perception of this product's quality. To do so, Häubl (1996) lead through 309 interviews with German car owners and 313 interviews with French car owners. A participant had to own an automobile at the time when the interview was conducted in order to be able to participate within the survey. Participants were chosen from two different countries to create a cross-national comparison of results of the research. For this reason, samples from both countries had to be similar within their demographic structures. In the following Figure 10 sample characteristics of the research as conducted by Häubl (1996) are presented. Results of the study as

presented by Häubl (1996) are that the country of origin and brand name have a significant influence on the consumers' perception of a car's quality.

| Criterion | Quotas | Sample Germany (%) | Sample France (%) |
|---|---|---|---|
| Age | 20 per cent under 30 | 19.4 | 22.3 |
| | 30 per cent 31 to 35 | 29.4 | 29.4 |
| | 25 per cent 36 to 40 | 25.2 | 27.5 |
| | 25 per cent over 40 | 26.0 | 20.8 |
| Gender | 70 per cent male | 68.8 | 69.0 |
| | 30 per cent female | 31.2 | 31.0 |
| Car ownership | 30 per cent Mercedes | 30.2 | 31.0 |
| | 70 per cent other brands | 69.8 | 69.0 |

**Figure 10: Demographic profile of the research as conducted by Häubl (1996)**

#### 2.3.5.2 Loyalty

In their research Odekerken-Schröder *et al.* (2003) investigate within the car purchase decision making process customers' preferences considering relational, service and price aspects. In doing so, a mail questionnaire was sent to 2.012 owners of a Mitsubishi car in the Netherlands. Beyond that, 600 questionnaires were sent to owners of a different car brand, such as Volkswagen, Toyota or Opel. All addresses were received from the Dutch State Institute of Road Transport. Response rates were around 53 % for Mitsubishi drivers and only about 34 % for drivers of a different brand. An explanation for the high response rate especially among Mitsubishi drivers is that participants were offered a discount on accessories from Mitsubishi. What is more, the participants' gender, their business and private usage of the car, annual mileage, the holding time of the car and number of already driven Mitsubishi cars were monitored. One result of the study as conducted by Odekerken-Schröder *et al.* (2003) is that when it is about to make a car purchase most respondents assess relational aspects more important than service and price aspects. Therefore, Odekerken-Schröder *et al.* (2003) state that to a

manufacturer of automobiles the development of loyalty and trust among its customers has a high importance.

### 2.3.6 Critique of purchase

Former research found that product price often only is one small reason for customers to purchase special products or services and that other variables as availability of products, good service level, time efficiency and convenience become more important (Assael, 1997, Crosby, Kenneth and Cowles, 1990, Odekerken-Schröder *et al.*, 2003). This finding also is extended to the purchase of automobiles (Odekerken-Schröder *et al.*, 2003). On the other hand, findings of other research show that price level of automobiles and the purchase probability are inversely proportional which means that the purchase of an automobile is more probable the lower the vehicle price is (Ziegler, 2012, Choo and Mokhtarian, 2004). What is also interesting is a relationship between product price and consumer's age which can be found in literature. Thomas and Peters (2009) found that senior females are a lucrative group. Also Birtwistle and Tsim (2005) found that women in higher ages tend more to try new brands and they do not have to look that much at the product price as younger women have to. What is more, Silverstein and Sayre (2009a) found a correlation of willingness to pay high prices and businesses. Silverstein and Sayre (2009) state that the main four businesses in which women tend to spend more money are fitness, beauty, food and apparel. Auty and Elliott (1998) state that often customers prefer to purchase products or services they already have experience with. New products or services usually only hardly are accepted. In this context, Ellen, Bearden and Sharma (1991) describe that resistance to accept an innovative product or service is increased when consumers are satisfied with a current performance of a product or service. Molesworth and Suortti (2002) add that one reason for resistance to accept innovation is that many customers need personal experience with a product prior to its purchase. In terms of the decision making process prior to a car purchase a personal experience only can be generated when consumers go to a car dealer. In this context, Pemberton (1999) states that most customers do not enjoy going to a car dealer as they do not expect being serviced impartially. In fact, most

customers state that they prefer to go to the dentist then to visit a car dealership (Pemberton, 1999).

Häubl (1996) states that country of origin and brand name have a significant influence on consumers' perception of a car's quality. In this context further research emphasise that it is important that studies investigating country-of-origin effects might not only focus on product or service specific attitudes but also on general attitudes towards specific countries (Kochunny *et al.*, 1993, Martin and Eroglu, 1993).

In terms of the aspect of self-image and self-concept, Kotler (1984) states that researchers could not agree so far about the decision which self-image, actual or ideal self-image, has a higher influence on buyers' behaviour. In this context, Oumlil and Erdem (1997) state that previous studies have found that customers tend to make choices about brands and products according to the way they really see themselves (actual self-concept) and not according to the way they would like to be (ideal self-concept). Their own research, Oumlil and Erdem (1997) conducted as an exploratory research. Here, Oumlil and Erdem (1997) selected by using the systematic sampling technique a sample out of a mailing list of a household research panel in the South of the United States of America. A questionnaire was sent to 700 households with having a return rate of about 86 % which lead to 603 usable questionnaires. As results Oumlil and Erdem (1997) found that compared to male customers female customers prefer to see themselves being more interesting (ideal self-concept) but on the other hand they believe to be too submissive (actual self-concept). As an advice to marketers Oumlil and Erdem (1997) propose on the one hand to emphasize how special products and services can make female customers appear more interesting and on the other hand marketers should avoid supporting the traditional stereotype of women being more submissive than men.

## 2.4 Search of information

In the following chapter literature to consumers' information search behaviour is presented with evaluating its relevance to the present research. This is done by

presentation of a deeper view into general aspects of information search, stores as source of information, magazines as source of information and finally internet as source of information. Finally, the aspect of search of information about cars is investigated.

### 2.4.1 General aspects to information search

In their research Birtwistle and Tsim (2005) found that in terms of the product purchase decision making process of older women it is characteristic that to this customer group more than to younger women information search prior to a purchase is very important. Stevens and Maclaran (2005) add that many female respondents state that as the number of products or services choices rises it is more difficult to them to find the right product or service. In this case female shoppers need somebody who helps them and even takes control of the process of sorting the offers and to make the right choice. What is more, Stevens and Maclaran (2005) found that to women a shopping imaginary is important. Female customers appreciate seeing for example pictures of other women owning or using products or services they are interested in themselves. This shopping imaginary helps women within the decision process to decide whether they should purchase the specific product or service.

In their research Staden and Aardt (2011) determine methods, sources and economics for female educators within the decision-making process for fashion in South Africa. While doing so also the question if it is possible to cluster consumers in different segments according to their seeking behaviour for information shall be answered. Results of the work as presented by Staden and Aardt (2011) also are supported by previous research which show that consumers tend to use cognitive short cuts which develop when consumers divide product characteristics into pre-defined schemata and so support the purchase decision (Baron, Byrne and Branscombe, 2006, Delong, Minshall and Larntz, 1986, Solomon and Rabolt, 2004). What is more, former research also shows that the more meaningful a consumer's previous experience with a fashion product is the less important is the necessity for external information (Hunton and McEwen, 2015, Schiffman and Kanuk, 2007).

Additionally, Utkarsh and Medhavi (2015) found that factors as perceived risk, knowledge, education, income, perceived benefits and product involvement have a positive relationship with the extent of information search. On the other hand, age was found to have a negative effect on the extent of information search (Lee and Cho, 2005, Nasco and Hale, 2009, Utkarsh and Medhavi, 2015). In detail, Utkarsh and Medhavi (2015) state that consumers with a high level of knowledge will lead through a more extensive information search then consumers with a low level of knowledge. What is more, levels of product involvement and perceived benefit have a positive effect on the extent of information search (Utkarsh and Medhavi, 2015) which is supported by former research (Loibl and Hira, 2009, Mishra and Kumar, 2012, Nilsson, Nordvall and Isberg, 2010). As a result for the present research, the research as conducted by Utkarsh and Medhavi (2015) offers interesting factors which are relevant in the context of information search.

### 2.4.2 Stores as information source

Blodgett and Hill (1991) found in their study that consumers who make an extensive search in stores also tend to make high amounts of other kinds of information search. What is more, Yoo, Park and MacInnis (1988) found that consumers who have positive feelings towards a store's way of product assortment, after-sales services and the location's atmosphere also have positive attitudes towards stores in general. Here, results of the research as presented by Staden and Aardt (2011) add that to respondents aged over 40 years fashion websites are not an interesting information source within the process of information search about fashion and that to these persons fashion stores are the most important information source. What is more, in their research Holmlund, Hagman and Polsa (2011) found that mature women really like buying clothes but they only visit stores who offer products and services which meet mature women's needs in terms of quality, size, fit and consultation but also style and design.

In terms of stores as information source, the study as presented by Moye and Kincade (2003) deals with female consumers' behaviour and examines the

differences in their in-store shopping preferences. As a result Moye and Kincade (2003) found that a one-fits-all marketing strategy or retail concept will not be effective. Women who belong to different segments varied by demographic characteristics, personal attitudes and store preferences request different marketing challenges for marketers. According to Holmlund, Hagman and Polsa (2011) in terms of the clothing buying process of mature women manufacturers are in a key position to offer adequate products and stores. What is more, manufacturers also inhabit another key position as mature women expect to get help and advices when they purchase clothes.

In the context of car dealers, Sunitha *et al.* (2014) state that product knowledge level of car selling people and density of car dealer locations are important within the car selling process.

### 2.4.3 Magazines as information source

In terms of magazines as information source, according to Thompson (1996) one of the biggest virtues of magazines is the fact that their content is presented to readers in fragmented and small portions what is appreciated especially by female consumers as they mostly are not interested in long and mentally stressing articles. In this context, the study as presented by Stevens and Maclaran (2005) investigates how women's magazines influence female shopping behaviour and how female readers are influenced by this imaginary shopping space. Results of the study as conducted by Stevens and Maclaran (2005) show that female consumers enjoy just looking and browsing when they shop and this is facilitated by women's magazines with their imaginary shopping spaces. One intention of women's magazines is to stimulate and increase female shoppers' "desires for desire" (Stevens and Maclaran, 2005, p.283). In their research Stevens and Maclaran (2005) found that many female respondents appreciate the ease and pleasure when reading magazines. What is more, many female participants of the research as presented by Stevens and Maclaran (2005) state phrases as flicking, dipping or browsing when they speak about reading magazines or browsing websites. In this context, Holmlund, Hagman and Polsa (2011) explore and analyse mature women's apparel buying

behaviour. One interesting finding of the research as presented by Holmlund, Hagman and Polsa (2011) is that to mature women the main information sources for fashion clothing are domestic women's newspapers and magazines and brand catalogues.

### 2.4.4 Internet as information source

In terms of internet as information source a big advantage is that this information source is time saving and not cost intensive as customers do not have to go into a shop to get the information (Schiffman and Kanuk, 2007, Van Staden and Maree, 2005). What is more, internet is seen as an important source for product information (Korgaonkar and Wolin, 1999, Papacharissi and Rubin, 2000). Molesworth and Suortti (2002) examine why consumers use the possibilities of the web to buy high-involvement and high-value products. One outcome of the study as presented by Molesworth and Suortti (2002) is that their study's respondents request that information from internet has to be better than what can be found in other sources. According to Molesworth and Suortti (2002) many respondents of their study stated that they see a big advantage to use information that is available in internet as they can prepare themselves for a purchase discussion with salespeople. This is important as many consumers do not believe that salespeople deliver impartial advices and so the imbalance of product knowledge between consumers and salespeople can be limited. In this context Crane (2014) presents that the relatively young US car manufacturer Tesla uses the internet as main channel to attract new customers. Tesla has decided for this way of addressing customers as the company describes internet as the most efficient way to present and distribute their cars and products (Crane, 2014).

### 2.4.5 Search of information about cars

In terms of current online car configurators many respondents of the study as presented by Molesworth and Suortti (2002) stated that this tool offers a possibility to simulate a traditional interaction between a customer and a salesperson in a pressure free environment. In this context, respondents of the

study as conducted by Molesworth and Suortti (2002) want to be offered a possibility to build a car that meets their requests interactively. Peters (1998) emphasises that to many customers especially within high-involvement purchases as automobiles a possibility to have an element of human interaction within an online purchase is important for example in case when specific questions arise. Molesworth and Suortti (2002) state that to many consumers the social aspect of information search prior to a car purchase is important. Consumers enjoy walking around car dealers and having a look at automobiles with family and friends. According to Molesworth and Suortti (2002) it is difficult to compensate this experience within an online purchase process.

### 2.4.6 Critique of search of information

In literature conflicts considering the car purchase process can be found. On the one hand, Odekerken-Schröder *et al.* (2003) state that car purchasers will become better informed about cars and the whole car purchase process. On the other hand, Cox and Brittain (2000) describe that the purchase process of automobiles becomes more complex as vehicles' technology becomes more complicated. Due to this, purchasers need assistance within the purchase process of automobiles. Searching for assistance the next conflict can be found. In terms of assistance within the car purchase process according to Pemberton (1999) most customers do not enjoy going to a car dealer as they do not expect being serviced impartially. In fact, most customers state that they prefer to go to the dentist then to visit a dealership with automobiles (Pemberton, 1999).

## 2.5 Car usage

In the following chapter an overview of existing research to vehicle type choice is presented. In a first step different used model types are explained before in a next step findings of existing research to this topic are presented.

### 2.5.1 Model types

According to Choo and Mokhtarian (2004) traditional research to vehicle type choice concentrates on disaggregate choice models as multinomial or nested logit. These models explain consumers' vehicle choice according to vehicle attributes and consumers' household and personal characteristics. As presented in Table 1 (p.84) research based on the multinomial probit can be found (Ziegler, 2012). Within the present research the female car purchase decision making process is to be developed. In a possible following research, results of the present research can be used as basis for development of a computer assisted program for investigation of female car usage. Therefore, the following explanation of different logit and probit models is presented briefly aiming to create a basic understanding of this topic within the present chapter.

#### 2.5.1.1 Multinomial logit models

Multinomial logit models inhabit advantages of being analytically transparent and they can be handled with computers. On the other hand, these models inhabit the disadvantage that these models are based on a limited set of behavioural assumptions (Horowitz, 1981b, McFadden, Tye and Train, 1976).

#### 2.5.1.2 Multinomial probit models

Usage of multinomial probit models has the advantage that formulations within these models are less restrictive than within multinomial logit models. On the other hand those models are more complex and demand higher computing and cost efforts (Daganzo, Bouthelier and Sheffi, 1977, Hausman and Wise, 1978, McFadden, 1978).

#### 2.5.1.3 Nested logit models

According to Cameron (1985) nested logit models are less restrictive than multinomial logit models. What is more, it is suggested to use these models when it is possible that Independence from Irrelevant Alternatives (IIA) assumption can be disturbed. This is supported by Hoffmann and Duncan (1988) who state that it is appropriate to use nested logit models to prevent

incorrect predictions where choice sets are not independent from another. The following Figure 11 presents a three level nested logit model including four nodes (Wen and Koppelman, 2001).

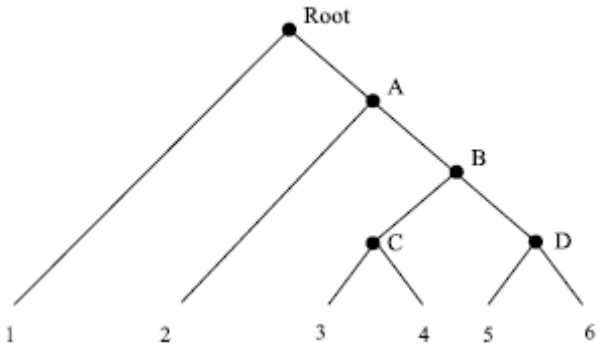



**Figure 11: Nested logit model (Wen and Koppelman, 2001)**

#### 2.5.1.4 Summary to model types

Due to a high invest into computing power and the therefore resulting high costs of multinomial probit models Horowitz (1981a) states that often multinomial logit models are preferred with having acceptable restrictions in behavioural assumptions.

### 2.5.2 Former research to vehicle type choice

In her research Steg (2005) investigates people's motives for car use showing that to participants of two questionnaire studies among car drivers in Netherlands instrumental functions of automobiles are supplemented by affective and symbolic functions. Steg (2005) proposes that on the one hand instrumental functions as speed of a car, flexibility of the interior or size of a car are important. On the other hand, also affective functions as driving behaviour and feeling of sensation and superiority and a symbolic function with using the car as a status symbol and expressing one's lifestyle play an important role. Within her research Steg (2005) used results from two questionnaire studies. The aim of the first study was to distinguish different categories for car use motives. Therefore, in the first study which was conducted in 1997, 185 adults from the Dutch cities of Groningen and Rotterdam who have a driving licence

were selected randomly and interviewed. The cities of Groningen and Rotterdam were selected as their traffic situations are different. Groningen has a low traffic density and Rotterdam has a high traffic density. As only persons owning a driving licence were selected the sample cannot be described as being representative for the population of the Netherlands. The response rate of the questionnaire was 26 % with having finally a net response rate of 23 % as within some questionnaires necessary data was missing. About 61 % of all respondents were male and the mean age of the sample was 41 years. In group settings respondents were asked to answer their individual questionnaire aiming to find out the role of different non-instrumental motives for usage of cars. To determine which motives for car use need to be evaluated two different approaches, an inductive and a deductive, followed the data collection. Firstly, within an exploratory approach (inductive) respondents had to evaluate the importance of different positive aspects of car usage which derived from an extensive literature review. Secondly, within a theory driven approach (deductive) the model of material possession as presented by Dittmar (1992) was tested. Here respondents had to answer which functions a car fulfils when looking at the model as presented by Dittmar (1992). In the next step a sorting of answers according to three functions of car use, “instrumental, symbolic and affective” (Steg, 2005, p.148), was conducted. The second study aimed to distinguish the relationship between different motives of car use and level of car use. Therefore, the study focussed on people who commute during rush hours. Here, in the year 1999 adults from the region of Rotterdam who regularly commute during rush hours were asked to fill out a questionnaire. Total response rate was 51 % which resulted in 113 useable questionnaires. Respondents’ mean age was 42 years and 73 % of the respondents were male. Also within the second study three categories for car use, “instrumental, symbolic and affective” (Steg, 2005, p.148), were distinguished. To be able to validate and extend findings of the first study, within the second study measures which are based on methods and theories of social psychology were used. Important findings of the research as offered by Steg (2005) are that respondents who have a positive attitude towards automobiles are more likely to judge affective and symbolic functions of a car as being important and they think less strongly that cars only have an instrumental function. What is more,

younger respondents value affective and symbolic functions of a car stronger than older respondents. In terms of symbolic functions, Steg (2005) found that lower income groups judge affective and symbolic functions of a car stronger than people belonging to higher income groups. Additionally, female respondents value the symbolic function of automobiles weaker than male respondents. Steg (2005) concludes that the importance of the symbolic function of a car is proportional to the respondents' annual driving distance. What is more, Steg (2005) found that male respondents feel stronger than female respondents that a car is important for their self-expression and that to female respondents driving a car is more stressful than to male respondents.

Choo and Mokhtarian (2004) investigate how typical demographic variables supplemented by car users' travel habits, personality, lifestyle and mobility factors influence customers' car choice behaviour. To do so, data resulting from a 1998 mail-out/ mail-back study "containing questions about attitudes towards travel, lifestyle and personality, mobility, travel liking and demographics" (Choo and Mokhtarian, 2004, p.203) within the San Francisco Bay Area is analysed. Questionnaires were sent to 8.000 households which were selected randomly within the San Francisco neighbourhoods Concord, Pleasant Hill and North San Francisco. The selection was chosen according to Kitamura *et al.* (1994) who state that the neighbourhoods Concord and Pleasant Hill are suburban neighbourhoods and North San Francisco is an urban neighbourhood. One half of all surveys were sent to households within North San Francisco and the other half were divided in even parts between the two suburban neighbourhoods. The response rate was around 25 % which resulted in a net response rate of 23.8 % due to partially missing necessary data. Within their research, Choo and Mokhtarian (2004) classify the respondents' used vehicles into nine different categories, small, compact, mid-size, large, luxury, sports-car, minivan/Van, pickup and Sports-Utility-Vehicle (SUV). In the following, the most important findings of the research as conducted by Choo and Mokhtarian (2004) considering vehicle type choice behaviour are presented. Choo and Mokhtarian (2004) found that vehicle price is an important choice variable. The more a vehicle costs the lower is the purchase probability. What is more, small car drivers are persons who have pro-environmental attitudes, who prefer living in

urban neighbourhoods and who do not inhabit a strong feeling for travelling-freedom. Small car drivers are persons who tend to be alone and they are not workaholics or status-seekers. In terms of demographics, small car drivers more often are women with an average age under 40 and they have jobs of lower income. This type of car drivers is over-represented within single-adult households. The second group are compact car drivers. According to Choo and Mokhtarian (2004) persons belonging to this group inhabit the same attitudes and characteristics as small car drivers. However the difference between both groups is that compact car drivers are represented by persons who have middle-income jobs. The next group are mid-sized car drivers. Choo and Mokhtarian (2004) state that this type of drivers tends to have no specific attitudes and characteristics considering travelling behaviour, lifestyle and personality. Persons belonging to this group tend to be female drivers who have higher income jobs but do not care too much about the vehicle they drive. Next group are large car drivers. According to Choo and Mokhtarian (2004) these drivers tend to be persons who have lower pro-environmental attitudes and who do not prefer living in urban neighbourhoods. They are more likely to be male, older, retired drivers. What is surprising is the fact that large car drivers tend to have lower-income jobs. In terms of the following group, luxury car drivers, Choo and Mokhtarian (2004) work out that these persons tend to be persons who look for status symbols and they tend to be male and older drivers having higher-income jobs. A next group are sports-car drivers who, as stated by Choo and Mokhtarian (2004), are more likely represented by younger persons who are looking for adventures, who are less calm and who have lower-income jobs. In terms of the group of minivan and van drivers, Choo and Mokhtarian (2004) state that these persons tend to be less willing to live in urban neighbourhoods. They also tend to be calm persons who do not like being alone and who like travelling by car. In terms of demographics, this type of drivers tends to be female homemakers in the age between 41 and 64 years living in higher-income households with children. A next group are pickup drivers who also tend to be persons who do not prefer living in urban neighbourhoods. From a demographic perspective these drivers tend to be male workaholics with a middle-income in the age between 41 and 64 years having a lower education level. The last group of drivers as listed by Choo and Mokhtarian (2004) are

SUV drivers. Participants of this group tend to be persons who have a strong travelling-freedom attitude. What is more, they tend to be persons under the age of 40, highly educated with a high-income job and live in households with children. In terms of overall results, Choo and Mokhtarian (2004) present that persons who tend to live in urban neighbourhoods tend to prefer smaller cars due to the parking situation and manoeuvrability but these persons also tend to have higher incomes and therefore they tend to prefer more expensive cars. What is more, persons who are successful in their job and like being in charge, for example mid-level managers, tend to prefer moderate cars rather than cars which are special. In terms of workaholics, Choo and Mokhtarian (2004) states that these persons tend to represent a customer group which does not like driving small and sports cars. Additionally, persons putting a high importance to expressing their lifestyle with status symbols prefer driving luxury and sports cars. Finally, Choo and Mokhtarian (2004) emphasise that persons who tend to travel long distances do not prefer small, compact and sports cars.

In his research, Potoglou (2008) offers a different perspective on the vehicle type choice. Here, the influence of built environment on the choice of a vehicle type is investigated. Within his research Potoglou (2008) uses a data set which was collected through an internet survey which was lead through in April 2005 by Potoglou and Kanaroglou (2007). A snowballing method and also a list of e-mail addresses which was provided by major employers in the area of Hamilton (Canada) were used to recruit respondents of the survey. In total 902 households completed the questionnaire but due to missing necessary information in total data of 642 households was usable. In terms of the demographical distribution of the participants of the survey some regions of Hamilton were under-represented. What is more, in comparison to the 2001 Canadian Census there were more households with medium and high income within the survey. Potoglou (2008) states that this strong representation of medium and high income households typically comes up when self-administered questionnaires are used. Dependent variables within the research as presented by Potoglou (2008) were divided into four categories, passenger cars, vans, SUV and pickup trucks. Explanatory variables were classified into the categories socio-demographic characteristics, travel-to-work attitudes and

urban form characteristics. In the context of the present research, most important results of the research as conducted by Potoglou (2008) are that when the number of household members increases, vans are more likely to be chosen. What is more, persons owning a house or an apartment are more likely to drive a pickup car. Additionally, persons who have a bachelor's degree or higher are less likely to drive a pickup car and respondents who regularly do not take a car to get to work, who travel instead by bus, train or walk, are less likely to drive a SUV. Finally, a relationship between suburban living and choice of less fuel-efficient vehicles is found within the research as conducted by Potoglou (2008).

In his research Clark (2009) offers a linkage between household car ownership and a household's characteristics combined with characteristics of individuals living in a particular household. Aim of the research as presented by Clark (2009) is the attempt to predict the number of cars owned by households in the United Kingdom as a function of characteristics of the households and their individuals. To do so, data which resulted from the 2001 United Kingdom Census was analysed with the method of data mining. Within his research, Clark (2009) uses the dataset named Sample of Anonymised Records of individuals (SARi) which is a 3 % sample which includes about 1.8 million individual records. Results of the research as presented by Clark (2009) are that income is a strong determinant of car ownership. In cases when income is not available the research shows that an alternative combination of social status and number of earners represent a good substitute to income.

The purpose of the research as presented by Ziegler (2012) is to examine among potential car buyers in Germany people's preferences considering vehicles which are driving with alternative energy technologies such as hybrid, gas, bio fuel, hydrogen or electric vehicles. To do so, the influence of a set of attributes on these preferences is investigated. The attributes are divided into two groups. The first group consists of vehicle attributes as purchase price, fuel costs, motor power, $CO_2$ emissions and service station availability. The second group contains individual characteristics as age, gender, education and environmental-friendly purchases as an indicator for environmental awareness.

For data collection Computer Assisted Personal Interviews (CAPI) were lead through in chosen dealerships and agencies for technical inspection of cars (TÜV) in 35 different towns in Germany in the time between August 2007 and March 2008. Participants of the interviews were German adults who obtain a valid driver's licence and who intend to purchase a vehicle in the near future. The overall number of valid interviews was 598. Interviews were lead through in several steps. Firstly, participants were asked to name details, such as engine power or vehicle size, of their present and potential future vehicle. In the second step, socio-demographic variables, such as gender, age or level of education, were asked. In the context of the present research, important findings of the research as conducted by Ziegler (2012) are that environmentally aware car buyers and younger car buyers are highly interested in hydrogen and electric vehicles. What is more, the higher the age of a participant the lower is the preference for an alternative fuel vehicle. Additionally, Ziegler (2012) found that the purchase of any vehicle type reacts positively to motor power and availability of service station and that the purchase of any vehicle type reacts negatively to vehicle price and fuel costs. Finally, Ziegler (2012) found that the higher the $CO_2$ emissions are the less likely a vehicle will be purchased and that women tend to have a higher environmental awareness and therefore they tend more to purchase alternative fuel vehicles than men do.

| Reference | Data location | Date | Sample size | Model type |
|---|---|---|---|---|
| Choo and Mokhtarian (2002) | USA, San Francisco Bay Area | 1998 | 1904 | Multinomial logit model |
| Steg (2004) 1st study | Netherlands, Groningen & Rotterdam | 1997 | 185 | Multinomial logit model |
| Steg (2004) 2nd study | Netherlands, Rotterdam | 1999 | 113 | Multinomial logit model |
| Potoglou (2008) | Canada, Hamilton | 2005 | 642 | Multinomial logit model |
| Ziegler (2012) | Germany | 2007 / 2008 | 598 | Multinomial probit model |

**Table 1: Overview former research to vehicle type choice, part 1**

| Reference | Dependent variable | Significant explanatory variables | Results / Comment | Critique |
|---|---|---|---|---|
| Choo and Mokhtarian (2002) | Nine vehicle categories:<br>- subcompact<br>- small<br>- compact<br>- mid-sized<br>- large<br>- luxury<br>- sports car<br>- minivan/van<br>- pickup<br>- SUV | Seven categories:<br>- objective mobility<br>- subjective mobility<br>- travel liking<br>- attitudes<br>- personality<br>- lifestyle<br>- demographics | Link between explanatory variables and vehicle type is offered | - Relevant for US-market<br>- No linking to specific vehicle attributes |
| Steg (2004)<br>1st study | Motives for car usage | instrumental, affective, symbolic, independence function of car usage | evidence for non-instrumental motives for ca use | No linking of findings to specific car characteristics or vehicle types |
| Steg (2004)<br>2nd study | Extent of relationship between instrumental, affective, symbolic motives and car use | - instrumental motives:<br>attitude measurement as proposed by TPB<br>- symbolic motives:<br>injunctive social & descriptive norms, self comparison & presentation<br>- affective motives:<br>pleasure, arousal | evidence for non-instrumental motives for car use | No linking of findings to specific car characteristics or vehicle types |
| Potoglou (2008) | Four vehicle type categories:<br>- passenger car<br>- vans<br>- SUV<br>- pickup | - Socio-demographic characteristics<br>- travel-to-work attitudes<br>- urban form characteristics | Less fuel-efficient vehicles correlate with suburban development. | No linking of findings to specific car characteristics and the respondents' personal characteristics |
| Ziegler (2012) | Vehicle engine type:<br>- diesel<br>- hybrid<br>- gas<br>- biofuel<br>- hydrogen<br>- electric | - individual characteristics<br>- vehicle attributes | Fuel costs, vehicle purchase price, emissions, service station availability have a high impact on purchase of alternative fuel vehicles. | Only few links between vehicle attributes and vehicle choice. |

**Table 2: Overview former research to vehicle type choice, part 2**

### 2.5.3 General findings to vehicle type choice

According to Torgler and García-Valiñas (2007) women have a higher environmental awareness and due to that they are more likely than men to choose alternative energy vehicles. This is supported by further research stating that females have higher preferences for alternative energy vehicles than men do (Mabit and Fosgerau, 2011, Musti and Kockelman, 2011).

In terms of household income, the higher the household income is the higher is the possibility that a household owns one or more cars (Whelan, 2007, Gardenhire and William Sermons, 1999). Reason for this is the fact that it is cost-intensive to purchase and maintain a car. In this context, Karlaftis and Golias (2002) add that the household size determines the number of owned vehicles. The more persons live in a household the more cars are owned by a household. Reason for this effect may be that each adult living in a household needs a vehicle to get to work or to transport kids. Additionally, Dargay (2002) states that the kind of area in which a household lives determines how many cars are owned by the household. In areas with a higher density of population more cars are owned by households than in areas with a lower density of population. Dargay (2002) explains that reason for this is the fact that in high-density urban areas good alternatives such as transit systems to driving with a vehicle are available. What is more, locations of services such as schools, restaurants, shops are nearer to the household locations and so allow people to walk or cycle instead of using a car.

In their research Bauer and Herrmann (1995) investigate how thoroughly companies in the German automobile market ask and answer the questions considering who their customers and competitors are. Results of the research as presented by Bauer and Herrmann (1995) are that the structure of the German car market mainly is created by three different types of cars, compact, mid-size and executive automobiles. What is also interesting, an important result considering the substitution effect was found according to which a substitution of cars which belong to the same category is more probable than of cars which belong to the same brand but different categories.

What is more, an interesting finding according to subdivision of the car market by German car purchasers is presented by Bauer and Herrmann (1995). A subdivision of the car market is made in the first step by vehicle category, then brand of vehicle, in the next step by type of drive, meaning two-wheel or four-wheel drive and only in the last step by the vehicle type meaning coupe, sedan or station-wagon.

In their research Lee and Tai (2009) investigate the relationship between product attributes and consumers' perception of product quality on the example of the emerging market in Kazakhstan. For doing so, Lee and Tai (2009) lead through a survey in the city of Almaty in Kazakhstan in the period of September to November 2005. Out of 459 collected questionnaires in total 390 were usable which resulted in a net rate of about 85 %. Out of 390 participants 40.3 % were male and 59.7 % were female and the average age was 28.7 years. Above this the employment status and income status were monitored. The questionnaire was created in such a way that the participants' perceptions towards different attributes of automobiles could be measured with a seven-point interval scale. Participants had to indicate their agreement with different statements on a symmetric scale starting at 1, representing not important or not agree, and ending at 7, representing very important or strongly agree. Interesting findings of the research as presented by Lee and Tai (2009) are that consumers from an emerging market who had only a very limited experience with automobiles attach different product attributes with automobiles than people from western countries. For example, to them BMW's brand values as performance, quality, technology, exclusivity are less important. More important are functional values as safety, durability, reliability and comfort. Additionally, to female consumers from emerging markets the symbolic meaning of an automobile is less important than to male consumers. In this context, in their research Hamzaoui and Merunka (2006) found that people from emerging markets are more sensitive to country-of-origin for products which are status symbolic as automobiles than they are for more private goods as household goods or televisions.

### 2.5.4 Critique of former research to vehicle type choice

In terms of former research it has to be regarded that regional differences of customer preferences have an influence on results. For example, in their research Choo and Mokhtarian (2004) and Potoglou (2008) consider the vehicle type pickup which is a vehicle type which is very popular in Northern American countries and very unpopular in European countries. In this context, Grundhoff (2010) describes that in USA one out of six sold vehicles are pickups. In terms of Europe and Germany Grundhoff (2010) states that the number of sold pickup vehicles is nearly ignorable small. Therefore, within the present research which is to be lead through within Germany the selection of regarded vehicle types has to be modified to the German car market.

In terms of the research as presented by Choo and Mokhtarian (2004) the focus lies on the identification of links between people's attitudes and characteristics and defined vehicle categories. Here, Choo and Mokhtarian (2004) state that limitations of their findings result from the fact that within their research data about vehicle characteristics such as vehicle price, engine power or vehicle size was not available. Choo and Mokhtarian (2004) suggest that for further research it can be useful to explore the vehicle market according to its segmentation. Here, clusters of drivers should be explored according to the assessment of various dimensions aiming to find out how these variations of taste affect the choice of vehicles.

The research as presented by Potoglou (2008) shows an interesting finding that the choice of less fuel-efficient vehicles increases with a suburban home location of respondents. However, findings of former research which was conducted in different countries than Germany or even outside Europe have to be examined according to their relevance for the present research. For example, in his research which was conducted in Hamilton, Canada Potoglou (2008) presents the finding that people who walk, ride a bike or use public transport to work are more likely not to purchase a pickup truck. In this context, Cao, Mokhtarian and Handy (2006) found different results. Within their research which was conducted in the United States of America Cao, Mokhtarian and

Handy (2006) found that people who like to bike often also prefer to own a SUV which enables them to transport their sports equipment due to the transport capacity of this type of vehicle.

In her research Steg (2005) investigates people's general reasons of driving a car and the importance of the instrumental, affective and symbolic functions of cars to car drivers. As a result some interesting findings are offered showing the general relationships between these functions of cars and respondents' characteristics as sex, income and age. What is missing in the research as presented by Steg (2005) is an investigation which goes beyond these objective functions more to the question if people drive their car because they enjoy driving and how this attitude influences the vehicle type choice. In this context, former research shows that people who enjoy driving and who are dependent on their car evaluate instrumental, symbolic and affective car characteristics differently from people who do not enjoy driving or who are not that much dependent on their car (Steg and Vlek, 1997, Tertoolen, Van Kreveld and Verstraten, 1998). What is more, former research also shows that affective motives such as enjoyment of a car's power and feeling of superiority on the street influence a driver's driving behaviour (Lawton *et al.*, 1997, Näätänen and Summala, 1976, Rothengatter, 1988). Therefore, an investigation of the relationship between different types of driving behaviour and the vehicle type choice can be useful.

In his research Clark (2009) offers an overview about the number of owned cars by households in England and Wales. The research offers answers to interesting household determinants as income, size and location area. However Clark (2009) suggests that results of his research can be further validated if in a next step information considering a person's method and distance for travelling to work would be regarded.

In terms of the research as presented by Ziegler (2012) some interesting associations are presented. For example, Ziegler (2012) presents that important links between vehicle attributes and probability of a car purchase exist or that women and younger respondents tend more to purchase an alternative fuel

vehicle. However, in terms of the purchase of alternative fuel vehicles within further research also different variables should to be taken into account. For example, on the one hand infrastructure for charging of batteries still needs improvement to offer an acceptable mobility to drivers of electric vehicles but on the other hand traditional vehicle industry is interested in selling traditional vehicles and therefore tries to limit the development of this infrastructure (Arimura, Hibiki and Katayama, 2008). Therefore, Arimura, Hibiki and Katayama (2008) state that to drivers of alternative energy vehicles a mobility which is comparable to traditional vehicles will not be available in a short period of time.

In this context, Hromádko and Miler (2012) state that to some environmentally aware persons not only the $CO_2$ emissions are important which car manufacturers have to report for their vehicles but in the context of vehicles with alternative energy sources the well-to-wheel emissions also are important. The well-to-wheel value also includes $CO_2$ emissions which develop when for example electric power for a hybrid vehicle is created in a power plant.

## 2.6 Expectancy theories and model development

According to Solomon *et al.* (2010) currently most explanations of consumer motivation do not focus on biological but more on cognitive factors to be able to offer an explanation for driving of behaviour. Expectancy theories state that behaviour of consumers mostly is driven by their expectancy to achieve a desirable state or outcome. Therefore, consumers choose certain services or products because they believe that as a result this special choice will have the most positive outcome to them. In this context, Lee (2007) states that one of the most important tasks of an organisation's management is to identify customers' needs and in the following to offer products and services which meet these needs and therefore motivate customers to purchase an organisation's products or services.

Within the following chapter a short introduction into general aspects of model design is offered. This is followed by explaining different expectancy models as

Vroom's expectancy model, attitudes and Means-End-Chains and the Theory of Planned Behaviour.

### 2.6.1 General aspects of model design

Steierwald and Kuenne (1994) describe that a basic task of a model is to illustrate a real system. What is important in this context is the fact that most systems are complicated and consist of a complex interaction of different variables. In terms of human behaviour it has to be considered that it is influenced by an immense number of environmental and personal factors and many of these factors have dependencies from each other. What is more, within such systems the factor dynamic plays an important role as such systems change over time. Steierwald and Kuenne (1994) state that models have to be built up in such a way that all important factors are regarded which have an influence on the modelled and real system. Due to the complexity of dynamic systems models have to be reduced to a manageable number of those factors which are most relevant for the specific question. According to Steierwald and Kuenne (1994) the most important issues to build up a model which is practicable are that firstly a model has to be parameter-sensible. This means that the model's reaction to parameter changes must be a reliable reproduction of an expected situation. Secondly, the model content and structure have to be logical to avoid contradictions within the model's results. And thirdly, to be able to use the benefit of a simulation the model usage has to be easy to understand and to handle. The layout of the model structure and presentation of results have to be built up in such a way that model results are transparent and that they can be controlled by the user.

### 2.6.2 Vroom's expectancy theory

Vroom (1964) explains that his expectancy theory organises and introduces existing knowledge to vocational motivation and psychology. One core statement of the theory is that an individual would select that job alternative which has the highest motivational force. The expectancy model as presented by Vroom (1964) has been used within many different empirical studies as a

source for theoretical innovation in areas as leadership (House, 1971), compensation (Lawler III, 1971) and organisational behaviour (Naylor, Pritchard and Ilgen, 1980). What is more, the expectancy model as presented by Vroom (1964) was used within other studies in the context of training motivation (Mathieu, Tannenbaum and Salas, 1992), self-set goals (Tubbs, Boehne and Dahl, 1993), goal commitment (Klein and Wright, 1994), goal level (Mento, Locke and Klein, 1992) and loss of productivity in performance of groups (Shepperd, 1993).

In the following a description of the expectancy theory as developed by Vroom (1964) is explained. Geiger *et al.* (1998) describe that this model consists of two component models, the force model (Figure 12) and the valence model (Figure 13).

#### 2.6.2.1 Model description

Sheridan, Richards and Slocum Jr (1973) offer a description that the motivational force to take a particular job alternative is the result of a multiplication of the factors expectancy, instrumentality and valence with taking all outcomes which are associated with a selection of a job into account (Figure 12).

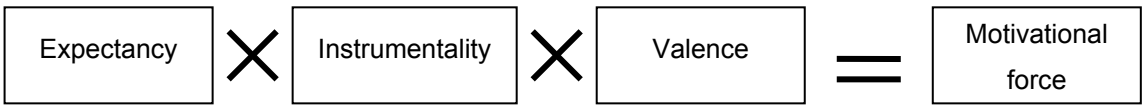



**Figure 12: Vroom's expectancy theory (Sheridan, Richards and Slocum Jr, 1973)**

Vroom (1964) describes that expectancy is the subjective probability that a person feels for example about receiving a job alternative after having had a job interview. In this context, Lee (2007) adds that the range of the value for expectancy can range between 0 and 1. A value of 0 means that a person does not believe that an act will follow a desired outcome. On the other hand, a value of 1 means that a person believes that the probability that an act will lead to a desired outcome is very high. In other words, “expectancy is a person’s

estimation of the probability that effort will lead to successful performance" (Lee, 2007, p.789).

In terms of the second factor, instrumentality, Vroom (1964) sates that this factor describes the relationship between an act and an outcome. Or in other words, "if he or she behaves in a certain way, he or she will get certain things" (Nadler and Lawler III, 1977, p.218). In this context, Lee (2007) describes that instrumentality can reach values between -1 and +1. The value of -1 means that a special first performance is not necessary for a special outcome to happen. On the other hand, the value of +1 indicates that a good first performance is necessary for a special outcome to happen (Figure 13).

In terms of the last factor, valence, Vroom (1964) describes a person's preference for a certain outcome over another. Here, Lee (2007) adds that this factor can have values between -1 and +1. The value of -1 means that a person prefers not to attain a special outcome, the value of 0 means that a person is indifferent if a special outcome should be attained or not and the value of +1 signalises that a person prefers to attain a special outcome (Figure 13).

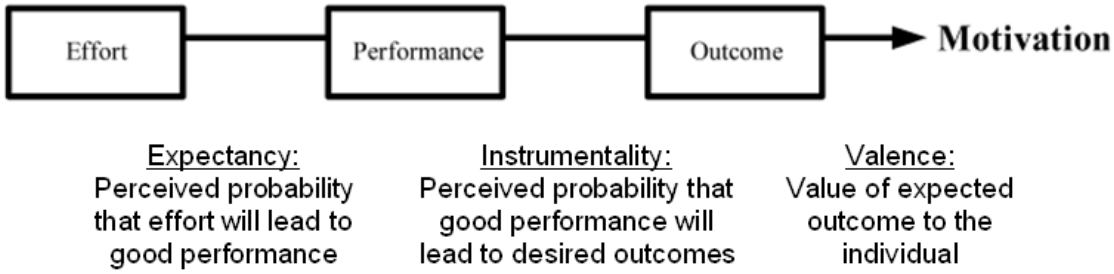



**Figure 13: Vroom's expectancy theory (Lee, 2007)**

Vroom (1964) summarizes that a person will be motivated when three criteria are fulfilled. First, the person must value the valence of a behavioural outcome. Second, the person must believe that a special behaviour is instrumental to achieve a desired outcome. And finally the person must believe that she or he is capable to perform that special behaviour which is instrumental to achieve the desired outcome.

#### 2.6.2.2 Transfer to the present research

In the following a transfer of the model as presented by Vroom (1964) in terms of the car decision making process of female customers is to be described by offering a general construct for this case (Figure 14). Firstly, expectancy describes female customers' perception of how difficult it will be for them to find information about automobiles, to sort this information according to relevance for their individual search and finally to decide for the right automobile in their special case. Secondly, instrumentality describes if a female customer believes that her effort for search of automobile information and for sorting out relevant information leads to a positive outcome as the right automobile choice. Thirdly, valence describes the value that a special outcome, the finding of relevant information about automobiles and therefore the creation of a basis for a right automobile choice, has to a female customer. As a result, if female customers are convinced and have a perception that they can make an automobile choice by putting effort into an automobile information search and sorting information out and that this information that they finally have is relevant to them to make the right automobile choice then female customers will be motivated to put some effort in an automobile information search prior to an automobile purchase. However, if female customers believe that an automobile information search and the process of sorting right information out prior to an automobile purchase will be too difficult to them because they do not know where to look for the right information or they cannot decide which information is relevant to them in their special cases then female customers' motivational force to gather automobile information by themselves prior to an automobile purchase will be low.

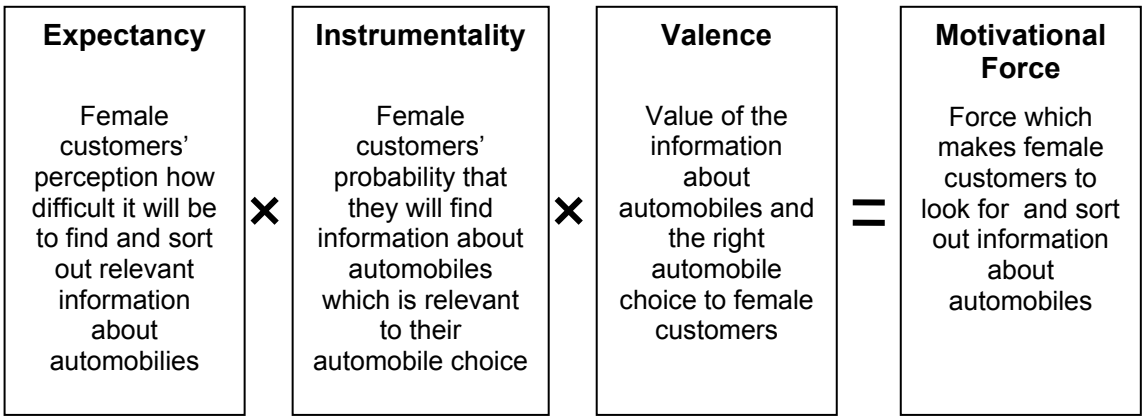



**Figure 14: Application of the model as presented by Vroom (1964) to the present research**

2.6.2.3 Relevance of Vroom's (1964) expectancy theory for the present research

In their research Van Eerde and Thierry (1996) investigate the relevance of the expectancy theory as developed by Vroom (1964) by examining the correlations of 77 original expectancy models and work-related criteria. The result of the research as conducted by Van Eerde and Thierry (1996) is that the correlation between Vroom's (1964) model and work-related criterion variables is low and that results are not as positive as expressed by previous narrative reviews (Mitchell, 1974, Wanous, Keon and Latack, 1983). Van Eerde and Thierry (1996) summarize that the model as developed by Vroom (1964) lacks validity. What is more, the model for the description of customers' expectancy and motivation as presented by Vroom (1964) is a good model to describe specific aspects in a special case of investigation. Therefore, in terms of the present research the expectancy theory as developed by Vroom (1964) is not appropriate to be used as basis of the model of female customers' car purchase decision making process due to the fact that former research found that this model lacks validity. What is more, the expectancy theory as developed by Vroom (1964) is too narrow and not broad enough to be appropriate to model female customers' car purchase decision making process.

### 2.6.3 Attitudes and Means-End-Chains

In the following chapter the issue of Means-End-Chains is explained. What is more, the degree of relevance of this topic to the present research is worked out. According to Prakash (1986) a marketing strategy which is based on female customers' values and Means-End-Chains has not been developed yet. Silverstein and Sayre (2009a) state that for marketers knowing what their customer group is looking for can create an important advantage of competition.

#### 2.6.3.1 Theoretical background

According to Kuss and Tomczak (2007) the attitude concept is a long time established and one of the mostly investigated aspects of the consumer research. As attitudes are linked to tendency of behaviour they are not limited to the intellectual area but they are behaviour effecting. In this context Kuss and Tomczak (2007) state that attitudes are consistent. This means that in several similar situations an individual will act in the same way. What is more, the authors state that attitudes are learned. This means that attitudes are created on the basis of experiences and processing of information and thus they can be changed. Kuss and Tomczak (2007) state that within the research of attitudes the idea dominates that there are typically three components working together, the assessment of a product (cognitive component), the corresponding subjective judgement (affective component) and a corresponding tendency of behaviour (behaviour component) (see Figure 15).

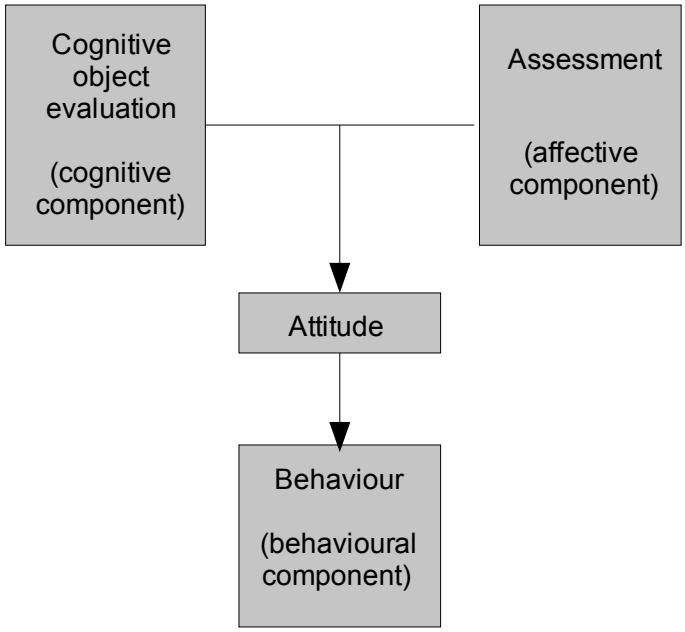



**Figure 15: Components of attitudes (Kuss and Tomczak, 2007)**

In the context of consumer behaviour this means that a consumer has knowledge about products and their characteristics which leads to certain assessments. This can be for example, “car X is very secure”. These assessments are linked to certain values, for example “security is very important for me”. Together an attitude is created, for example “I like car X very much because it is secure and security is very important for me”. This results in a tendency to purchase car X rather more than another car. With this small example Kuss and Tomczak (2007) show the important meaning of attitudes. Firstly, relevance of attitudes for marketing exists. As attitudes exist before a purchase decision it can be important to examine customers’ attitudes to forecast consumer behaviour or to change attitudes in order to change purchase behaviour. Secondly, the relation between attitudes and behaviour is considered. As explained, attitudes can be important for purchase behaviour. Therefore it is necessary to measure on basis of empirical data the real relation between attitudes and purchase behaviour. In terms of the Means-End-Chains concept, Kuss and Tomczak (2007) describe that this concept does not look at attitudes of consumers but the relation of specific product characteristics and a person’s values (see Figure 16). Therefore, a relation of product characteristics to consequences and finally to values is created. Kuss and Tomczak (2007) refer to Olson and Reynolds (1983) who divide product characteristics into

concrete and abstract product characteristics. Typically, concrete characteristics are physical and therefore can be observed objectively such as colour of a car or type of wheels. Abstract characteristics represent the subjective summary of concrete characteristics as for example the design of a car.

Olson and Reynolds (1983) state that for marketing not a product's characteristics are important but far more their consequences in the consumers' perception. In this context, two different categories of consequences are listed, functional and psychosocial consequences. Functional consequences refer to the purpose of a product, for example the comfort of a car. Psychosocial consequences on the other hand refer to effects which the usage of a product has on the consumer in the psychological way such as happiness created by aesthetical characteristics of a car and on the consumer's social acceptance such as gain of prestige by driving a luxury car. Olson and Reynolds (1983) state that the first step within the analysis of Means-End-Chains is evaluation of consequences that certain product characteristics have to customers. Beside product characteristics and their consequences, values are the third element of Means-End-Chains. Kuss and Tomczak (2007) state that to customers values are a scale to decide whether consequences of a product's characteristics are desirable or not. This means if consequences are positive or negative. Therefore, values influence customers' aims which are linked to a purchase of a product or a service. Kuss and Tomczak (2007) describe that values can be divided into two groups, instrumental and final values. Final values are a person's basic aims, such as harmony, security and happiness. Instrumental values on the other hand represent an early stage to final values and help to reach them. Instrumental values are for example rationality or helpfulness. What is more, Kuss and Tomczak (2007) present the Means-End-Chains model as developed by Olson and Reynolds (1983) (see Figure 16). Product characteristics and consequences are means that are used to realize final values called ends.

An example of a means-end-chain is presented in Figure 17. If a car is equipped with aluminium wheels then the consequence for the owner can be to have the feeling of a sportive or elegant appearance which helps to get more

social acceptance. All examples that are presented in Figure 17 represent different information about product characteristics, their consequences and links to individual aims and values. Therefore such Means-End-Chains can be seen as a presentation of product knowledge of customers. According to Kuss and Tomczak (2007) product knowledge is not only an accumulation of isolated facts but describes connections between product characteristics, judgements about usage and a customer's own preferences. Kuss and Tomczak (2007) describe that it is important to find out a customer's relevant product characteristics. With that starting points of Means-End-Chains are created.

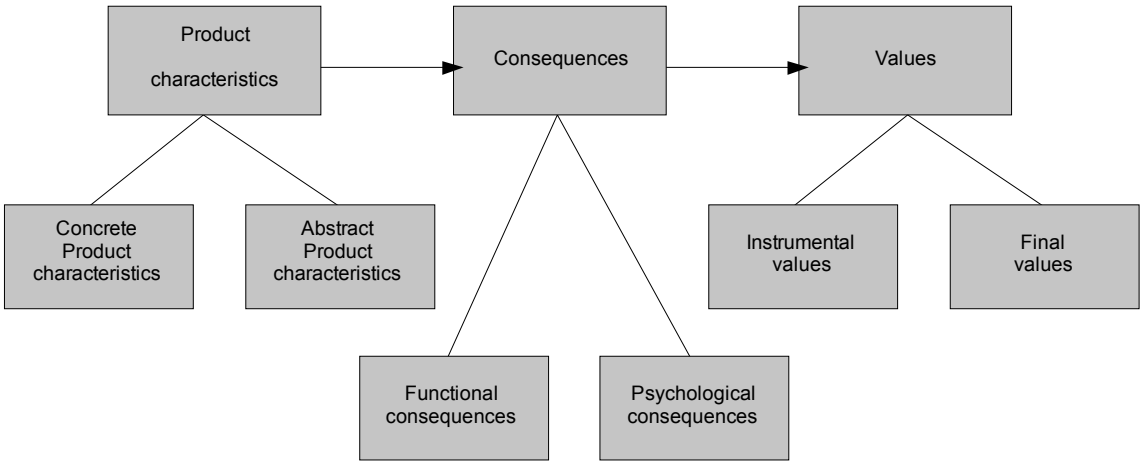



**Figure 16: Idea of Means-End-Chains (Kuss and Tomczak, 2007)**

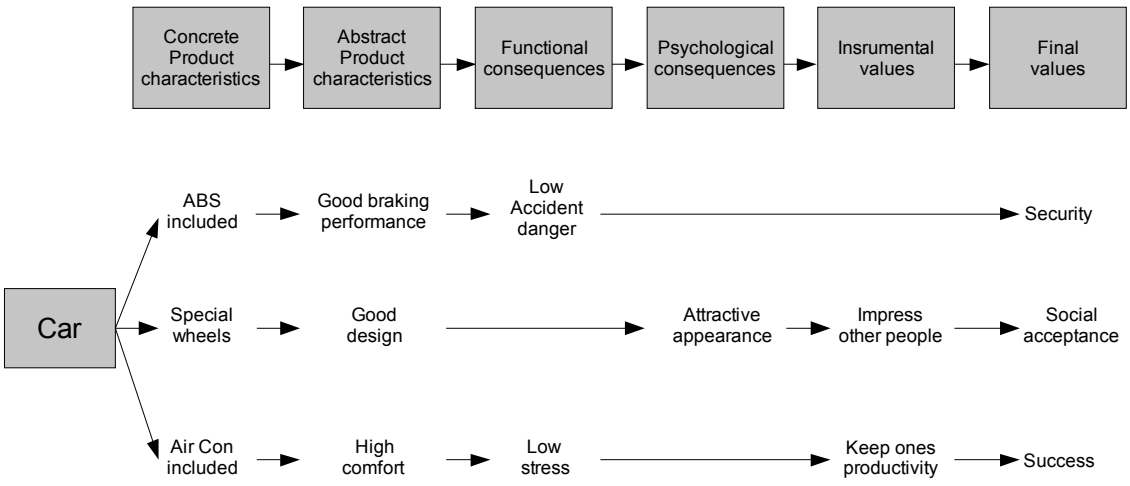



**Figure 17: Example of a means-end-chain (Kuss and Tomczak, 2007)**

#### 2.6.3.2 Findings of previous research to Means-End-Chains

In his research Prakash (1986) examines segmentation of women's market. In a further step, female customers' personal values and Means-End-Chains are used to develop an advertising strategy for companies in the product sectors fashion clothing and automobiles. Prakash (1986) explains that values are an important basis for segmentation. These values can change according to a customer's personal age, income, education, gender and social class. What is also important, these different personal characteristics can have an impact on the way how a customer puts priorities on different values. As a result, Prakash (1986) states that development of advertising campaigns can be supported by identification of values of a target group. In this context, Gutman (1982) adds that the Means-End-Chains model shows how products are used as means by customers to achieve particular and desired values. The Means-End-Chains model as developed by Gutman (1982) is based on four assumptions. First assumption is that values play a dominant role within customers' purchase patterns. Second assumption is that people reduce complexity of choice by grouping products which satisfy their values into sets and classes. Third assumption is that all actions of consumers have desirable or not desirable consequences. The fourth and last assumption is that consumers run through a learning process where they learn to associate particular actions with particular consequences. According to Prakash (1986) the Means-End-Chains model as presented by Gutman (1982) is based on the condition that a consumer links two aspects. Firstly, values have a direct link to consequences as consequences have a desirable or undesirable assessment depending on particular values. Secondly, consequences are directly linked to product characteristics as consumers only will buy those products which they believe will have a positive or desirable effect. The result is the correlation of product characteristics, consequences and values as presented by Kuss and Tomczak (2007) in Figure 16. In terms of the findings of the research as presented by Prakash (1986) the group of female customers was divided into four segments, stay at home, plan to work, just a job and career orientated. In order to develop the Means-End-Chains construct for the product category of automobiles Prakash (1986) created two matrices for each of the four different segments. A

first matrix is related to the values and consequences level to determine the relationship of the product class and the benefit for the customer. A second matrix aims to determine product attributes. In the following results of the research as conducted by Prakash (1986) considering the product category of automobiles and the group of female customers are presented. Members of the first group are stay at home, put high importance on safety, fuel efficiency and comfort. According to Prakash (1986), these consequences can be linked to personal values as family security, comfortable life and inner harmony. Members of the second group, plan to work, prefer a car that is practical for their lifestyle, fuel efficient and safe. Prakash (1986) states that these consequences are linked to values as comfortable life, security of family and responsibility. Members of the third group, just a job, put a high importance on consequences as sportiness, stylishness and fuel efficiency. Prakash (1986) points out that these consequences can be linked to values as independence, sense of accomplishment and social recognition. Finally, members of the fourth group, career, prefer consequences as feeling sporty, stylish and enjoying personal options. According to Prakash (1986) these consequences can be linked to values as intellectual, independence, sense of accomplishment and social recognition. In the next step Prakash (1986) transfers the highest ranked consequences into the second matrix for each of the groups and as a result these consequences are linked to product attributes of automobiles. In the following, car recommendations as developed by Prakash (1986) are described. Members of the first group, stay at home, would have the greatest trade-off when purchasing a medium sized car which has low costs for maintenance and which is robust and fuel efficient. Members of the second group, plan to work, would receive the greatest benefit from a compact car with lots of space and which is fuel efficient, robust and has low costs for maintenance. Members of the third group, just a job, would also prefer a compact car with same characteristics as a car which is preferred by members of the second group, plan to work. However, members of the third group additionally attach importance to the fact that a car has to have a nice design. Finally, members of the fourth group, career, would like to have luxury cars which have a nice design and belong to the compact or large car segment.

#### 2.6.3.3 Relevance of Attitudes and Means-End-Chains for the present research

Attitudes and Means-End-Chains as presented by Kuss and Tomczak (2007), Gutman (1982) or Prakash (1986) offer a good possibility to describe specific relationships for example within a car purchase process. However, the meaning of attitudes and Means-End-Chains is too narrow and therefore only can be a part of a complete model which satisfies the aim of the present research, to model the female car purchase decision making process. For this reason attitudes and Means-End-Chains will not be used as the only theoretical background to build up the model of female car purchase decision making process within the present research.

### 2.6.4 Theory of Planned Behaviour

Abraham and Sheeran (2003) state that the Theory of Planned Behaviour (TPB) as developed by Ajzen (1991) tries to explain variables in human behaviour. In fact, the TPB represents an evolutional development of the Theory of Reasoned Action (TRA) (Ajzen, 1985, Fishbein, 1980, Fishbein and Ajzen, 1975). In the following chapter an overview about the historical development of the TPB out of the TRA is offered.

#### 2.6.4.1 From the Theory of Reasoned Action to the Theory of Planned Behaviour

Within their TRA Fishbein and Ajzen (1975) created a significant change to the traditional perspective of attitudes. Traditionally a person's attitudes have been linked directly to a following behaviour whereas within the TRA a person's attitudes influence intentions and only then these intentions direct a behaviour. This implementation of the mediated variable of behavioural intentions between a person's attitudes and the resulting behaviour represents the foundation stone of the TRA as presented by Fishbein and Ajzen (1975). The following Figure 18 represents the TRA as developed by Fishbein and Ajzen (1975), (Shih and Fang, 2004).

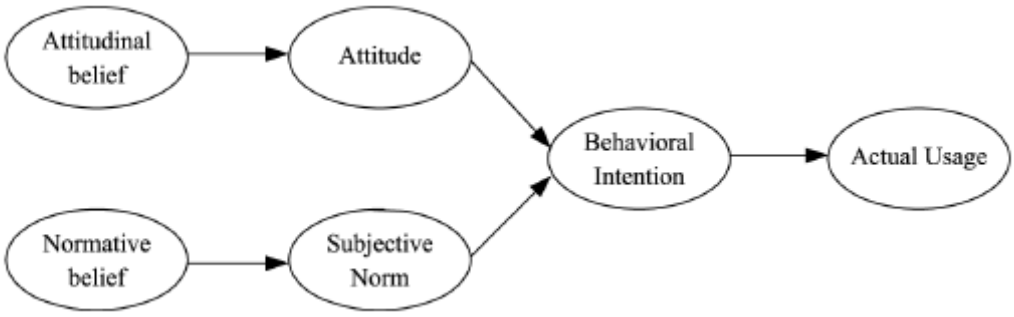



**Figure 18: The Theory of Reasoned Action as developed by Fishbein and Ajzen (1975)**

The factor attitude towards a behaviour means that behaviour and results of this behaviour have to be evaluated. This means, that if a person believes that the performance of a specific behaviour will have positive outcomes for her or him then it is more likely that this person will perform this specific behaviour. On the other hand, if a person believes that the outcomes of a specific behaviour may not be favourable then it is more likely that this person will not perform this specific behaviour. The TRA as developed by Ajzen (1985) describes that the second factor, subjective norm (SN), is a combination of on the one hand perceived expectations from individuals and groups which are relevant to a person and on the other hand a person's intentions to fulflill these expectations. Or to say it in the words of Ajzen (1985, p.12), "the person's perception of the social pressures put on him to perform or not perform the behaviour in question".

King, Dennis and Wright (2008) describe that in many situations the factors attitude and SN are not the only two determinants of a person's behaviour because a person's control over the behaviour is not taken into account within the TRA as developed by Ajzen (1985). For this reason, Ajzen (1991) adds a new component, perceived behavioural control (PBC), to improve the model. PBC was developed from the concept of self-efficacy (Bandura, 1977, Bandura, 1997) and is described as the grade of ease or difficulty that a person feels when this person wants to perform a specific behaviour (Ajzen, 1998). The resulting model is presented by Ajzen (1991) as the TPB. Many empirical studies show that this evolution of the model as conducted by Ajzen (1991) has significantly improved the modelling of a person's behaviour (Boldero, Moore

and Rosenthal, 1992, Devries and Backbier, 1994, King, Dennis and Wright, 2008).

#### 2.6.4.2 Theory of Planned Behaviour overview

In the following chapter a look into the TPB is offered. According to Ajzen (1991) the TPB shows that deliberate consumer behaviour can be predicted. The theory assumes that consumer behaviour is depending on people's willingness or intention to act. This willingness or intention on the other hand is depending on people's attitudes toward the behaviour, subjective and social norms and the perceived control of their own behaviour (see Figure 19). As described, intention influences a consumer's behaviour. This happens in such way that the stronger motivational factors as attitude towards the behaviour, subjective norms and perceived behavioural control are and therefore the higher a consumer's willingness to perform a behaviour is the higher is the probability that a consumer actually will perform the behaviour. In terms of motivational factors, Ajzen (1991) states that attitude describes the extent to which a consumer has a favourable or not favourable evaluation of a particular behaviour. Subjective norms (SN) are related to the degree of social pressure a consumer is opposed to when making a decision of performing or not performing a particular behaviour. The third factor, perceived behavioural control (PBC), reflects a consumer's difficulty or easiness to perform a particular behaviour with taking past experiences into account and anticipating future difficulties. In this context, Ajzen (1991) states that performance of behaviour only happens if the consumer has control of the behaviour which means if the consumer can decide by herself or himself whether to perform or not to perform a behaviour. According to Ajzen (1991), factors having influence on the perception of behavioural control are for example time, money or a person's skills.

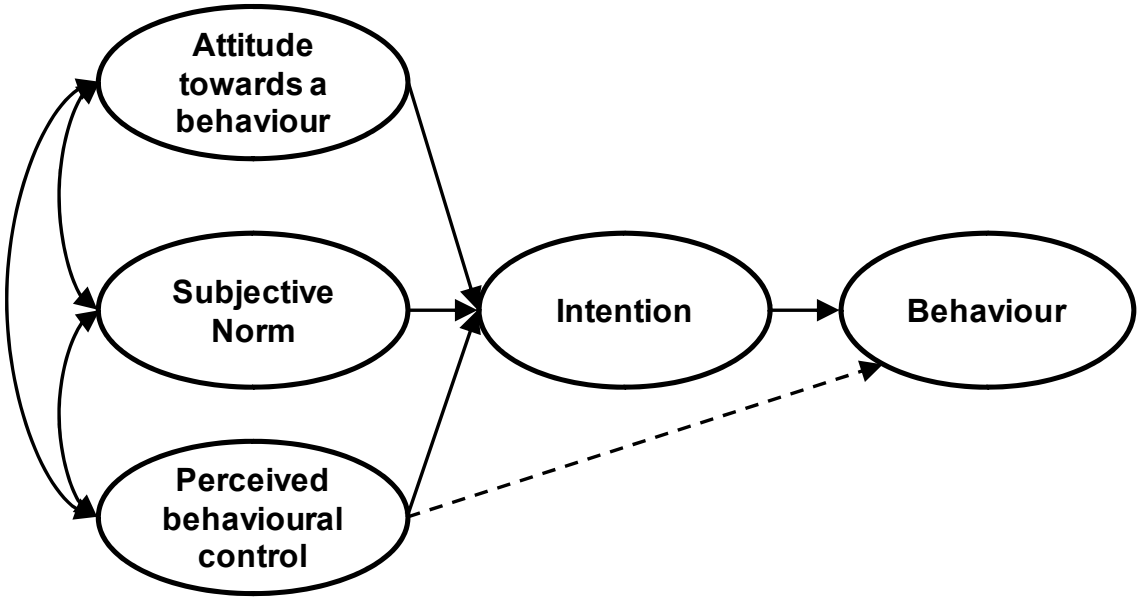



**Figure 19: Theory of Planned Behaviour (Ajzen, 1991)**

In the context of the present research, this group of factors is represented for example by time, knowledge about technical features of cars, knowledge about commercial issues of cars, knowledge about association of different car types with situational usage or access to sources of information about cars. What is more, Ajzen (1991) states that a link exists between PBC and behavioural achievement. This means that the grade to which a person believes to have control about behaviour can be reduced for example when a person has little information about the special behaviour, when sources and requirements change or when new and unknown aspects are added to a particular situation.

In the context of the present research, factors belonging to this group are for example ongoing and fast changes in technology, characteristics and equipment of cars, changing car types and legal changes having an impact on commercial issues of vehicles.

When consumer behaviour is to be predicted, Ajzen (1991) states that measures of intention and PBC have to be corresponding and compatible with the particular consumer behaviour. What is more, Ajzen (1991) states that to be able to predict consumer behaviour Intentions and PBC must remain constant throughout the product decision process. The third factor to increase the

accuracy of behavioural prediction is the accuracy of PBC. Ajzen (1991) states that the more a respondent's perceived and actual behavioural control correlate the higher is the accuracy of prediction of behaviour.

In the context of the present research, this means that the set of necessary input data for a recommender system which is implemented into a car configurator for female customers has to be assessed in such a way that respondents are put into the situation of being interested into a new car. Beyond this, respondents' intentions and PBC have to be stable. This can be ensured by making the vehicle recommendation process short, for example by offering a vehicle recommendation list directly after the individual consumer's vehicle evaluation process. This means, if the time difference between individual data evaluation and the following vehicle recommendation is short then the change of a respondent's intentions and PBC will not be significant. Finally, a way has to be developed to determine the relationship between perceived and actual behavioural control for a further improvement of prediction of consumers' behaviour and so for a vehicle recommendation with a higher accuracy.

Generally, Ajzen (1991) states that the degree of influence of the different motivational factors as attitude towards the behaviour, SN and PBC on the prediction of intentions varies depending from the behaviour and situation. Some predictions of behaviour only are depending on attitudes, others on attitudes and subjective norms and others are depending on all three motivational factors.

In the context of the present research, the dependency of consumers' behaviour within the vehicle purchase process from all three groups of motivational factors has to be determined to be able to create a thorough prediction of behaviour and therefore create a profound vehicle recommendation.

#### 2.6.4.3 Beliefs

Ajzen (1991) describes that TPB uses antecedents of the motivational factors as attitudes towards the behaviour, subjective norms and PBC to explain

consumer behaviour. These antecedents are described as beliefs and they finally influence consumers' intentions and behaviour. Ajzen (1991) states that people inhabit many different and salient beliefs. However in a particular situation when a particular behaviour shall be achieved people only can attend to a small number of these beliefs. According to Ajzen (1991) these salient beliefs have a prevailing impact on a person's intentions and behaviour. Ajzen (1991) lists three different kinds of salient beliefs. Behavioural beliefs influence attitudes towards the behaviour, normative beliefs influence subjective norms and control beliefs influence the perception of control of behaviour.

Behavioural beliefs

Ajzen (1991) describes that people develop beliefs about objects by creating associations to attributes, other objects and characteristics. Therefore, attitudes are created by beliefs that people have about the object of an attitude. In terms of the motivational factor attitudes towards the behaviour, beliefs link behaviour to certain attributes and outcomes. As attributes which are linked already are valued positively or negatively also the linked attitudes towards the behaviour are valued correspondingly. Therefore, people learn to favour behaviour which is linked to positive beliefs and to refrain from behaviour which is linked to undesirable consequences.

As shown in Equation 1 the strength of a person's attitude (A) is directly proportional to the sum from 1 to n multiplications of salient beliefs (b) and subjective evaluations (e) of the belief's attribute.

$$A \propto \sum_{i=1}^{n} b_i e_i$$

**Equation 1: Behavioural beliefs, (Ajzen, 1991)**

Normative beliefs

Ajzen (1991) describes that normative beliefs are related to the decision if relevant referent persons or groups are supporting or not supporting the performance of a given behaviour. Here, the strength of a SN is directly

proportional to the sum from 1 to n multiplications of strength of normative beliefs (n) and the person's motivation to comply (m) with the referent in question (see Equation 2).

$$SN \propto \sum_{i=1}^{n} n_i m_i$$

**Equation 2: Normative beliefs, (Ajzen, 1991)**

Control beliefs

According to Ajzen (1991) within the TPB control beliefs are concerned with the issue if requisite resources and opportunities are available or not. Control beliefs are based on own past experience with a particular behaviour but they also are based on second-hand information of friends, family members or other people who also have experience with a particular behaviour. Ajzen (1991) states that the more resources and the less impediments a person has considering a particular behaviour the greater is the perceived control over a particular behaviour.

As shown in Equation 3 the perception of behavioural control is directly proportional to the sum from 1 to n multiplications of control beliefs (c) and the perceived power (p) of the particular control factor to make easier or harder the performance of the behaviour.

$$PBC \propto \sum_{i=1}^{n} c_i p_i$$

**Equation 3: Control beliefs, (Ajzen, 1991)**

### 2.6.4.4 Extension of the model

As a result of chapter 2.6.4.3 the model structure can be extended as follows:

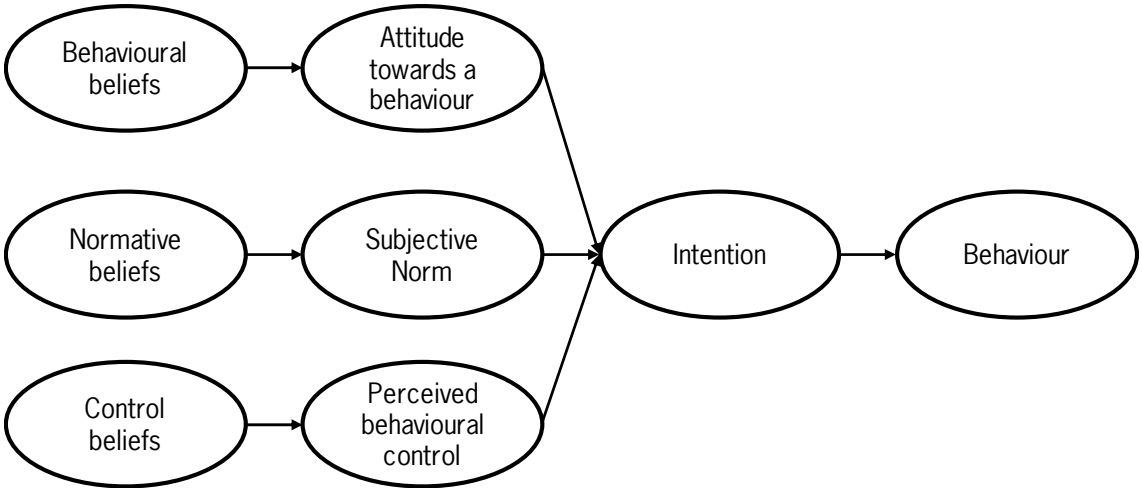



**Figure 20: Theory of Planned Behaviour in extended version (Ajzen, 1991)**

### 2.6.4.5 Past behaviour

Ajzen (1991) formulates that past behaviour can be used as an indicator for future behaviour when all factors that have an impact on a particular behaviour are known. What is important in this context is the fact that the error of prediction only can be limited when the factors remain as far as possible constant between the past behaviour and the time of the behaviour that is to be predicted. Ajzen (1991) states that past behaviour can be used to test a model's validity. If a model contains all important variables to predict future behaviour then adding past behaviour will not improve the model's prediction. On the other hand, if it is found that adding of past behaviour has a significant influence on the model's prediction of future behaviour then it can be assumed that important variables have not been implemented into the model yet. Ajzen (1991) also states that past behaviour itself can have an impact on future behaviour and therefore can be treated as a model's variable. In this context, Ajzen (1991) formulates that repetition of a special behaviour can lead to a habitual future performance of this behaviour, or in other words, a habit. What is important, this

habitual behaviour happens without involvement of attitudes, subjective norms, perceived control of behaviour or intentions.

In their research King, Dennis and Wright (2008) describe that the TPB is criticised that there is not enough evidence which justifies the usage of this additional variable. This statement is supported by Breakwell, Hammond and Fife-Schaw (2000). For this reason, within development of the model of the present research this additional variable will be ignored and a simpler model will be preferred.

#### 2.6.4.6 Relevance of the Theory of Planned Behaviour to the present research

According to Abraham and Sheeran (2003) the validity of TPB was supported by many correlation surveys. Meta-analyses show that variables as attitudes, SN and PBC which are used within the TPB deliver an explanation for about 30 to 50 percent of changes in intention (Armitage and Conner, 2001, Sheeran and Taylor, 1999) and that PBC and intention deliver an explanation for about 20 to 40 percent of changes in behaviour (Armitage and Conner, 2001, Godin and Kok, 1996, Sheeran and Orbell, 1998). Abraham and Sheeran (2003) describe that the TPB has two specific strengths. The first strength is that this model is parsimonious which means that a good prediction of behaviour results already out of the measurement of only a small number of variables. The second strength is that the predictive accuracy of the model is ensured by offering clear and specific guidelines how to measure cognitions (Ajzen and Fishbein, 1980). This is done by highlighting that it is important to ensure that the measurement of all variables as attitudes, SN, PBC, intention and behaviour is done a shortest possible period of time to ensure that the measurements are compatible with referring to the same action and being within the same context.

Abraham and Sheeran (2003) summarise that the TPB is a model which describes the relationships between cognitive antecedents of human behaviour, it can be handled easily by offer of guidelines, it is parsimonious and what is more, it is supported by empirical research. What is more, at present times the

TPB “is the most dominant model of attitude-behaviour relations” (Armitage and Christian, 2003, p.192).

Therefore, due to the characteristics of the TPB as a high validity, a good predictive accuracy and the fact that this theory strongly is supported by empirical research within the present research the model of the female car purchase decision making process is to be developed according to the TPB.

#### 2.6.4.7 Application of the Theory of Planned Behaviour to the present research

In the following chapter an application of the Theory of Planned Behaviour to the present research is presented. Beliefs assigned to the variables attitude, SN and PBC are taken from the literature review of the present research as presented in chapter 2.2 to 2.5.

The belief “human interaction within online process” is assigned to two variables, attitude and PBC. In the first case, being assigned to attitude, this belief describes the emotional aspect and in the second case, being assigned to PBC, this belief describes the issue of receiving help.

Beliefs “product price” and “income” also are assigned to two categories, firstly as a behavioural belief and secondly as a control belief. In the first case, these beliefs describe a person’s attitude towards a product which is influenced by product price and also by a person’s income. In the second case, these beliefs describe a behavioural control that a person perceives when the question is to be answered if that person can afford a special product in terms of the product price and that person’s income.

Attitudes

In the following a list of all behavioural beliefs which result from the literature review of the present research and which can be assigned to the variable attitude is presented. Behavioural beliefs are “product brand as quality indicator”, “gender identity”, “age”, “income”, “educational level”, “symbolic,

aesthetic and functional product characteristics", "human interaction within online process", "product price", "involvement", "convenience", "time efficiency", "country of origin", "physique preferences", "self-concept", "social identity", "brand personality", "new money / old aristocrat", "information source", "experience with technology", "helpfulness of technology in life", "privacy", "orientation to women of websites", "attitude towards automobiles", "driving distances", "pro-environmental attitudes", "vehicle size", "number of household members", "location of residence", "success in job" and "ownership of a house or apartment".

Subjective norm

In the following a list of all normative beliefs which result from the literature review and which can be assigned to the variable SN is presented. Normative beliefs are "recommendations from family", "recommendations from friends", "recommendations from reference groups", "other like-minded people", "values from milieu" and "social acceptance".

Perceived behavioural control

In the following a list of all control beliefs which result from the literature review and which can be assigned to the variable PBC is presented. Control beliefs are "personal experience with cars", "assistance in choosing cars", "number of choices", "presentation of data", "trust", "product knowledge", "human interaction within online processes", "product price", "income" and "shopping imaginary".

Choice of variables

In chapter 3 "Research Methodology" an explanation is offered which beliefs assigned to variables attitude, SN and PBC are taken over into the model of the present research.

### 2.6.5 Behavioural reasoning theory

Although the Theory of Planned Behaviour (TPB) is chosen as the basis for the model of the present research, in order to offer a broad overview about existing expectancy theories in the following chapter a possible extension of the TPB is

explained which is represented by the Behavioural Reasoning Theory (BRT). In this context, Westaby (2005) states that BRT offers an understanding of consumers' decision making by inclusion of context-specific reasons which inhabit the function of linkages between values, attitudes and behavioural intentions. What is more, Westaby (2005) declares that beyond understanding of people's behaviour BRT aims to incorporate how people's reasons impact on motivational processes. Therefore, BRT offers to a researcher the possibility not only to predict behaviour but even to explain specific motives which underlie that behaviour. The following Figure 21 offers the visualisation of the model of behavioural reasoning theory as described by Westaby (2005).

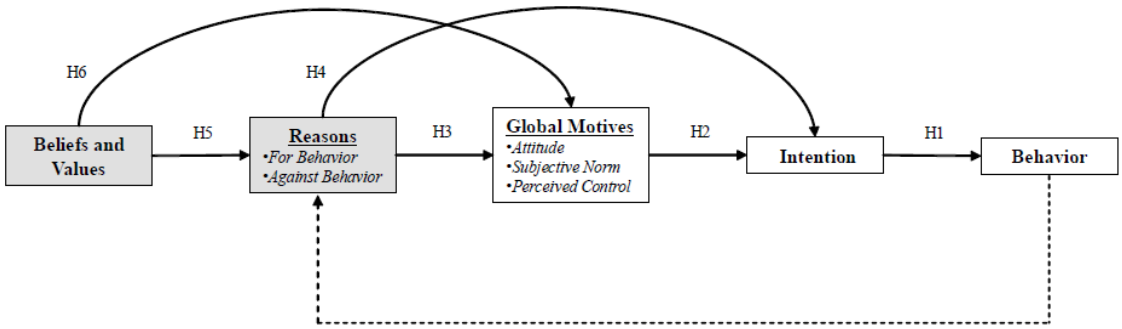



**Figure 21: Theoretical model based on behavioral reasoning theory (Westaby, 2005)**

In existing literature support and applications of BRT can be found. One example is the research as conducted by Claudy, Garcia and O'Driscoll (2015) who aimed to investigate reasons for and against adoption of investigation. The following Figure 22 offers an overview of the model which was used within the research as presented by Claudy, Garcia and O'Driscoll (2015).

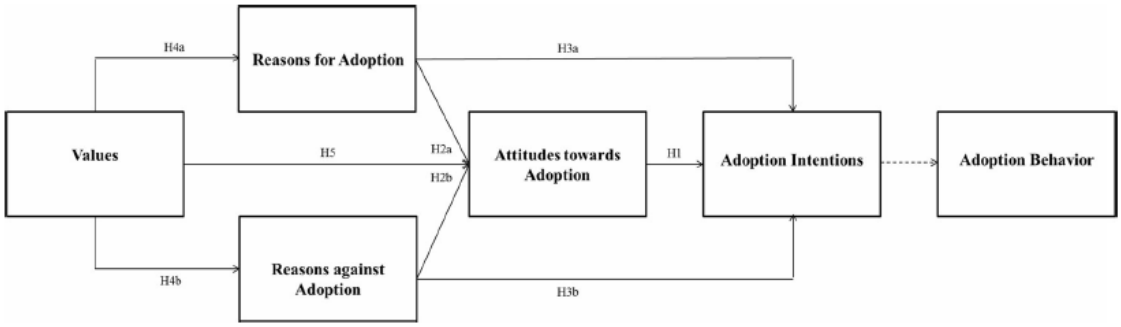



**Figure 22: Theoretical model based on behavioral reasoning theory (Claudy, Garcia and O'Driscoll, 2015)**

Results of this research were that differences between reasons for and against acceptance of innovation could be found. What is more, managerial implications could be developed explaining that “managers should focus on context-specific reasons for and, importantly, against adopting innovations” (Claudy, Garcia and O’Driscoll, 2015, p.540).

Within the present research a model of female customers’ car purchase decision making process is to be developed. As described in chapter 1.3 the present research’s objectives include the determination of beliefs which are important to female customers within their car purchase process. The investigation of reasons why these beliefs are important to female customers is not subject of the present research and represents an opportunity for further research. Therefore, as explained before the usage of the TPB as basis for the model of the present research is appropriate and convenient with the present research’s objectives.

# 3 RESEARCH METHODOLOGY

The following research methodology section provides information about research philosophy and research methods. In detail, in the first part research philosophy, information and explanations for the choice of research paradigm and research approach are explained. In the second part research methods, information to purpose of research, research strategy, data collection techniques and structure of research are delivered.

## 3.1 Introduction into the chapter

Arthur (2012) declares that a research methodology asks which procedures and logic should be followed within a research. Adams *et al.* (2007) add that a research methodology represents the science and philosophy behind a research. In this context, Saunders, Lewis and Thornhill (2007) describe that within a thorough methodology chapter of a research many aspects have to be

considered. It is not incorrect when a researcher starts thinking about the way how to collect data within his research, for example by questionnaires or by interviews, at an early stage of the research. However, Saunders, Lewis and Thornhill (2007) suggest that nevertheless at first questions considering the research paradigm should be answered. This suggestion is supported by Guba and Lincoln (1994) who state that questions considering research paradigm are of first importance compared to questions considering research methods.

In terms of the second step, the research design, Robson (2002) states that a thorough research design develops a research project from a research question. In this context, Blumberg, Cooper and Schindler (2011) state that the research question influences the choice of research strategy, data collection technique and the way how collected data will be analysed. What is more, Blumberg, Cooper and Schindler (2011) emphasize that all decisions within a research design have to be justified in relation to the research objective and the contents of the research philosophy.

The following work considers in a first step research philosophy and research approach followed by research methods. In a second step a short overview about the conceptual model of the present research is offered. This is followed by the third part, the introduction of the questionnaire of the present research. Finally, results of a pilot study are presented.

## 3.2 Research Philosophy

In the following Research Philosophy chapter the research paradigm and research approach are explained.

### 3.2.1 Research Paradigm

Alexander, Chambliss and Price (2006) state that referring to research paradigm there are two main fields, ontology and epistemology. Ontology, which goes back to the Greek words ”ontos“ (being) and “logos” (writing about or study) describes the study of what exists. Epistemology goes back to the

Greek words “episteme” (knowledge) and “logos” (word or speech) and describes the area of philosophy that is involved with the nature, source and limitations of knowledge. According to Arthur (2012) any researcher should be able to understand the relationship between ontological and epistemological assumptions which support their research.

#### 3.2.1.1 Epistemology

Arthur (2012, p.16) states that epistemology concerns topics that create knowledge in a field of study and that a research should ask the question “how can what is assumed to exist be known?” In this context, according to Saunders, Lewis and Thornhill (2007) the research paradigm is related to the author’s thinking about the creation of knowledge which influences the way how a research is worked out. In other words, epistemology represents beliefs about the way how knowledge is constructed (Myers and Avision, 2002, Creswell, 2003). In this context, Bailer-Jones (2006) adds a description about the usage of models. A model makes the understanding of a phenomenon easier by showing an interpretation of an empirical phenomenon. Bailer-Jones (2006) offers the hypothesis that due to the epistemological importance of models the usage of them can deduce ontological statements about the modelled world. Saunders, Lewis and Thornhill (2007) state that three main philosophies, positivism, interpretivism and realism, have to be taken into account when developing a business and management research.

Remenyi *et al.* (1998) state that the adoption of philosophical stance of natural scientists represents the principle of positivism. This means that a research is done while “working with an observable social reality and that the end product of such a research can be law-like generalisations similar to those produced by the physical and natural scientists” (Remenyi *et al.*, 1998, p.74). Collis and Hussey (2014) add that when a researcher is a positivist then a research is conducted aiming to measure a particular aspect of intelligence with using large samples and reducing phenomena to their simplest parts. In this context, Saunders, Lewis and Thornhill (2007) state that within this process the researcher collects data in an apparently value-free way and in the next step

this data is interpreted. Therefore, the researcher takes the role of an objective analyst. Gill, Johnson and Clark (2010) emphasise that positivism focuses on a well-structured methodology to allow a replication and that observations are lead through in a quantifiable way to allow a statistical analysis.

When a research is lead through according to the interpretivism philosophy then a smaller sample is examined over a certain period of time with probably using different methods in order to receive different perceptions of the phenomena (Collis and Hussey, 2014). What is more, Collis and Hussey (2014, p.49) add that in this case a researcher's analysis will aim to "understand what is happening and look for patterns which may be repeated in other similar situations". In this context, Saunders, Lewis and Thornhill (2007) add that in this case the complexity of the research is not reduced to a number of law-like generalisations and so rich insights of a research object are not lost. In this context, Remenyi *et al.* (1998, p.132) add that the interpretivism philosophy offers the researcher the possibility to discover "the details of the situation to understand the reality or perhaps a reality working behind them". In this context, Saunders, Lewis and Thornhill (2007) emphasises that to be able to understand peoples' actions it is necessary to find out by which subjective meanings these actions are motivated.

Realists believe that concepts inhabit a reality that is independent from the way how people think and talk about these concepts (Fisher and Buglear, 2010). And due to this fact, realists believe that concepts can be used to show what exists in a real world. This view is supported by Arthur (2012) who states that realism philosophy believes that a reality exists which is independent of human thoughts. Saunders, Lewis and Thornhill (2007) adds that realism philosophy is based on the belief that social forces and processes exist which influence peoples' behaviour and interpretations in an unconscious way. In this context, Johnson and Duberley (2000) state that epistemological realism believes that the world's structure cognitively can be accessed by people who investigate this structure. Therefore, Fisher and Buglear (2010) state that realism believes that people can have more or less objective knowledge about the world. What is more, Fisher and Buglear (2010) work out that within realism comparative case

studies often are used. Within this process at first within each case study particular and real features have to be identified and in a second step these particular and real features of all different studies are used to find out similarities and differences between all different studies. As a result of these comparisons a conceptual framework can be developed in which those various case studies can be grounded. In a final step this conceptual framework will allow to draw conclusions or generalisations.

The aim of the present research is to develop a model of female customers' car purchase decision making process. In doing so, it is necessary to evaluate female customers' preferences concerning the car purchase decision making process. Therefore, data which describes an observable reality is to be collected and the final product of the research shall be law-like generalisation of the findings. The aim is usage of data for development of the model of female customers' car purchase decision making process. Due to these reasons, the research is to be lead through according to the positivistic philosophy.

#### 3.2.1.2 Ontology

Arthur (2012, p.16) states that in terms of ontology a researcher should ask the question "what is the nature or form of the social world?" In this context, Saunders, Lewis and Thornhill (2007) state that ontology is a field of philosophy which is involved with nature of reality. In other words, ontology represents the way how reality is to be viewed (Myers and Avision, 2002, Creswell, 2003). Saunders, Lewis and Thornhill (2007) state that three main directions of ontology exist that have their supporters among business and management researchers, objectivism, subjectivism and pragmatism.

In this context, Saunders, Lewis and Thornhill (2007) state that objectivism describes the position of social entities in relation to persons who are concerned with the existence of these entities. This position is supported by Rønnow-Rasmussen (2003) who states that within the objectivism philosophy an objective recognition of an object is independent from the subject who recognises this object. An example for this is that within an organisation

management has an own reality which is independent from the persons who inhabit this reality.

According to Saunders, Lewis and Thornhill (2007) subjectivism investigates social phenomena which depend from social actors' perceptions and actions. In this context, Rønnow-Rasmussen (2003) adds that a subject's individual reality is determined by his or her own interests and perceptions. According to Rønnow-Rasmussen (2003) every subject perceives a reality or an environment in an own and subjective way. Saunders, Lewis and Thornhill (2007) state that due to the individual view of the world different individuals perceive and interpret a specific situation in different ways. Therefore, Saunders, Lewis and Thornhill (2007) emphasise that when customers' behaviour or expectations are investigated this individual view and perception have to be regarded as having influence on customers' actions and interactions with others.

Collis and Hussey (2014) present that pragmatists state that a researcher should be free to mix methods from different paradigms and therefore should use those which are appropriate for answering a research question. In this context, Saunders, Lewis and Thornhill (2007) suggest to use the position of pragmatism when a researcher decides that it is not appropriate or realistic to decide either for subjectivism or objectivism. In this case, a researcher may work with a pragmatic solution and therefore both views, subjective and objective view, are taken into account. The researcher may decide for each particular question which approach is more appropriate to be used. In this context, add that a position of pragmatism

The aim of the present research is to model female customers' car purchase decision making process. All female customers have different expectations to a new car. All female customers made in their former usage of cars different experiences with their cars. The attitude of each female customer towards her car is important. Therefore, it is important to realize that each female customer has her own perceptions of the reality and so her own expectations to a new car. Due to these reasons, the ontological philosophy of this work is to be carried out according to the subjective view.

#### 3.2.1.3 Axiology

According to Saunders, Lewis and Thornhill (2007) axiology describes a field of philosophy which investigates value judgements. When a researcher formulates his or her values and when the way how a research is to be lead through is defined by the researcher then according to Saunders, Lewis and Thornhill (2007) the researcher does show his or her axiological skills. Saunders, Lewis and Thornhill (2007) add that it can be useful to a researcher and to the persons who are involved into the research when a researcher formulates his or her values. When the researcher knows his or her own values then the researcher can increase the probability to make honest judgements and to draw the right conclusions.

### 3.2.2 Research Approach

In the following research approach chapter information to deduction and induction as well as to qualitative and quantitative research is delivered.

#### 3.2.2.1 Deduction and Induction

According to Zikmund *et al.* (2013) the main available research approaches are either inductive or deductive. In this context, Saunders, Lewis and Thornhill (2007) present that the choice of a research approach is important for three reasons. Firstly, a basis is created according to which the researcher can develop the research design. Secondly, the researcher receives a help for the decision of appropriate research strategies for his or her research. Thirdly, by knowing which different research approaches exist the researcher obtains the opportunity to adapt his work to constraints which already exist. In the following, the deductive and inductive research approaches are explained.

Looking into literature then Zikmund *et al.* (2013, p.342) describe the deductive approach as “the logical proves of deriving a conclusion from a known premise or something known to be true”. In this context, Collis and Hussey (2014) state that within a deductive approach in the first step a theory and hypotheses are created before in a second step a research strategy is developed to test the

theory and hypotheses. Robson (2002) offers five consecutive steps which are used within a deductive study. The first step is a conclusion of hypotheses from theory, the second step is development of relationships between variables, the third step is testing of operational hypotheses, the fourth step is investigation of outcomes of inquiry and the fifth step is, if necessary, modification of hypotheses according to outcomes and findings. According to Collis and Hussey (2014) deduction with its development of a theory, hypotheses and a research strategy tends more to be related to positivism. Additionally, Collis and Hussey (2014) state that within a research with a deductive approach usually quantitative data is collected and used to investigate the hypotheses. Collis and Hussey (2014) offers further aspects which describe the deductive approach as development of controls which make a testing of hypotheses possible, a structured methodology which makes a replication easier, development of operationalised concepts which enable the researcher to measure facts in a quantitative way, enhancement of the understanding of the research problem by reduction of complex problems to their simple basics and finally creation of generalisations after an analysis of a sample with a sufficiently high size.

According to Zikmund *et al.* (2013, p.289) induction is “the logical process of establishing a general proposition on the basis of observation of particular facts”. In this context, Collis and Hussey (2014) add that when a research is conducted according to the inductive approach then in a first step the researcher collects and analyses data before in a second step a theory is developed which derives from this data. What is more, Collis and Hussey (2014) emphasise that within a research with an inductive approach a rigid methodology as within a deductive approach is not developed. Reason for this is that the researcher shall not have rigid boundaries to be able to develop alternative explanations. According Collis and Hussey (2014) other aspects which describe the inductive research approach are a small sample size with usage of qualitative data combined with a number of different methods for data collection. This is important to assure that a research phenomenon is investigated from different views. Finally, Collis and Hussey (2014) state that the inductive research approach tends more to be related to interpretivism.

As presented before a deductive research approach follows scientific principles, moves from theory to data, collects quantitative data and explains causal relationships between variables. In the following of the present research, a qualitative method will be used to extract important indicators out of all indicators which were identified within the Literature Review for the model of the present research. Nevertheless, the present research is lead through according to the deductive approach as a deductive research approach follows scientific principles, moves from theory to data, collects quantitative data and explains causal relationships between variables. Other reasons for the choice are the relation to Positivism, as chosen before, and the aim of generalisation of findings.

#### 3.2.2.2 Qualitative and quantitative research approach

According to Denscombe (2003) the distinction between qualitative and quantitative research is used by researchers to show the usage of a researcher's assumptions within a research and to show which research nature the researcher undertakes.

In his research, Howieson (2008) describes that quantitative research puts emphasis on statistical analysis, the development of a methodology of the research and the usage of an experimental design. What is more, Howieson (2008) states that within quantitative research correlation studies shall eliminate possible errors and bias to create objective results. Additionally, Howieson (2008) states that the advantage of quantitative research is that by control and measurement of data linkages between factors can be worked out and so causes for specific behaviour can be determined.

In the following, several categories which can be used to distinguish both approaches from each other are offered as they are explained by Zikmund *et al.* (2013). According to Zikmund *et al.* (2013) the unit of analysis can be distinguished between a quantitative research and a qualitative research. A qualitative research more often is linked to words and a quantitative research more often is linked to numbers as unit of analysis. A quantitative research

measures a phenomenon and transfers results into numbers to use these numbers in statistical procedures. A qualitative research collects information in the form of words by usage of reports, observations or recordings and then transforms this information into data. According to Zikmund *et al.* (2013) usually quantitative research is more related to analysis whereas a qualitative research is more related to description. Reasons for this distinction are that statistical procedures potentially work with numbers which are available in a quantitative research and therefore the quantitative research is related to analysis. On the other hand, a qualitative research investigates certain patterns of behaviour and therefore data in form of a description of respondents or events is necessary. Zikmund *et al.* (2013) describe that due to the fact that quantitative research works with statistics which rely on large numbers a quantitative research is related to large-scale research. Zikmund *et al.* (2013) state that due to data processing reasons often computer programs are used to work with this quantitative large-scale data. On the other hand, a qualitative research often is very focused on the research aim and only investigates a small amount of people or situations. Therefore Zikmund *et al.* (2013) state that qualitative research mostly is related to small-scale research with deep and thorough description. According to Zikmund *et al.* (2013) a holistic perspective tends more to be related to a qualitative research and on the other hand a specific perspective tends more to be related to a quantitative research. Zikmund *et al.* (2013) state that a quantitative research focuses on specific factors and investigates the relationships between these factors. On the other hand a qualitative research tends more not to take only specific factors but tries more to investigate in which context things are related to each other and tries to show relationships and interdependencies.

In the following of the present research, the model which is based on the TPB is worked out. In doing so, indicators which were evaluated within the chapter “Literature Review” are assigned to three latent variables, attitude, SN and PBC. Therefore, the research strategy contains two parts. In a first part, a qualitative method is lead through to find out which indicators resulting from the “Literature Review” chapter are essential for the present research and therefore have to be integrated into the model of the present research. What is more,

when leading through a qualitative method a potential possibility exists to receive further indicators which were not covered by the “Literature Review” chapter. In a second part, a quantitative data collection method is lead through. The reason is that the aim of the present research is to model female customers’ car purchase decision making process and therefore a large sample size is necessary. What is more, the present research has to focus on specific variables as defined within the model of the present research and additionally the present research has to offer an analysis of gathered data. The form of the data will have to be countable numbers to make the analysis easier. Therefore, a quantitative data collection is chosen for the main study of the present research.

## 3.3 Research Methods

Within the following research methods chapter the purpose of research, the research strategy and the data collection technique are explained and chosen for the present research.

### 3.3.1 Purpose of the Research

Collis and Hussey (2014) describe that enquiries can by classified according to their purpose as exploratory, descriptive and explanatory.

Robson (2002, p.117) states that exploratory studies are used to investigate “what is happening, to seek new insights, to ask questions and to access phenomena in a new light”. In this context, Collis and Hussey (2014) describe that exploratory studies are used when a problem is not described precisely and if the nature of a problem has to be investigated and clarified. Saunders, Lewis and Thornhill (2007) list three different ways of how an exploratory study can be lead through. Firstly by search of literature, secondly by conduction of interviews with experts in the subject and thirdly by conduction of focus group interviews. Saunders, Lewis and Thornhill (2007) explain that when an exploratory study is conducted the focus of the research changes. At the

beginning of the research the investigation is broad and becomes narrower when the research develops.

Robson (2002, p.125) explains that the aim of a descriptive study is “to portray an accurate profile of persons, events or situations”. In this context, Collis and Hussey (2014) state that in some cases a descriptive study can be conducted before an exploratory study is lead through. What is more, Saunders, Lewis and Thornhill (2007) state that when a descriptive study is conducted a clear image of the phenomenon which will be researched has to exist.

In terms of explanatory studies Collis and Hussey (2014) explain that in this case a special problem is investigated with the aim to develop causal relationships between variables. What is more, Saunders, Lewis and Thornhill (2007) describe that within explanatory studies qualitative or quantitative data is analysed to present information about relationships between variables.

The aim of the present research is to portray female customers’ expectations within the car purchase decision making process. The model with its indicators and variables will be developed in the following of the present research before leading through a data collection. The aim of the research is to investigate the importance of the model’s indicators and variables. Therefore, the present research is to be processed in a descriptive way.

### 3.3.2 Research Strategy

According to Adams *et al.* (2007) research strategy represents a general plan how answers for a specific research question shall be investigated. Adams *et al.* (2007) list as most important strategies survey, case study and experiment and Saunders, Lewis and Thornhill (2007) add ethnography as an important research strategy.

Adams *et al.* (2007) states that usually a survey is linked with a deductive research approach and commonly used in business and management research. In this context, Denscombe (2003, p.6) adds that “survey means to view

comprehensively and in detail". Additionally, Denscombe (2003) lists the following issues as being remarkable for surveys. Firstly, a survey's aim is to create a wide view and an inclusive coverage of the investigated problem. Secondly, according to Denscombe (2003, p.6) a survey is used to "bring things up to date" and to develop a status quo of the investigated objects at that point of time at which data is collected. Thirdly, Denscombe (2003, p.6) states that a survey represents an empirical research where the researcher "gets out of the chair, goes out of the office and purposefully seeks necessary information out there". Denscombe (2003) states that when researchers use survey as strategy for their research there are many different techniques as questionnaires, observations, interviews or documents which can be used within the research. What is more, Denscombe (2003) presents that specifics of the survey strategy are the focus on a certain point of time and the conduction of a wide study which relies on an empirical data collection. Adams *et al.* (2007) states that disadvantages of surveys are a tendency to empiricism, a low depth and detail level of collected data and accuracy and honesty of responses can be problematic. On the other hand, according to Adams *et al.* (2007) advantages of surveys are a collection of empirical data, a lending of surveys to quantitative data, a wide and inclusive coverage of an investigated object and surveys usually have advantages concerning costs and time.

In terms of case studies, Robson (2002, p.157) states that a case study is defined as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence". Additionally, Denscombe (2003) presents that with small-scale research it is more usual to use the case study strategy. In this context, Denscombe (2003) lists the following issues being remarkable for case studies. Firstly, one remarkable characteristic is that a case study focuses on one specific issue of an object which is investigated. Reason for this is that by investigation of specific objects in detail a case study aims to develop general conclusions. Secondly, Denscombe (2003) states that an advantage of a case study is that this strategy offers the researcher the possibility to conduct an in-depth study and to investigate objects in detail. Thirdly, this in-depth investigation gives the researcher the possibility to

investigate a complex problem in depth and to understand relationships and linkages of processes. Fourthly, the holistic character of a case study offers the research a possibility to investigate why something happens and not only what happens. Fifthly, a case study offers a researcher different methods for investigation of a specific problem, such as documents, questionnaires, interviews, observations. Denscombe (2003) states that if a researcher decides that it is appropriate for a specific problem then several methods can be used in combination. Adams *et al.* (2007) state that disadvantages of case studies are little credibility of generalisations, case studies often are perceived to produce soft data, ethical problems are seen in terms of confidentiality and people may behave differently from normal when being observed. On the other hand, according to Adams *et al.* (2007) advantages are that case studies deal with subtleties and intricacies of complex situations, case studies use multiple methods and foster the use of multiple sources of data and no pressure is put on the researcher to impose controls.

In terms of experiments, Adams *et al.* (2007) state that an experiment represents a classic way of research which has links to natural sciences. In this context, Denscombe (2003) adds that within experiments isolation of specific effects is used to investigate these effects in detail. What is more, Denscombe (2003) states that the aim of experiments is development of new relationships within investigated objects and examination of existing theories. In this context, Spector (1981, p.439) adds that “experimental design occurs when subjects as people or a social system and conditions as events or situations to be studied are manipulated by the investigator”. Adams *et al.* (2007) state that advantages of experiments are that they are repeatable, precise and convenient. On the other hand, Saunders, Lewis and Thornhill (2007) state that disadvantages of experiments are deception and the issue of ethics, artificial settings, representativeness of the research subjects and the control of relevant variables.

Finally, in terms of ethnography, Saunders, Lewis and Thornhill (2007) state that ethnography usually is linked to an inductive research approach. What is more, Saunders, Lewis and Thornhill (2007) add that the aim of an ethnography

is the interpretation of social world which is inhabited by subjects of the research in such a way as they interpret it. In this context, Denscombe (2003, p.84) offers the meaning of the term ethnography as “description of peoples or cultures”. Additionally, Malinowski (1922, p.14) works out that “one of the first conditions of acceptable ethnographic work certainly is that it should deal with the totality of all social, cultural and psychological aspects of the community, for they are so interwoven that not one can be understood without taking into consideration all the others”. Saunders, Lewis and Thornhill (2007) state that advantages of ethnography are a direct observation, gathering of empirical and detailed data, a link to theory and ecological validity. On the other hand, Saunders, Lewis and Thornhill (2007) state that disadvantages of ethnography are possible tensions within the approach, stand-alone descriptions, possible impression of story-telling, reliability of findings and the issue of ethics may be complicated.

In terms of the present research, the survey method is chosen. Reasons are the fact that this strategy is appropriate when conducting a deductive approach, quantitative data is gathered that is necessary for generalisation of outcomes and what is more a present status quo of the female customers’ car purchase decision making process will be delivered.

### 3.3.3 Data Collection Techniques

In chapter 3.3.2 the survey method was decided which will be appropriate within the present research. In the next step a data collection technique has to be chosen. In this context, Denscombe (2003) states that the most important data collection techniques within surveys are questionnaires, interviews and observations.

According to Denscombe (2003) different types of questionnaires can be found. The variation is created by size, purpose and appearance of questionnaires. Denscombe (2003) lists the following aspects to qualify research questionnaires. Firstly, questionnaires offer the possibility to collect information or input data of an analysis. In this context Denscombe (2003) emphasises that

questionnaires shall not change people's attitudes or present respondents additional information, far more questionnaires are used by researchers for investigation purposes. Secondly, Denscombe (2003) states that to make an analysis easier, questionnaires offer a researcher consistent data. Therefore, every respondent to a certain questionnaire has to answer the same set of questions. Thirdly, Denscombe (2003) emphasises that questionnaires work by the principle that if a researcher wants to find out something then the researcher has to ask respondents directly. Therefore, within questionnaires respondents are asked direct questions about things that are concerning the issue of the research. What is more, Denscombe (2003) states that questionnaires are the right data collection technique when they are used with a large sample in different locations, when a straightforward information is to be collected, when honest and complete answers to questions can be assured by offering an open social climate, when a personal interaction with the researcher is not necessary for example when same questions are offered to create standardized data and when it is assured that participants of the research will have the ability to read and understand all questions. What is more, Saunders, Lewis and Thornhill (2007) state that what is also specific about questionnaires is the fact that questionnaires depend on information which is given directly by respondents when they answer a researcher's questions. For this reason this kind of data differs from data which is collected within interviews or observations. Saunders, Lewis and Thornhill (2007) mention that usually data which is collected with questionnaires can be assigned to two different categories, facts and opinions. Therefore, Saunders, Lewis and Thornhill (2007) emphasise that prior to a research a researcher has to be aware of the kind of data which has to be collected. On the one hand, if the researcher is looking for facts then it is not expected that respondents make any judgements or that respondents present their attitudes. In the case of factual information respondents of a questionnaire are asked to answer as honestly as possible questions considering for example address, sex, marital status, age, weight and so on. On the other hand, within questionnaires which have the aim to collect data about opinions, attitudes, beliefs or preferences respondents have to value and judge things, describe their emotions in certain situations or choose between alternatives. At this point, Saunders, Lewis and Thornhill (2007) mention that in most cases

questionnaires contain questions from both categories because mostly researchers want to find out what are the facts but also what are the reasons for these facts. Saunders, Lewis and Thornhill (2007) offer as advantages of questionnaires a wide coverage, they are a cheap and easy to arrange data collection technique, pre-coded and standardized answers can be prepared and this kind of technique eliminates the effect of personal interaction with the researcher. On the other hand, Saunders, Lewis and Thornhill (2007) show that disadvantages of this technique are a possibly poor response rate, incomplete or poorly completed answers and the truth of answers cannot be checked.

In terms of interviews, Denscombe (2003) states that when a researcher comes to the decision that for the success of a particular research in-depth data has to be collected then interviews can be the appropriate data collection technique. Additionally, Denscombe (2003) states that often to researchers interviews are a welcome data collection technique. Reasons for this are that firstly a researcher does not need lots of equipment as mostly a notepad and a pen are sufficient and secondly the basic technique of an interview is something a researcher in most cases inhabits, the ability and skill to lead a conversation. In this context, Silverman (1985) points out that a conversation and an interview have many differences. Within an interview a researchers has to place assumptions and understandings of the problem and this is something that is usually not part of a conversation. Fisher and Buglear (2010, p.175) list different kinds of interviews, unstructured, structured and semi-structured interviews. Fisher and Buglear (2010) state that in the case of an unstructured or open interview the researcher may control slightly the open conversation with the respondent by following the themes which are presented by the respondent. But the direction of the interview itself should be led by the respondent. In terms of structured or pre-coded interviews Fisher and Buglear (2010, p.175) state that these interviews are controlled by the researcher. It is the task of the researcher to ask the pre-defined questions and for most of the questions to propose the pre-defined possibilities of answering to the respondent. Fisher and Buglear (2010, p.175) describe that the third kind of interviews, semi-structured, represents a mixture of both firstly described kinds of interviews. In this case the researcher prepares a list of topics and issues which shall be discussed during

the interview but the respondent may answer to the questions in an individual way. Denscombe (2003) points out that usually interviews are chosen as data collection technique when firstly in-depth information is needed and secondly it is appropriate for the research to collect data from a small sample. Therefore, Denscombe (2003) states that in many cases within a research interviews are used as a complementary data collection technique to collect detailed data. According to Denscombe (2003) interviews are used to prepare and tune questions of a following questionnaire to increase validity of asked questions within the questionnaire, to follow up a questionnaire when some results need to be investigated more in depth and to increase validity of revealed facts by other data collection methods. Blumberg, Cooper and Schindler (2011) show that advantages of interviews are a depth of gathered information, valuable insights, only simple equipment is required, data can be checked concerning validity while it is collected and a high response rate can be assumed. On the other hand, Blumberg, Cooper and Schindler (2011) list as disadvantages that interviews are time consuming, non-standard responses are collected, interviews represent an invasion of privacy, interviews may have a reliability problem due to impact of the interviewer and interviews might cause high costs when informants are geographically widespread.

In terms of observations, Fisher and Buglear (2010) list unstructured and semi-structured observations. Fisher and Buglear (2010) describe that in the case of open or unstructured observations the researcher observes a session and then notes down everything that seems relevant to him in context of her or his research. In this case the researcher must be aware of the fact that first observations may not represent reality as people who are observed may need some time to lose their self-consciousness in the situation of being observed. Fisher and Buglear (2010) show that semi-structured observations help the researcher to focus on the specific observations the researcher is looking for. This is done for example by usage of a pre-defined checklist with questions which does not have to be answered completely. Fisher and Buglear (2010) state that a more structured form of observations is created by usage of categories. Literature offers different ways of categories and in this context Fisher and Buglear (2010) present one of the earliest schemes of categories as

developed by Bales (1950). Here, the researcher observes for example a meeting of several people and classifies people's interventions into one of twelve categories of behaviour. Fisher and Buglear (2010) emphasise that for different topics of research different schemes of categories can be used and what is more the researcher even can develop her or his own categorical scheme.

Within the present research in a first step interviews are lead through to find out which indicators which were collected within the "Literature Review" chapter are essential for the topic of the present research and therefore have to be integrated into the model of the present research. As described before, Denscombe (2003) states that interviews can be used to prepare a following research questionnaire and to increase validity of questionnaire's questions. What is more, when leading through interviews a possibility exists to receive further indicators which were not covered by the "Literature Review" chapter. In a second step, data collection of the main study is explained. The aim of the present research is to model female customers' purchase decision making process without changing female customers' attitudes or giving them additional information. What is more, findings of the inquiry shall be used for a generalisation therefore it is important that every subject that participates in the main study of the present research is opposed to the same set of questions. Due to these reasons within the present research the data collection of the main study is to be lead through with a questionnaire. As this data collection technique offers the possibility to deliver on the one hand facts but also on the other hand people's opinions.

### 3.3.4 Structured or unstructured research

Fisher and Buglear (2010) state that the way how a research can be conducted can be distinguished between unstructured or open research and structured or pre-coded research. This means that in the case of unstructured or open research the researcher does not know what the answers will be and therefore the researcher has to be open to the respondents' answers. On the other hand, in the case of structured or pre-coded research the researcher knows the

possible answers as usually the respondents are offered a list of pre-defined possible answers to each specific question. Therefore the researcher is more interested in the relative magnitude of specific answers. Fisher and Buglear (2010) emphasise that each of the usually chosen research methods as interviews, questionnaire or observations can be used with both types of research, open or unstructured research and pre-coded or unstructured research.

In terms of the first step, within the present research interviews will be lead through in a semi-structured way, which means partially structured and partially unstructured. In a first part of the interview the list of possible answers including sets of extracted indicators from the “Literature Review” chapter of the present research is offered to participants to find out which of these indicators are most relevant to the topic of the present research. The second part of the research is lead through in an unstructured way to find out which aspects are important to respondents when choosing a new car.

In terms of the main data collection method of the present research, the main study’s questionnaire, Fisher and Buglear (2010) describe that pre-coded or structured questionnaires consist of many tick boxes which the respondent has to fill. On the other hand open or unstructured questionnaires consist of some questions with lots of white space where the respondent can fill her or his answers. Within the present research the aim is to develop generalisations of female customers’ car decision making process and therefore a large sample will be investigated. For this reasons a structured research is chosen for the main study of the present research.

## 3.4 Summary of Research Design

As summary, the research will be introduced according to positivistic philosophy, subjective ontology and the main part of the research approach which is deductive and quantitative is supported by a qualitative research approach. The purpose of the research is descriptive, the survey method is

used as research strategy and a structured questionnaire is used as main data collection technique which is supported by interviews (Figure 23).

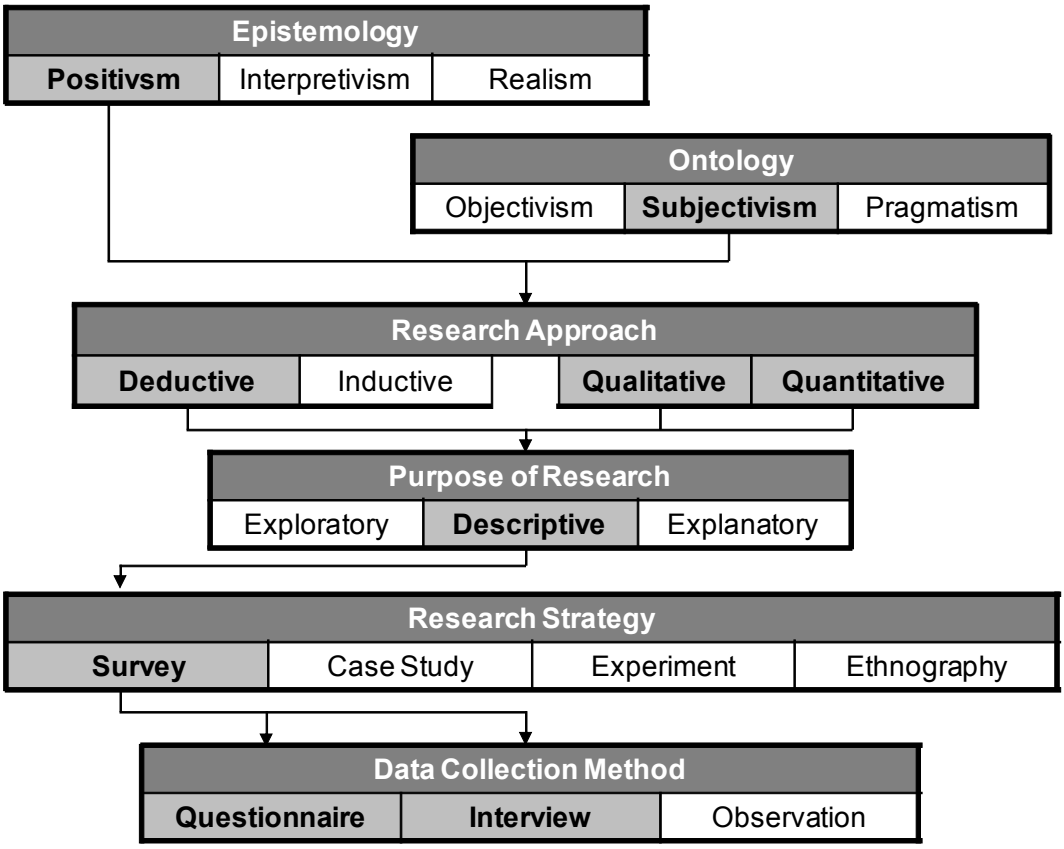



**Figure 23: Summary of Research Design of present research**

## 3.5 Rating scales

Saunders, Lewis and Thornhill (2007) describe that for market research questionnaires most frequently numeric, semantic differential and Likert-style rating scales are used. An example for a numeric rating scale is shown in Figure 24. In this case usually only the end categories and in some cases the middle value are described. Using this rating scale, Saunders, Lewis and Thornhill (2007) emphasise that it is important that the range of the scale, in other words the numbers of the scale, reflect the respondent's feelings. In terms of the present research, when using a numeric rating scale especially this issue seems to be challenging as the respondents' feelings about the contents of questions which will be presented within the questionnaire are unknown.

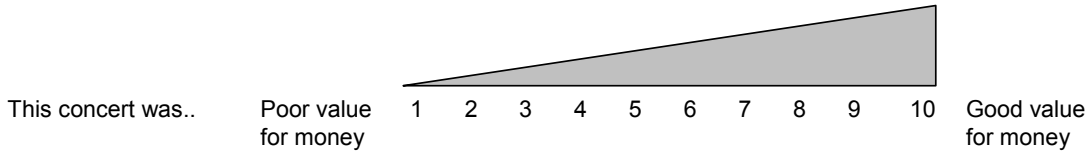



**Figure 24: Example for numeric rating scale (Saunders, Lewis and Thornhill, 2007)**

The semantic differential rating scale as presented by Saunders, Lewis and Thornhill (2007) usually is used within consumer research to investigate specific attitudes. Within this kind of scales respondents are asked to rate ideas or objects by usage of several bipolar rating scales which are represented by pairs of opposite adjectives (Figure 25). In this context, Kervin (1999) adds that the position of adjectives with positive and negative meanings should be varied between left and right side of the scale to ensure that respondents read both adjectives when answering the questions.

In terms of the present research where not specific attitudes but far more the importance of specific indicators and factors as presented in the model of the present research are to be investigated the semantic differential rating scale seems not to be optimal.

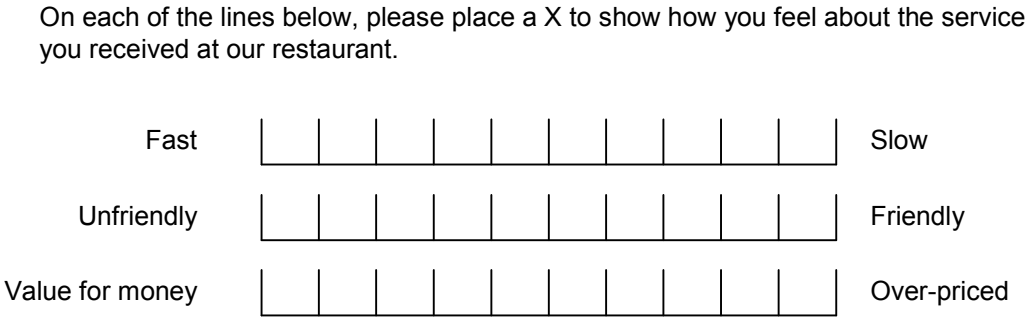



**Figure 25: Example for differential rating scale (Saunders, Lewis and Thornhill, 2007)**

In terms of consumer research Saunders, Lewis and Thornhill (2007) describe that most frequently the Likert-style rating scale is used. Here, respondents are asked to evaluate on a multi-point rating scale how strongly they agree or

disagree with specific statements (Figure 26). In terms of the number of possible ratings, Matell and Jacoby (1972) found within their research that when the number is between three and five then relatively often the box in the middle ("not sure" in Figure 26) is chosen. Therefore, Matell and Jacoby (1972) suggest that if a researcher wants to have more differentiated ratings by respondents then the number of possible ratings or boxes should be at least seven.

For the following statement please tick ☒ the box that matches your view most closely.

| | agree | tend to agree | not sure | tend to disagree | disagree |
|---|---|---|---|---|---|
| I believe there are ‚them and us' barriers to communication in the company now. | ☐ | ☐ | ☐ | ☐ | ☐ |

**Figure 26: Example for Likert-style rating scale (Saunders, Lewis and Thornhill, 2007)**

For these reasons, within the present research the Likert-style rating scale with a range of seven possible ratings is chosen. The range is between 1 to 7 as it is offered by Plant (2009), Smith (2011), Holst and Iversen (2011) and Smith *et al.* (2007) within their research.

A look into further previous research which used Likert-style scales is offered in the following section. Mitchell and Walsh (2004) investigate gender's influences to the consumers' decision making process with usage of the TPB. For this purpose a questionnaire is offered to respondents asking them to evaluate different criteria on a Likert scale between one (strongly disagree) to five (strongly agree). In her research Parker (1992) applies the TPB to the commission of driving violations. Within the questionnaire, questions regarding beliefs had to be answered by a 7-point-scale between strongly likely and strongly unlikely. Questions regarding perceived behavioural control had to be answered by a 7-point-scale between very easy and very difficult.

## 3.6 First study - qualitative research

The aim of the first study is to determine which indicators which were determined within the “Literature Review” chapter have to be included into the model of the present research. This is done by examination of a qualitative research as recommended by Ajzen (2006). With doing so, semi-structured interviews were lead through with interrogating potential female car buyers. In terms of the sample size for the interviews, Baker and Edwards (2012) point out that also small numbers of cases or subjects between six and a dozen can be valuable and represent a sufficient number for a research project. In this context, Mason (2010) investigated 50 articles which were based on grounded theory and found a broad range of sample size between 5 and 350. What is more, in their research Baker and Edwards (2012) offer opinions of 14 different researchers to the question “how many qualitative interviews is enough?” Interestingly there is no clear and single answer to this question as all researchers point out that there is no rule of thumb. Considering these issues, for the present research a sample size of 10 female interviewees is chosen. Five interviewees were chosen from the private area and five interviewees from the professional area of the researcher. As the researcher of the present research is occupied for the German car manufacturer Porsche AG, the choice of 5 interviewees from the company area aims to make sure that also female interviewees who are familiar with cars are interviewed. In a first part of the interview a list was presented to the interviewee containing indicators which were assigned within the “Literature Review” chapter of the present research to the variables attitude, SN and PBC of a model according to the TPB. The interviewee was asked to indicate the importance of each indicator on a 7-point-scale. In a second part of the interview, the interviewee was asked to describe and also assess on a 7-point-scale which issues in general are important when she chooses a new car. The semi-structured interview questions are available in the „Appendix“ section (Appendix C) of the present research. The assessment of all interview results leads to a ranking of all indicators from the “Literature Review” chapter and new indicators which were mentioned by interviewees during the interviews.

In their book Ajzen and Fishbein (1980) state that in order to improve the functionality of a model which is developed according to the TPB for each category of beliefs, behavioural, normative and control beliefs in total five to eight most salient beliefs have to be determined. In this context Payne, Bettman and Johnson (1993) add that due to the fact that the human capacity of processing of information is limited human beings even cannot process eight beliefs when they develop attitudes. This statement is supported by Van der Pligt and Eiser (1984) who worked out that models with five and eight beliefs offer the same results about development of attitudes and that models which contain only up to five different beliefs in each category of beliefs offer a more suitable picture of the reality which is to be modelled. Within their research about physical activity, Chatzisarantis *et al.* (2005) even found that participants of their research could not recall more than four different beliefs. In this context, Ajzen and Fishbein (1980) present a method to determine salient beliefs within a given population. Ajzen and Fishbein (1980) suggest to determine these salient beliefs from a sample which is representative for the population which is to be investigated. In a first step, a study with open questions is to be conducted to determine a population sample's behavioural, normative and control beliefs. In a second step, beliefs should be ranked by usage of a content analysis. The third step finally defines the five to eight most important beliefs.

Within the present research, the first step, determination of behavioural, normative and control beliefs or indicators was finished within the chapter "Literature Review". Further beliefs, which were not covered by the "Literature Review" are mentioned by interviewees within the second part of the interviews. The second and third steps, ranking and definition of most important beliefs, are worked out by examination of the qualitative research. Within this research, for normative beliefs a number of 4 indicators is chosen, for control beliefs a number of 5 indicators is chosen and for behavioural beliefs a number of 15 indicators is chosen. The definition will be done by usage of a ranking list which resulted from interviews. The resulting ranking lists of indicators are available in the „Appendix" section (Appendix B) of the present research. As a result, the indicators "assistance in choosing cars", "imbalance of product knowledge", "product price", "income" and "personal experience with cars" are assigned to

control beliefs. The indicators “values from milieu”, “opinion of like-minded people”, “recommendations from friends” and “recommendations from family” are assigned to normative beliefs. Finally, the indicators “product price”, “storage spaces”, “car´s colour”, “income”, “time efficiency”, “knowledge about technology”, “convenience”, “environmental friendliness”, “driving distances”, “expensive product brand”, “upholstery”, “self-concept”, “privacy”, “attractive styling” and “low boot opening” are assigned to behavioural beliefs. The resulting model of the present research is presented in Figure 28, page 142.

## 3.7 Conceptual model

According to Blumberg, Cooper and Schindler (2011) the theoretical framework is useful to organise and direct the data analysis. It helps to start with the research and furthermore it provides an analytical framework. This framework links the research into the whole body of knowledge in the subject area. Blumberg, Cooper and Schindler (2011) describe that the theoretical framework is created by the main variables, components and issues and the relationships between these main variables, components and issues.

According to Howieson (2008) two types of variables exist, measurable or observable variables and latent or not measurable variables. Howieson (2008) states that latent variables cannot be measured directly. These variables are linked to the outcomes of measurable or observed variables. In the context of measurable or observed variables, Francis *et al.* (2004) suggest to implement both types of measures, direct and indirect, to measure attitude, SN and PBC within research which is based on the TPB. In the model of the present research as it was developed within chapter “Literature Review” directly measured variables have not been implemented. Before complementing the model of the present research by directly measured variables a short review of former research in this context is offered.

Simonetto (2012) explains that in literature models are divided in two groups, formative models and reflective models. Within a reflective model (see Figure 27) a construct is the cause of observed measures. In this case, changes in the

construct lead to changes in all its reflective indicators. On the other hand, within a formative model an observed phenomenon is a function of observed variables and therefore changes in formative indicators lead to changes in the observed phenomenon or latent variable. Considering identifiability of models, Simonetto (2012) states that formative models are not identified and that in order to estimate the model a larger model has to be developed which contains the construct of the latent variables. On the other hand, in terms of reflective models, Simonetto (2012) explains that a reflective model is identified when it contains at least three reflective indicators. Therefore, within the present research, for each latent variable at least three reflective indicators are added.

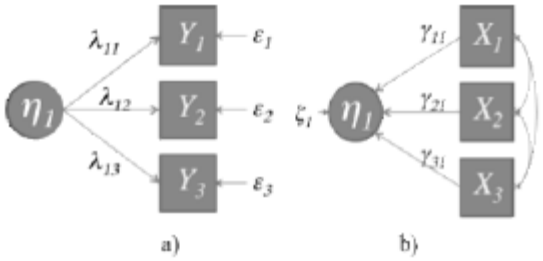



**Figure 27: Reflective model (a) and formative model (b) by Simonetto (2012)**

Within the process of buying one's favourite beer brand, Smith *et al.* (2007) suggest to use for attitude reflective indicators as unpleasant – pleasant, bad – good, negative – positive, favourable – unfavourable, wise – foolish, unenjoyable – enjoyable and satisfying – unsatisfying. What is more, within modelling of a purchase process by usage of TPB Smith (2011) recommends for attitude reflective indicators as good – bad, pleasant (for me) – unpleasant (for me) and worthless – useful.

In terms of reflective indicators of PBC Smith (2011) and Plant (2009) recommend to ask questions about self-efficacy and controllability such as "I can or I cannot perform a behaviour", "it is easy or difficult to perform a behaviour" or "it is possible or impossible to perform a behaviour". This recommendation is supported by Holst and Iversen (2011) who also state that

reflective indicators which are assigned to PBC should cover both aspects, self-efficacy and controllability.

Concerning reflective indicators which are assigned to SN Holst and Iversen (2011) describe having used questions considering whether people felt social pressure to purchase special products, whether it was expected of them to purchase special products and whether people close to them encouraged them to purchase special products. In this context, Plant (2009) uses variables which investigate whether it is expected of people to perform a special behaviour, whether they believe that they should or should not perform a special behaviour and whether other people would approve to perform a special behaviour.

The model of the present research is extended by introduction of reflective indicators (see Figure 28, page 142). Reflective indicators of attitude are “interesting – boring”, “valuable – worthless” and “pleasant – unpleasant”. Reflective indicators of SN are “I should - I should not”, “expected to perform” and “valued approve”. Finally, reflective indicators of PBC are “easy – difficult”, “can perform - can’t perform” and “possible – impossible”. Measured or observed variables are presented in rectangular boxes and latent indicators which are not directly measured but are linked to observed variables are presented in rounded boxes.

## 3.8 Model of female customers’ car purchase decision making

In the following Figure 28 the present research’s conceptual model of female customers’ car purchase decision making as it resulted from the “Literature Review” chapter and interviews is presented.

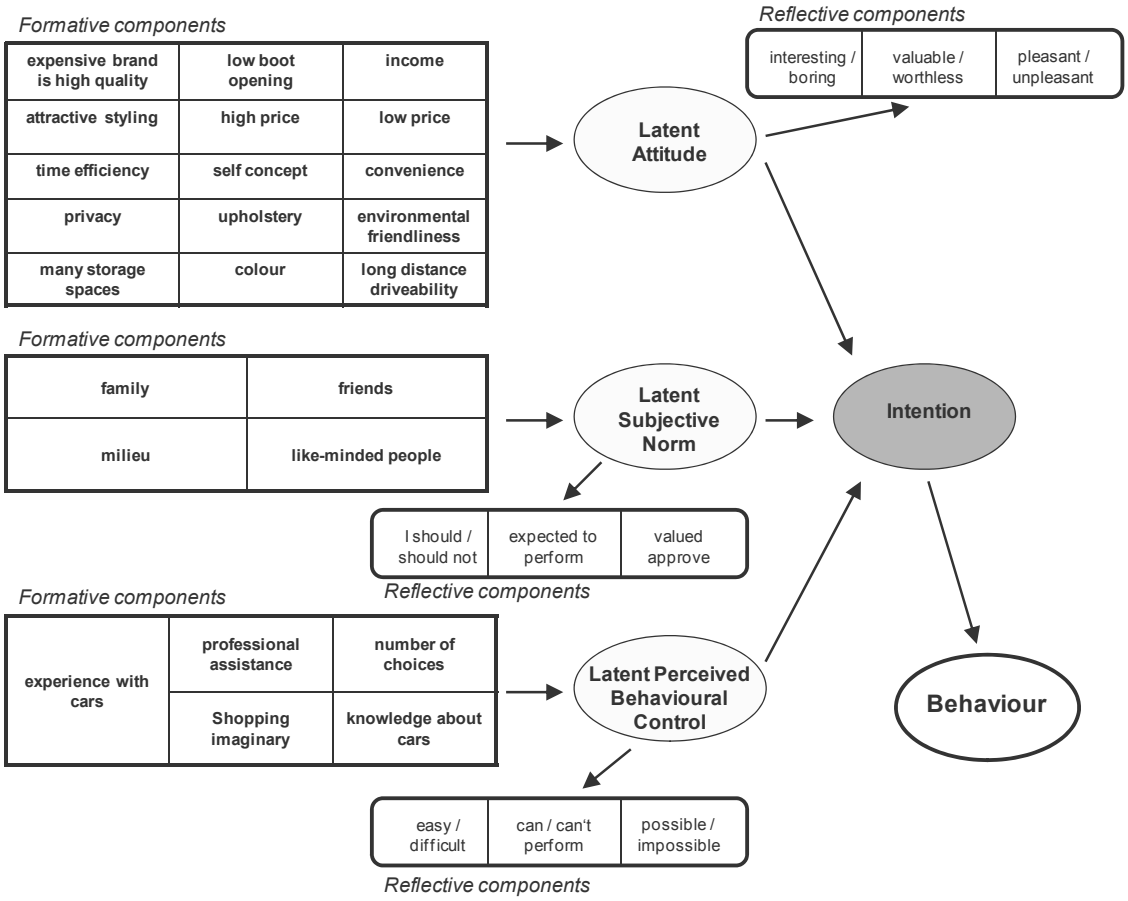



**Figure 28: Conceptual model of female car purchase decision making**

## 3.9 Hypotheses of the present research

In the following, the hypotheses for the present research are formulated.

### Hypothesis 1

The conceptual model will satisfactorily represent the female car purchase decision making process.

### Hypothesis 2

Time efficiency within the car purchase decision making process will have an influence on the female car purchase decision making process.

### Hypothesis 3

Income will have an influence on a female customer's car purchase decision making process.

**Hypothesis 4**

Personal experience with cars will have an influence on the female car purchase decision making process.

**Hypothesis 5**

Availability of assistance in choosing cars and the presence of too many choices will have an influence on the female car purchase decision making process.

**Hypothesis 6**

Number of choices will have an influence on the female car purchase decision making process.

**Hypothesis 7**

The aspect of convenience will have an influence on the female car purchase decision making process.

**Hypothesis 8**

A woman's family will have an influence on her car purchase decision making process.

## 3.10 Second study - development of the questionnaire

In the following chapter the development of the present research's questionnaire is described.

### 3.10.1 Wording of Questionnaires

Moser and Kalton (1971) offer some interesting advices when wording of questionnaires is to be developed. Questions should not be too vague or too unspecific but they also should not be too specific and so direct respondents to only one possible answer. What is more, questions should not be formulated in an embarrassing way and answering of questions should not request knowledge about issues which still are not researched. In this context, Parker

(1992) suggests to formulate questions in such a way that the questionnaire is interesting, appropriate and the questions can be understood easily.

### 3.10.2 Relevant contents of former questionnaires for present research

Within previous chapters 3.6 and 3.7 the choice of formative and reflective indicators of the initial conceptual research model as presented in chapter 3.8 at page 141 was presented. All formative and reflective indicators are drawn from existing literature. In the following section former research projects' questions considering the selected formative and reflective indicators of the initial conceptual research model of the present research are offered.

In terms of indicators of the latent variable Attitude questions considering "price", "shopping convenience", "time efficiency" and "high quality" can be found in existing literature with formulations as "The lower price products are usually my choice" (Mitchell and Walsh, 2004), "The higher the price of the product, the better the quality" (Mitchell and Walsh, 2004), "I shop quickly, buying the first product or brand I find that seems good enough" (Mitchell and Walsh, 2004) or "I make my shopping trips fast" (Mitchell and Walsh, 2004). Questions considering "income" and "self-concept" can be found in existing literature with formulations as "Monthly under 2.000 €, between 2.000 € and 5.000 €, over 5.000 €" (Steg, 2005), "My car shows who and what I am" (Steg, 2005), "You can know a person by looking at his or her car" (Steg, 2005) (Deeter-Schmelz, Moore and Goebel, 2000) or "Wearing high-quality designer clothing makes me feel special". Questions considering "privacy" can be found in existing literature with formulations as " I am sceptical considering online purchases" (Rodgers and Harris, 2003) or "When doing purchases within an online environment I am concerned about my privacy" (Korgaonkar and Wolin, 1999). Questions considering "environmental friendliness" can be found in existing literature with formulations as "To drive an environmentally friendly vehicle like hybrid or electric is important to me" or "The driving range of an environmentally friendly vehicle like hybrid or electric is important to me" (Ziegler, 2012).

In terms of indicators of the latent variable SN questions considering “family”, “friends”, “like-minded people” and “milieu” can be found in existing literature with formulations as “Recommendations from my family and friends are important to me when I collect information about products prior to a purchase” (Molesworth and Suortti, 2002), “Recommendations from my family and friends to me are important risk relievers within a product purchase process” and “Recommendations from like-minded people to me are important risk relievers within a product purchase process” (Tan, 1999), “It is important to shop in the same clothing stores as people from milieu” (Deeter-Schmelz, Moore and Goebel, 2000).

In terms of indicators of the latent variable PBC questions considering “number of choices” can be found in existing literature with formulations as “All the information I get on different products confuses me” and “There are so many brands to choose from that I often feel confused” (Mitchell and Walsh, 2004). Questions considering “knowledge about cars” can be found in existing literature with formulations as “It is important that a car dealership salesperson is knowledgeable” (Reed, Story and Saker, 2004). Questions considering “professional assistance” can be found in existing literature with formulations as “It is important that a car dealership salesperson is approachable and friendly” ” (Reed, Story and Saker, 2004), “Personal service is important to me when buying products” (Deeter-Schmelz, Moore and Goebel, 2000).

A complete overview of former research projects’ questions can be found in the „Appendix“ section (Appendix A) of this research.

### 3.10.3 Previous questionnaires

Within his research Alselaimi (2010) uses TPB to investigate suppositions of physical activity participation among Saudi adolescents. The questionnaire of the main study as conducted by Alselaimi (2010) was designed cross-sectionally and participants had to answer in total 55 questions accessing attitude, SN, PBC, intention, additional variables and specific demographic information. In their research Kortus-Schultes and Moos (2006) investigate

gender specific differences in preferences of vehicle attributes and in the preparation of a vehicle purchase. Within their research, Kortus-Schultes and Moos (2006) evaluated 2.443 questionnaires containing questions to in total 127 nominal and ordinal variables. On the basis of contingency tables as described by Gokhale and Kullback (1978) Chi-Squared tests as described by Greenwood and Nikulin (1996), a Mann-Whitney U test (Mann and Whitney, 1947) and Cramér's V (Cramér, 1946) as a variant of the contingency coefficient are calculated. Kortus-Schultes and Moos (2006) describe that all 127 variables were divided into four groups. Within the first group, 38 variables to general vehicle attributes and to the behaviour before and after the purchase of a vehicle were investigated. The second group consisted of 25 variables investigating the grade of importance of specific vehicle attributes within the purchase of a vehicle. The third and fourth group each contained 32 variables investigating in a first step the importance of specific variables and then in a second step the respondent's satisfaction with variables from the third group was investigated.

### 3.10.4 Design of questionnaire of present research

In the following chapter the questionnaire of the present research is offered. The design of the questionnaire is developed by using the advices of Ajzen (retrieved 2013a) and Ajzen (retrieved 2013b). The definition of household income groups is created according to Statistisches-Bundesamt (2013b) where household income groups in Germany in 2011 are defined. The complete questionnaire can be found in the „Appendix" section (Appendix D) of this research.

The intention to choose a car by oneself is represented by the sum of the three indexes which correspond to all three latent variables, attitude, SN and PBC. Below the formulae for the index calculations for all three latent variables is presented. Within this the question numbers Q1 – Q72 (see questionnaire as presented in Appendix D) represent the scale values of the questions in the questionnaire.

Attitude =
(Q1 x Q17) + (Q2 x Q18) + (Q3 x Q19) + (Q4 x Q20) + (Q5 x Q21) + (Q6 x Q22) + (Q7 x Q23) + (Q8 x Q24) + (Q9 x Q25) + (Q10 x Q26) + (Q11 x Q27) + (Q12 x Q28) + (Q13 x Q29) + (Q14 x Q30) + (Q15 x Q31)

SN =
(Q43 x Q48) + (Q44 x Q49) + (Q45 x Q50) + (Q46 x Q51)

PBC =
(Q53 x Q59) + (Q54 x Q60) + (Q55 x Q61) + (Q56 x Q62) + (Q57 x Q63)

And therefore Intention is:
Intention = Attitude + SN + PBC

Within all questions of all indexes (Attitude, SN, PBC) the possible range is between 1 and 7. This leads to following maximum values:

| | |
|---|---|
| Attitude: | 15 factors x 7 x 7 = 735 |
| SN: | 4 factors x 7 x 7 = 196 |
| PBC: | 5 factors x 7 x 7 = 245 |
| Intention: | (15 + 4 + 5) factors x 7 x 7 = 1.176 |

## 3.11 Sample size

In the following chapter the sample size for the main study and the pilot study is to be determined. Two different ways for determination of a sample size which can be found in literature to this topic are presented.
In terms of the first way, here the sample size is calculated according to the following formula (Kotler and Bliemel, 2006):

$$n = z^2 * p * (1 - p) / e^2$$

n sample size
z confidence level
p percentage
e margin of error

Within the present research for confidence level the value of 2 is chosen as this value represents the 2-sigma security area which is recommended for market research by Kotler and Bliemel (2006) (see Figure 29). This value also is supported by Plant (2009) who states that the confidence value of 95 % is used by most researchers.

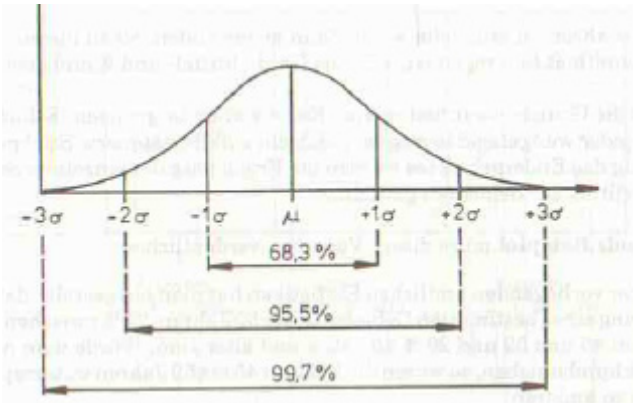



**Figure 29: Confidence level (Kotler and Bliemel, 2006)**

For percentage a value of 50 % is chosen as it is presented by Plant (2009) who states that this value is taken when a sample size is necessary. For the margin of error a value of between 4 % and 8 % is recommended by Kotler and Bliemel (2006) for market research. Using the chosen values, the following sample size for the main study of the present research can be calculated:

$$n = 2^2 * 0,5 * (1 - 0,5) / (0,04 \text{ to } 0,08)^2$$

$$n = 625 \text{ to } 156$$

Therefore, using the formula as presented by Kotler and Bliemel (2006) a wide sample size range between 156 and 625 questionnaires results.

In terms of the second way, sample size values are determined depending from the number of independent variables or indicators in a research model. In this context, Hair *et al.* (2006b) offer a rule of thumb stating that for every independent variable or indicator a minimum satisfactory requirement is to collect at least 5 questionnaires per variable or indicator. In terms of the present research this means that for 15 independent variables or indicators of attitude, 4

independent variables or indicators of SN and 5 independent variables or indicators of PBC in total at least 120 questionnaires have to be collected.

What is more, Ken Kwong-Kay (2013) states that also the chart as developed by Marcoulides and Saunders (2006) can be used for determination of sample size (see Figure 30). Here, the sample size is determined depending from the maximum number of arrows pointing at a latent variable of a research model. In the case of the present research, the maximum value of arrows is 15 reflective components pointing at the latent variable attitude. As a result of the chart as presented in Figure 30, according to the method as developed by Marcoulides and Saunders (2006) within the present research the minimum sample size is 103.

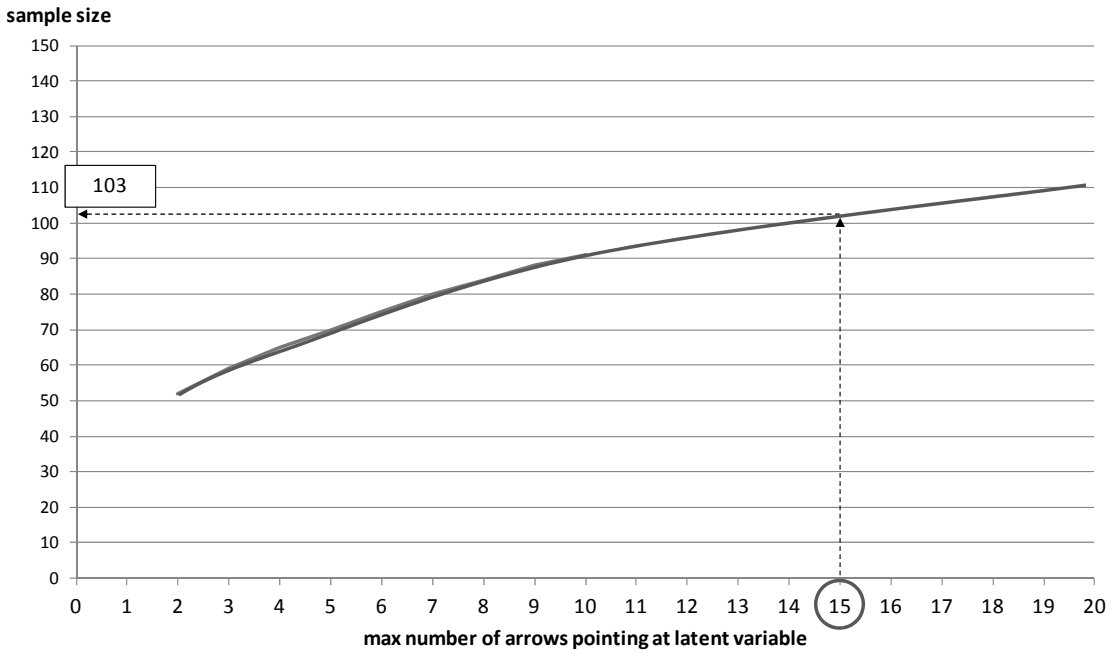



**Figure 30: Sample size as developed by Marcoulides and Saunders (2006)**

To decide which of the calculated numbers of sample size is to be used for the present study a further reference is used. Kline (2010) suggests that for a survey a number of respondents of less than 100 is too small and that the optimum value lies between 150 and 200 respondents.

Therefore, for the main study of the present research a sample size of 160 questionnaires is chosen which still is higher than the suggested minimum values 103, 120, 150 and 156.

In terms of the pilot study, Kotler and Bliemel (2006) suggest that a pilot study should have at least 9 % of the sample size of the main research and therefore as sample size for the pilot study of the present research 15 questionnaires are chosen.

As the response rate is unknown a value of 50 % estimated. Due to this, in total 30 (= 15 / 50 %) questionnaires will be sent out within the pilot study. Furthermore, the response rate within the pilot study will be evaluated and used in the following to estimate the necessary number of sent out questionnaires within the main study to assure 160 usable questionnaires.

## 3.12 Pilot study

The following section describes the piloting of the questionnaire. The pilot is carried out in order to make sure that the questionnaire's questions will answer the research question. Teijlingen and Hundley (2001) describe that the conduction of a pilot study can reveal where the main research may have some implausibilities or gaps or if the chosen instruments are appropriate and so the main study's success can be raised. In this context, Baker (1994) adds that a pilot study also can be used to try out or pre-test a specific research instrument. De Vaus (1993, p. 54) even suggests "do not take the risk, pilot test first". Teijlingen and Hundley (2001) state that the main reasons to conduct a pilot test are to test if chosen research instruments are appropriate, to assess if the conduction of the main study is feasible, to design a realistic protocol for the main study, to identify if any logistical problems may occur when the main study is conducted, to estimate how variable outcomes of the main study may be and so a better determination of the main study's sample size can be made. What is more, if the researcher is depending on funding of any funding bodies then those persons or institutions can be convinced about the appropriateness of the main study. However, Teijlingen and Hundley (2001) also mention that

problems which may occur by the usage of pilot studies also have to be regarded. Data of the main study may be contaminated when pilot study's data, results or participants are involved in the mains study. Therefore, if possible, Teijlingen and Hundley (2001) suggest not to include data, results or participants of the pilot study in the main study. In terms of the present research where the number of potential participants is not limited this issue will be regarded by not giving the main study's questionnaire to persons who already participated in the pilot study. What is more, results of the pilot study will not be integrated into the main study's results but they only will be used to improve the appropriateness of the main study's research method. Teijlingen and Hundley (2001) have some suggests how the appropriateness of a main study's questionnaire can be improved by usage of a pilot study. Firstly, the pilot study's questionnaire is to be offered to participants exactly in the same way as the main study's questionnaire will be. Secondly, participants of the pilot study should be asked for feedback and what is more the time which is necessary to complete the questionnaire shall be evaluated in order to assess the appropriateness of duration. Thirdly, all questions which will be found to be too difficult, ambiguous or not necessary should be re-worded or taken out of the main study's questionnaire. Fourthly, all questions should be evaluated if the range of answers is adequate. In this context, Ajzen and Fishbein (1980) point out that it is important that the sample and used measures and methods of the pilot study corresponds to the sample which is to be investigated within the main study. This is important because the sample of the pilot study and the sample that is used within the main research to predict intentions and behaviour may not differ within their demographic characteristics such as type of population, age distribution, ethnicity, social status or gender. This is important because otherwise the definition of salient beliefs which results from the pilot study may not represent those of the participants of the main study and therefore results of the main study may not be reliable. As a result the success of the main study can be limited.

In the following of this chapter issues concerning testing of the questionnaire's content validity, construct validity and reliability are presented.

### 3.12.1 Content validity

According to Bryman and Bell (2007) validity describes the extent to which a measurement tool actually measures what is supposed to be investigated. Content validity describes the extent to which a measurement tool is suitable to the measured questions. There are different ways how content validity can be reached. Firstly, the definition of the research topic has to be clear and careful and secondly the content of a questionnaire should be assessed by several persons whether the questionnaire is appropriate for the specific research topic (Devellis, 2003, Netemeyer, Bearden and Sharma, 2003, Ruane, 2005, Vogt, 2007).

The topic of the present research is to investigate factors that affect female customers' car choice behaviour. An extensive literature review has shown that indicators as presented within the model of the present research (see Figure 28) describe female customers' car choice behaviour.

### 3.12.2 Construct validity

According to Vogt (2007) construct validity is related to the assessment how appropriate a questionnaire measures a certain construct, or in other words, a concept. In this context, Bryman and Bell (2007) state that construct validity is based on the developed causal relationships of a concept and on the correlation of the theoretical background of these relationships with the findings of a research. What is more, Bryman and Bell (2007) describe that construct validity consists of two sub-types, convergent and discriminant validity. These two different types will be described in a following chapter of the present research.

### 3.12.3 Reliability

According to Litwin (1995, p.23) reliability refers to "a statistical measure of how reproducible the survey instrument's data are". In this context, George and Mallery (2003) state that one part of reliability is represented by internal consistency which is measured by calculation of Cronbach's alpha. The value of

Cronbach's alpha again represents a measurement of homogeneity of a scale which is represented by multiple items. The values of Cronbach's alpha can range from zero, showing that measurements are totally inconsistent, to one, showing that the correlation of items is excellent and that internal consistency of items in the scale is very good. According to Abou-Shouk (2012) values equal to or below 0.5 indicate that a scale is not acceptable. In this context, some researchers state that a consistent scale is indicated by values beyond 0.6 (Heung and Chu, 2000, Leblanc, 1992, Liu and Arnett, 2000) and some researchers state that the indication for a consistent scale begins with values beyond 0.7 (Field, 2009, Hair *et al.*, 2010, Vogt, 2007).

### 3.12.4 Summary of pilot study

The first draft of the questionnaire was checked by the Director of Studies and the supervisor. Most of the feedback was concerning the formulation of the questions considering issues of comprehensiveness and correctness of measurability of the present research's factors as presented within the model of the present research (Figure 28, page 142). The result of the feedback was a reformulation of the questionnaire. The final version of the questionnaire was put online and sent to 30 potential respondents. The response rate was 83 % with a total of 25 received back questionnaires. Out of the 25 respondents 17 were female (68 %) and 8 were male (32 %). 50 % of all respondents were in the age between 25 and 34 and 27 % in the age between 35 and 44. In order to assess the duration for answering of the questionnaire at the beginning of section one and at the end of section two the respondents were asked to provide the current time. The difference between both values represents the duration for answering the questionnaire. In total in 22 cases the answers to these two questions offered reasonable results and offered a mean duration for answering the questionnaire of 14 min and 27 sec. Therefore, also in the introduction of the main study 15 min as approximate duration for answering of the questionnaire is stated. The content of the questionnaire was accepted by all respondents, no question was described as being incomprehensive. Answers to all questions show reasonable results and so the questionnaire is ready for the following main study. Using the response rate of 83 % within the

pilot study as estimation for the main study leads to a minimum total number of 193 (= 160 / 83 %) necessary questionnaires to receive 160 usable questionnaires. Therefore, for the main study a total number of 200 questionnaires will be aimed. What is more, in order to allow a high data basis of female respondents which is necessary for a potential generalisation of present research's findings the main study will be limited only to female participants.

## 3.13 Factor analysis

Researchers assess factor analysis as being capable to fulfil both components of construct validity, the discriminant and convergent validity (Boudreau, Grefen and Straub, 2001). Abou-Shouk (2012) states that factor analysis is used for identification of groups and clusters of variables. Two different forms of factor analysis exist, exploratory and confirmatory factor analysis.

Stevens (1996) describes that the Exploratory Factor Analysis (EFA) often is used by researchers in an early stage of research to explore data when the number of variables and the covariance between variables are not defined yet. In this context, Field (2009) states that EFA investigates the structure of a set of variables and, what is more, EFA can be used as a method to reduce data.

According to Kline (2004) the Confirmatory Factor Analysis (CFA) represents a process which can be used to analyse a data set for its theoretical fit towards a developed model. This description is supported by Hair *et al.* (2006a) who state that CFA is a method which is used when the extent to which data fits to an expected structure is to be investigated. What is more, Curran, West and Finch (1996) add that CFA also is used to determine the strength of relationships between variables of a developed model. These statements are supported by Dillon and Goldstein (1984) who state that CFA is used by researchers when the correlation of variables to defined hypotheses has to be tested.

Within the present research, the factor analysis will be worked out with the Statistical Package for the Social Sciences (SPSS) software as recommended by Abou-Shouk (2012).

## 3.14 Structural Equation Modelling

Howieson (2008, p.158) states that Structural Equation Modelling (SEM) can be used to “hypothesise models of behaviour and to test or confirm these models statistically”. Associations, if they exist, between variables and indicators as they were defined within the model of the present research (see Figure 28, page 142) will be established via SEM. In detail, these associations are linear structural equations and by using SEM unknown coefficients of these equations are determined (Howieson, 2008). Variables and indicators which are included in these equations are offered in the model of the present research (see Figure 28, page 142). In this context, Byrne (1994) adds that SEM is a statistical methodology which offers the opportunity to hypothesise behavioural models and to create statistical tests of these models. Howieson (2008) explains that the process using SEM should contain three steps. Firstly an estimation of coefficients within the developed model should be created. Secondly a statistical test if the developed model is appropriate for specific process which is studied should be worked out. Thirdly an evaluation shall be presented if the model is appropriate to represent worked out relationships, meaning that it is plausible and consistent with the collected data. The working out of SEM within the present research is explained in chapter 4.6.6.

# 4 FINDINGS AND DATA ANALYSIS

The previous chapter explained the approach to the quantitative study in detail. The present chapter’s aim is to offer the statistical analysis of the quantitative study. This is done by usage of Structural Equation Modelling (SEM), Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

## 4.1 Operationalization of main study

In the following chapter the operationalization of the main study of the present research is explained. In order to improve the participation quote of the main study the questionnaire was developed in two languages, English and German. The basic questionnaire was the English version as this questionnaire was firstly developed. The English version was translated into the German language in order to increase the response rate to the online version of the questionnaire. To guarantee a consistency of meaning of questions in both language versions of the questionnaire the correctness of the German translation of the questionnaire was checked and approved by an English teacher in Germany.

Data collection was generated in several ways. Firstly, the questionnaire was created on the web portal of Umfrage Online (www.umfrageonline.com). The link to this questionnaire was sent via mail to potential female participants who were known to the researcher or to his family. All potential female participants were asked to forward this mail and the link to other potential female participants.

Secondly, social media were used to spread the information about the study as much as possible. Therefore, the researcher created a facebook account (www.facebook.com) and posted information about the questionnaire of the study on his account site. What is more, the researcher invited potential female participants to participate in the study and furthermore the posted information was shared by potential participants in order to spread the information about the study.

Thirdly, a paper version of the questionnaire was spread. In this case, 5 questionnaires were sent via mail to potential female respondents which were known to the researcher. All 5 questionnaires were filled out, sent back to the researcher and are usable for data analysis of the present research. What is more, questionnaires were delivered to a medical practice of a gynaecologist who is known to the researcher. In this case, 59 questionnaires were filled out, handed over to the researcher and were usable for data analysis of the present

research. What is more, questionnaires also were delivered to potential female participants in a medical practice of a dentist and oral surgeon who is known to the researcher. In this case, 14 questionnaires were filled out, handed over to the researcher and were used for data analysis of the present research. In total 338 participants took part in the survey, 260 took part in the online version of the questionnaire and 78 respondents filled out the paper versions of the questionnaire. The data collection phase started by May, 29th 2014 (see Figure 31). Until June, 30th 2014 335 filled out questionnaires were collected. During July 2014 only three additional filled out questionnaires could be collected and therefore the data collection phase was stopped by July, 31st 2014.

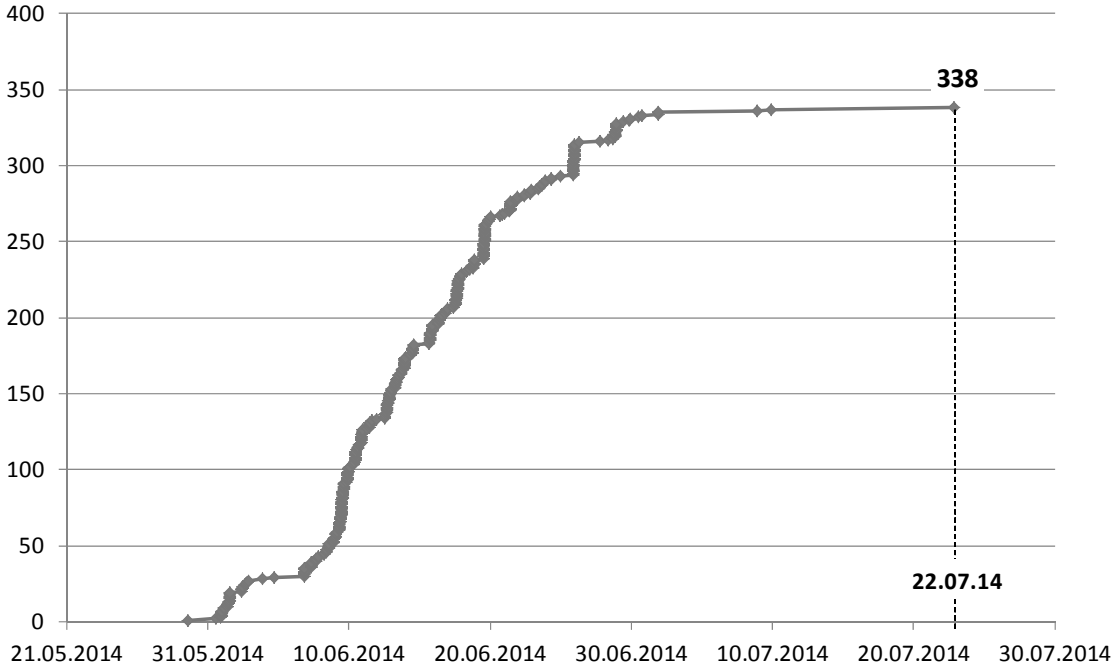



**Figure 31: Collection of filled out questionnaires over time**

## 4.2 Demographics of main study

In the following chapter the demographics of the present research's participants are presented.

### 4.2.1 Comparison of demographics

In the following section the demographics of the sample of the present research are compared to demographics of the target population. As target population women in Germany are considered. The demographics considering net household income, persons in household and age are shown in the following Figure 32, Figure 33 and Figure 34.

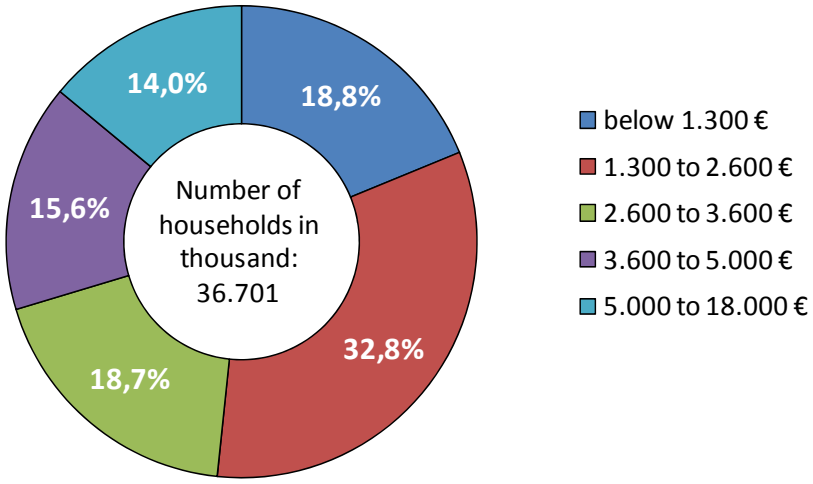



**Figure 32: Net household income in Germany in 2011 (Statistisches-Bundesamt, 2012)**

| net household income | persons in household |
|---|---|
| below 1.300 € | 1,2 |
| 1.300 to 2.600 € | 1,6 |
| 2.600 to 3.600 € | 2,1 |
| 3.600 to 5.000 € | 2,6 |
| 5.000 to 18.000 € | 3,0 |

**Figure 33: Persons in household by net household income in Germany on Dec, 31st 2010 (Statistisches-Bundesamt, 2013a)**

| age group | men in thousand | share of men in age group | women in thousand | share of women in age group |
|---|---|---|---|---|
| total | 40.112 | 49,1% | 41.639 | 50,9% |
| <10 | 3.579 | 51,3% | 3.399 | 48,7% |
| 10 to 19 | 4.157 | 51,3% | 3.947 | 48,7% |
| 20 to 29 | 5.067 | 50,9% | 4.880 | 49,1% |
| 30 to 39 | 4.968 | 50,6% | 4.841 | 49,4% |
| 40 to 49 | 7.005 | 51,0% | 6.721 | 49,0% |
| 50 to 59 | 5.851 | 50,0% | 5.844 | 50,0% |
| 60 to 69 | 4.391 | 48,6% | 4.640 | 51,4% |
| 70 to 79 | 3.676 | 45,1% | 4.480 | 54,9% |
| 80 to 84 | 888 | 37,7% | 1.467 | 62,3% |
| >= 85 | 531 | 27,2% | 1.420 | 72,8% |

**Figure 34: Age separation in Germany on Dec, 31st 2010 (Statistisches-Bundesamt, 2013a)**

Comparing the household income of the present research's sample and women in Germany as shown in Figure 35 it becomes evident that all income groups above 2.601 EUR per month show a good matching between the target population and the research' sample. However, considering lower income groups under 2.600 EUR per month the population's share approximately is two times higher than the sample's share. This issue will be regarded in the limitation part within chapter 6 of the present research.

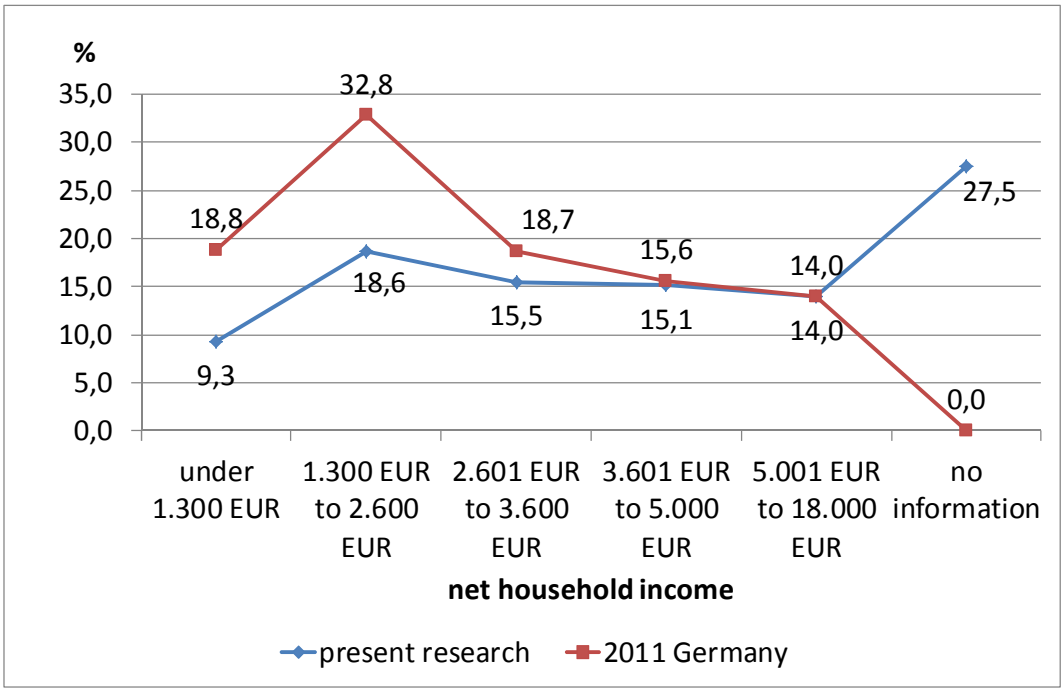



**Figure 35: Net household income comparison**

Furthermore, in the following Figure 36 persons in household of the target population and of the research' sample are compared. In this case, a result is that for income groups above of 1.300 EUR per month the values for persons in household of the research' sample and the target population are similar. Only for the income group of below 1.300 EUR per month the research sample's value is two times higher than the target population's value. This aspect will be regarded in the limitation part within chapter 6 of the present research.

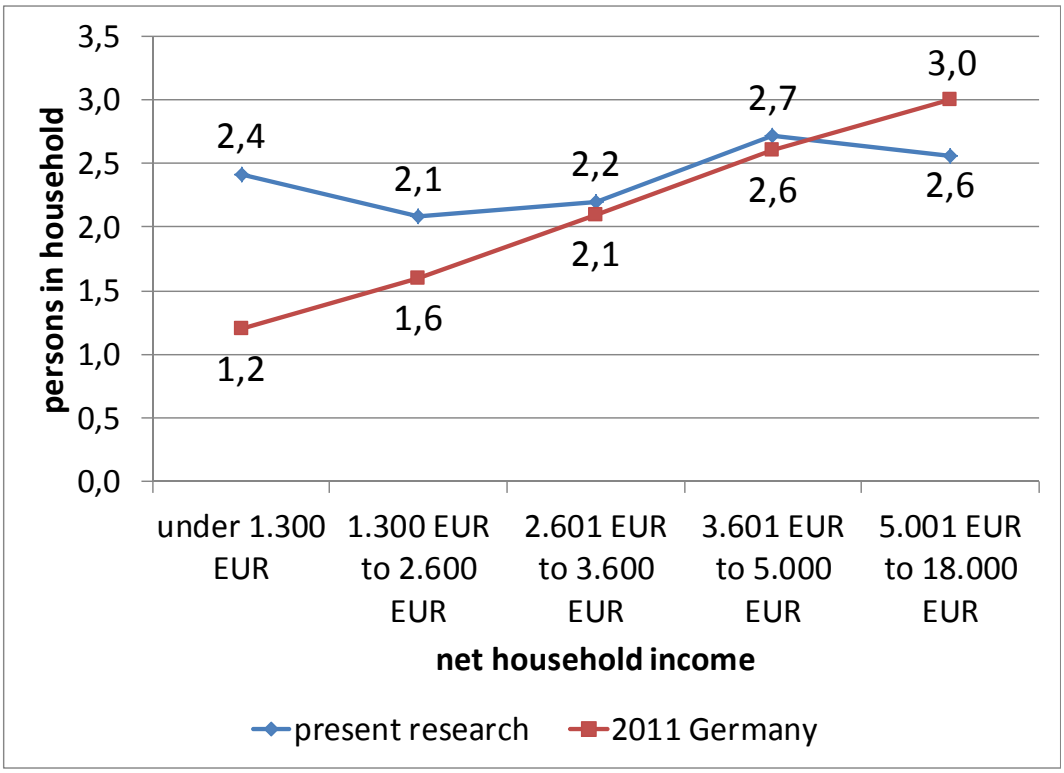



**Figure 36: Persons in household comparison**

Finally, the following Figure 37 offers a comparison of the age separation of the research's sample with the target population. One result is that for age groups of below 20 years and between 40 and 60 years the shares in the research's sample and the target population are similar. However, age groups between 20 and 40 years are overrepresented in the research sample compared to the target population. On the other hand, respondents aged over 65 years are underrepresented in the research's sample compared to the target population. Also this aspect will be regarded in the limitation part within chapter 6 of the present research.

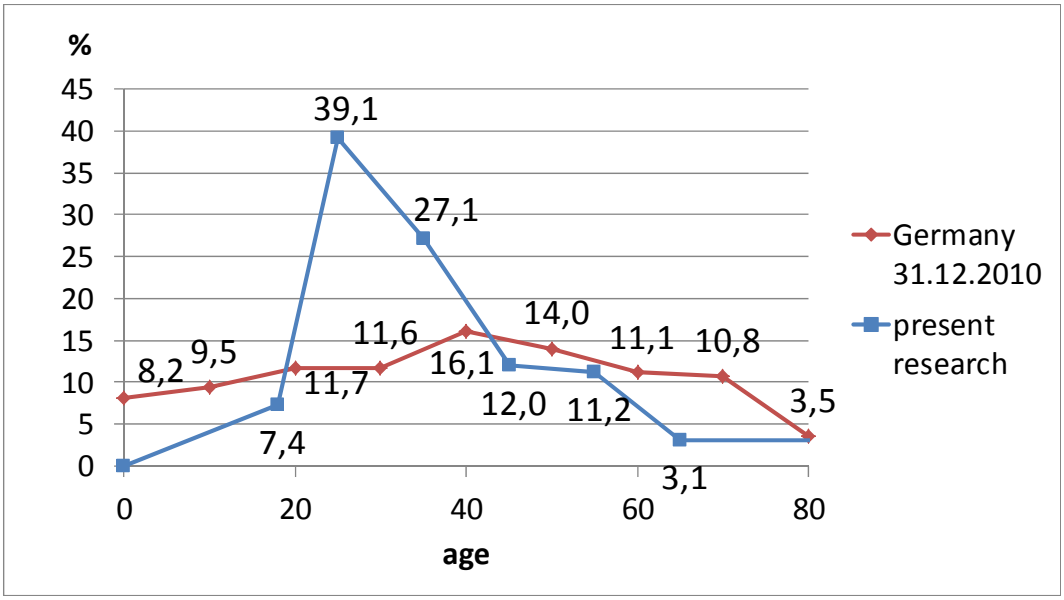



**Figure 37: Women' age comparison**

Summarizing, as described the research sample's demographics match in many cases to the target population and therefore in these cases the research results can be treated as representative for the target population.

### 4.2.2 Gender

In terms of demographics, in a first step participants' gender is analysed. As shown in Table 3 out of the total 338 participants 272 (80.5 %) stated to be female and 2 (0.6 %) participants did not report their gender with ticking the answer "no information". No respondent stated to be male. The aim of the present study is to model female customers' car purchase decision making process. For this reason, the investigation will be limited only to female participants. As a result of this limitation, for further investigation the answers of those participants who did not state their gender by answering "no information" or by not answering this question are taken out of the evaluation and will not be regarded within the further investigation.

**Gender**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Female | 272 | 80,5 | 99,3 | 99,3 |
| | no information | 2 | ,6 | ,7 | 100,0 |
| | Total | 274 | 81,1 | 100,0 | |
| Missing | System | 64 | 18,9 | | |
| Total | | 338 | 100,0 | | |

**Table 3: Gender separation of main study**

### 4.2.3 Country of living

In the next step, the respondents' country of living is evaluated (see Table 4). In terms of all 272 female respondents, with 258 (94.9 %) respondents the majority stated to live in Germany, in total 14 (5.1 %) respondents stated to live outside Germany in countries as Australia, Austria, Greece, Slovenia, Suisse and Sweden. The aim of the present study is to model the car purchase decision making process of female customers who live in Germany. Therefore, for further evaluation of the questionnaire's data the answers of respondents who live outside Germany are taken out and not regarded in present study's results.

**Country of living**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Australia | 6 | 2,2 | 2,2 | 2,2 |
| | Austria | 2 | ,7 | ,7 | 2,9 |
| | Germany | 258 | 94,9 | 94,9 | 97,8 |
| | Greece | 1 | ,4 | ,4 | 98,2 |
| | Slovenia | 1 | ,4 | ,4 | 98,5 |
| | Suisse | 3 | 1,1 | 1,1 | 99,6 |
| | Sweden | 1 | ,4 | ,4 | 100,0 |
| | Total | 272 | 100,0 | 100,0 | |

**Table 4: Country of living of respondents' of main study**

As a result of the exclusion of respondents as explained within the evaluation of the questionnaire, all resulting 258 female participants who stated to live in Germany are regarded in the following chapters of the present research.

### 4.2.4 Survey method

The following Table 5 shows that within the evaluation of the survey's respondents 180 (69.8 %) took part by answering to the online version of the questionnaire and 78 (30.2 %) respondents took part by answering to the paper version of the questionnaire.

**questionnaire kind**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | paper | 78 | 30,2 | 30,2 | 30,2 |
| | online | 180 | 69,8 | 69,8 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 5: Participation in study by online and paper questionnaire**

### 4.2.5 Survey language

When analysing the separation of the questionnaires language then it is evident that all 258 female respondents who stated to live in Germany answered to the German version of the questionnaire (Table 6). No female respondent who stated to live in Germany answered to the English version of the questionnaire. As a result, in the following analysis a potential influence of the questionnaire's language to the survey does not have to be regarded.

**language**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | German | 258 | 100,0 | 100,0 | 100,0 |

**Table 6: Participation in study by German or English version of questionnaire**

### 4.2.6 Age

In terms of age separation (Table 7) of all 258 usable respondents, 19 (7.4 %) are between 18 and 24 years old, 102 (39.5 %) are between 25 and 34 years old, 69 (26.7 %) are between 35 and 44 years old, 31 (12.0 %) are between 45 and 54 years old, 29 (11.2 %) are between 55 and 65 years old and 8 (3.1 %) are over 65 years old.

**Age**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | between 18 and 24 | 19 | 7,4 | 7,4 | 7,4 |
| | between 25 and 34 | 102 | 39,5 | 39,5 | 46,9 |
| | between 35 and 44 | 69 | 26,7 | 26,7 | 73,6 |
| | between 45 and 54 | 31 | 12,0 | 12,0 | 85,7 |
| | between 55 and 65 | 29 | 11,2 | 11,2 | 96,9 |
| | over 65 | 8 | 3,1 | 3,1 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 7: Age separation of main study**

### 4.2.7 Children

When evaluating if respondents have children or not, 153 (59.3 %) stated to have children, 102 (39.5 %) stated to have no children and 3 (1.2 %) did not state if they have children (Table 8).

**Children**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Yes | 153 | 59,3 | 59,3 | 59,3 |
| | No | 102 | 39,5 | 39,5 | 98,8 |
| | no information | 3 | 1,2 | 1,2 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 8: Respondents of main study with and without children**

### 4.2.8 Persons in household

Participants of the study also were asked to state how many persons live in their household (Table 9). In 50 (19.4 %) cases 1 person lives in the household, in 89 (34.5 %) cases 2 persons live in the household, in 72 (27.9 %) cases 3 persons live in the household, in 29 (11.2 %) 4 persons live in the household, in 16 (6.2 %) cases 5 persons live in the household and in 2 (0.8 %) cases 6 persons live in the household.

**No persons in household**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1,0 | 50 | 19,4 | 19,4 | 19,4 |
| | 2,0 | 89 | 34,5 | 34,5 | 53,9 |
| | 3,0 | 72 | 27,9 | 27,9 | 81,8 |
| | 4,0 | 29 | 11,2 | 11,2 | 93,0 |
| | 5,0 | 16 | 6,2 | 6,2 | 99,2 |
| | 6,0 | 2 | ,8 | ,8 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 9: Number of persons in household of participants of main study**

### 4.2.9 Education

In terms of the highest education level of participants of the main study (Table 10), 61 (23.6 %) respondents stated intermediate high school, 60 (23.3 %) respondents stated high school which corresponds to “Abitur” in Germany, 50 (19.4 %) respondents stated Bachelor diploma, 64 (24.8 %) respondents stated Master diploma, 6 (2.3 %) respondents stated Doctor or higher diploma and 17 (6.6 %) respondents did not state their highest education level.

**Education**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | intermediate high school | 61 | 23,6 | 23,6 | 23,6 |
| | high school / German “Abitur” | 60 | 23,3 | 23,3 | 46,9 |
| | Bachelor diploma | 50 | 19,4 | 19,4 | 66,3 |
| | Master diploma | 64 | 24,8 | 24,8 | 91,1 |
| | Doctor or higher diploma | 6 | 2,3 | 2,3 | 93,4 |
| | no information | 17 | 6,6 | 6,6 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 10: Education level of participants of main study**

### 4.2.10 Cross evaluation

In the following Table 11 the split up of values for “number of persons in household” by “education” is offered. In terms of results it is evident that the mean values for number of persons in household sinks when the education level rises, from 2.639 for “intermediate high school” and 2.633 for “high school” down to 2.266 for “Master diploma” and finally 2.000 for “Doctoral or higher diploma”. Interestingly the highest mean value for persons in household (3.000) results from respondents who did not state their educational level.

**Report**

No persons in household

| Education | Mean | N | Std. Deviation |
|---|---|---|---|
| intermediate high school | 2,639 | 61 | 1,4146 |
| high school / German “Abitur” | 2,633 | 60 | 1,0079 |
| Bachelor diploma | 2,500 | 50 | ,9949 |
| Master diploma | 2,266 | 64 | 1,0577 |
| Doctor or higher diploma | 2,000 | 6 | 1,5492 |
| no information | 3,000 | 17 | 1,1180 |
| Total | 2,527 | 258 | 1,1541 |

**Table 11: Number of persons in household split up by education**

In this context, the following Figure 38 offers an overview of respondents with and without children split up by education. Here, it becomes evident that respondents with lower education levels tend more to have children than respondents with higher education levels. For respondents who stated to have children, 26.1 % stated to have “intermediate high school” and 25.5 % “high school / German Abitur” as highest education level and the rest stated to have higher education levels as “Bachelor” (17.0 %), “Master diploma” (20.9 %) and “Doctor or higher diploma” (1.3 %). On the other hand, in terms of respondents who stated to have no children, most respondents belong to the groups with higher education levels as “Master diploma” (30,4 %) and “Bachelor diploma” (22.5%). For lower education levels the values are lower with 20,6 % for “high school” and 20.6 % for “intermediate high school”.

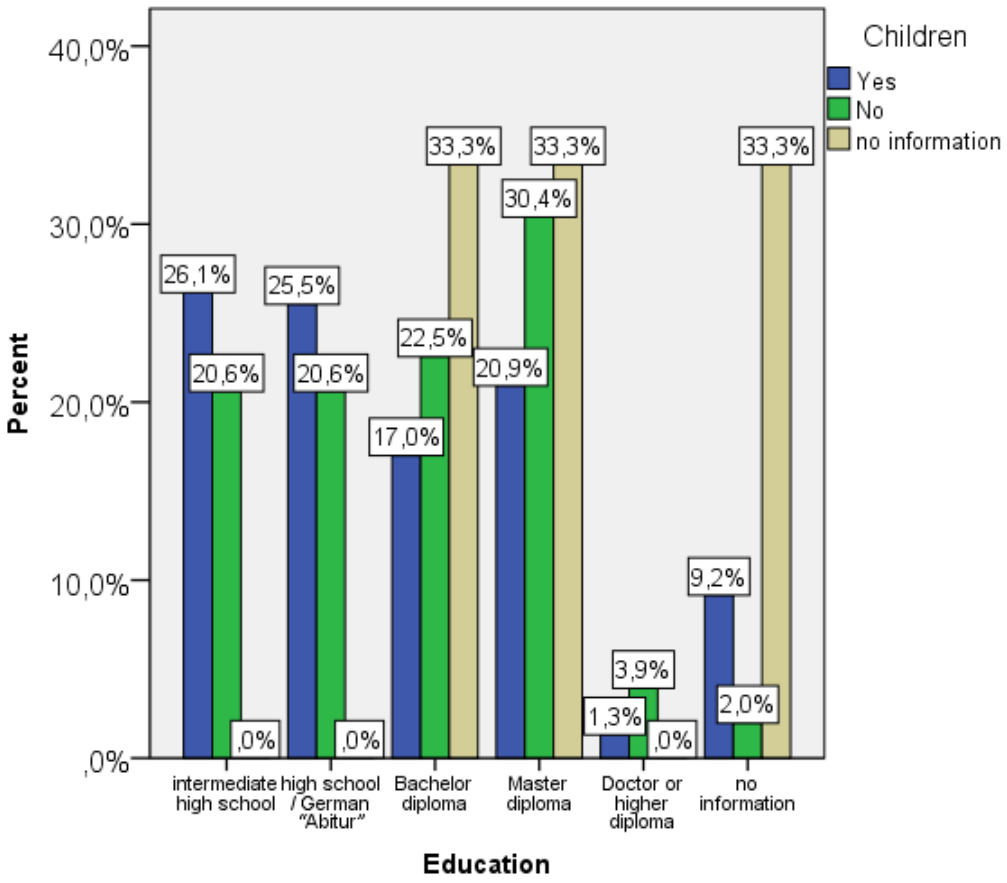



**Figure 38: Respondents' education level split by having children**

The observed trend of respondents with lower education levels tending more to have children than respondents with higher education levels is evident even stronger within the chart as represented in the following Figure 39. In terms of respondents with lower education levels, 65.6 % of respondents with high school as highest education level stated to have children and only 34.4 % stated to have no children. This separation is nearly unchanged for respondents with high school or German "Abitur" as highest education level with 65.0 % of respondents stating to have children and only 35.0 % of respondents stating to have no children. In terms of the chart as presented in Figure 39 it is also evident that the proportion of respondents who stated to have children sinks as the respondents' education level rises and on the other side the proportion of respondents who stated to have no children rises as the respondents' education level rises. Interestingly, 82.4 % of respondents who did not state their

education level do have children and only 11.8 % of respondents who did not state their education level stated to have no children.

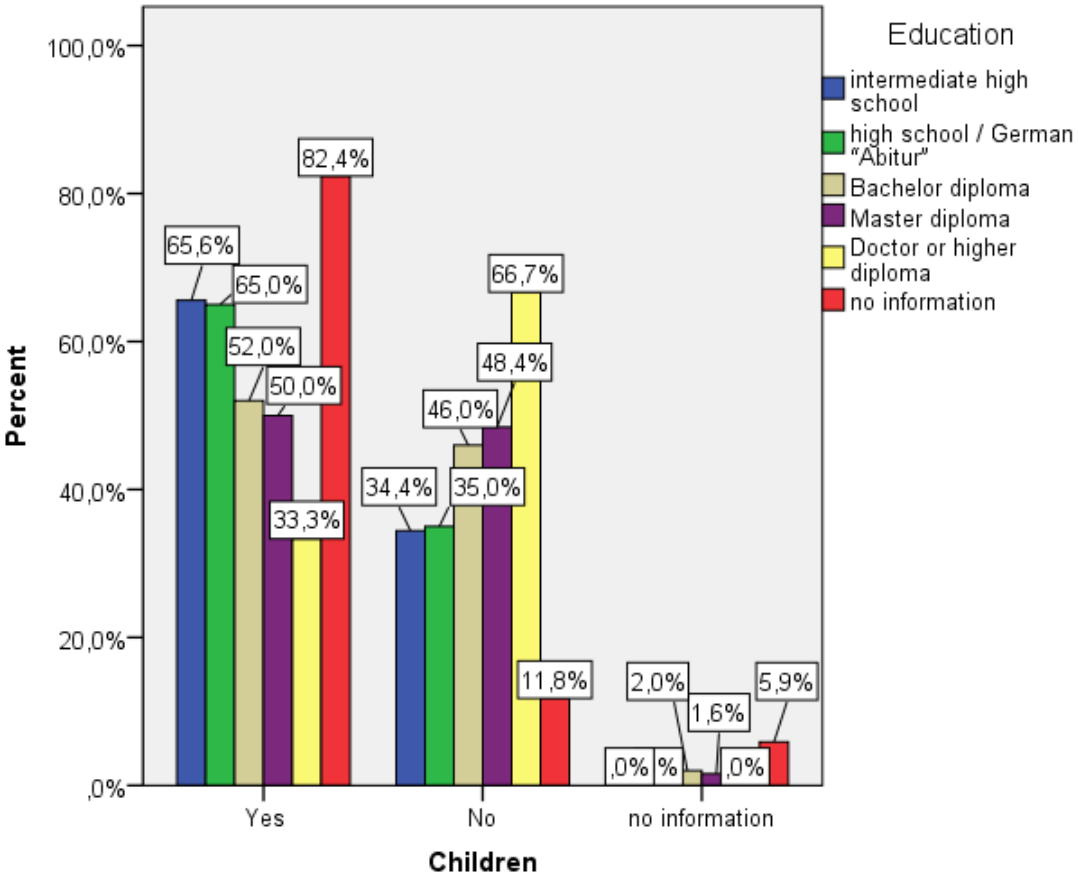



**Figure 39: Respondents with and without children split up by education**

In the following Table 12 the net household income of respondents of the main study is presented. 24 (9.3 %) respondents of the main study stated to have a net household income under 1.300 EUR. 49 (19.0 %) respondents stated to have a net household income between 1.300 EUR and 2.600 EUR. 40 (15.5 %) respondents stated to have a net household income between 2.601 EUR and 3.600 EUR. 39 (15.1 %) of respondents of the main study stated to have a net household income between 3.601 EUR and 5.000 EUR. A net household income between 5.001 EUR and 18.000 EUR was stated by 33 (12.8 %) respondents. More than 18.000 EUR net household income was stated by 2 (0.8 %) respondents. Finally, 70 (27.1 %) respondents stated “no information”

considering their net household income and 1 (0.4 %) respondent did not answer this question.

**Household income**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | under 1.300 EUR | 24 | 9,3 | 9,3 | 9,3 |
| | 1.300 EUR to 2.600 EUR | 49 | 19,0 | 19,1 | 28,4 |
| | 2.601 EUR to 3.600 EUR | 40 | 15,5 | 15,6 | 44,0 |
| | 3.601 EUR to 5.000 EUR | 39 | 15,1 | 15,2 | 59,1 |
| | 5.001 EUR to 18.000 EUR | 33 | 12,8 | 12,8 | 72,0 |
| | over 18.000 EUR | 2 | ,8 | ,8 | 72,8 |
| | no information | 70 | 27,1 | 27,2 | 100,0 |
| | Total | 257 | 99,6 | 100,0 | |
| Missing | System | 1 | ,4 | | |
| Total | | 258 | 100,0 | | |

**Table 12: Household income of participants of main study**

In the following Figure 40 the household income of respondents split by respondents' education is presented. Here, it becomes evident that in lower income groups as "under 1.300 EUR" and "1.300 to 2.600 EUR" respondents stated to have mainly lower education levels as "intermediate high-school" (16.7 % under 1.300 EUR, 25.0 % 1.300 EUR to 2.600 EUR) and "high-school (13.3 % under 1.300 EUR, 25.0 % 1.300 EUR to 2.600 EUR). On the other hand, respondents who stated to be in higher income groups of 3.601 EUR and above mainly stated to have higher education levels as "Bachelor diploma" (10.0 % 3.601 to 5.000 EUR, 18.0 % 5.001 to 18.000 EUR), "Master diploma" (26.6 % 3.601 to 5.000 EUR, 28.1 % 5.001 to 18.000 EUR) and "Doctor or higher diploma" (50.0 % 2.601 to 3.600 EUR, 16.7 % 3.601 to 5.000 EUR).

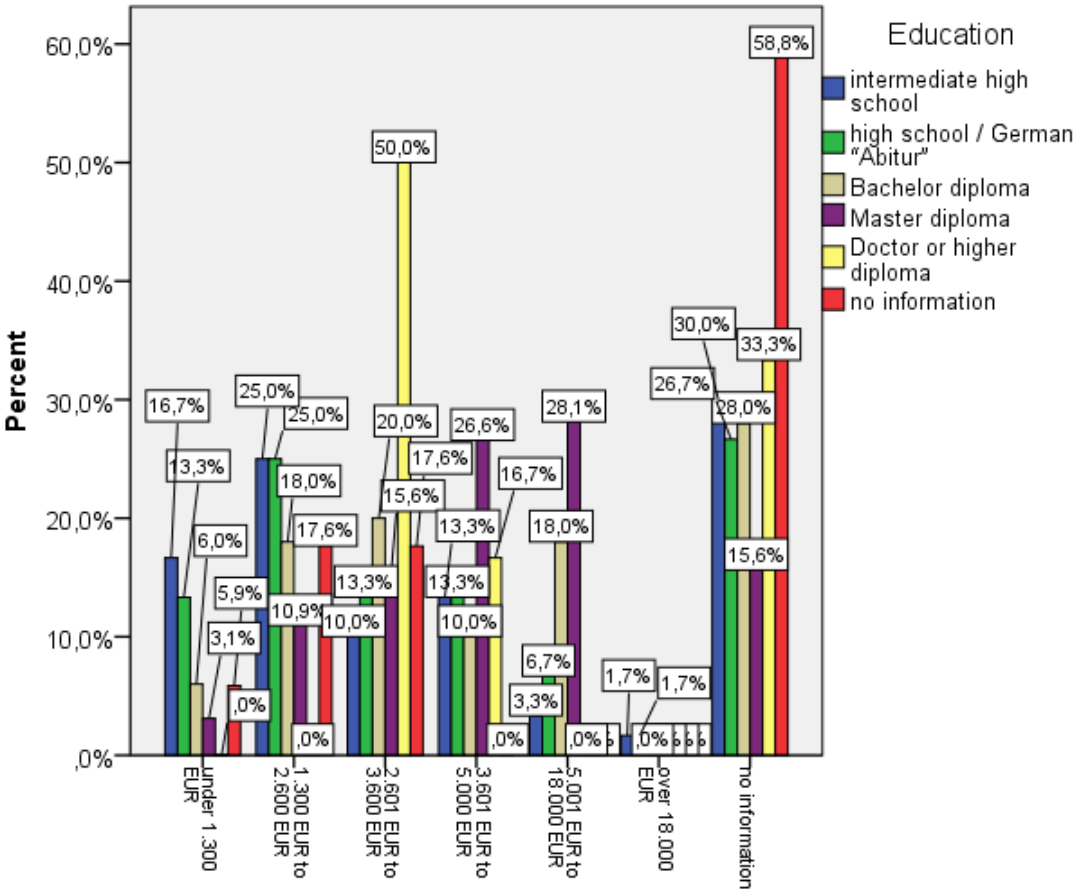



**Figure 40: Household income by education of participants of main study**

### 4.2.11 Location of living

In the following Table 13 the location of living of participants of the main study is offered. 75 (29.1 %) respondents stated to live in a rural area and 183 (70.9 %) respondents stated to live in an urban area.

**Location of living**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Rural area | 75 | 29,1 | 29,1 | 29,1 |
| | Urban area | 183 | 70,9 | 70,9 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 13: Location of living of participants of main study**

In this context, Bundesinstitut-Bau-Stadt-Raumforschung (2010) offer values for separation of Germany's inhabitants by rural and urban location in Germany. The result is that in Germany by December, 31st 2009 66.8 % of all inhabitants lived in an urban location and 32.8 % of inhabitants lived in a rural location. Therefore, in this context the values of the present research's sample represent very well the German population.

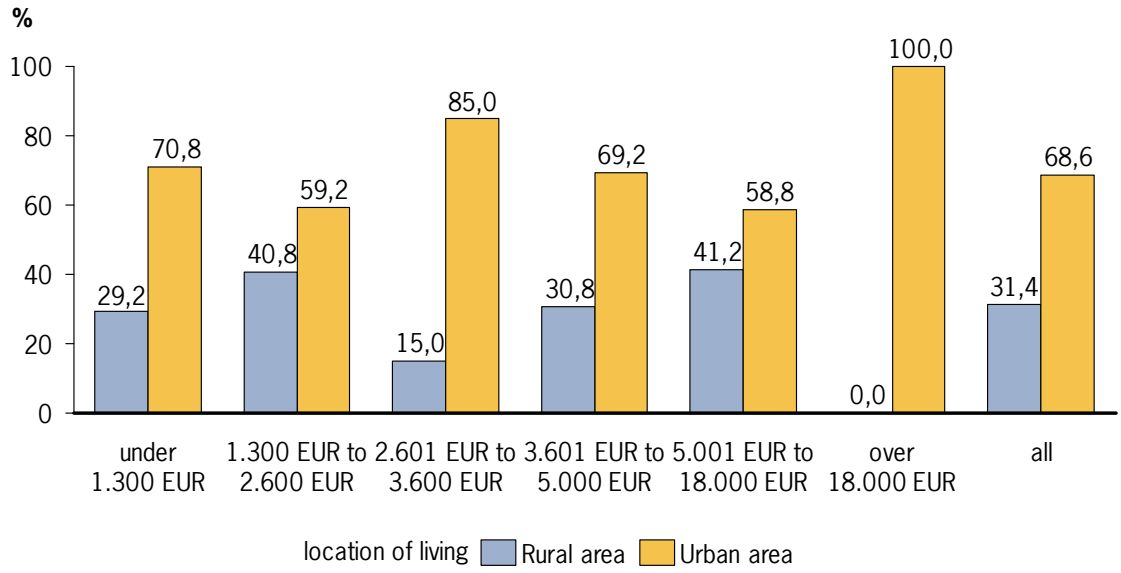



**Figure 41: Household income by location of living for respondents of present research**

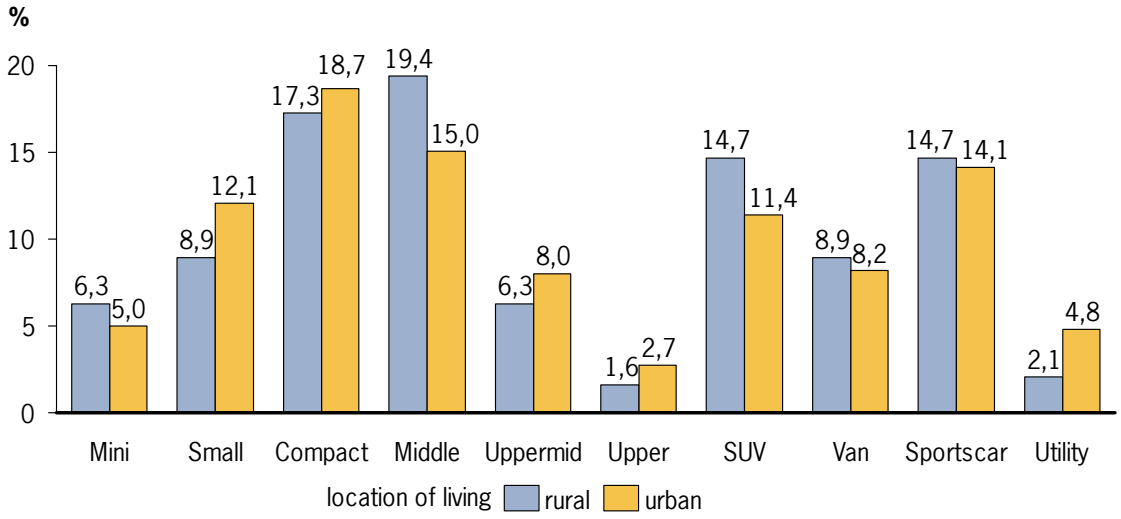



**Figure 42: Vehicle class by location of living for respondents of present research**

What is more, in Figure 41 the present research sample's separation between rural and urban location of living by net household income is offered. In Figure 42 the present research sample's separation between rural and urban location of living by favourite vehicle class income is offered. Finally, in Figure 43 the present research sample's separation between rural and urban location of living by net household income and vehicle class is offered.

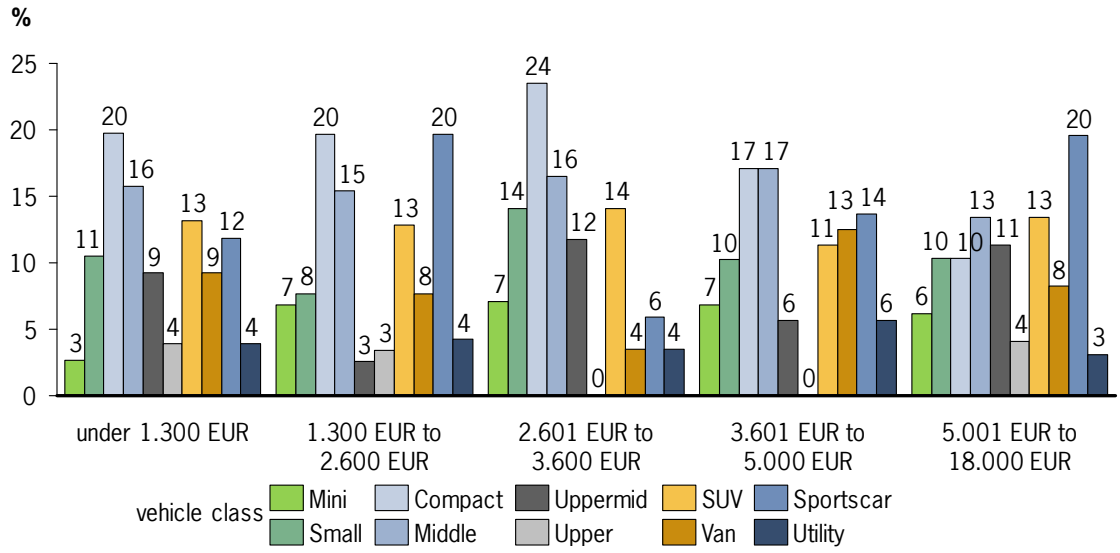



**Figure 43: Household income by vehicle class for respondents of present research**

## 4.3 Analysis of car data

In the following chapter the data analysis of car data is offered.

### 4.3.1 Cars owned and times in charge of car choice process

In the following Table 14 the separation of number of owned cars by participants of the main study is presented. 13 (5.0 %) answered that they did not own a car so far, 43 (16.7 %) answered that they owned one car, 122 (47.3 %) answered that they owned between 2 and 4 cars, 43 (16.7 %) answered that they owned between 5 and 6 cars, 35 (13.6 %) answered that they owned more than 6 cars and 2 (0.8 %) did not give an information about cars owned.

**No. of cars owned**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | none | 13 | 5,0 | 5,0 | 5,0 |
| | 1 | 43 | 16,7 | 16,7 | 21,7 |
| | 2 to 4 | 122 | 47,3 | 47,3 | 69,0 |
| | 5 to 6 | 43 | 16,7 | 16,7 | 85,7 |
| | more than 6 | 35 | 13,6 | 13,6 | 99,2 |
| | no information | 2 | ,8 | ,8 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 14: Number of cars owned by participants of main study**

In this context the following Table 15 delivers an overview about the number of times how often participants of the study have been responsible for a car choice process. It is evident that numbers in Table 14 and Table 15 differ which means that female respondents have not been in charge of their car choice process as many times as they owned cars.

**No. of times in charge**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | none | 45 | 17,4 | 17,4 | 17,4 |
| | 1 | 54 | 20,9 | 20,9 | 38,4 |
| | 2 to 4 | 115 | 44,6 | 44,6 | 82,9 |
| | 5 to 6 | 27 | 10,5 | 10,5 | 93,4 |
| | more than 6 | 13 | 5,0 | 5,0 | 98,4 |
| | no information | 4 | 1,6 | 1,6 | 100,0 |
| | Total | 258 | 100,0 | 100,0 | |

**Table 15: Number of times being in charge of car choice process by participants of main study**

In the following Table 16 a comparison of values from Table 14 and Table 15 is offered. Looking for example at the category more than 6 cars then 35 (13.6 %) (Table 14) respondents answered that they owned already that many cars but only 13 (5.0 %) (Table 15) respondents stated that they also have been in

charge of their car choice process that many times. In the category of 5 to 6 cars 43 (16.7 %) (Table 14) respondents owned that many cars but only 27 (10.5 %) (Table 15) were in charge of their car choice process that many times. This effect that respondents have been less times in charge of their car choice process than the number of cars they already owned begins to change as the number of cars decreases. For the category of 2 to 4 cars owned the difference is already small with 122 (47.3 %) (Table 14) respondents who owned already that many cars and 115 (44.6 %) (Table 15) respondents who stated that they also have been responsible for their car choice process 2 to 4 times. For both first categories the relationship changes between number of owned cars and number of times being in charge of the car choice process. When 43 (16.7 %) (Table 14) respondents answered that they owned one car even 54 (20.9 %) (Table 15) respondents answered that they have been once in charge of the car choice process. Interestingly, even though only 13 (5.0 %) (Table 14) respondents stated that they never owned a car in total more than three times more respondents, 45 (17.4 %) (Table 15), stated that they never have been in charge of the car choice process. This result arises because obviously respondents from different categories, as who owned one car or more, stated that they never have been in charge of their car choice process. To investigate this effect more thoroughly, in the following Table 16 respondents' statement of times being in charge for the car choice process is listed over the respondents' statement of number of owned cars. For example, in terms of 43 respondents who stated that they already owned 5 to 6 cars, only 19 (44.2 %) of them also stated that they have been that many times in charge of their car choice process. On the other hand, 23 (53.5 %) respondents stated that they have been 2 to 4 times or less responsible of their car choice process. This same effect that respondents have been less times in charge of their car choice process than the number of cars they already owned can be found for all categories.

**No. of cars owned * No. of times in charge Crosstabulation**

Count

| | | No. of times in charge | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | none | 1 | 2 to 4 | 5 to 6 | more than 6 | no information | Total |
| No. of cars owned | none | 11 | 2 | 0 | 0 | 0 | 0 | 13 |
| | 1 | 10 | 25 | 6 | 0 | 0 | 2 | 43 |
| | 2 to 4 | 18 | 22 | 79 | 2 | 1 | 0 | 122 |
| | 5 to 6 | 2 | 4 | 17 | 19 | 0 | 1 | 43 |
| | more than 6 | 4 | 0 | 13 | 6 | 12 | 0 | 35 |
| | no information | 0 | 1 | 0 | 0 | 0 | 1 | 2 |
| Total | | 45 | 54 | 115 | 27 | 13 | 4 | 258 |

**Table 16: Comparison number of cars owned and number of times being in charge of car choice process**

The following Figure 44 represents the correlation of relative number of owned cars depending from respondents' age. Younger respondents aged between 18 and 24 years tend to state that they already owned no car (26.3 %), 1 car (47.4 %) or 2 to 4 cars (26.3 %) with having a maximum value at 1 car. Respondents from age groups 25 to 34 (53.5 %) and 35 to 44 (65.7 %) years mostly stated that they already owned 2 to 4 cars. For higher age groups respondents mostly stated that they already owned more than 6 cars with 48.4 % for group of 45 to 54 years old respondents and 34.5 % for group of 55 to 65 years old respondents. Therefore, the maximum value for the number of already owned cars increases with the respondents' age with 1 car for 18 to 24 years old respondents, 2 to 4 cars for 25 to 34 and 35 to 44 years old respondents and with more than 6 cars for 45 to 54 and 55 to 65 years old respondents.

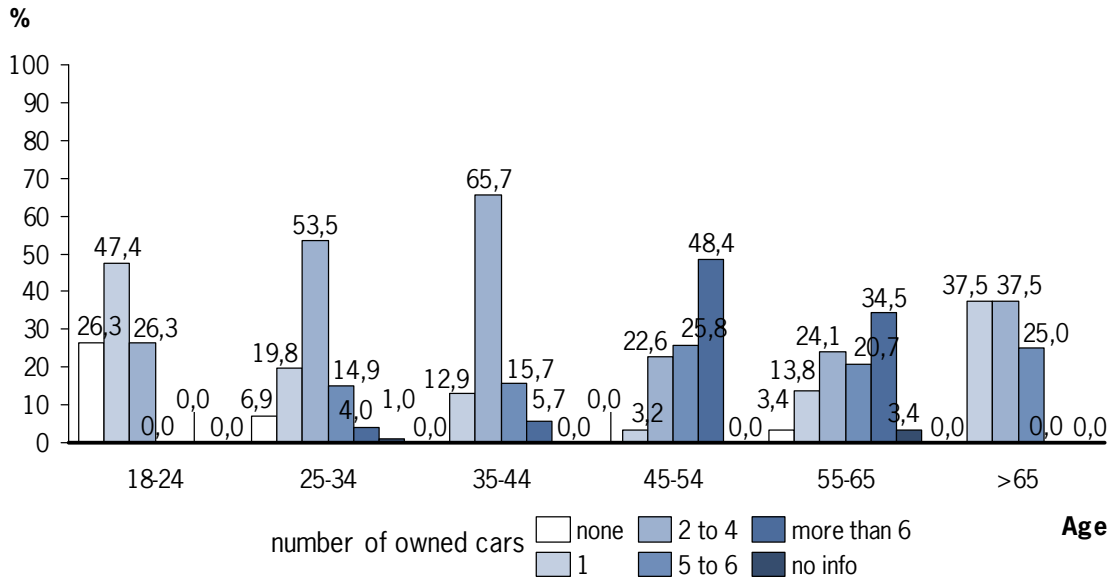



**Figure 44: Number of cars owned over respondents' age**

In the following Table 17 a comparison of number of cars owned and number of times being in charge of the car choice process as described is offered.

| | | No. cars owned | | | | |
|---|---|---|---|---|---|---|
| | | none | 1 | 2 to 4 | 5 to 6 | more than 6 |
| **No. times in charge** | less | 0,0% | 23,3% | 32,8% | 53,5% | 65,7% |
| | equal | 84,6% | 58,1% | 64,8% | 44,2% | 34,3% |
| | more | 15,4% | 14,0% | 2,5% | 0,0% | 0,0% |

**Table 17: Comparison number of cars owned and number of times being in charge of car choice process**

In this context the following Figure 45 offers that as the respondents' stated number of owned cars rises the smaller becomes the relative number of times being in charge for the car choice process. The curve "less" expresses how many respondents stated having been in charge for the car choice process less times than the number of their cars owned. The value for "less" rises from 23.3 % (1 car owned) up to 65.7 % (more than 6 cars owned).

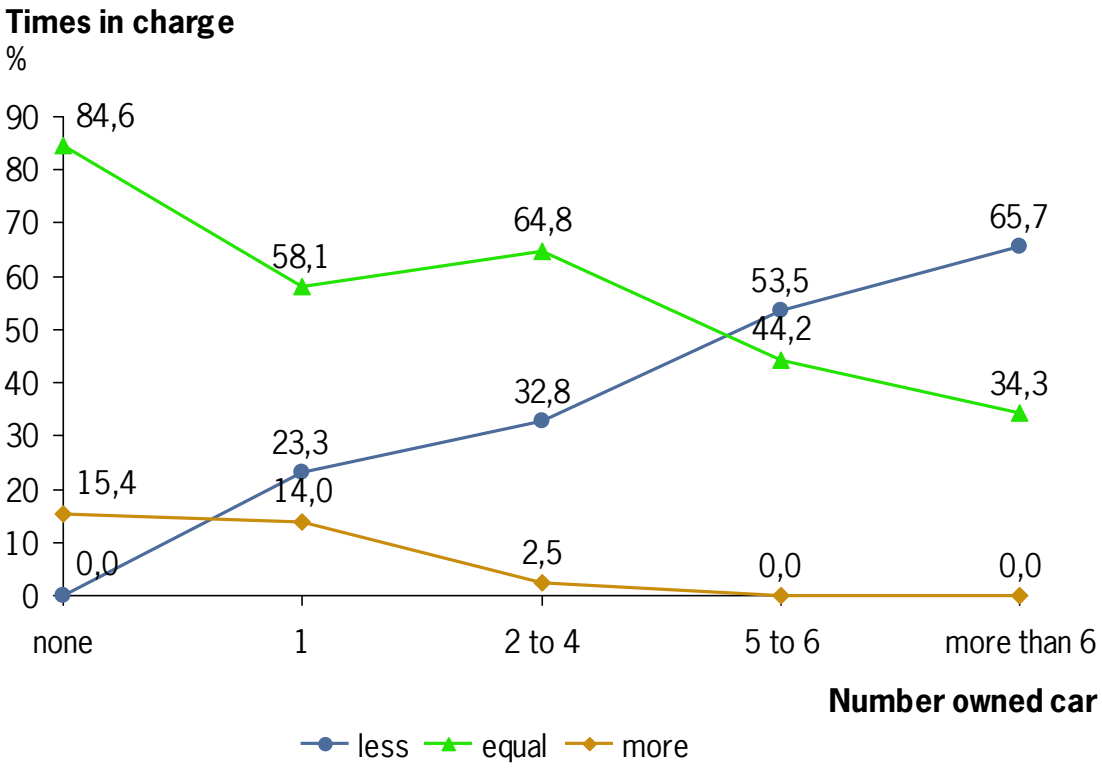



**Figure 45: Comparison number of cars owned and number of times being in charge of car choice process**

### 4.3.2 Car brands

The following Figure 46 offers an overview about respondents' favourite car brands. Here, the result of all respondents' evaluation is presented. Respondents were allowed to name multiple brands as their favourite brand. Being named by 16.6 % of all respondents Audi is the most favourite vehicle brand of all respondents of the present study. The second most named brand is Volkswagen with 14.3 % followed by BMW and Mini (12.2 %), Mercedes-Benz and Smart (11.8 %), Porsche (7.5 %) and Opel (4.5 %). Looking at the other end of the scale only 0.1 % of all respondents stated to have no favourite car brand. In this context, Figure 47 offers an overview of all car brands as presented in Figure 46 however a separation by respondents' age is added. For visibility reasons in Figure 48, Figure 49 and Figure 50 in terms of separation of respondents' age to favourite brand, a focus on the six most favourite vehicle brands as mentioned before is offered.

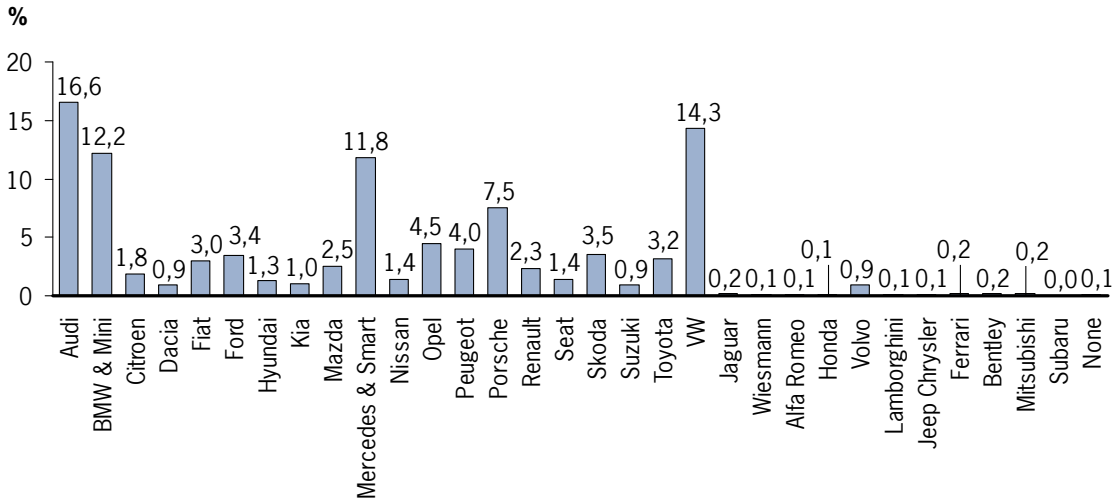



**Figure 46: Overview favourite car brands, all respondents**

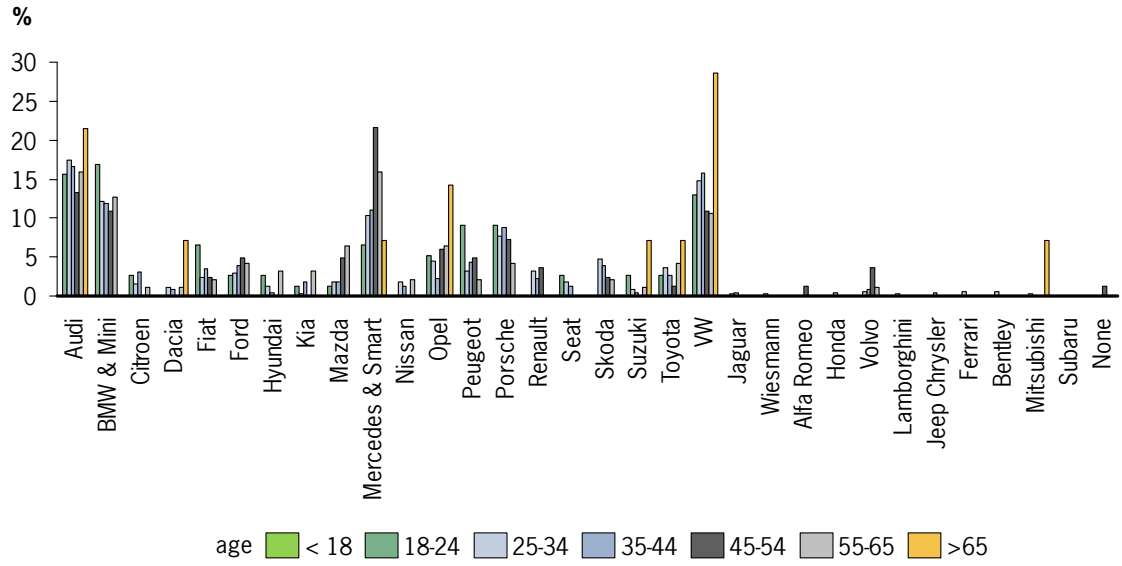
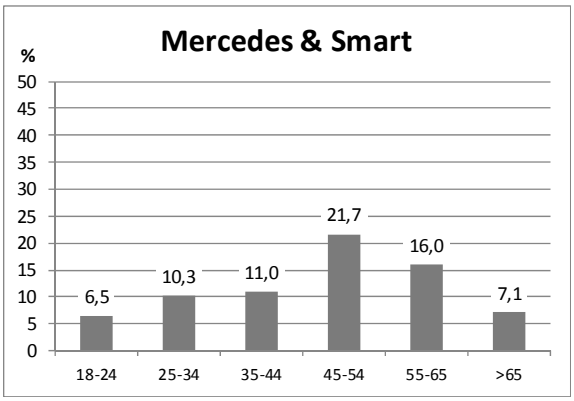



**Figure 47: Overview favourite car brands, all respondents by ages**

As presented in Figure 48 21.7 % of all respondents with an age of 45 to 54 stated that Mercedes-Benz / Smart is one of their favourite brands. This is the highest value in this age category comparing with results of all brands. In terms of other age categories especially among young respondents between 18 and 24 years (6.5 %) and older respondents over 65 years (7.1 %) Mercedes-Benz / Smart is underrepresented.



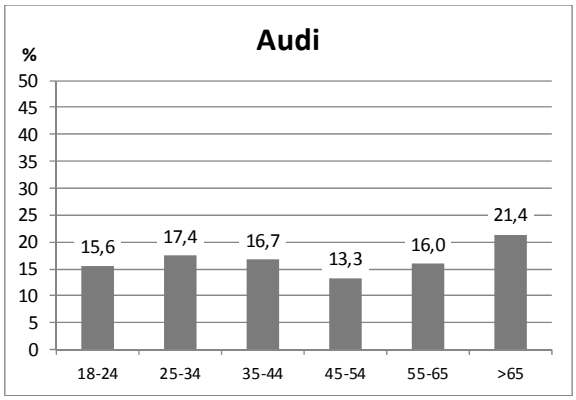
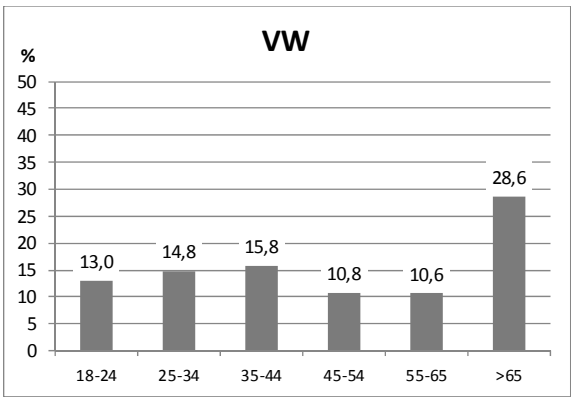




**Figure 48: Separation by respondents' age for Mercedes-Benz/Smart and Audi**



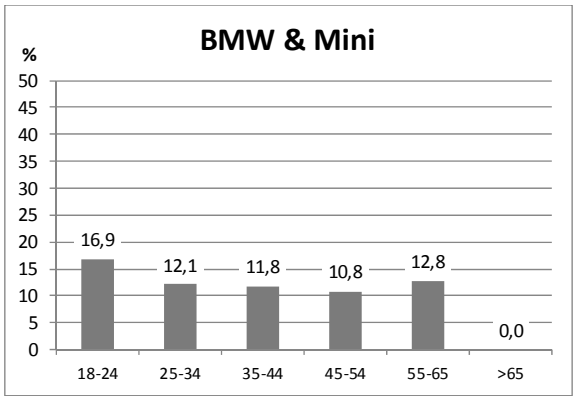
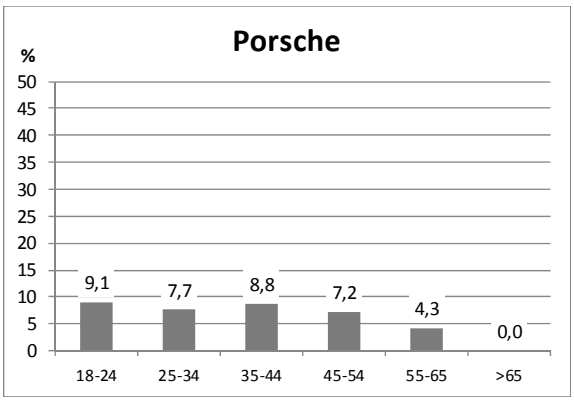




**Figure 49: Separation by respondents' age for Volkswagen and BMW/Mini**



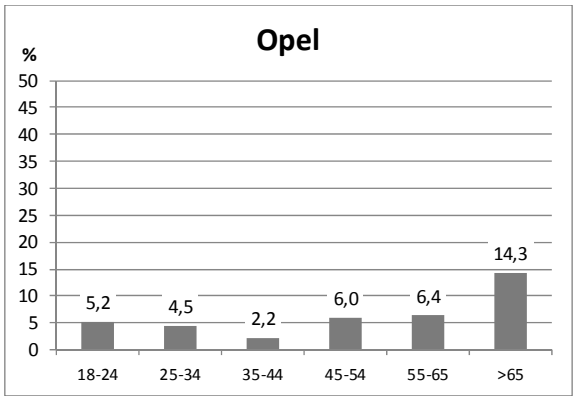




**Figure 50: Separation by respondents' age for Porsche and Opel**

Analysing Audi (Figure 48) the picture is strongly different compared to results of Mercedes-Benz / Smart. In this case, in the age group over 65 years most respondents (21.4 %) named Audi as one of their favourite brands. And also many young respondents in the age between 18 and 24 years (15.6 %) and 25 to 34 years (17.4 %) named Audi as a favourite brand. In the age group of respondents between 45 and 54 years Audi has a minimum (13.3 %), exactly in

that group where Mercedes-Benz / Smart has its maximum. In terms of Volkswagen (Figure 49) it becomes evident that 28.6 % of all respondents in the age group over 65 years named this brand as one of their favourite car brands. This is the highest value for this age group among all vehicle brands. Among all other age groups the values for Volkswagen as a favourite car brand are similar, between 10.6 % for age group 55 to 65 years and 15.8 % for age group of 35 to 44 years. In terms of the car brand BMW / Mini (Figure 49) mainly young respondents named this brand as one of their favourite car brands. Here, 16.9 % of respondents in the age between 18 and 24 years named BMW / Mini as a favourite car brand. This value represents a maximum among all respondents of the present study in this age category. Interestingly, respondents in age groups from 25 to 65 years named similarly BMW / Mini as one of their favourite car brands with values between 10.8 % and 12.8 % and only respondents over 65 years did not name BMW / Mini at all (0.0 %) as a favourite car brand. In Figure 50 results for Porsche and Opel are presented. In terms of Porsche the result is similar to BMW however with lower values. Also here, no respondent aged 65 and more years (0.0 %) named Porsche as one of her favourite brands. For age groups between 18 and 54 between 7.2 % and 9.1 % of all respondents named Porsche as a favourite brand. Finally, analysing the values for Opel, especially few respondents (2.2 %) aged 35 to 44 years named Opel as one of their favourite car brands. However, among respondents aged 65 and more years, with 14.3 % the second highest value within this age group of respondents is reached.

### 4.3.3 Car classes

Within the following Figure 51 an overview about respondents' favourite car classes is offered. The most favourite car class of all respondents of the present study is "Compact cars" with 18.3 %. The second most favourite car class is "Middles size cars" with 16.3 % followed by "Sportscars" (14.3 %), "SUVs" (12.4 %) and "Small cars" (11.1 %). The car class of "Upper class" cars was least times (2.4 % of respondents) named as favourite car class. In terms of the respondents' age separation in the context of favourite car classes as shown in Figure 52 it becomes evident that respondents from different age groups named

different car categories as their favourite car classes. For example, respondents aged between 18 and 24 years named “Sportscars” (22.0 %) as their most favourite car class which is followed by “Compact cars” (18.0 %), “Small cars” (16.0 %) and “SUVs” (14.0 %). What is interesting, in terms of all age groups respondents from this age group named second mostly “Upper class” cars (6.0 %) as a favourite car class. Favourite car category in age class between 25 and 34 years is “Middle size cars” (19.9 %) followed by “Compact cars” (18.4 %) and “SUVs” (15.0 %). What is interesting, this age group represents a maximum in the car class of “Mini cars” with 7.1 %. For respondents from age category 35 to 44 years the most favourite car category is “Compact cars” (16.0 %) followed by “Vans” (14.8 %) and “Small cars” (13.0 %). What is remarkable, the value for “Vans” represents a maximum within this car class in comparison with all respondents’ age categories. What is more, also respondents aged 35 to 44 years are the main ones who named “Utilities” (7.4 %) as one of their favourite car classes. Respondents aged between 45 and 54 years named “Compact cars” (18.8 %) as their most favourite car class followed by “Middle size cars” and “Sportscars” (each 15.0 %). Interestingly, most respondents from this age group named “Upper size cars” (7.5 %) as one of their favourite car classes. In terms of the age group of 55 to 65 years the favourite car class are “Middle size” cars (23.7 %) representing even a maximum value within this car class. Also car classes “Compact” cars and “Sportscars” (each 20.3 %) represent favourite car classes of this age group. Analysing results of respondents’ age group over 65 years then it becomes evident that this age group mostly concentrates on three different car categories where these respondents even reach absolute maximum values compared with respondents from all other age groups. The three most favourite car classes for this age group are “Compact” cars (33.3 %), “Small” cars and “Upper middle size” cars (16.7 %).

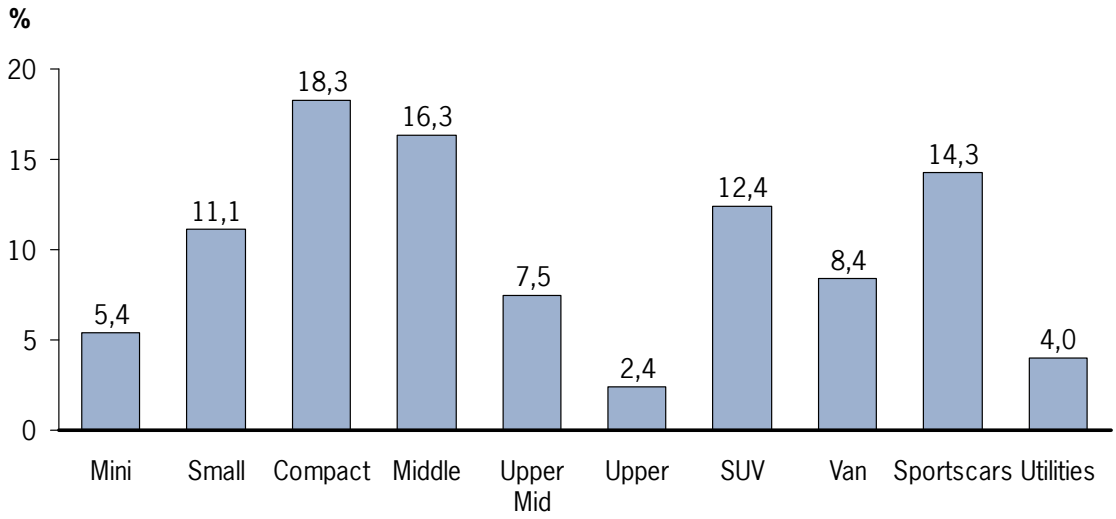



**Figure 51: Overview car categories, all respondents**

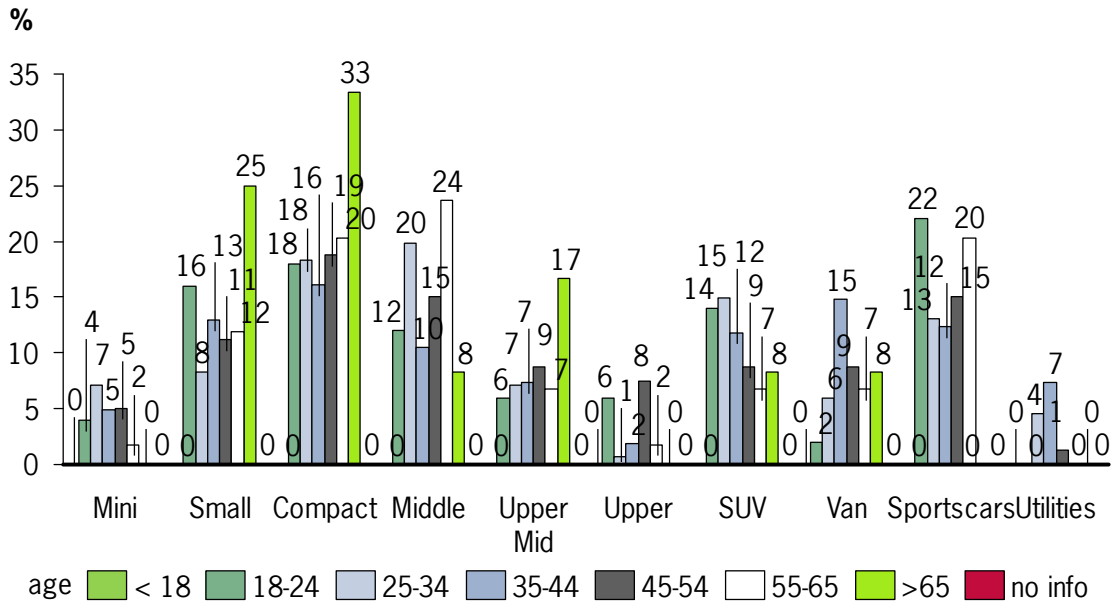



**Figure 52: Vehicle categories all respondents all ages**

In the following Figure 53 a different view on separation of car classes according to respondents' answers is offered. Here, a distinction between respondents who stated to have children and those who stated to have no children is shown. The result is that answers of respondents with and without children are similar in car classes as for example "Small" cars (with children 9.9 %, without children 13.0 %), "Middle size" cars (with children 16.9 %, without children 15.0 %) and SUVs (with children 12.6 %, without children

12.1 %). However the main differences are in two significant classes. Remarkably many respondents without children answered to favour small cars from “Compact” class (23.9 %, compared to 14.5 % with children) and “Mini size” class (6.9 %, compared to 4.6 % with children). On the other hand, remarkably many respondents with children answered to favour bigger cars as “Vans” (12.6 %, compared to 2.4 % without children) and “Upper Midsize” class (9.7 %, compared to 4.5 % without children).

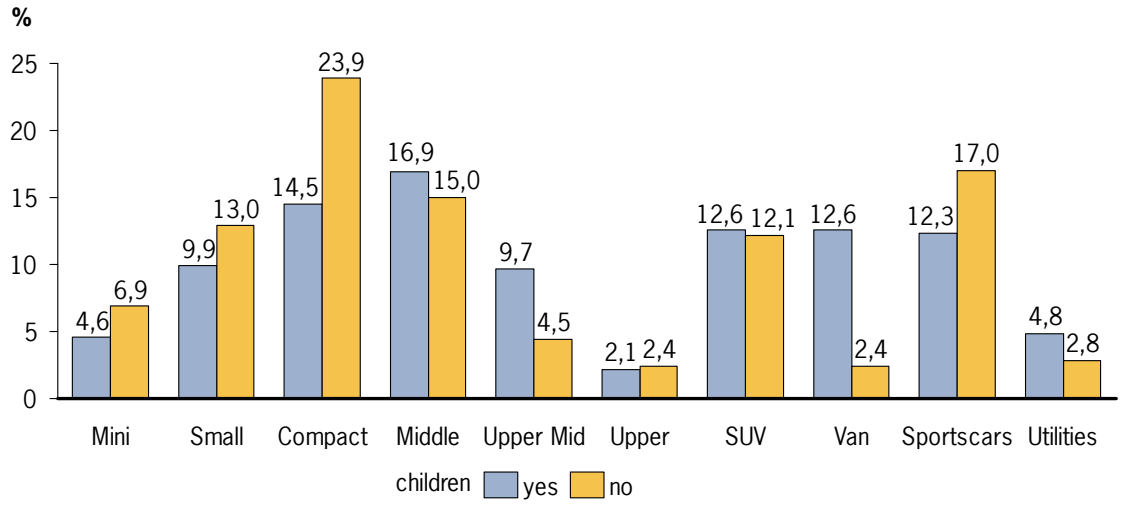



**Figure 53: Overview car categories, all respondents with and without children**

In the following Figure 54 a separation of car classes according to number of persons in the respondents’ household is offered. In the following only values up to 5 persons in a household are evaluated as in the case of the highest value, 6 persons in household, the sample size is 2 and therefore no valid interpretation is possible (Table 9 on page 165). Figure 54 presents an interesting tendency that for car classes of smaller cars the likelihood to favour these car classes falls as the number of persons in household rises. Examples for this are “Small” cars (15.6 % for 1 person in household, 6.1 % for 5 persons in household) and “Compact” cars (27.5 % for 1 person in household, 6.1 % for 5 persons in household). On the other hand, for car classes of bigger cars the likelihood to favour the car class rises together as the number of persons in household goes up. Examples for this are “Upper Midsize” cars (2.8 % for 1 person in household, 11.1 % for 3 persons in household and 9.1 % for 5 persons in household), “Vans” (2.8 % for 1 person in household, 24.2 % for 5

persons in household) and “Utilities” (0.9 % for 1 person in household, 8.3 % for 4 persons in household and 6.1 % for 5 persons in household). Interestingly, in terms of “Sportscars” at the beginning the likelihood to favour this car class drops as the number of persons in household rises (17.4 % for 1 person in household, 8.3 % for 4 persons in household). However 30.3 % of respondents who stated to live in a household with 5 persons named “Sportscars” as a favourite car class and this value even represents the maximum value in this car class among all respondents with different numbers of persons in household. What is also interesting is the result for the “SUV” car category where two different groups of respondents can be found. “SUVs” were named as a favourite car category by 9.1 % to 9.7 % of respondents living in households with 1, 4 or 5 persons and by 14.1 % to 14.2 % of respondents living in households with 2 or 3 persons.

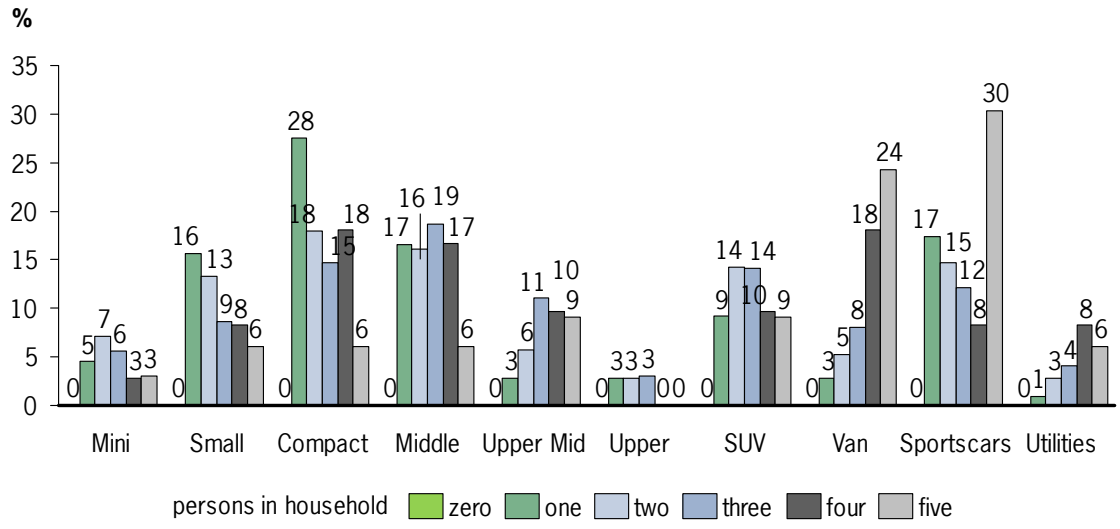



**Figure 54: Overview car categories, all respondents by persons in household**

Finally, the following Figure 55 presents the separation of favourite car classes by respondents’ location of living, whether it is rural or urban. An interesting outcome in this case is that both categories do not differentiate strongly. However, a tendency can be seen that smaller cars are preferred more by respondents from urban location of living. Examples for this are Small size cars (8.9 % rural area, 12.1 % urban area) and Compact cars (17.3 % rural area, 18.7 % urban area). However, in terms of “Mini size” cars, this trend cannot be

approved. This car category is favoured by 6.3 % of respondents living in a rural area and by 5.0 % of respondents living in an urban area. On the other hand, bigger size cars more are preferred by respondents living in rural area. Examples for this are Middle size cars (19.4 % rural area, 15.0 % urban area) and SUVs (14.7 % rural area, 11.4 % urban area). Interestingly, in terms of the big-size car category of “Utilities” this trend cannot be approved. “Utilities” are favoured by only 2.1 % of respondents living in a rural area compared to 4.8 % of respondents living in an urban area. In terms of the car categories “Vans” and “Sportscars” the differences between respondents living in a rural or urban area are small.

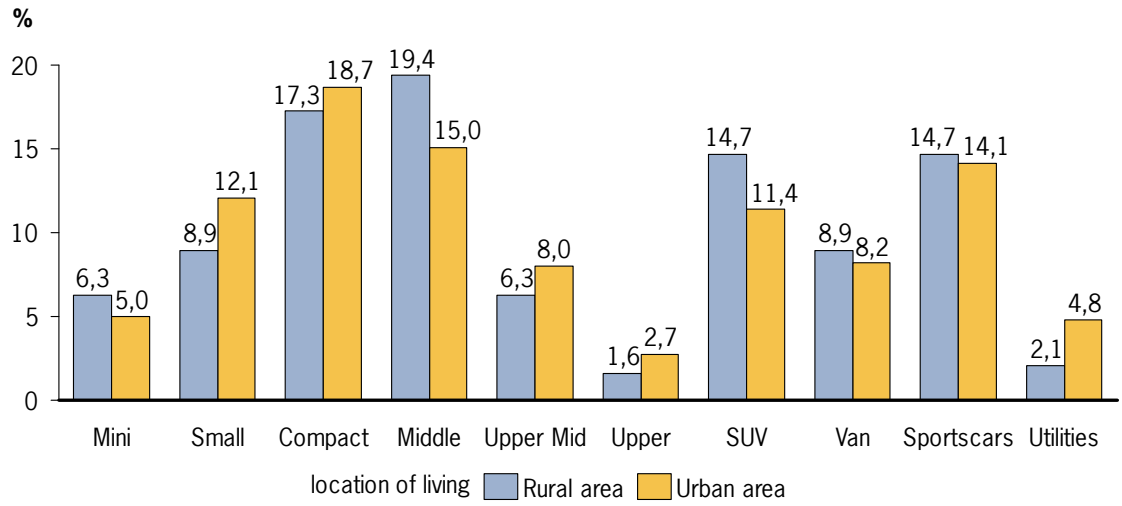



**Figure 55: Overview car categories, all respondents by location of living**

### 4.3.4 Car information source

The following chapter offers an overview about the main research respondents’ answers considering car information sources. Mean values as presented in Table 18 demonstrate that the research’s respondents mainly stated to use internet (5.981) and car dealerships (5.260) as information source. On the other hand, mean values for automobile magazines (3.054) and television programmes (2.632) signalise that respondents do not prefer these sources to obtain information about cars. In terms of Figure 56 it is interesting that 152 (58.9 %) respondents stated with the highest value of 7 to use internet as information source. This effect is also visible in Table 18 which is represented

by a skewness value of -1.861 for internet. What is more, Figure 56 also presents that 80 (31.0 %) respondents stated with lowest value of 1 to use automobile magazines as information source and 101 (39.1 %) stated with a value of 1 to use TV programmes as information source.

**Statistics**

| | | info internet | info automobile magazines | info car dealerships | info tv programmes |
|---|---|---|---|---|---|
| N | Valid | 258 | 258 | 258 | 258 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 5,981 | 3,054 | 5,260 | 2,632 |
| Std. Deviation | | 1,6841 | 1,9178 | 1,6428 | 1,6900 |
| Skewness | | -1,861 | ,519 | -,863 | ,670 |
| Std. Error of Skewness | | ,152 | ,152 | ,152 | ,152 |
| Kurtosis | | 2,514 | -,938 | -,140 | -,673 |
| Std. Error of Kurtosis | | ,302 | ,302 | ,302 | ,302 |

**Table 18: Car information sources**

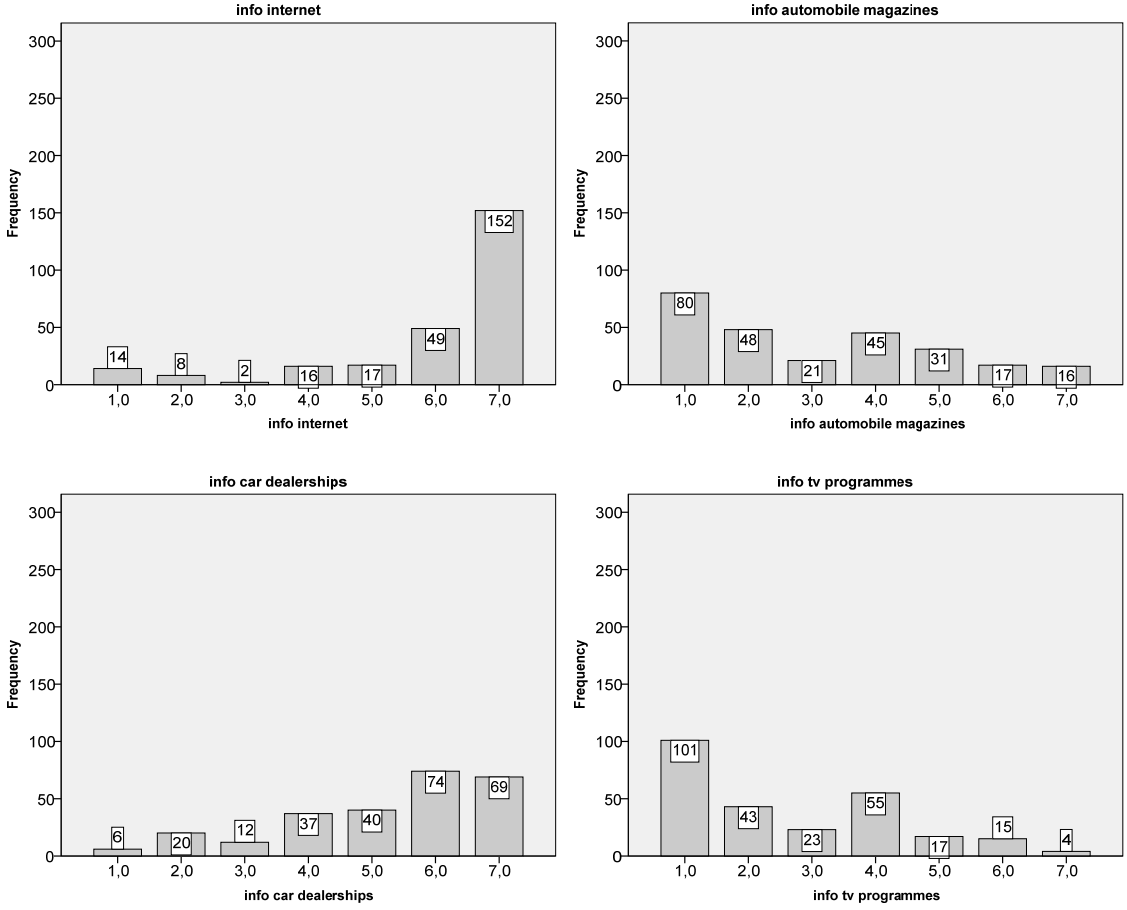



**Figure 56: Histograms of car information sources**

## 4.4 Descriptive statistics of continuous variables

In the following Table 19 descriptive statistics of continuous variables of the present study's main research are presented and clustered in 8 blocks.

**Descriptive Statistics**

| block No. | N | Minimum | Maximum | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| choose boring interesting | 258 | 1,0 | 7,0 | 5,415 | 1,5439 | -,762 | ,152 | -,248 | ,302 |
| choose worthless valuable | 258 | 1,0 | 7,0 | 5,248 | 1,4763 | -,596 | ,152 | -,207 | ,302 |
| choose unpleasant pleasant | 258 | 1,0 | 7,0 | 5,248 | 1,6763 | -,837 | ,152 | -,043 | ,302 |
| good performance easy | 258 | 1,0 | 7,0 | 4,581 | 1,7652 | -,489 | ,152 | -,756 | ,302 |
| can perform well | 258 | 1,0 | 7,0 | 5,434 | 1,6939 | -,982 | ,152 | ,050 | ,302 |
| good performance possible | 258 | 1,0 | 7,0 | 5,791 | 1,5789 | -1,462 | ,152 | 1,478 | ,302 |
| people think should choose | 258 | 1,0 | 7,0 | 5,337 | 1,7924 | -,896 | ,152 | -,271 | ,302 |
| expected choose | 258 | 1,0 | 7,0 | 4,516 | 2,0294 | -,345 | ,152 | -1,108 | ,302 |
| people approve choose | 258 | 1,0 | 7,0 | 5,023 | 1,8733 | -,632 | ,152 | -,667 | ,302 |
| improve knowledge 1 year | 258 | 1,0 | 7,0 | 3,264 | 1,9805 | ,466 | ,152 | -,925 | ,302 |
| effort improve knowledge | 258 | 1,0 | 7,0 | 3,484 | 2,0674 | ,215 | ,152 | -1,274 | ,302 |
| improve knowledge regularly | 258 | 1,0 | 7,0 | 3,326 | 1,9772 | ,435 | ,152 | -1,010 | ,302 |
| info internet | 258 | 1,0 | 7,0 | 5,981 | 1,6841 | -1,861 | ,152 | 2,514 | ,302 |
| info automobile magazines | 258 | 1,0 | 7,0 | 3,054 | 1,9178 | ,519 | ,152 | -,938 | ,302 |
| info car dealerships | 258 | 1,0 | 7,0 | 5,260 | 1,6428 | -,863 | ,152 | -,140 | ,302 |
| info tv programmes | 258 | 1,0 | 7,0 | 2,632 | 1,6900 | ,670 | ,152 | -,673 | ,302 |
| Low price | 258 | 1,0 | 49,0 | 16,198 | 11,2846 | ,986 | ,152 | ,480 | ,302 |
| Income | 258 | 1,0 | 49,0 | 28,209 | 12,7008 | -,046 | ,152 | -,885 | ,302 |
| Convenience | 258 | 1,0 | 49,0 | 27,031 | 14,7183 | -,143 | ,152 | -1,065 | ,302 |
| Time efficiency | 258 | 1,0 | 49,0 | 20,895 | 14,0020 | ,507 | ,152 | -,759 | ,302 |
| Self-concept | 258 | 1,0 | 49,0 | 16,407 | 13,4240 | ,677 | ,152 | -,584 | ,302 |
| High price | 258 | 1,0 | 49,0 | 12,496 | 10,1595 | ,954 | ,152 | ,351 | ,302 |
| Environementally friendly | 258 | 1,0 | 49,0 | 29,337 | 13,8538 | -,156 | ,152 | -1,041 | ,302 |
| Privacy | 258 | 1,0 | 49,0 | 16,430 | 13,1435 | ,711 | ,152 | -,371 | ,302 |
| Exp. brand is high quality | 258 | 1,0 | 49,0 | 19,973 | 12,6308 | ,272 | ,152 | -,778 | ,302 |
| Low boot opening | 258 | 1,0 | 49,0 | 18,198 | 14,2410 | ,709 | ,152 | -,464 | ,302 |
| Upholstery | 258 | 1,0 | 49,0 | 25,434 | 14,3287 | ,001 | ,152 | -1,070 | ,302 |
| Many storage spaces | 258 | 1,0 | 49,0 | 21,767 | 13,9944 | ,459 | ,152 | -,661 | ,302 |
| Colour | 258 | 1,0 | 49,0 | 32,163 | 14,3132 | -,509 | ,152 | -,704 | ,302 |
| Attractive styling | 258 | 1,0 | 49,0 | 27,981 | 13,4669 | -,058 | ,152 | -,965 | ,302 |
| Drivability for long distances | 258 | 4,0 | 49,0 | 33,081 | 13,8068 | -,459 | ,152 | -,868 | ,302 |
| Family | 258 | 1,0 | 49,0 | 24,213 | 12,8656 | -,044 | ,152 | -1,179 | ,302 |
| Like-minded people | 258 | 1,0 | 49,0 | 18,903 | 11,2707 | ,407 | ,152 | -,783 | ,302 |
| Milieu | 258 | 1,0 | 49,0 | 16,116 | 10,3658 | ,776 | ,152 | -,104 | ,302 |
| Friends | 258 | 1,0 | 49,0 | 20,876 | 11,4620 | ,109 | ,152 | -,966 | ,302 |
| Low experience | 258 | 1,0 | 49,0 | 17,655 | 12,8030 | ,850 | ,152 | -,103 | ,302 |
| Confused by high No of choices | 258 | 1,0 | 49,0 | 18,302 | 14,7567 | ,802 | ,152 | -,585 | ,302 |
| Low knowledge compared to sales people | 258 | 1,0 | 49,0 | 24,326 | 13,8157 | ,290 | ,152 | -1,035 | ,302 |
| Shopping imaginary | 258 | 1,0 | 49,0 | 20,872 | 12,4826 | ,373 | ,152 | -,618 | ,302 |
| Professional assistance | 258 | 1,0 | 49,0 | 32,178 | 12,6266 | -,424 | ,152 | -,675 | ,302 |
| Valid N (listwise) | 258 | | | | | | | | |

**Table 19: Descriptive Statistics of continuous variables of main study of present research**

Block 1

All three indicators from first block are reflective indicators of the latent variable attitude. They are represented by questions investigating if the respondents' car choice process is interesting, valuable and pleasant. The result for all three indicators are relatively high mean values and high negative skewness values indicating that respondents tended to answer that for them the car choice process is rather interesting than boring, rather valuable than worthless and rather pleasant than unpleasant. What is more, relatively low negative kurtosis values of these indicators show that the distribution is rather peaked than flat. In the following Figure 57 histograms of discussed indicators are presented.

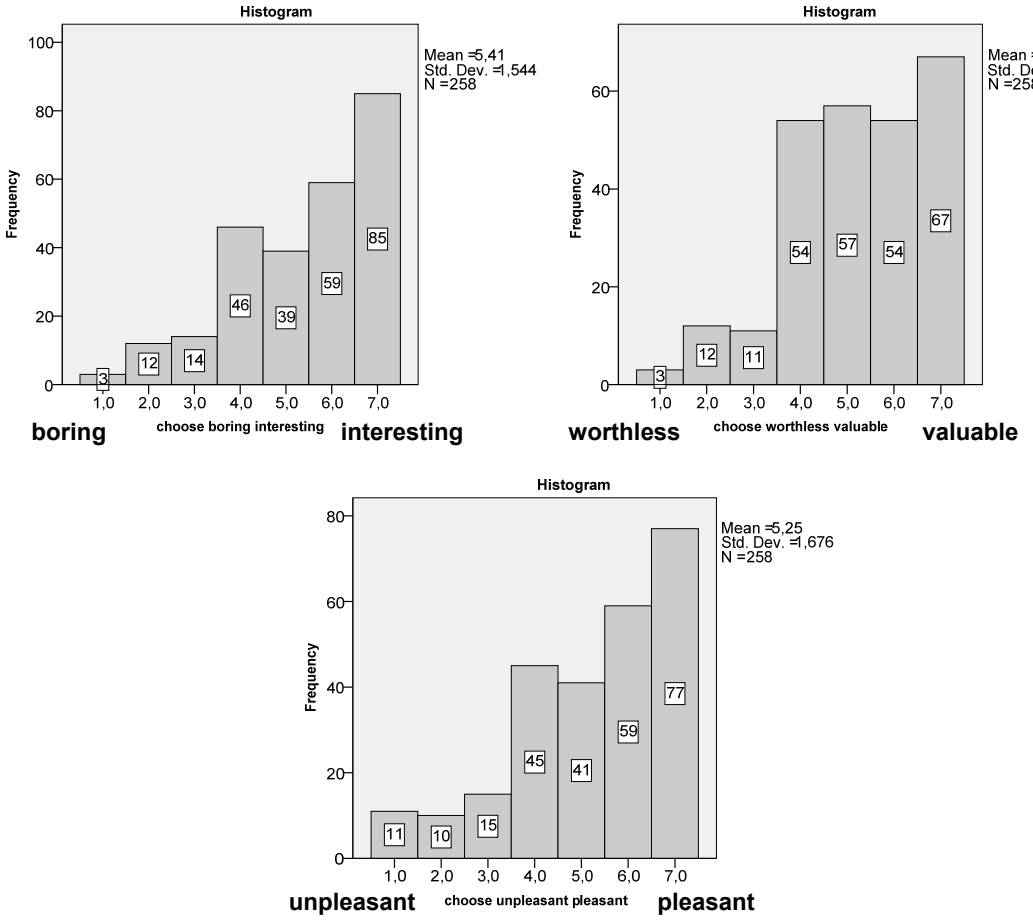



**Figure 57: Histograms of reflective indicators of Attitude**

Block 2

All three indicators from second block are reflective indicators of the latent variable PBC. Here, respondents assess their performance within the car

choice process. It is evident that female respondents of the study judge their own performance as being very good. The indicators' mean values are high as 4.581 for "good performance is easy", 5.434 for "can perform well" and 5.791 for "good performance is possible". Especially in terms of the indicator "can perform well" 95 (36.8 %) respondents stated the highest agreeing value and in terms of the indicator "good performance is possible" even 120 (46.5 %) respondents stated with the highest value that to them a good performance is possible. The tendency of respondents answering high values within these three indicators also is represented by high negative skewness values (see Table 19) as -0.489 for "good performance is easy", -0.982 for "can perform well" and -1.462 for "good performance is possible".

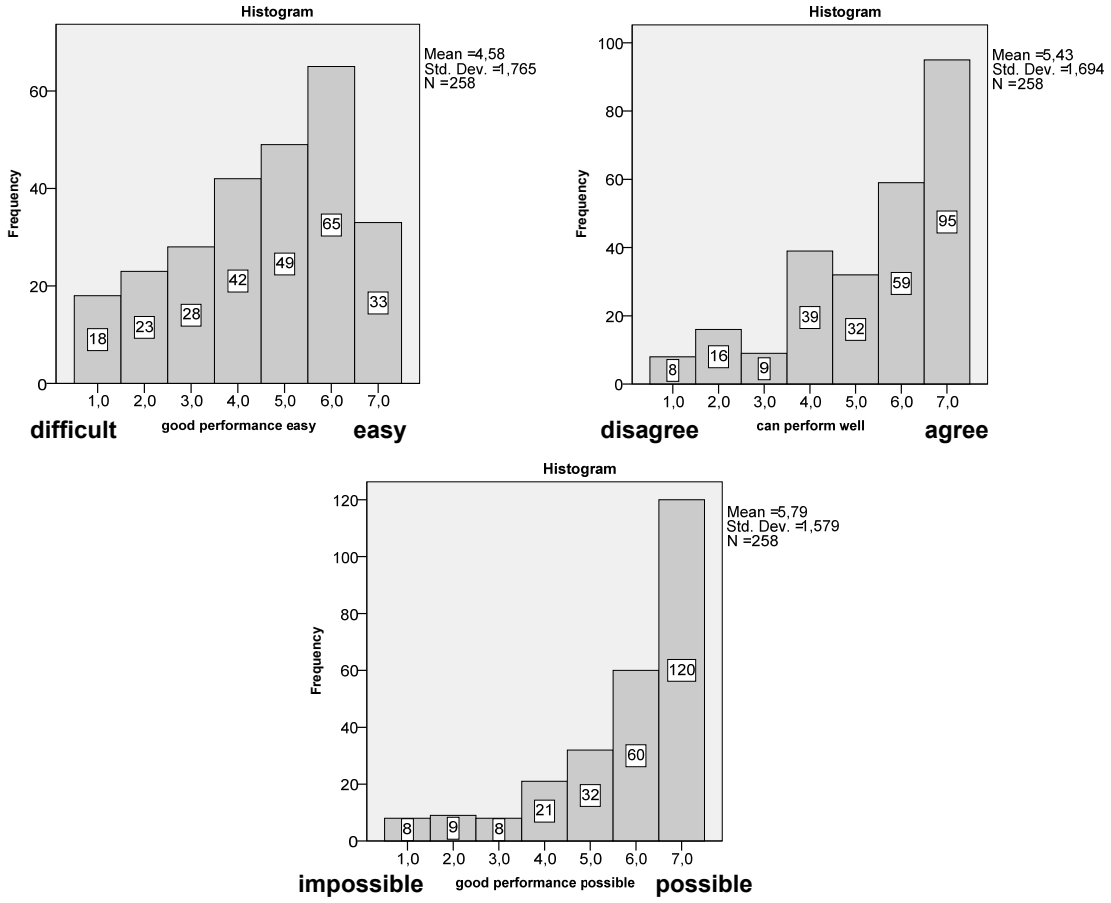



**Figure 58: Histograms of reflective indicators of PBC**

Block 3

Within the third block reflective indicators of the latent variable SN can be found. In terms of the indicators “people think I should choose” (mean: 5.337), “it is expected that I choose” (mean: 4.516) and “people would approve me choosing” (mean: 5.023) it is evident that for all three indicators respondents tended to strongly agree with the questions’ message. This is supported by high negative skewness values for all three indicators. Additionally, the indicator “it is expected that I choose” presents a high negative kurtosis value (-1.108) which indicates a relatively flat distribution. In the following Figure 59 the histograms of all three indicators are presented.

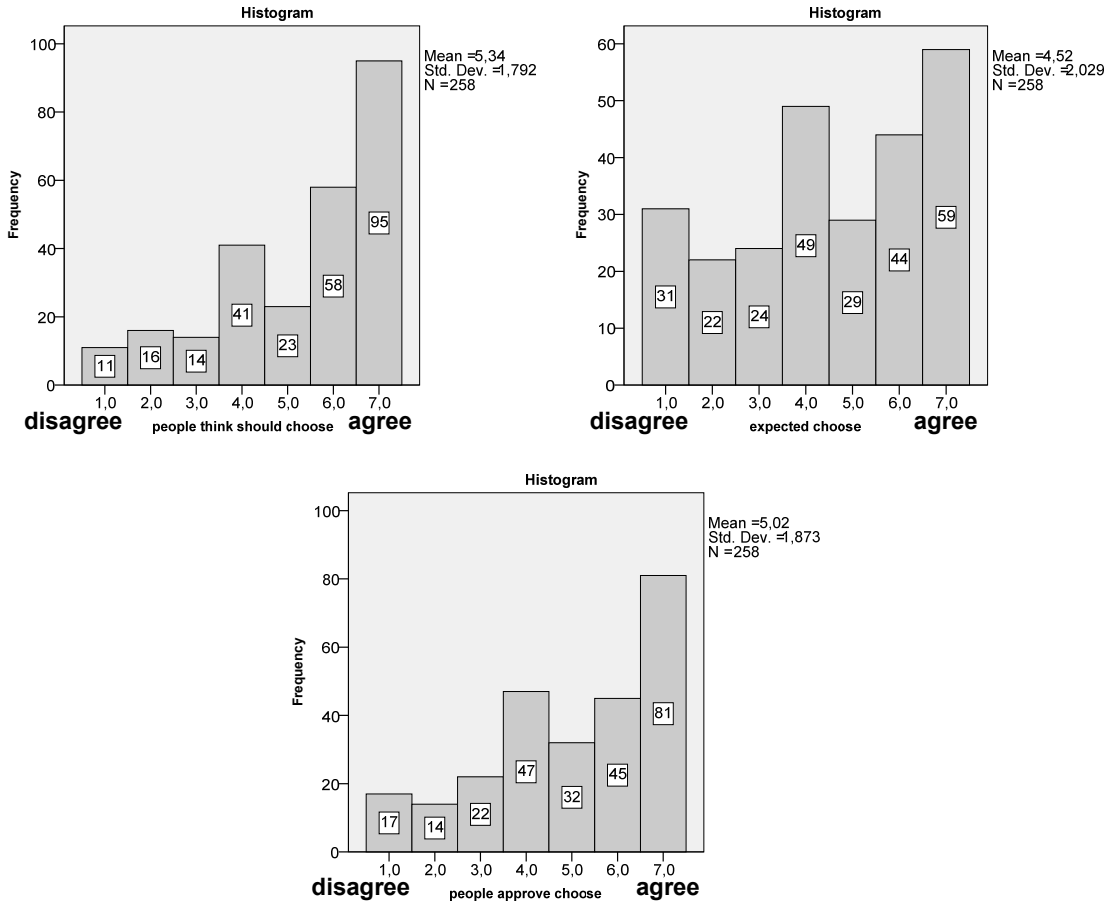



**Figure 59: Histograms of reflective indicators of SN**

Block 4

The following Figure 60 presents histograms of reflective indicators of the variable intention presenting respondents’ willingness to improve knowledge

about cars. It is evident that most respondents stated that they tend more not to improve their knowledge about cars. This is represented by high numbers of respondents who state that they strongly disagree with “improve knowledge within 1 year” (71 respondents, 27.5 %), “make effort to improve knowledge” (71 respondents, 27.5 %) and “improve knowledge regularly” (62 respondents, 24.0 %). The kurtosis values (Table 19) of all three variables are between -0.925 and -1.274. These high negative values indicate that the distribution for all three indicators tends strongly to be flat and not to be peaked.

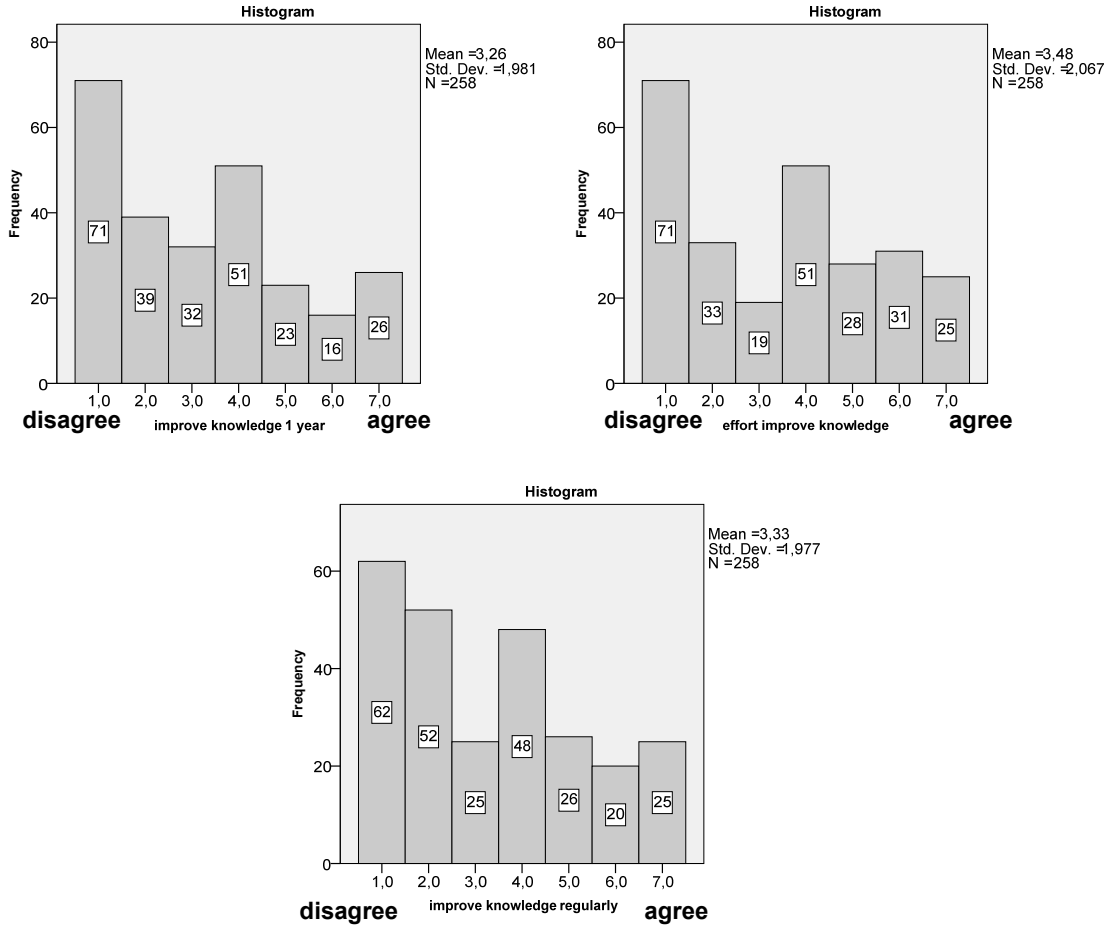



**Figure 60: Histograms of reflective indicators of Intention**

Block 5

The following Figure 61 presents histograms of questions which investigate respondents’ evaluation of information sources. According to these histograms and to the mean, skewness and kurtosis values as presented in Table 19 it is evident that respondents tend strongly to use internet and car dealers as

sources for information about cars. This is represented by 152 (58.9 %) respondents stating with the highest value to use internet and by 143 (55.4 %) respondents stating with the two highest values to use car dealerships as car information source. On the other hand, 128 (49.6 %) respondents stated with both lowest values to use automobile magazines and 144 (55.8 %) respondents stated with both lowest values to use television programmes as information source. These results are supported by the indicators' mean values with 5.981 for internet, 5.260 for car dealerships, 3.054 for automobile magazines and 2.632 for television programmes. Especially the indicator internet as information source has a high negative skewness value of -1.861 and a high positive kurtosis value of 2.514 which indicates that this variable tends strongly to the right high end and is strongly peaked.

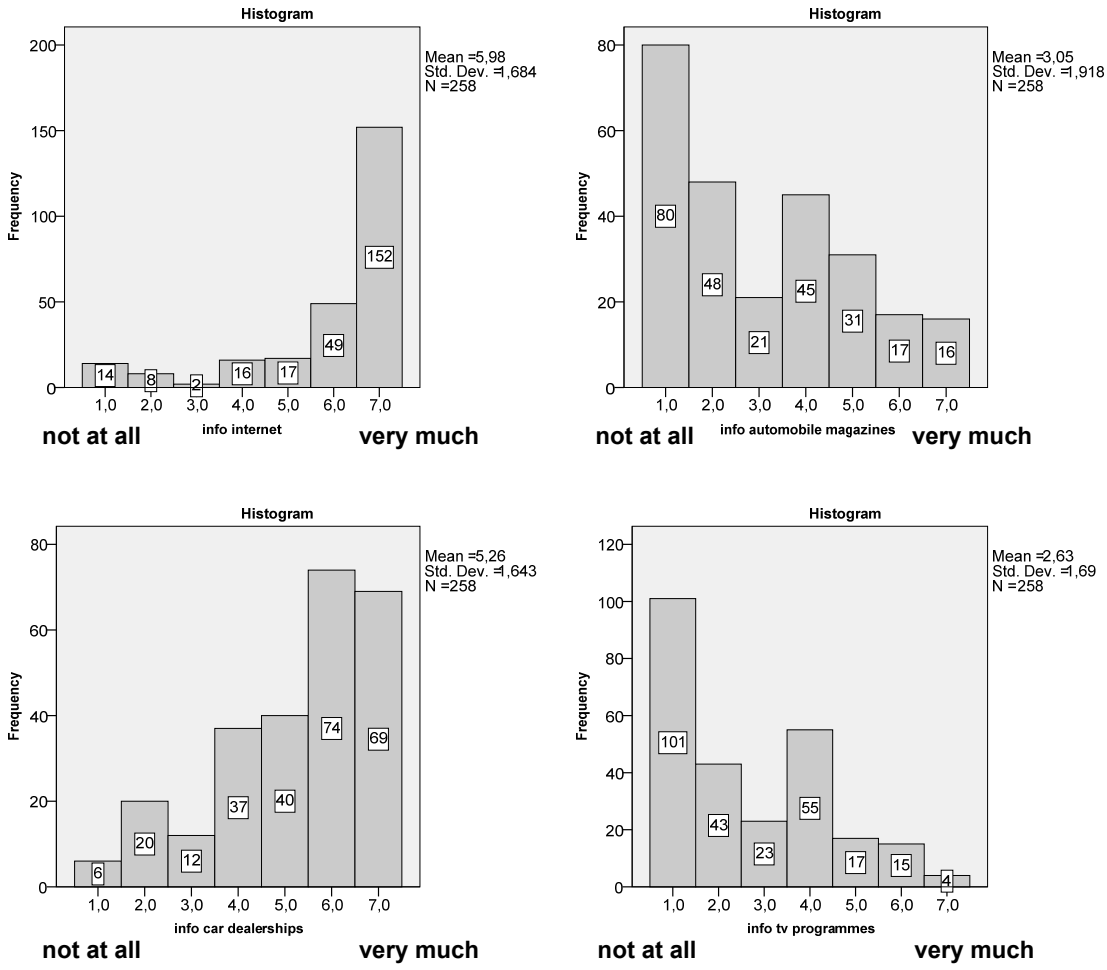



**Figure 61: Histograms of question regarding information sources**

Block 6

In the following Figure 62 and Figure 63 histograms of formative indicators of attitude are presented. All formative indicators of attitude are measured indirectly therefore the maximum value of these variables is 49 (7 x 7) resulting from a multiplication of the maximum values of both indicators from indirect measurement. When analysing the mean values of all indicators which are clustered in block 6 (see Table 19) then low values can be found for “low price” (16.198), “time efficiency” (20.895), “self-concept” (16.407), “high price” (12.496), “privacy” (16.430), “expensive brand means high quality” (19.973), “low boot opening” (18.198) and “many storage spaces” (21.767). The resulting effect for these indicators having histograms with a strong tendency to the left side meaning “not important” is supported by relatively high positive skewness values of these indicators (see Table 19). What is more, analysing the kurtosis values then these indicators can be clustered in two groups, those with positive kurtosis representing a peaked distribution and those with negative kurtosis representing a flat distribution. According to this, peaked distributions can be found for “low price” (0.480) and “high price” (0.351). Flat distributions can be found for “time efficiency” (-0.759), “self-concept” (-0.584), “privacy” (-0.371), “expensive brand means high quality” (-0.778), “low boot opening” (-0.464) and “many storage spaces” (-0.661). On the other hand, relatively high mean values can be found for “income” (28.209), “convenience” (27.031), “environmentally friendly” (29.337), “colour” (32.163), “attractive styling” (27.981) and “drivability for long distances” (33.081). These relatively high mean values are supported by negative skewness values for all these indicators (see Table 19). The kurtosis values of these indicators are high negative values meaning that the distribution is rather flat. This result also is supported by the shape of histograms for these indicators as presented in Figure 62 and Figure 63.

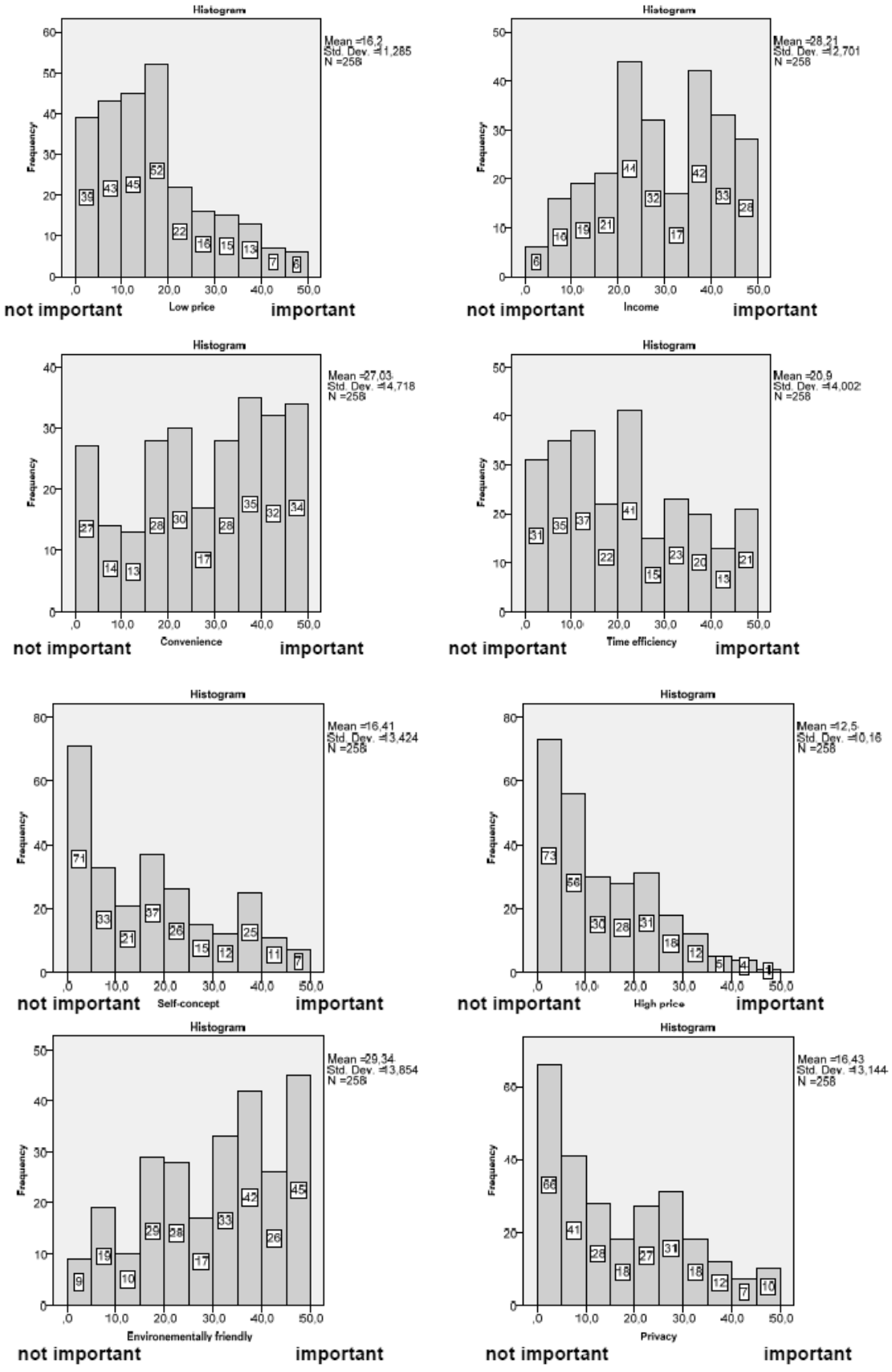



**Figure 62: Histograms of formative indicators of Attitude - part 1**

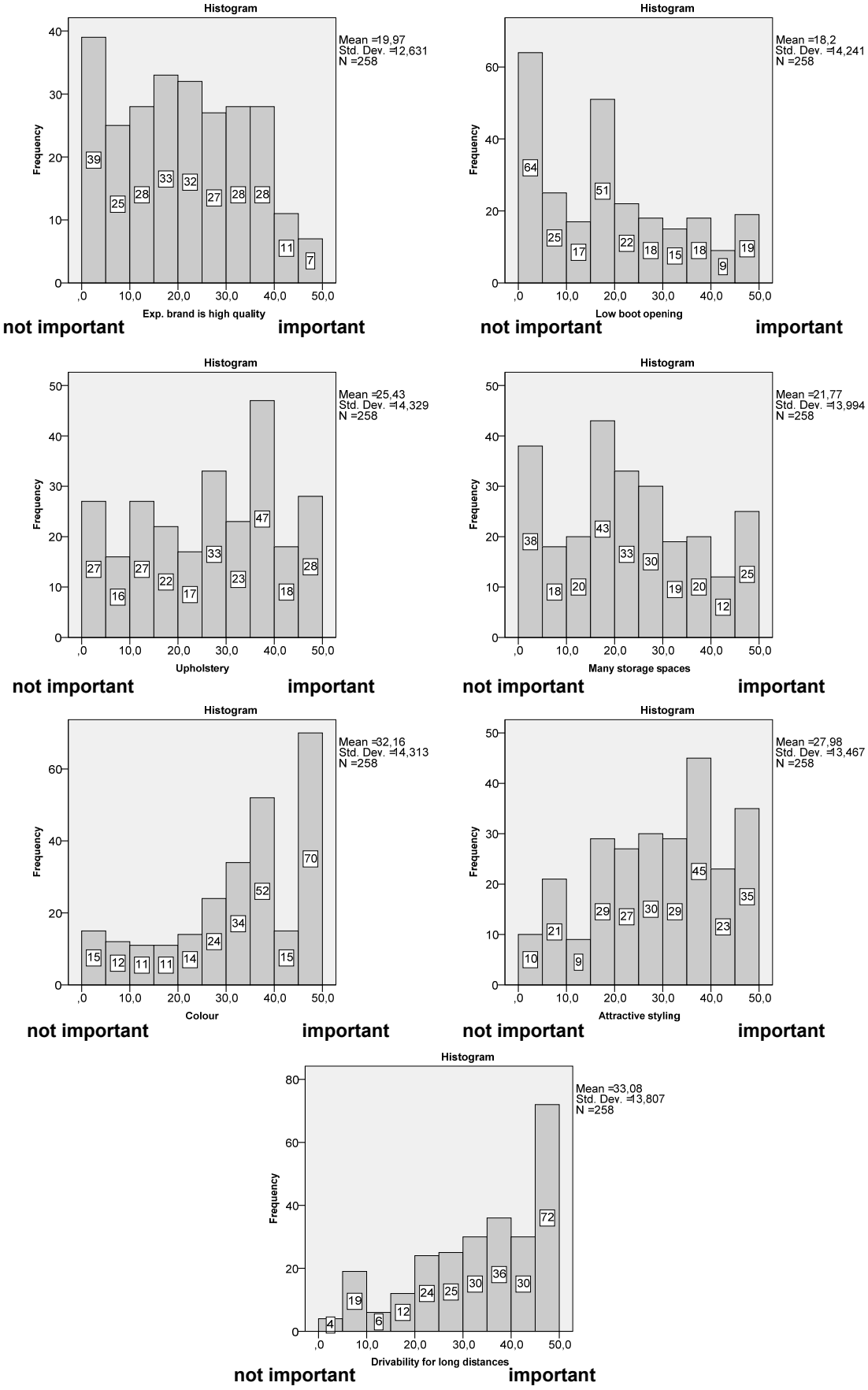



**Figure 63: Histograms of formative indicators of Attitude - part 2**

Block 7

The seventh block (Table 19) presents results for formative indicators of the latent variable SN. The histograms of these indicators are presented in the following Figure 64. In terms of the mean values of these indicators, low mean values can be found for “like-minded people” (18.903), “milieu” (16.116) and “friends” (20.876). These low skewness values are supported by positive skewness values for these indicators representing a tendency of results to the left side of the histogram (see Figure 64). The highest mean value can be found for “family” (24.213) combined with a slightly negative skewness value of -0.044. Additionally, the kurtosis values of all four indicators from this block 7 interestingly are negative showing that the distributions tend to be rather flat. Only “milieu” with a kurtosis of -0.104 is near to a normal distribution.

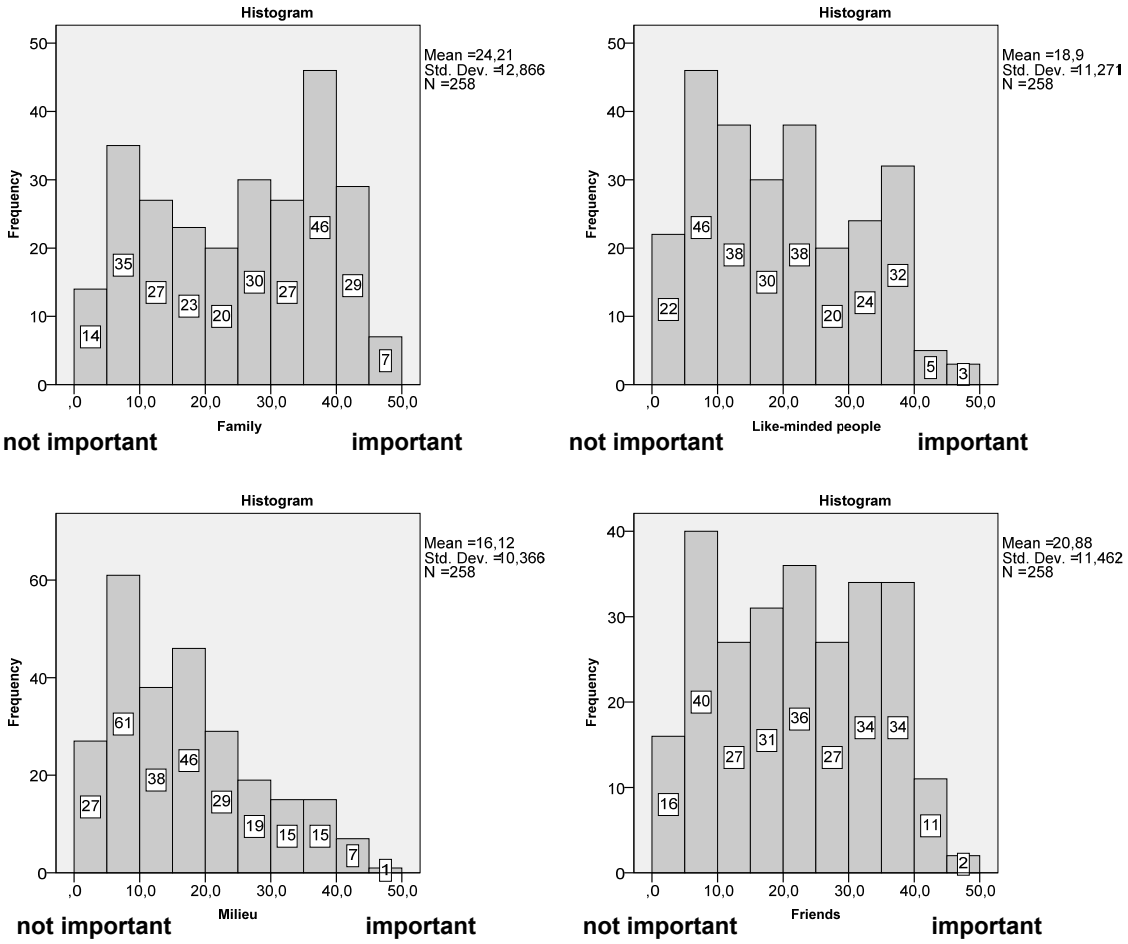



**Figure 64: Histograms of formative indicators of SN**

Block 8

The last block 8 as presented in Table 19 clusters results of formative indicators of the latent variable PBC. The corresponding histograms can be found in Figure 65 and Figure 66. When analysing mean values of these five indicators then low mean values can be found for “low experience” (17.655) and “confused by high No. of choices” (18.302). Moderate mean values can be found for “low knowledge compared to salespeople” (24.326) and “shopping imaginary” (20.872) and a high mean value can be found only for “professional assistance” (32.178). When analysing the skewness values of these indicators then results of the mean values are supported with high positive values for “low experience” (0.850) and “confused by high No. of choices” (0.802), moderate positive values for “low knowledge compared to salespeople” (0.290) and “shopping imaginary” (0.373) and a negative skewness value for “professional assistance” (-0.424). Interestingly, all indicators have negative kurtosis values which indicate that the distributions of these indicators are rather flat. Only “low experience” tends to a normal distribution with a kurtosis value of -0.103.

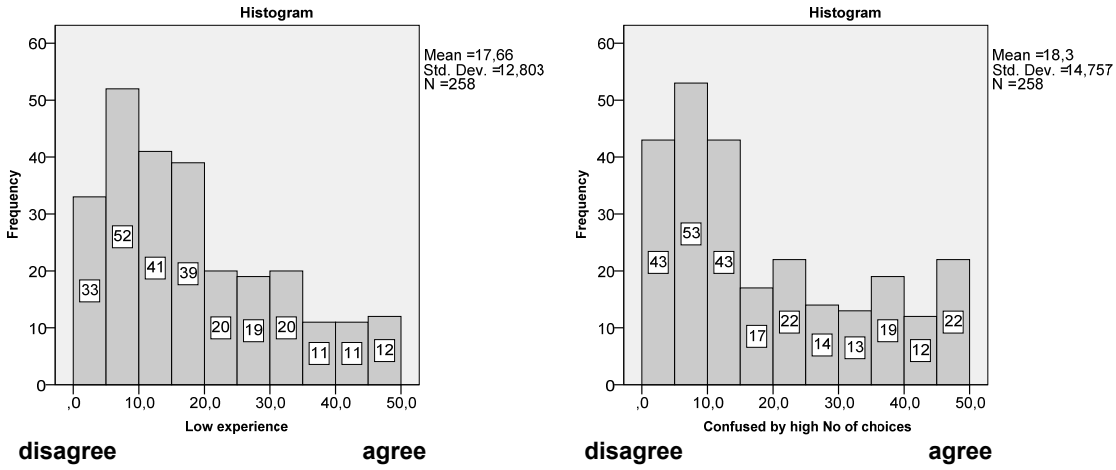



**Figure 65: Histograms of formative indicators of PBC – part 1**

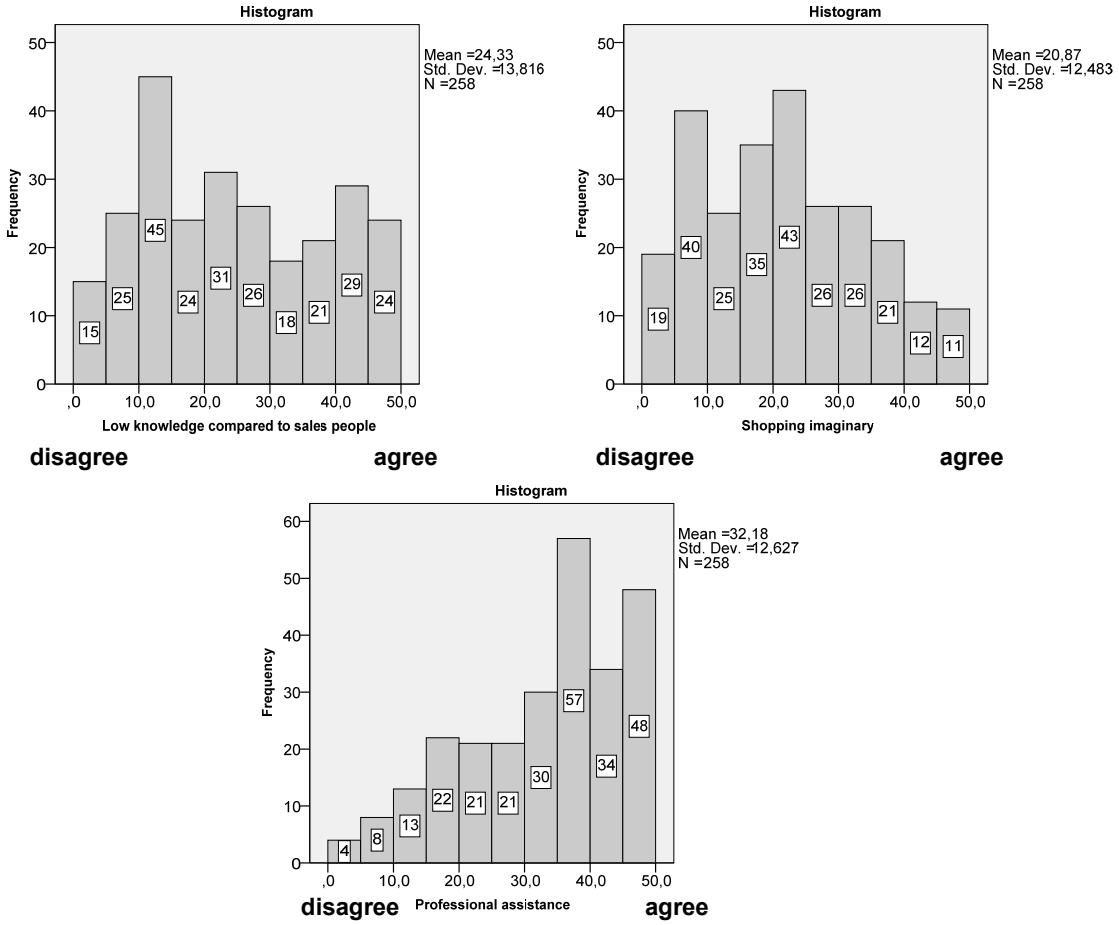



**Figure 66: Histograms of formative indicators of PBC – part 2**

## 4.5 Outliners

As recommended by Pallant (2013) all indicators as presented in chapter 4.4 are investigated in terms of outliners. To do so, boxplots of all indicators as listed in Table 19 are checked for outliners. The result of this investigation is presented in the following Figure 67. Only four indicators are conspicuous in terms of outliners, “good performance possible”, “information source internet”, “low price” and “high price”. To decide if these outliners have to be excluded from the data base Pallant (2013) suggests to check histograms of conspicuous indicators if data points are sitting alone on the extremes. On the other hand, if histograms show that scores drop in a reasonably even slope then data bases do not have to be limited by potential outliners in boxplots of those indicators.

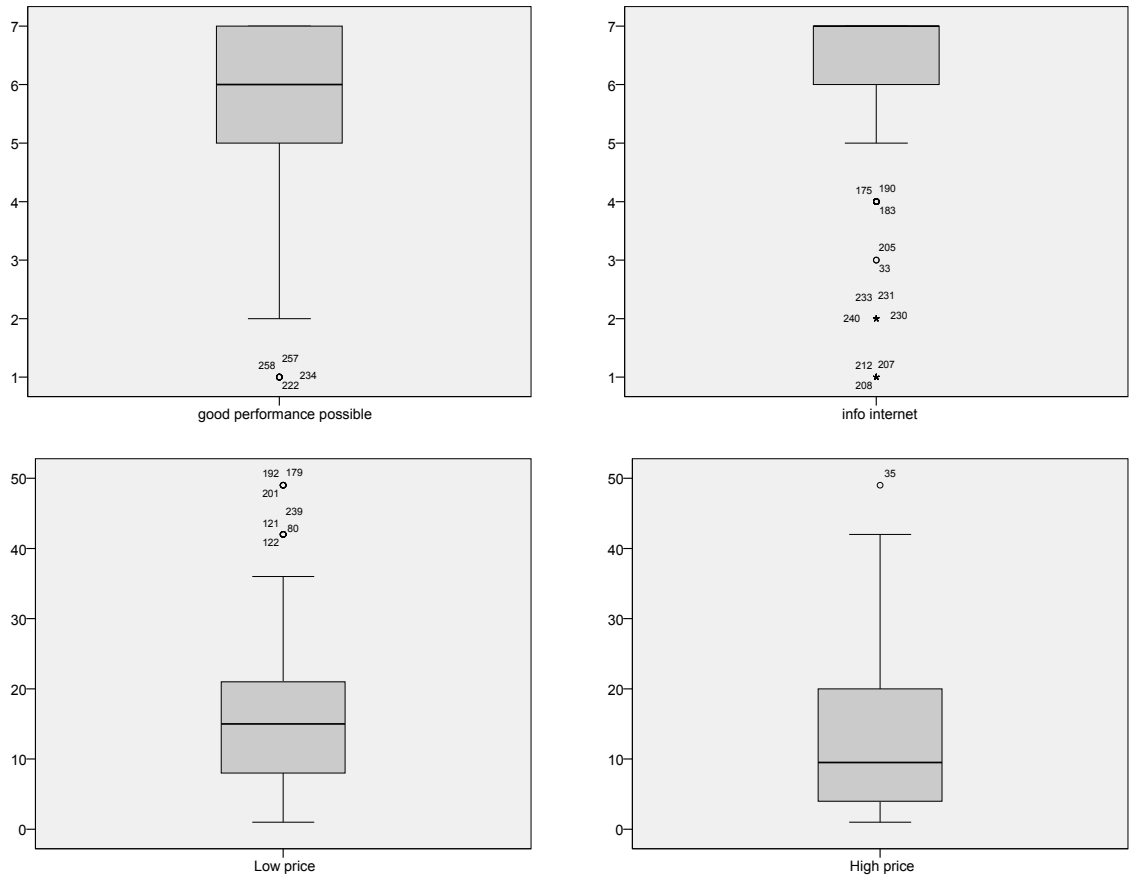



**Figure 67: Boxplots of indicators with outliners**

Histograms of those four conspicuous indicators are presented in Figure 58, Figure 61 and Figure 62. It is evident that in all four cases histograms have an even slope and that in all cases many respondents answered the question with the lowest or the highest value. Due to that, within the rest of answers potentially easily outliners can be identified. Therefore, all cases which have been identified as potential outliners (Figure 67) will not be excluded from the data base.

## 4.6 Factor analysis

In the following chapter a factor analysis is worked out. This is done by in a first step preparing the data of the present research for factor analysis and in following steps an Exploratory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA) are worked out. This structure of factor analysis is

recommended by Thompson (2004) who states that when researchers work with models then in a first step an EFA shall be worked out to extract factors and in a second step a CFA is to be carried out in order to examine the result from EFA.

### 4.6.1 Preparation of factor analysis of questionnaire

Questions 1 to 15 and 26 to 40 offer an indirect measurement of formative indicators of the latent variable attitude. The evaluation of questions from both blocks is in the same direction, where the value 1 is for example not relevant and 7 very important. Therefore it is correct to calculate the factors as described in the “Research Methodology” chapter. Questions 41 to 44 and 45 to 48 offer an indirect measurement of formative indicators of the latent variable SN. Here, the evaluation of questions from both blocks is not in the same direction, questions 41 to 44 are orientated with value of 1 as "not at all" and value of 7 as "very much" and questions 45 to 48 are orientated with value of 1 as "true" and value of 7 as "false". For the following calculation, results from questions 45 to 48 are inverted so that value of 1 represents "false" and value of 7 represents "true". Questions 50 to 54 and 55 to 59 offer an indirect measurement of formative indicators of the latent variable PBC. Also in this case, the evaluation of questions from both blocks is not in the same direction. Questions 50 to 54 are orientated with value of 1 as "agree" and value of 7 as "disagree" and questions 55 to 59 are orientated with value of 1 as "false" and value of 7 as "true". Within the following calculation results from questions 50 to 54 are inverted. Resulting from this the value of 1 represents "disagree" and value of 7 represents "agree". For consistency reasons in the evaluation of the questionnaire's questions also the orientation of values resulting from questions 18, 19, 20, 21, 23, 24, 25 is changed so that the positive evaluation represents the value of 7 and the negative evaluation represents the value of 1. The latent variable attitude is measured by in total 15 indirect formative indicators, the latent variable SN is measured by 4 indirect formative indicators and the latent variable PBC is measured by 5 indirect formative indicators.

### 4.6.2 Attitude, Subjective Norm, Perceived Behavioural Control and Intention

In the following Table 20 the minimum and maximum values for attitude, SN, PBC and Intention are presented. As recommended by Plant (2009), in order to create a possibility to compare all latent variables to each other without complication all formative indicators have been normalized to a scale 1 to 10. Therefore, results of formative indicators of attitude were divided by 73,5, results of formative indicators of SN were divided by 19,6, results of formative indicators of PBC were divided by 24,5 and results of formative indicators of intention were divided by 117,6 which represents the sum of 73,5, 19,6 and 24,5. Normalized variables are represented by the value of 10 in the variable name as attitude 10, subjective norm 10, perceived behavioural control 10 and intention 10.

**Statistics**

| | | Attitude (10) | Subjective Norm (10) | Perc. beh. control (10) | Intention (10) |
|---|---|---|---|---|---|
| N | Valid | 258 | 258 | 258 | 258 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 4,70205 | 4,08717 | 4,62585 | 4,58370 |
| Median | | 4,64626 | 4,08163 | 4,22449 | 4,63435 |
| Std. Deviation | | 1,030378 | 1,943297 | 1,900541 | ,852113 |
| Skewness | | ,040 | ,156 | ,483 | -,249 |
| Std. Error of Skewness | | ,152 | ,152 | ,152 | ,152 |
| Kurtosis | | ,142 | -,756 | -,248 | ,630 |
| Std. Error of Kurtosis | | ,302 | ,302 | ,302 | ,302 |
| Range | | 6,095 | 8,724 | 9,755 | 5,374 |
| Minimum | | 1,769 | ,204 | ,245 | 1,565 |
| Maximum | | 7,864 | 8,929 | 10,000 | 6,939 |

**Table 20: Statistics of Attitude, Subjective Norm and Perceived Behavioural Control**

In terms of attitude it is evident that most respondents evaluated formative indicators belonging to attitude in the middle range. This result for attitude is presented in Figure 68. In Table 20 this result is represented by a mean value of 4.70205, a median value of 4.64626 and the small standard deviation value

of 1.030378. What is more, small values for skewness (0.040) and kurtosis (0.142) underpin the described rather normal distribution of respondents' answers to formative indicators of attitude.

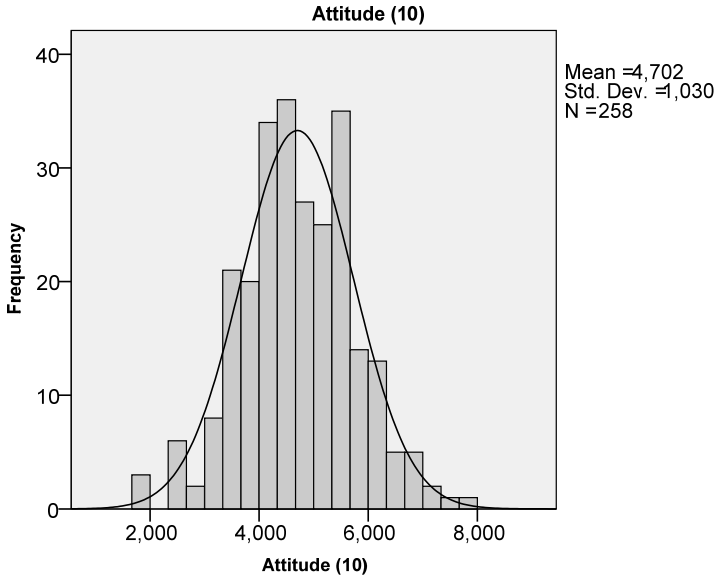



**Figure 68: Attitude normalized to scale of 10**

In terms of SN it is evident that the respondents' answers are in a wide range of values with a tendency to lower values. This result for SN is offered in Figure 69. In Table 20 this result is represented by a mean value of 4.08717, a median value of 4.08163 and the higher standard deviation value of 1.943297. What is more, the higher value for skewness (0.156) and the stronger negative value for kurtosis (-0.756) underpin the described rather flat distribution of respondents' answers to formative indicators of SN. What is more, the high value for range (8.724) which results from a minimum value of 0.204 and a maximum value of 8.929 presents that respondents' answers nearly covered completely the possible range from 0 to 10.

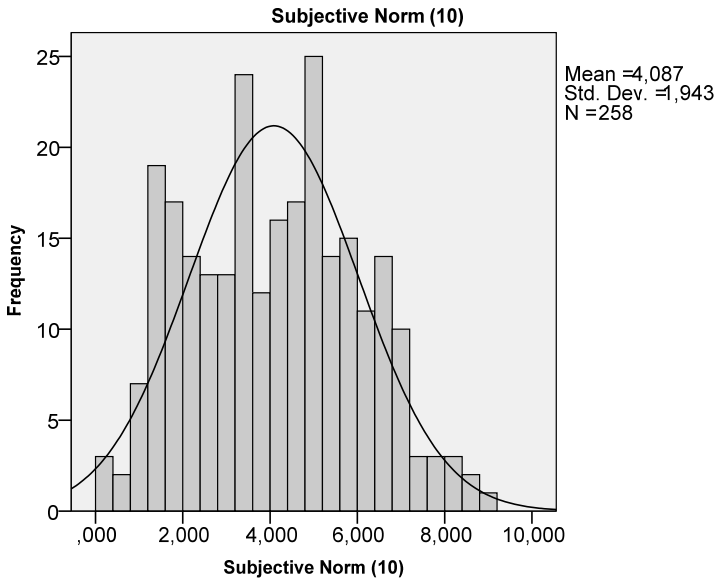



**Figure 69: SN normalized to scale of 10**

In terms of PBC it is evident that the respondents' answers are in a wide range of values however with a stronger tendency to lower values. This result for PBC is presented in Figure 70. In Table 20 this result is represented by a mean value of 4.62585, a median value of 4.22449 and the higher standard deviation value of 1.900541. What is more, the high value for skewness (0.483) and the higher negative value for kurtosis (-0.248) underpin the described distribution of respondents' answers to formative indicators of PBC What is more, the value for range (9.755) nearly reaches the maximum of 10. This results from a minimum value of 0.245 and a maximum value of 10.000. The maximum value of 10.000 represents that cases exist when present study's respondents evaluated all questions to PBC with a maximum value.

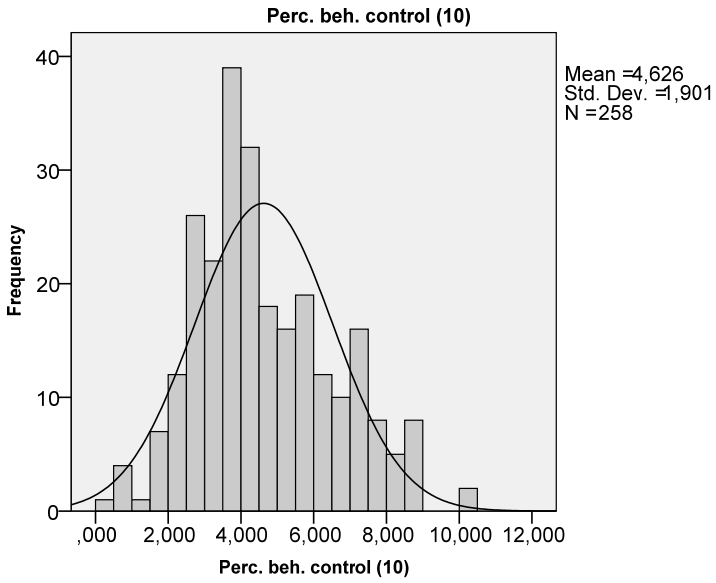



**Figure 70: PBC normalized to scale of 10**

The following Figure 71 presents the result for intention which is the sum of the variables of attitude, SN and PBC. In this case, it is interesting that this variable has a negative skewness of -0.249 even though all input variables of intention have positive values for skewness. What is more, the minimum value of 1.565 and the maximum value of 6.939 create a small range of 5.374. In this context, the relatively high kurtosis of 0.630 is interesting.

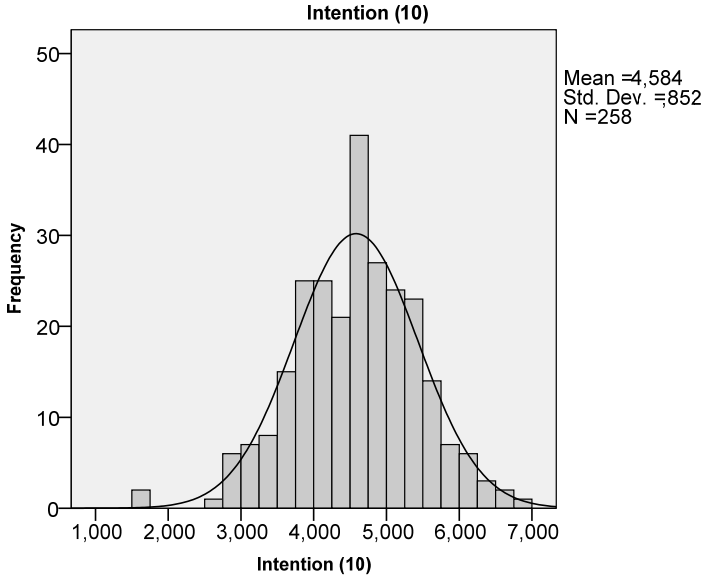



**Figure 71: Intention**

For further analysis Figure 73 and Figure 74 present mean values for attitude, SN, PBC and intention distributed by respondents' age, respondents' education level and respondents' household income. In the following, results from categories "no information" are not discussed as in this case respondents did not state their age, education level or household income and therefore no valid interpretation is possible. Within Figure 72 it is interesting that results for attitude are similar for all ages with relatively high mean values between 4.556 (over 65 years) and 4.882 (between 45 and 54 years). In terms of SN interestingly differences between age groups can be found. At higher ages "between 55 and 65 years" (3.638) and "over 65 years" (3.597) and at the lowest age category "between 18 and 24 years" (3.910) the values are lower than 4 and for other ages the value is over 4. The maximum value 4.263 is reached by respondents in age category "between 25 and 34 years". This presents that questions considering SN were evaluated with lower values by respondents with low and higher ages and higher values by respondents with a middle age. Furthermore, in terms of results from PBC the highest values are reached by respondents with higher ages of "between 55 and 65 years" (5.034) and "over 65 years" (5.607) and the lowest values are reached by middle-aged respondents "between 35 and 44 years" (4.406) and "between 45 and 54 years" (4.130). This indicates that questions considering PBC were evaluated with high values by respondents with higher ages and with lower values by middle-aged respondents. Interestingly, in terms of the result of intention, for all ages nearly same values can be found between 4.551 (between 35 and 44 years) and 4.662 (between 55 and 65 years). A possible explanation can be that differences from SN values and PBC values obviously compensate each other.

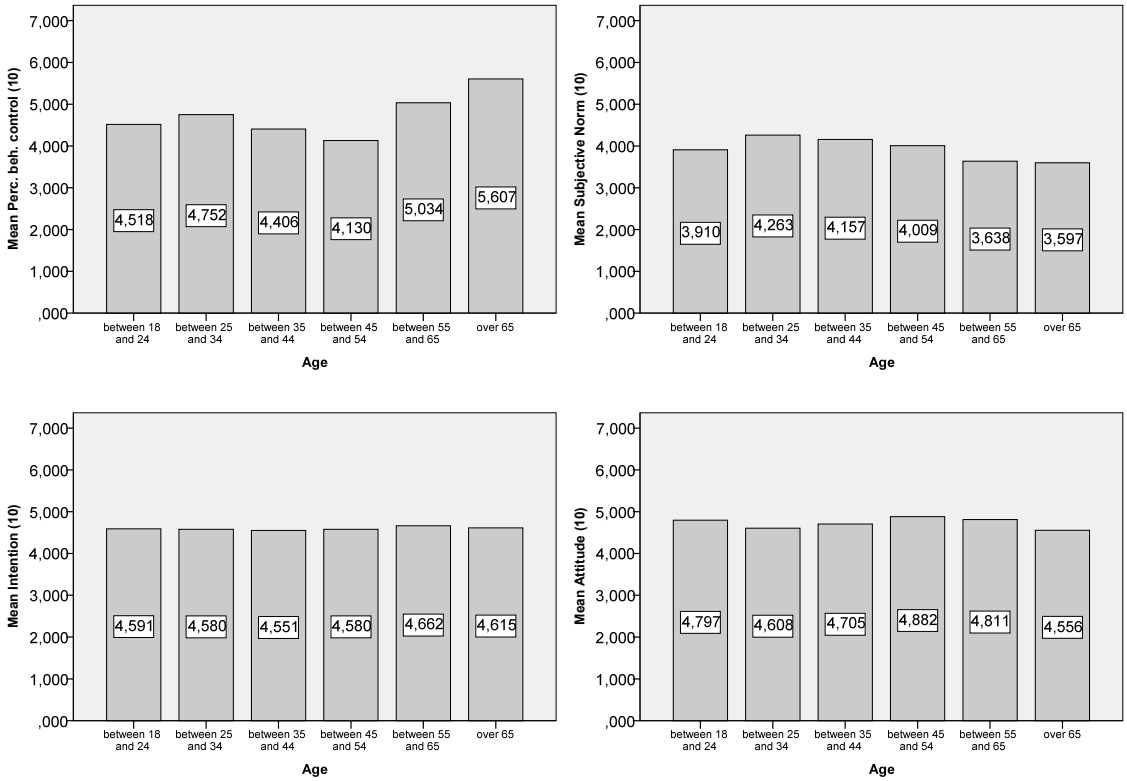



**Figure 72: Attitude, SN, PBC and Intention by age**

When analysing results of separation by education (Figure 73) it is evident that in terms of attitude the highest value is reached by respondents with a “Bachelor diploma” (4.931). For all other education levels as “intermediate high school” (4.656), “high school” (4.622), “Master diploma” (4.560) and “Doctor or higher diploma” (4.676) the values are similar at a slightly lower level. According to this questions considering attitude were answered with highest values by respondents with a “Bachelor diploma”. In terms of SN a difference between highest and lowest values can be seen. Respondents with “Doctor or higher diploma” (4.932) reach a high value of nearly 5 and respondents with lowest education levels as “intermediate high school” (3.926) and “high school” (3.930) reach low values below 4. Due to that, obviously questions considering SN were answered with high values by respondents with lower education levels and with higher values by respondents with higher education levels. Analysing results for PBC, the highest value 4.972 is reached by respondents with the lowest education level “intermediate high school” and results of respondents with all other education levels are similar on an intermediate level between 4.367

(Doctor or higher diploma) and 4.654 (Master diploma). Therefore, respondents with the lowest education level evaluated questions concerning PBC with the highest values. Finally, in terms of intention, the highest values 4.801 is evaluated by respondents with a Bachelor diploma and all other education groups have similar values between 4.460 (high school / German “Abitur”) and 4.654 (Doctor or higher diploma).

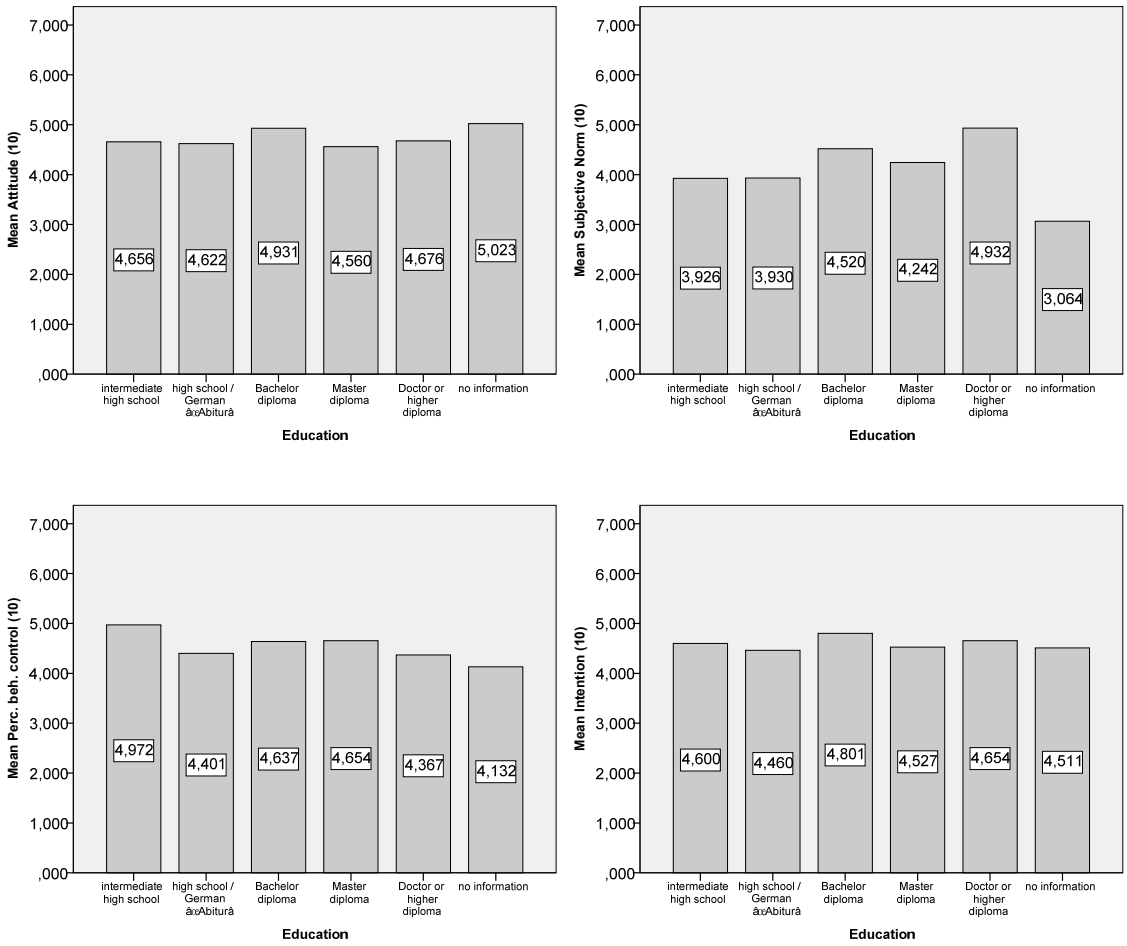



**Figure 73: Attitude, SN, PBC and Intention by education**

In the following Figure 74 results for attitude, SN, PBC and intention according to respondents’ household income is offered. In this case, results from category “over 18.000 EUR” are not evaluated as the sample size for this special group is low with only 2 respondents (see Table 12 on page 169). In terms of results for attitude it is evident that evaluated values rise as the household income level rises, from 4.471 for “under 1.300 EUR” up to 4.926 for “5.001 EUR to 18.000 EUR”. Therefore questions considering attitude are answered with

higher values by respondents' as the household income rises. Results from SN present that highest values are evaluated by respondents from the lowest income group "under 1.300 EUR" (4.668) and the highest income group "5.001 EUR to 18.000 EUR" (4.658). On the other hand, the lowest value is evaluated by respondents from group "3.601 EUR to 5.000 EUR" (3.714). Therefore, questions considering SN were evaluated with highest values by respondents whose household income is very low or very high. In terms of PBC results are vice versa to results of SN. The lowest values are evaluated by respondents from lowest income group "under 1.300 EUR" (4.190) and both highest income groups "3.601 EUR to 5.000 EUR" (4.403) and "5.001 EUR to 18.000 EUR" (4.428). The highest value 5.177 is reached by respondents from intermediate income group "2.601 EUR to 3.600 EUR". Therefore, as a result questions considering PBC have been evaluated with low values by respondents having a very low household income or a high household income. As a result, in terms of Intention all mean values are similar and only vary slightly between 4.431 (3.601 EUR to 5.000 EUR) and 4.778 (5.001 EUR to 18.000 EUR).

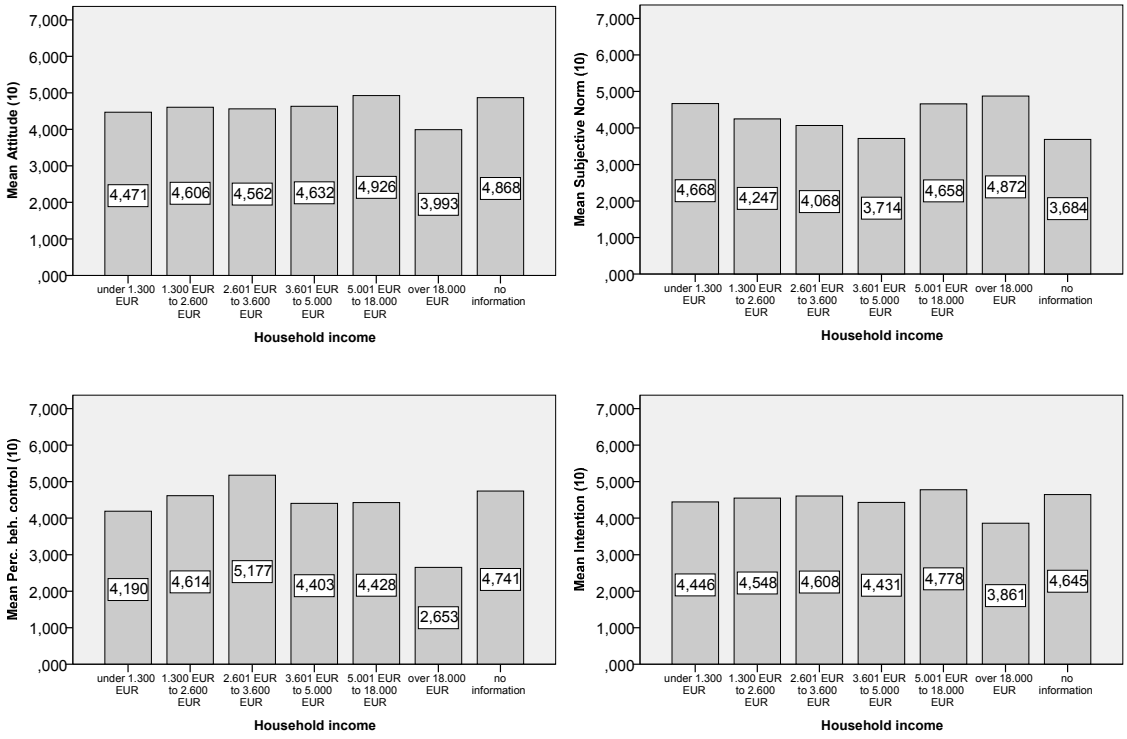



**Figure 74: Attitude, SN, PBC and Intention by household income**

### 4.6.3 Reliability

In the following the assessment of internal consistencies of the present research's responses is offered. As recommended by Francis *et al.* (2004) the assessment is worked out by usage of Cronbach's Alpha. To do so, in a first step all questions which were negatively worded were reversed by usage of the recode option in SPSS. This was done for questions 18 to 21, 23 to 25, 45 to 48 and 50 to 54. In the following the reliability calculation of reflective indicators is offered. Within the calculation questions from the main study's questionnaire as explained as follows are used. In terms of the variable intention questions 23, 24 and 25 are used, in terms of the latent variable attention question 16 with all three different possibilities of answering as interesting versus boring, valuable versus worthless and pleasant versus unpleasant is used. In terms of the latent variable SN questions 20, 21 and 22 are used. Finally, in terms of the latent variable PBC questions 17, 18 and 19 are used. The possible range of values in terms of all described questions is 1 to 7.

Results for reflective indicators of the variable intention are offered in the following Table 21, Table 22 and Table 23. In this case a Cronbach´s Alpha of 0.868 (Table 21) offers a satisfying result and according to Pallant (2013) indicates a good reliability of results. The mean value for item means is 3.368 and for inter-item correlations 0.687 (Table 22). According to Pallant (2013) this result in terms of inter-items correlations is satisfying as the value is above 0.4 which indicates that items are at least moderately correlated and therefore do fit into the scale.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,868 | ,868 | 3 |

**Table 21: Cronbach's Alpha for reflective indicators of Intention**

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 3,358 | 3,264 | 3,484 | ,221 | 1,068 | ,013 | 3 |
| Inter-Item Correlations | ,687 | ,635 | ,761 | ,126 | 1,199 | ,003 | 3 |

**Table 22: Mean value and Inter-Item Correlations for reflective indicators of Intention**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| improve knowledge 1 year | 6,810 | 13,617 | ,767 | ,609 | ,798 |
| effort improve knowledge | 6,589 | 12,803 | ,789 | ,635 | ,777 |
| improve knowledge regularly | 6,748 | 14,430 | ,693 | ,481 | ,864 |

**Table 23: Item-Total Statistics for reflective indicators of Intention**

In the following Table 24, Table 25 and Table 26 results for reflective indicators of the latent variable attitude are presented. Here, a Cronbach´s Alpha of 0.889 (Table 24) is reached which represents in terms of reliability according to Pallant (2013) a satisfying value. The mean value for item means is 5.304 and for inter-item correlations 0.729 (Table 25). According to Pallant (2013) this result in terms of inter-items correlations is satisfying as the value is above 0.4 which indicates that items are at least moderately correlated and therefore do fit into the scale.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,889 | ,890 | 3 |

**Table 24: Cronbach's Alpha for reflective indicators of Attitude**

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 5,304 | 5,248 | 5,415 | ,167 | 1,032 | ,009 | 3 |
| Inter-Item Correlations | ,729 | ,716 | ,746 | ,031 | 1,043 | ,000 | 3 |

**Table 25: Mean value and Inter-Item Correlations for reflective indicators of Attitude**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| choose boring interesting | 10,496 | 8,531 | ,795 | ,633 | ,830 |
| choose worthless valuable | 10,663 | 9,057 | ,771 | ,595 | ,853 |
| choose unpleasant pleasant | 10,663 | 7,874 | ,787 | ,621 | ,841 |

**Table 26: Item-Total Statistics for reflective indicators of Attitude**

The following Table 27, Table 28 and Table 29 represent results for reflective indicators of the latent variable SN. Also here, in terms of reliability a satisfying value of 0.791 (Table 27) for Cronbach´s Alpha is reached. The mean value for item means is 4.959 and for inter-item correlations 0.560 (Table 28). According to Pallant (2013) this result in terms of inter-items correlations is satisfying as the value is above 0.4 which indicates that items are at least moderately correlated and therefore do fit into the scale.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,791 | ,792 | 3 |

**Table 27: Cronbach's Alpha for reflective indicators of SN**

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 4,959 | 4,516 | 5,337 | ,822 | 1,182 | ,172 | 3 |
| Inter-Item Correlations | ,560 | ,506 | ,651 | ,145 | 1,287 | ,005 | 3 |

**Table 28: Mean value and Inter-Item Correlations for reflective indicators of SN**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| people think should choose | 9,539 | 11,471 | ,679 | ,474 | ,670 |
| expected choose | 10,360 | 10,239 | ,660 | ,461 | ,687 |
| people approve choose | 9,853 | 12,064 | ,566 | ,321 | ,785 |

**Table 29: Item-Total Statistics for reflective indicators of SN**

Finally, the following Table 30, Table 31 and Table 32 represent results for reflective indicators of the latent variable PBC. In this case a Cronbach´s Alpha value of 0.779 (Table 30) is reached. According to Pallant (2013) also this value is satisfying in terms of reliability. The mean value for item means is 5.269 and for inter-item correlations 0.547 (Table 31). According to Pallant (2013) this result in terms of inter-items correlations is satisfying as the value is above 0.4 which indicates that items are at least moderately correlated and therefore do fit into the scale.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,779 | ,784 | 3 |

**Table 30: Cronbach's Alpha for reflective indicators of PBC**

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 5,269 | 4,581 | 5,791 | 1,209 | 1,264 | ,386 | 3 |
| Inter-Item Correlations | ,547 | ,431 | ,724 | ,293 | 1,681 | ,019 | 3 |

**Table 31: Mean value and Inter-Item Correlations for reflective indicators of PBC**

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|---|
| good performance easy | 11,225 | 9,233 | ,493 | ,250 | ,839 |
| can perform well | 10,372 | 8,320 | ,660 | ,532 | ,652 |
| good performance possible | 10,016 | 8,560 | ,712 | ,561 | ,602 |

**Table 32: Item-Total Statistics for reflective indicators of PBC**

### 4.6.4 Exploratory Factor Analysis

In the following chapter the Exploratory Factor Analysis (EFA) of the present research is conducted. According to Matsunaga (2010) an EFA helps researchers to find out how variables operate one another and therefore helps to build a theory. In this context, Henson and Roberts (2006) add that EFA is a tool which helps researchers to generate a new theory by exploring latent factors which optimally explain interrelationships between underlying variables. The EFA is worked out for indicators of the model in order to investigate indicators' validity.

#### 4.6.4.1 Sampling adequacy

In a first step as recommended by Pallant (2013) the Kaiser-Meyer-Olkin (KMO) Measure of sampling adequacy is evaluated. As presented in the following Table 33 for formative indicators of the present research's model the KMO value of 0.773 indicates that the factor analysis may be useful with the collected data within the present research. In this context, Pallant (2013) mentions that a KMO value of above 0.6 should be reached to create a useful factor analysis. What is more, as explained by Pallant (2013) Bartlett's Test of Sphericity has to be significant. This is assured if the significance value is lower than 0.05. The value of 0.000 in the present research as shown in Table 33 is a satisfying result.

**KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | ,773 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 4248,420 |
| | df | 630 |
| | Sig. | ,000 |

**Table 33: KMO and Bartlett's Test for indicators**

#### 4.6.4.2 Correlation Matrix and Communalities

Within the factor analysis a correlation matrix is generated to show how all items of the research' model correlate with each other. This principle also is supported by different research papers (Pickett *et al.*, 2012, Braun and Turner, 2014, Ajzen *et al.*, 2011, Manning, 2011, Pavlou and Fygenson, 2006, Hassan and Shiu, 2007). In the "Appendix" chapter (Appendix E) of the present research the correlation matrix for formative indicators of the present research is offered. This correlation matrix for formative indicators of the present research contains values above 0.3 for many indicators. According to Pallant (2013) this is an indication that a factor analysis with the collected data of the present research is appropriate. In terms of the communalities of the indicators of the present research nearly all values are above 0.2 and therefore above the recommended threshold as recommended by Pallant (2013). The overview of communalities of present research is offered in the "Appendix" chapter (Appendix E) of the present research.

#### 4.6.4.3 Extraction of Factors

According to Pallant (2013) three different ways can be worked out to determine the correct number of factors by usage of a factor analysis. One way is be investigation of Catell's scree plot (Catell, 1966), the second way is by investigation of factors' eigenvalues (Kaiser's criterion) and the third way by conduction of Horn's parallel analysis (Horn, 1965).

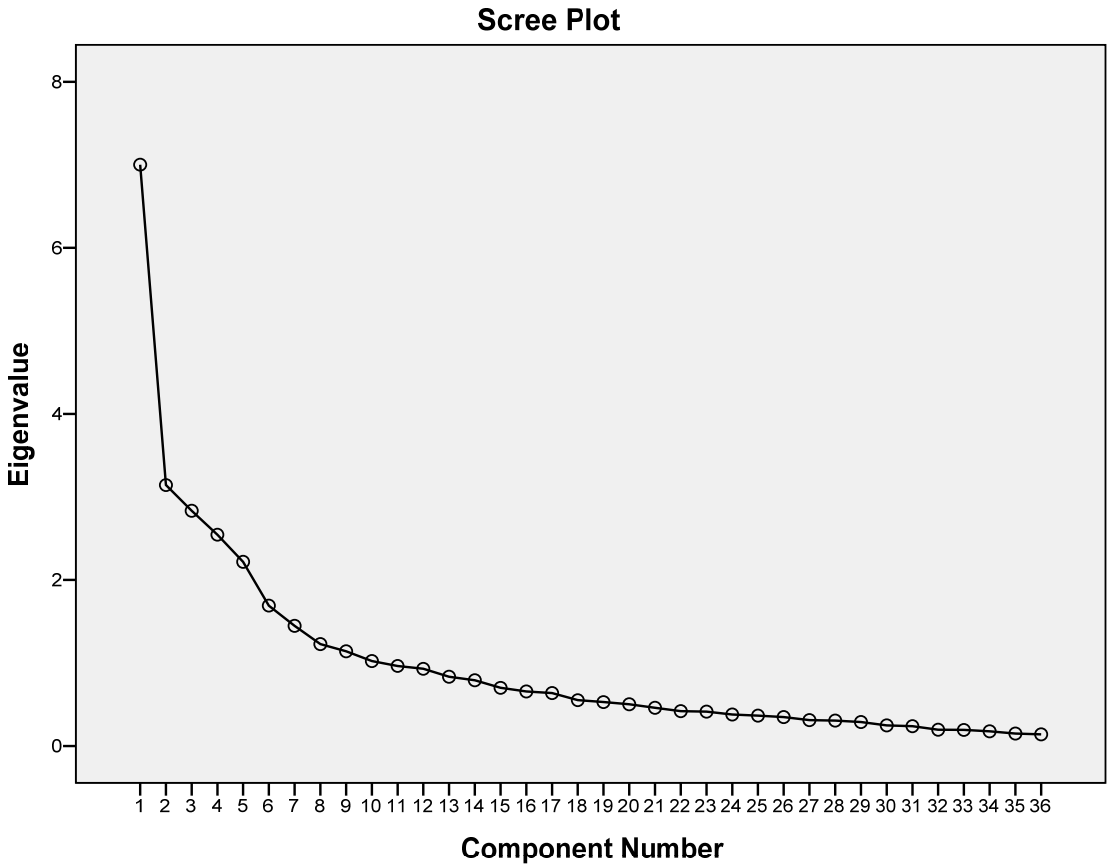



**Figure 75: Scree plot of indicators of present research**

Following the first way, Figure 75 shows the scree plot which is created by indicators of the present research. When using a scree plot to determine the number of useful factors Pallant (2013) states that two lines are important. The first is the initial steep line which is created by useful factors and the second is the gradual trailing line which is created by factors which can be eliminated. According to Pallant (2013) the right number of factors is determined by the first number which is left of the intersection point in the scree plot chart. As shown in Figure 75 in the present research the intersection of the initial steep line and the gradual trailing line in the scree plot of factors of the present research is at the point of factor 6. Therefore, according to Pallant (2013) the number of useful factors is left of the intersection point and therefore within the factor analysis of the present research 5 factors should be extracted.

As second popular way of determination of the number of meaningful factors Pallant (2013) explains that Kaiser's criterion with analysing the factors' eigenvalue can be used. Eigenvalues show the extend of variance in data which is explained by corresponding factors. In this context, Pallant (2013) suggests to use the Eigen One Rule or Kaiser-Guttman rule. This rule says that only factors should be kept whose eigenvalue is beyond 1,0. Following this rule in the case of the present research 10 factors should be kept (Table 34).

Finally, the third way of factor extraction Horn's parallel analysis is to be conducted. In this case sizes of eigenvalues are compared to those which are obtained from a randomly generated data set of the same size. To do so, Pallant (2013) suggests to use results from a statistical program which was developed by Watkins (2000). When working with this program as number of indicators the value of 36 is used, as number of participants 258 is used and as number of replications the value 100 is used as recommended by Pallant (2013). The result of the calculation is presented in Figure 76. When leaving factors whose variance value (see Table 34) is higher than the corresponding resulting value from Watkin's program then 7 factors have to be extracted.

In terms of the decision which way of determination of factor number is right for the present research Pallant (2013) explains that when using Kaiser's criterion often too many factors are extracted. Therefore the number of ten factors probably is too high. As the right number of factors the result from the scree plot is used with determining that five factors should be extracted. Using these factors a cumulative variance value of 49.278 % is reached (see Table 34). According to Pallant (2013) values of at least 50 % are acceptable for cumulative variance therefore the value of 49.278 % which is only slightly below this threshold represents an acceptable value.

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 7,002 | 19,449 | 19,449 | 7,002 | 19,449 | 19,449 |
| 2 | 3,143 | 8,729 | 28,178 | 3,143 | 8,729 | 28,178 |
| 3 | 2,833 | 7,869 | 36,048 | 2,833 | 7,869 | 36,048 |
| 4 | 2,545 | 7,069 | 43,117 | 2,545 | 7,069 | 43,117 |
| 5 | 2,218 | 6,161 | 49,278 | 2,218 | 6,161 | 49,278 |
| 6 | 1,691 | 4,697 | 53,975 | 1,691 | 4,697 | 53,975 |
| 7 | 1,446 | 4,018 | 57,993 | 1,446 | 4,018 | 57,993 |
| 8 | 1,227 | 3,410 | 61,402 | 1,227 | 3,410 | 61,402 |
| 9 | 1,140 | 3,167 | 64,569 | 1,140 | 3,167 | 64,569 |
| 10 | 1,022 | 2,840 | 67,409 | 1,022 | 2,840 | 67,409 |
| 11 | ,964 | 2,678 | 70,087 | | | |
| 12 | ,930 | 2,582 | 72,669 | | | |
| 13 | ,834 | 2,318 | 74,987 | | | |
| 14 | ,792 | 2,200 | 77,187 | | | |
| 15 | ,700 | 1,945 | 79,132 | | | |
| 16 | ,656 | 1,823 | 80,954 | | | |
| 17 | ,637 | 1,770 | 82,724 | | | |
| 18 | ,552 | 1,533 | 84,257 | | | |
| 19 | ,529 | 1,469 | 85,726 | | | |
| 20 | ,503 | 1,396 | 87,122 | | | |
| 21 | ,461 | 1,279 | 88,401 | | | |
| 22 | ,420 | 1,167 | 89,568 | | | |
| 23 | ,413 | 1,148 | 90,716 | | | |
| 24 | ,379 | 1,052 | 91,768 | | | |
| 25 | ,365 | 1,014 | 92,782 | | | |
| 26 | ,349 | ,969 | 93,751 | | | |
| 27 | ,312 | ,867 | 94,618 | | | |
| 28 | ,306 | ,850 | 95,469 | | | |
| 29 | ,288 | ,800 | 96,268 | | | |
| 30 | ,249 | ,691 | 96,959 | | | |
| 31 | ,238 | ,661 | 97,619 | | | |
| 32 | ,197 | ,546 | 98,166 | | | |
| 33 | ,193 | ,537 | 98,702 | | | |
| 34 | ,177 | ,492 | 99,194 | | | |
| 35 | ,150 | ,416 | 99,610 | | | |
| 36 | ,141 | ,390 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

**Table 34: Eigenvalues of indicators of present research**

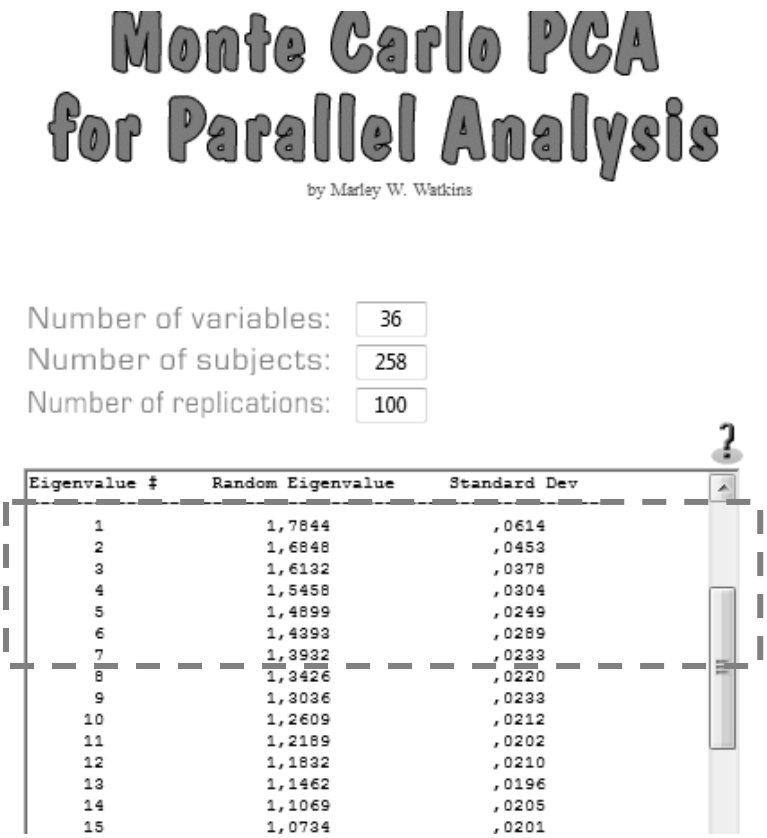



**Figure 76: Result of Monte Carlo PCA within present research**

#### 4.6.4.4 Rotation

In the next step the rotation is worked out. In this context, Pallant (2013) recommends to work out both ways of rotation, an orthogonal and an oblique rotation. Following further recommendations of Pallant (2013) as orthogonal rotation varimax is chosen and as oblique rotation direct oblimin and promax are chosen as those types of rotation are the most popular ones. Pallant (2013) recommends to create in the first step an oblique rotation and only then to follow with an orthogonal rotation.

Results of the oblique rotation direct oblimin are presented in the following part of this chapter. As a result of the direct oblimin rotation two matrices are obtained, the pattern matrix (Table 37) and the structure matrix (Table 38). When obtaining both matrices, coefficients smaller than 0.2 have been suppressed.

Promax is used as one oblique rotation method within the present research as the direction of factors to each other is not known to the researcher. What is more, for kappa the default value 4 is used. As a result a factor correlation matrix as presented in Table 35 was obtained. According to Pallant (2013) the rotation according to promax is correct if within the factor correlation matrix absolute values above 0.2 can be found. Within the present research only factors 1 and 3 include one absolute value above 0.2. Therefore, the working out of the promax rotation does not fulfil optimally the recommendation as presented by Pallant (2013). As a result of the promax rotation two matrices are obtained, the pattern matrix (Table 39) and the structure matrix (Table 40). When obtaining both matrices, coefficients smaller than 0.2 have been suppressed.

**Component Correlation Matrix**

| Component | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | 1,000 | ,144 | ,234 | -,088 | ,163 |
| 2 | ,144 | 1,000 | ,000 | ,024 | ,109 |
| 3 | ,234 | ,000 | 1,000 | -,087 | ,121 |
| 4 | -,088 | ,024 | -,087 | 1,000 | ,083 |
| 5 | ,163 | ,109 | ,121 | ,083 | 1,000 |

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

**Table 35: Factor correlation matrix of present research**

Results of the orthogonal rotation varimax are presented in the following part of this chapter. As a result of the varimax rotation one matrix is obtained, the rotated indicator matrix (Table 41). When obtaining both matrices coefficients smaller than 0.2 have been suppressed.

**Component Matrix** [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,742 | | | | |
| can perform well | ,726 | | | | |
| good performance possible | ,714 | | | | |
| choose unpleasant pleasant | ,698 | | | | |
| choose boring interesting | ,696 | | ,239 | | |
| Confused by high No of choices | -,681 | ,310 | | ,221 | |
| choose worthless valuable | ,670 | | ,299 | | |
| Low experience | -,650 | | ,210 | ,311 | |
| good performance easy | ,629 | | | -,225 | |
| expected choose | ,629 | | | | |
| people approve choose | ,573 | | | -,228 | |
| Low knowledge compared to sales people | -,530 | ,286 | ,281 | | ,232 |
| Family | ,489 | ,387 | -,265 | ,250 | ,220 |
| High price | ,349 | -,532 | ,285 | | |
| Low price | -,260 | ,532 | -,248 | | |
| Convenience | | ,484 | ,387 | | |
| Income | | ,428 | | | |
| Shopping imaginary | | ,422 | ,268 | | |
| Privacy | | ,261 | | | |
| Time efficiency | | ,222 | | | |
| Upholstery | ,277 | | ,548 | ,274 | |
| Like-minded people | ,376 | ,339 | -,500 | ,455 | |
| Friends | ,426 | ,248 | -,500 | ,357 | |
| Milieu | ,385 | ,253 | -,472 | ,419 | |
| Drivability for long distances | ,224 | ,202 | ,378 | -,319 | |
| Many storage spaces | | ,364 | ,372 | | ,269 |
| Exp. brand is high quality | ,286 | -,333 | ,363 | ,244 | |
| Professional assistance | | ,326 | ,342 | | ,236 |
| Attractive styling | ,366 | | ,313 | ,539 | ,232 |
| Colour | | | ,365 | ,519 | |
| Low boot opening | | ,364 | | -,440 | |
| Environementally friendly | | ,346 | | -,418 | |
| Self-concept | ,375 | | ,212 | ,383 | |
| effort improve knowledge | ,270 | ,348 | | | -,738 |
| improve knowledge 1 year | ,226 | ,451 | | ,209 | -,676 |
| improve knowledge regularly | ,327 | ,413 | | | -,618 |

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

**Table 36: Formative factors' indicator matrix before rotation**

**Pattern Matrix** [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,734 | | -,284 | | |
| can perform well | ,726 | | | | |
| Low experience | -,718 | ,312 | | | |
| good performance possible | ,709 | | | | |
| Confused by high No of choices | -,709 | ,336 | | | |
| choose unpleasant pleasant | ,674 | | | | |
| good performance easy | ,669 | | | | |
| choose boring interesting | ,639 | | | | -,274 |
| people approve choose | ,619 | | | | |
| choose worthless valuable | ,604 | | | ,215 | -,288 |
| expected choose | ,560 | | -,338 | | |
| Low knowledge compared to sales people | -,514 | ,482 | | | |
| Many storage spaces | | ,606 | | | |
| Convenience | | ,603 | | | |
| Professional assistance | | ,515 | | | |
| Drivability for long distances | ,372 | ,473 | ,201 | | |
| Environementally friendly | ,254 | ,463 | | -,281 | |
| Low boot opening | | ,446 | | -,372 | |
| Shopping imaginary | | ,406 | | | -,249 |
| Time efficiency | | ,336 | | | |
| Like-minded people | | | -,847 | | |
| Milieu | | | -,769 | | |
| Friends | | | -,757 | | |
| Family | ,267 | | -,654 | | |
| Income | | ,276 | -,305 | | |
| Attractive styling | | | -,201 | ,731 | |
| Upholstery | | ,286 | | ,646 | |
| Colour | | | | ,640 | |
| Exp. brand is high quality | | | | ,593 | |
| High price | ,209 | -,216 | ,220 | ,579 | |
| Self-concept | | | | ,564 | |
| Low price | | ,287 | -,321 | -,428 | |
| Privacy | | ,209 | | -,247 | |
| effort improve knowledge | | | | | -,896 |
| improve knowledge 1 year | | | | | -,880 |
| improve knowledge regularly | | | | | -,820 |

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 13 iterations.

**Table 37: Pattern matrix after oblique rotation Direct Oblimin**

**Structure Matrix**

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,752 | | -,349 | | |
| can perform well | ,745 | | -,223 | | |
| good performance possible | ,730 | | -,218 | | |
| Confused by high No of choices | -,718 | ,358 | | | |
| Low experience | -,710 | ,307 | | | |
| choose unpleasant pleasant | ,705 | | | ,249 | -,240 |
| choose boring interesting | ,681 | | | ,275 | -,339 |
| good performance easy | ,678 | | | ,234 | |
| choose worthless valuable | ,650 | | | ,315 | -,350 |
| people approve choose | ,617 | | -,216 | | |
| expected choose | ,593 | | -,392 | | |
| Low knowledge compared to sales people | -,529 | ,481 | | | |
| Convenience | | ,613 | | | -,203 |
| Many storage spaces | | ,598 | | | |
| Professional assistance | | ,507 | | | |
| Environementally friendly | | ,471 | | -,283 | |
| Low boot opening | | ,462 | | -,390 | |
| Drivability for long distances | ,339 | ,457 | | | |
| Shopping imaginary | | ,435 | | | -,279 |
| Time efficiency | | ,328 | | | |
| Like-minded people | | | -,856 | | |
| Milieu | | | -,778 | | |
| Friends | ,238 | | -,771 | | |
| Family | ,340 | | -,687 | | |
| Income | | ,299 | -,315 | | |
| Attractive styling | | | -,221 | ,729 | |
| Upholstery | | ,233 | | ,636 | |
| High price | ,277 | -,275 | | ,620 | |
| Colour | | | | ,613 | |
| Exp. brand is high quality | | | | ,605 | |
| Self-concept | ,213 | | | ,587 | |
| Low price | -,231 | ,328 | -,297 | -,472 | |
| Privacy | | ,235 | | -,261 | |
| effort improve knowledge | | | | | -,885 |
| improve knowledge 1 year | | | | | -,880 |
| improve knowledge regularly | ,200 | | | | -,832 |

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

**Table 38: Structure matrix after oblique rotation Direct Oblimin**

**Pattern Matrix** [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,745 | ,268 | | | |
| can perform well | ,737 | | | | |
| Low experience | -,722 | | | ,287 | |
| good performance possible | ,722 | | | | |
| Confused by high No of choices | -,708 | | | ,324 | |
| choose unpleasant pleasant | ,681 | | | | |
| good performance easy | ,679 | | | | |
| choose boring interesting | ,642 | | | | ,240 |
| people approve choose | ,635 | | | | |
| choose worthless valuable | ,605 | | | | ,254 |
| expected choose | ,562 | ,328 | | | |
| Low knowledge compared to sales people | -,502 | | | ,467 | |
| Like-minded people | | ,853 | | | |
| Milieu | | ,775 | | | |
| Friends | | ,760 | | | |
| Family | ,259 | ,650 | | | |
| Income | | ,297 | | ,289 | |
| Attractive styling | | ,225 | ,743 | | |
| Upholstery | | | ,658 | ,270 | |
| Colour | | | ,657 | | |
| Exp. brand is high quality | | | ,594 | | |
| High price | | -,200 | ,568 | -,236 | |
| Self-concept | | | ,564 | | |
| Low price | | ,306 | -,411 | ,301 | |
| Privacy | | | -,242 | ,222 | |
| Many storage spaces | | | | ,611 | |
| Convenience | | | | ,607 | |
| Professional assistance | | | ,204 | ,510 | |
| Drivability for long distances | ,405 | -,218 | | ,483 | |
| Environementally friendly | ,294 | | -,275 | ,479 | |
| Low boot opening | | | -,363 | ,461 | |
| Shopping imaginary | | | | ,420 | ,236 |
| Time efficiency | | | | ,337 | |
| effort improve knowledge | | | | | ,901 |
| improve knowledge 1 year | | | | | ,883 |
| improve knowledge regularly | | | | | ,816 |

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

**Table 39: Pattern matrix after oblique rotation Promax**

**Structure Matrix**

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,752 | ,365 | | | |
| can perform well | ,746 | ,239 | | | |
| good performance possible | ,732 | ,234 | | | |
| Confused by high No of choices | -,725 | | | ,389 | |
| choose unpleasant pleasant | ,713 | | ,284 | | ,262 |
| Low experience | -,713 | | | ,327 | |
| choose boring interesting | ,695 | | ,313 | | ,361 |
| good performance easy | ,680 | | ,258 | | |
| choose worthless valuable | ,665 | | ,354 | | ,371 |
| people approve choose | ,612 | ,229 | | | |
| expected choose | ,599 | ,406 | | | |
| Low knowledge compared to sales people | -,542 | | | ,495 | |
| Like-minded people | | ,858 | | | |
| Milieu | | ,781 | | | |
| Friends | ,258 | ,776 | | | |
| Family | ,353 | ,693 | | | |
| Income | | ,312 | | ,312 | |
| Attractive styling | | ,222 | ,726 | | |
| Upholstery | | | ,650 | | |
| High price | ,300 | | ,623 | -,313 | |
| Colour | | | ,613 | | |
| Exp. brand is high quality | ,218 | | ,609 | | |
| Self-concept | ,241 | | ,587 | | |
| Low price | -,250 | ,288 | -,478 | ,359 | |
| Privacy | | | -,249 | ,247 | |
| Convenience | | | | ,620 | |
| Many storage spaces | | | | ,589 | |
| Professional assistance | | | | ,506 | |
| Environementally friendly | | | -,258 | ,467 | |
| Low boot opening | | | -,369 | ,465 | |
| Shopping imaginary | | | | ,448 | ,255 |
| Drivability for long distances | ,321 | | | ,435 | |
| Time efficiency | | | | ,323 | |
| effort improve knowledge | | | | | ,890 |
| improve knowledge 1 year | | | | | ,878 |
| improve knowledge regularly | ,231 | | | | ,834 |

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

**Table 40: Structure matrix after oblique rotation Promax**

**Rotated Component Matrix** [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,738 | ,315 | | | |
| can perform well | ,732 | | | | |
| good performance possible | ,718 | | | | |
| Low experience | -,711 | | | ,305 | |
| Confused by high No of choices | -,710 | | | ,350 | |
| choose unpleasant pleasant | ,693 | | | | |
| good performance easy | ,671 | | | | |
| choose boring interesting | ,666 | | ,219 | | ,283 |
| choose worthless valuable | ,634 | | ,263 | | ,297 |
| people approve choose | ,614 | | | | |
| expected choose | ,574 | ,365 | | | |
| Low knowledge compared to sales people | -,520 | | | ,478 | |
| Like-minded people | | ,851 | | | |
| Milieu | | ,774 | | | |
| Friends | | ,764 | | | |
| Family | ,304 | ,670 | | | |
| Income | | ,307 | | ,294 | |
| Attractive styling | | ,219 | ,724 | | |
| Upholstery | | | ,643 | ,249 | |
| Colour | | | ,626 | | |
| Exp. brand is high quality | | | ,596 | | |
| High price | ,245 | | ,594 | -,258 | |
| Self-concept | | | ,569 | | |
| Low price | -,213 | ,302 | -,447 | ,316 | |
| Privacy | | | -,248 | ,229 | |
| Convenience | | | | ,612 | |
| Many storage spaces | | | | ,599 | |
| Professional assistance | | | | ,509 | |
| Environementally friendly | ,216 | | -,274 | ,468 | |
| Drivability for long distances | ,355 | | | ,461 | |
| Low boot opening | | | -,372 | ,456 | |
| Shopping imaginary | | | | ,431 | ,250 |
| Time efficiency | | | | ,330 | |
| effort improve knowledge | | | | | ,887 |
| improve knowledge 1 year | | | | | ,873 |
| improve knowledge regularly | | | | | ,815 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

max. loading value < 0,4

problematic cross-loadings

**Table 41: Rotated indicator matrix after orthogonal rotation Varimax**

A comparison of results of all three rotations as described before is available in the „Appendix“ chapter (Appendix E) of the present research. For each indicator only the highest absolute loading values are displayed in order not to make the comparison too complex as the issue of cross-loadings shall not be a subject of this comparison. Interestingly, results for the oblique rotation promax and the orthogonal rotation varimax for all indicators are similar in their values and identical in their assignment of indicators to factors. Results of the oblique rotation direct oblimin in many cases differ in terms of the assignment of indicators to factors from results of both other rotations promax and varimax. Due to this fact the choice of rotation technique is to be decided between promax and varimax. In this context, Matsunaga (2010) states that a promax rotation begins with a varimax rotation and in a second step factor loadings are raised to a stated power which is represented by kappa. As a result, loadings with a small magnitude as for example 0.2 are lowered strongly close to zero and loadings with a higher magnitude are reduced only marginally and remain substantial. As within the present research results for both rotations, promax and varimax, are nearly identical nearly no modification of factor loadings within the promax rotation arises. What is more, as described before the rotation promax does not fulfil optimally the request as described by Pallant (2013) whereas absolute values above 0.2 should be found within the correlation matrix (Table 35). Therefore, in the following the varimax rotation is chosen as rotation technique for the present research.

In the next step all indicators are investigated in terms of their loadings. For each indicator a decision has to be made if it can remain in the analysis. One aspect within this evaluation is the magnitude of indicator loadings. In literature no clear answer is offered which value an indicator should have in order to remain within the model (Comrey and Lee, 1992, Gorsuch, 1983). Matsunaga (2010) states that researchers shall keep indicators whose loading on at least one factor is higher than 0.4. As a result of factor determination by conduction of varimax rotation some indicators are not having an impact beyond 0.4 on factors and therefore have to be excluded. As marked by red rectangles in Table 41 these indicators are “income”, “privacy” and “time efficiency”. What is more, in cases when indicators do not clearly load only on one factor literature

speaks about cross-loadings (Henson and Roberts, 2006, Park, Dailey and Lemus, 2002). Within the present research the recommendation as formulated by Matsunaga (2010) and Pallant (2013) is worked out whereas indicators shall remain in the model when the difference between their highest loading and the second highest loading is at least 0.2. When applying this rule on the indicators after varimax rotation as displayed in Table 41 (black rectangles) then the indicators “low knowledge compared to sales people”, “low price”, “environmental friendliness”, “long distance drivability”, “low boot opening” and “shopping imaginary” have to be taken out of the model. This exclusion is worked out in order to avoid cross-loading problems.

### 4.6.5 Exploratory Factor Analysis after indicator exclusion

In the following chapter the EFA results including a varimax rotation are to be presented after exclusion of the indicators “income”, “privacy”, “time efficiency”, “low knowledge compared to sales people”, “low price”, “environmental friendliness”, “long distance drivability”, “low boot opening” and “shopping imaginary” as described before. The following Table 42 shows that the KMO value was slightly increased from 0.773 (Table 33, page 214) to 0.807. This value still is satisfying as according to Pallant (2013) a KMO value of above 0.6 should be reached to create a useful factor analysis. What is more, the value for significance is satisfying as well with a value of 0.000. According to Pallant (2013) this value should be below 0.05.

**KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | ,807 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 3302,710 |
| | df | 351 |
| | Sig. | ,000 |

**Table 42: KMO and Bartlett’s Test for indicators after indicator exclusion**

The resulting correlation matrix and communalities can be found within the „Appendix“ chapter (Appendix E) of the present research. As a result, all values

for communality are above 0.2 and therefore acceptable within EFA as described by Pallant (2013).

In the following Table 43 the eigenvalues of factor analysis after indicator exclusion are presented. Interestingly, with remaining the limit of number of factors at five then the cumulative variance could be increased from 49.278 % (Table 34, page 217) to 58.115 %. According to Pallant (2013) values of above 50 % are acceptable therefore the value of 58.115 % within the present research is a good result. What is more, the limitation to 5 factors still is correct as shown in the new scree plot after exclusion of indicators (Figure 77).

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6,621 | 24,522 | 24,522 | 6,621 | 24,522 | 24,522 | 5,453 | 20,195 | 20,195 |
| 2 | 2,641 | 9,783 | 34,305 | 2,641 | 9,783 | 34,305 | 3,002 | 11,117 | 31,312 |
| 3 | 2,518 | 9,326 | 43,630 | 2,518 | 9,326 | 43,630 | 2,771 | 10,263 | 41,575 |
| 4 | 2,239 | 8,293 | 51,923 | 2,239 | 8,293 | 51,923 | 2,525 | 9,351 | 50,927 |
| 5 | 1,672 | 6,192 | 58,115 | 1,672 | 6,192 | 58,115 | 1,941 | 7,188 | 58,115 |
| 6 | 1,325 | 4,908 | 63,023 | | | | | | |
| 7 | 1,126 | 4,169 | 67,192 | | | | | | |
| 8 | ,922 | 3,415 | 70,607 | | | | | | |
| 9 | ,903 | 3,343 | 73,950 | | | | | | |
| 10 | ,788 | 2,919 | 76,869 | | | | | | |
| 11 | ,694 | 2,572 | 79,441 | | | | | | |
| 12 | ,575 | 2,130 | 81,571 | | | | | | |
| 13 | ,555 | 2,057 | 83,628 | | | | | | |
| 14 | ,499 | 1,848 | 85,477 | | | | | | |
| 15 | ,477 | 1,766 | 87,242 | | | | | | |
| 16 | ,440 | 1,631 | 88,873 | | | | | | |
| 17 | ,386 | 1,430 | 90,303 | | | | | | |
| 18 | ,368 | 1,361 | 91,664 | | | | | | |
| 19 | ,355 | 1,315 | 92,979 | | | | | | |
| 20 | ,312 | 1,157 | 94,136 | | | | | | |
| 21 | ,298 | 1,103 | 95,239 | | | | | | |
| 22 | ,267 | ,989 | 96,227 | | | | | | |
| 23 | ,242 | ,896 | 97,123 | | | | | | |
| 24 | ,218 | ,806 | 97,929 | | | | | | |
| 25 | ,211 | ,781 | 98,710 | | | | | | |
| 26 | ,183 | ,678 | 99,388 | | | | | | |
| 27 | ,165 | ,612 | 100,000 | | | | | | |

Extraction Method: Principal Component Analysis.

**Table 43: Eigenvalues of indicators of present research after indicator exclusion**

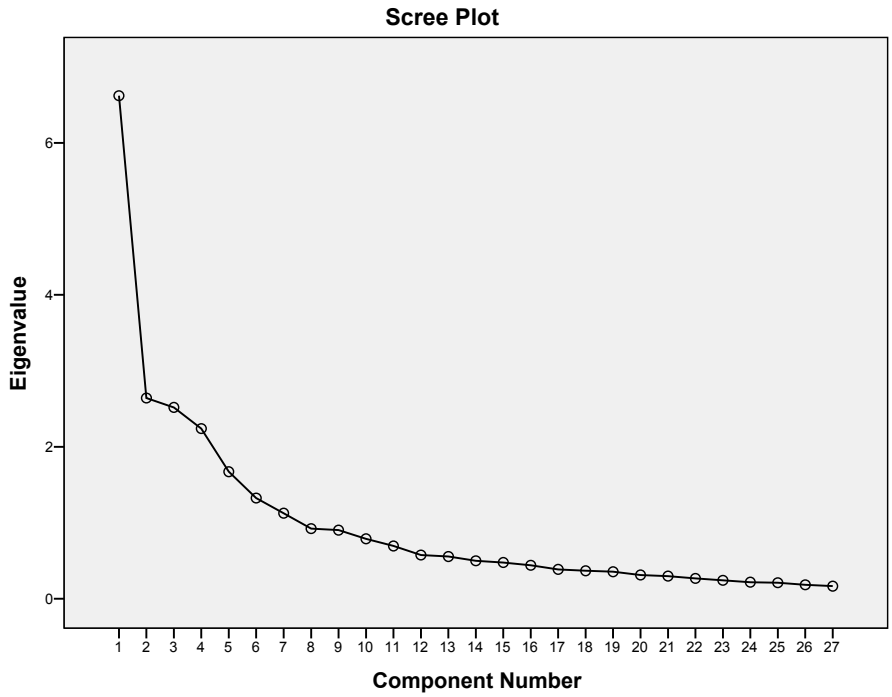



**Figure 77: Scree plot of indicators of present research after indicator exclusion**

In the following Table 44 the rotated indicator matrix after varimax rotation is presented. After exclusion of indicators as described before within the matrix all factors include at least three indicators as recommended by Pallant (2013). As recommended by Pallant (2013) the rotated factor matrix will be evaluated to reveal factors. As presented in Figure 77 and Table 44 in total five factors can be revealed. What is important, the exclusion of indicators as described before was successful as the new result of varimax rotation offers no problematic cross-loadings and no indicators which are not assigned to any of the factors. The result as shown in Table 44 is satisfying.

The new factors are named as follows. The first factor which results from eleven indicators as “people think should choose”, “can perform well”, “good performance is possible”, “low experience”, “number of choices”, “choice is pleasant”, “good performance is easy”, “choice is interesting”, “choice is valuable”, “people would approve choosing” and “I am expected to choose” is named “choice”.

The second factor which results from four indicators as “like-minded people”, “milieu”, “friends” and “family” is named “subjective norm” as all these indicators were assigned as formative indicators of “subjective Norm” within the initial conceptual model of the present research as shown in Figure 28.

The third factor which results from six indicators as “attractive styling”, “upholstery”, “colour”, “high price”, “expensive brand is high quality” and “self-concept” is named “appearance”.

The indicators of the fourth factor are “make effort to improve knowledge”, “improve knowledge within 1 year” and “improve knowledge regularly”. Within the initial version of the conceptual model of the present research as shown in Figure 28, these indicators are reflective indicators of the variable intention and therefore in the following these indicators still will be assigned to the factor “intention”.

The fifth factor which results from three indicators as “number of storage spaces”, “convenience to obtain information” and “professional assistance” is named “support”.

**Rotated Component Matrix** [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,755 | ,329 | | | |
| good performance possible | ,744 | | | | |
| choose unpleasant pleasant | ,724 | | | | |
| can perform well | ,712 | | | | |
| choose boring interesting | ,685 | | ,218 | ,278 | |
| good performance easy | ,677 | | | | |
| Confused by high No of choices | -,659 | | | | ,388 |
| choose worthless valuable | ,652 | | ,252 | ,285 | |
| Low experience | -,649 | | | | ,409 |
| people approve choose | ,644 | | | | |
| expected choose | ,585 | ,352 | | | |
| Like-minded people | | ,872 | | | |
| Milieu | | ,820 | | | |
| Friends | | ,799 | | | |
| Family | ,314 | ,687 | | | |
| Attractive styling | | | ,733 | | |
| Upholstery | | | ,655 | | ,324 |
| Self-concept | | | ,648 | | |
| Colour | | | ,632 | | ,238 |
| High price | ,200 | | ,617 | | -,311 |
| Exp. brand is high quality | | | ,604 | | |
| effort improve knowledge | | | | ,891 | |
| improve knowledge 1 year | | | | ,880 | |
| improve knowledge regularly | | | | ,825 | |
| Many storage spaces | | | | | ,668 |
| Convenience | | | | | ,621 |
| Professional assistance | | | | | ,617 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

**Table 44: Rotated indicator matrix (Varimax) after indicator exclusion**

### 4.6.6 Confirmatory factor analysis and Structural Equation Modelling

In the following the Confirmatory Factor Analysis (CFA) and structural equation modelling (SEM) are lead through. According to Matsunaga (2010) a CFA is used by researchers to test an existing theory. In this context, Bandalos (1996) states that CFA offers the opportunity to test how a hypothesized structure of an a priori developed model fits to a set of data. Before starting with CFA and SEM the choice of the method is presented. After that CFA and SEM are conducted in two steps. In a first step the underlying research' model as presented in Figure 28 is investigated. In a second step, the model as resulting from the EFA with extraction of new factors after rotation (see Figure 80) is investigated. Finally, results of both investigations are compared.

#### 4.6.6.1 Choice of method for Confirmatory Factor Analysis and Structural Equation Modelling

In the following section the choice of method for CFA and SEM is explained. In this context, Sheng-Hsun, Wun-Hwa and Ming-Jyh (2006) describe that in literature mainly two different types of structural equation modelling techniques are found, covariance-based and component-based techniques. In the following Figure 78 the main differences between both technique types are listed.

| Feature | Covariance-based approach | Component-based technique |
|---|---|---|
| Distributional assumptions | Multivariate normal distribution | None |
| Purpose | Theory oriented | Prediction oriented |
| Parameter estimates | Consistent | Consistency at large |
| Hypothesis testing | Available | Inference requires jackknife or bootstrapping |
| Sample requirement | Large | Small |
| Parameter identification problems | Not convergence or improper solutions | Few |
| LV scores | Factor indeterminacy | Explicitly estimated |
| Reflective and formative relations | Only reflective relations | Both |

**Figure 78: Comparisons of covariance-based and component-based SEM technique (Sheng-Hsun, Wun-Hwa and Ming-Jyh, 2006)**

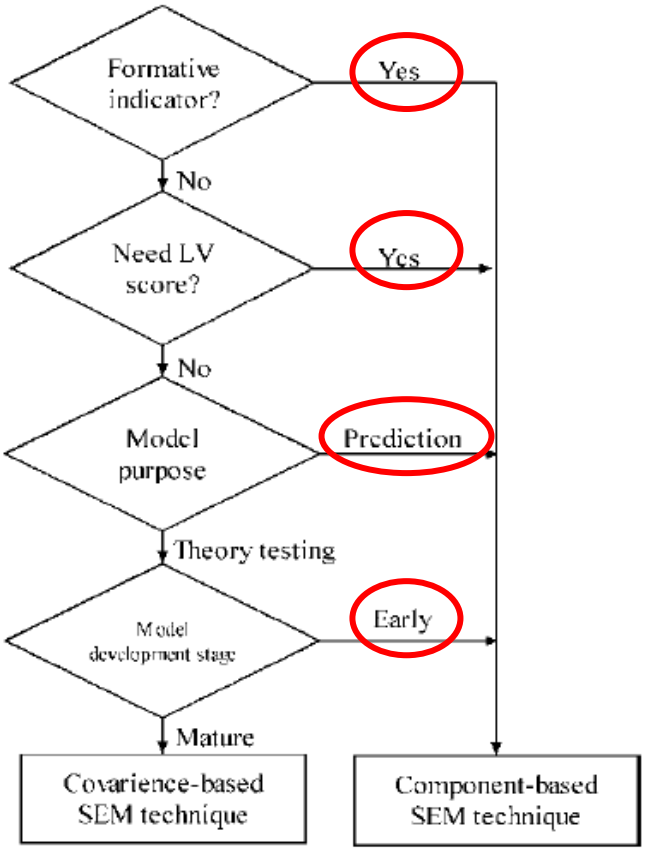



**Figure 79: Flowchart of choosing the SEM technique (Sheng-Hsun, Wun-Hwa and Ming-Jyh, 2006)**

In order to determine which SEM technique is more suitable for a specific research model Sheng-Hsun, Wun-Hwa and Ming-Jyh (2006) offer a flowchart as shown in Figure 79. In terms of the present research all four questions are answered with the arrow pointing to a component-based technique. Within the present research model formative indicators are included, scores for latent indicators are needed, the model's purpose is prediction and model is in an early development stage as it did not exist before. Therefore, for the present research a component-based technique is chosen. In this context, Sheng-Hsun, Wun-Hwa and Ming-Jyh (2006) suggest to use Partial Least Square (PLS) as it is one of the most famous SEM techniques. This is supported by Gefen, Straub and Boudreau (2000) who state the most commonly used SEM techniques are PLS, LISREL, EQS and AMOS. In this list PLS is the only component-based technique. What is more, in his research Lohmoller (1989) describes that the data analysis method PLS uses an approach which is indicator-based in order

to estimate purposes. What is more, this method is able to work with formative factors. In this context, Chin, Marcolin and Newsted (2003) state that PLS sets a low restriction on measurement scales, sample size and residual distribution. As PLS software Smart PLS is to be used for the following CFA and SEM evaluation. This software is freely available for students and according to Ringle (2004) this statistic software can be easily handled and offers a good solution for graphical modelling.

#### 4.6.6.2 Confirmatory Factor Analysis and Structural Equation Modelling with SmartPLS

Diamantopoulos and Winklhofer (2001) describe that in case of SEM with PLS Multiple Indicators Multiple Causes (MIMIC) models cannot be built. Diamantopoulos and Winklhofer (2001) recommend that when PLS is used in the case of models which contain latent variables having formative and reflective indicators two level constructs shall be built up. In this context Fornell and Bookstein (1992) state that when PLS is used two latent variables, one for cause and one for effect, have to be created in the case of formative and reflective indicators being related to one latent variable. In the following of the present chapter, CFA is worked out for both models, the conceptual research model and the resulting research model after EFA. In a first step, CFA is worked out for the EFA model and in a second step for the conceptual research model. In the case of creation of two level constructs in Smart PLS Ken Kwong-Kay (2013) mentions that analysis shall be carried out separately for formative and reflective constructs. However, in first step a decision has to be made if indicators in both models, the model resulting from EFA and the conceptual research model, are formative or reflective. In this context former literature explains that reflective indicators are characterised by the fact that they are interchangeable and formative indicators on the other hand are not interchangeable (Coltman *et al.*, 2008, Edwards and Bagozzi, 2000, Jarvis, MacKenzie and Podsakoff, 2003, Kline, 2011). To investigate if the resulting indicators as presented in Table 44 both models were built within Smart PLS and for each indicator its correlation to other indicators was checked. The result of the evaluation is presented in the „Appendix“ chapter (Appendix E) of the

present research. As a result, in the resulting model from EFA in total 11 formative and 16 reflective indicators are included and within the conceptual model in total 19 formative indicators and 17 reflective indicators are included. As a result of this evaluation the research model of female car purchase behaviour as resulting from EFA can be built (see Figure 80). What is more, with the resulting evaluation of formative and reflective indicators as represented in the „Appendix“ chapter (Appendix E) of the present research an updated version of the conceptual research model of female car purchase behaviour can be generated (see Figure 81). Within both models reflective indicators are represented by round boxes and formative indicators are represented by square boxes. What is more, as mentioned by Matsunaga (2010) in a Factor Analysis model all observed items are expected to have a measurement error. These errors are represented by the values $\varepsilon_n$, $\delta_n$ and $\zeta_n$.

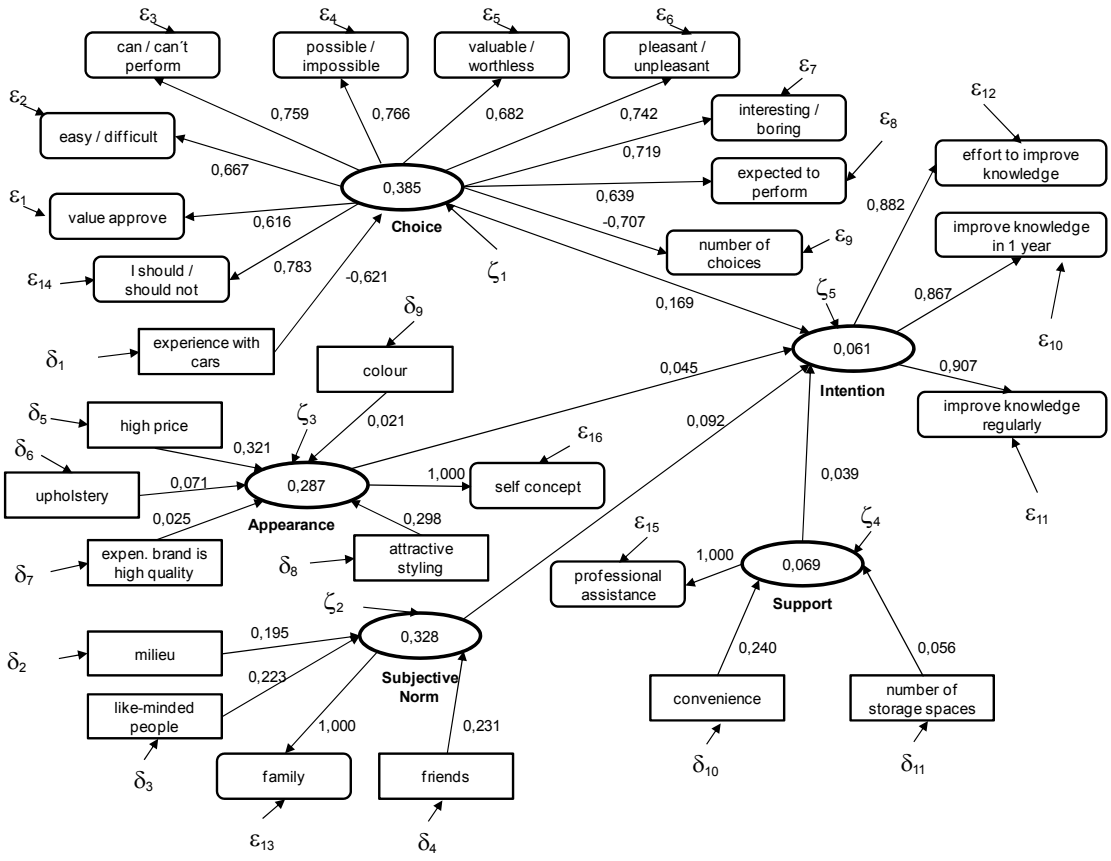



**Figure 80: Model of female car purchase decision making resulting from EFA after evaluation of formative and reflective indicators**

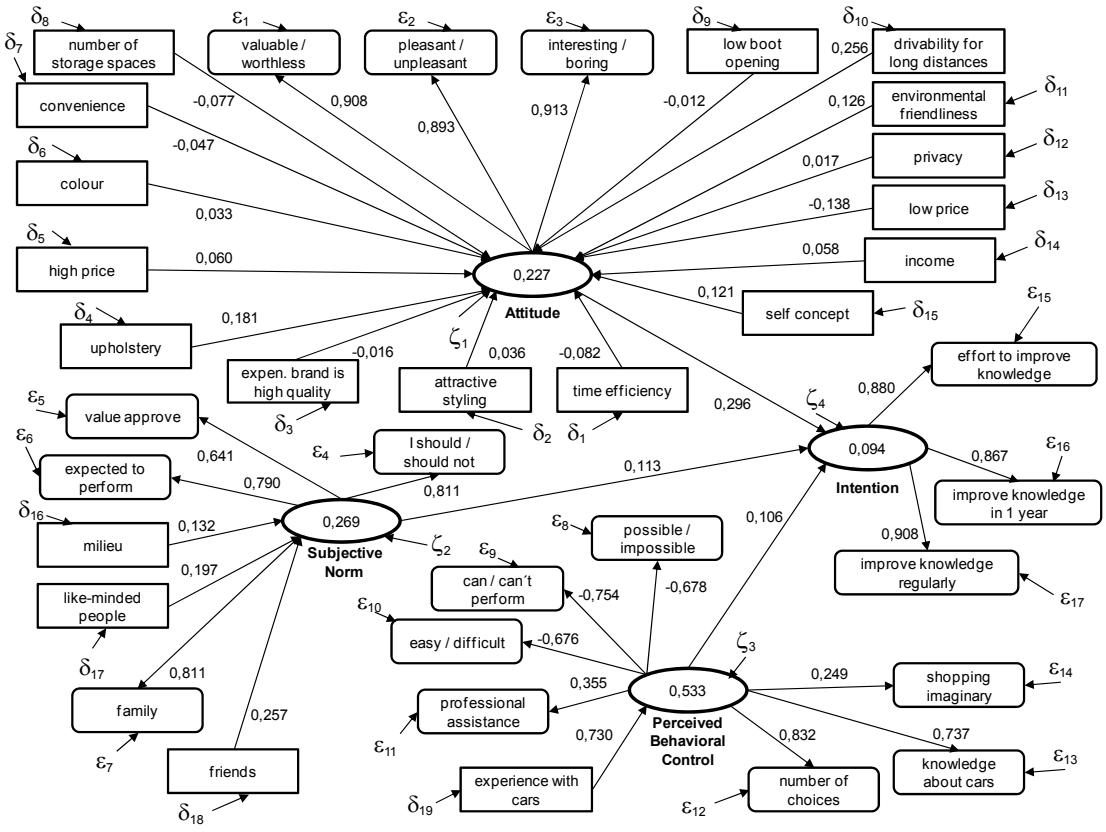



**Figure 81: Conceptual model of female car purchase decision making after evaluation of formative and reflective indicators**

In the following steps a CFA is to be worked out for both models as presented in Figure 80 and Figure 81. According to Ken Kwong-Kay (2013) within Smart PLS for secondary order constructs which contain formative and reflective indicators the analysis has to be done separately for formative and reflective indicators. In terms of reflective indicators indicator reliability, internal consistency reliability, convergent validity and discriminant validity have to be checked. In terms of formative indicators outer weights and outer loadings have to be evaluated. What is more, overall the stop criterion and collinearity have to be checked.

#### 4.6.6.2.1 Confirmatory Factor Analysis and Structural Equation Modelling for the EFA model

In the following section the CFA and SEM are worked out for the model resulting from EFA.

Stop-criterion

When working out a CFA Ken Kwong-Kay (2013) suggests to look in a first step at the stop criterion. The Smart PLS software will stop the estimation either when the stop criterion of the algorithm is reached or if the maximum number of iterations is reached. Within the present research as maximum number of iteration the Smart PLS default value 300 is taken over. Analysing the stop criterion of the model resulting from EFA it becomes evident that in total eight iterations have been carried out. According to Ken Kwong-Kay (2013) this is a satisfyingly low value.

In the next step, Ken Kwong-Kay (2013) recommends to make an evaluation of the model's reflective indicators' values for reliability and validity.

Reliability

In terms of reliability, Ken Kwong-Kay (2013) suggests in a first step to investigate indicator reliability. To do so, all outer loadings have to be squared in order to obtain indicator reliability values. The result of this calculation is presented in the following Table 45. Ken Kwong-Kay (2013) states that in this context values above 0.7 are preferred to indicate a satisfying reliability. What is more, according to Hulland (1999) values above 0.4 also are acceptable. In the case of the model resulting from EFA as shown in Table 45 all indicators which are assigned to the latent variable Intention show values above 0.7. On the other hand, all indicators which are assigned to choice show values below 0.7 but above 0.4 and therefore the result is satisfying. The latent variables subjective norm and support each only have one reflective indicator and therefore these indicators show a value of 1.0 which does not allow an evaluation of this value.

| | Subj Norm | support | Appearance | choice | Intention |
|---|---|---|---|---|---|
| family | 1,000 | | | | |
| professional assistance | | 1,000 | | | |
| Appearance | | | 1,000 | | |
| pleasant / unpleasant | | | | 0,550 | |
| valuable / worthless | | | | 0,464 | |
| nunber of choices | | | | 0,499 | |
| interesting / boring | | | | 0,517 | |
| easy / difficult | | | | 0,445 | |
| can / can't perform | | | | 0,575 | |
| valued approve | | | | 0,416 | |
| I should / should not | | | | 0,613 | |
| possible / impossible | | | | 0,587 | |
| expected to perform | | | | 0,408 | |
| effort to improve knowledge | | | | | 0,778 |
| improve knowledge in 1 year | | | | | 0,751 |
| improve knowledge regularly | | | | | 0,823 |

**Table 45: Reflective indicators' reliability for model resulting from EFA**

In a second step, Ken Kwong-Kay (2013) suggests to investigate internal consistency reliability. Here, Ken Kwong-Kay (2013) explains that values for composite reliability should be above 0.7. In this context, Bagozzi and Yi (1988) claim that values above 0.6 also are acceptable. In terms of the EFA model the values for composite reliability as presented in Table 46 for the variables Intention (0.916) and choice (0.866) are above the thresholds of 0.6 and 0.7 and therefore represent a satisfying result in terms of internal consistency reliability. In terms of the latent variables subjective norm, appearance and support a value of 1.000 is found. However this value cannot be evaluated as it results from the fact that both latent variables each only contain one reflective indicator.

| | AVE | Composite Reliability | R Square | Cronbachs Alpha | Communality | Redundancy |
|---|---|---|---|---|---|---|
| Intention | 0,784 | 0,916 | 0,066 | 0,868 | 0,784 | 0,017 |
| Subj Norm | 1,000 | 1,000 | 0,328 | 1,000 | 1,000 | 0,328 |
| Choice | 0,504 | 0,866 | 0,385 | 0,797 | 0,504 | 0,182 |
| Appearance | 1,000 | 1,000 | 0,287 | 1,000 | 1,000 | 0,287 |
| support | 1,000 | 1,000 | 0,069 | 1,000 | 1,000 | 0,069 |

**Table 46: Quality criteria overview of model resulting from EFA**

Summarizing, in terms of reliability satisfying results for the model resulting from EFA can be found.

Validity

In terms of validity, Ken Kwong-Kay (2013) suggests in a first step to investigate convergent validity. In doing so, the “AVE” (average) values as presented in Table 46 should be checked. According to Bagozzi and Yi (1988) these values should be above 0.5. In terms of the model resulting from EFA the “AVE” values for Intention (0.784) and choice (0.504) are beyond the recommended threshold of 0.500 and therefore satisfying. Also here, in terms of the latent variables subjective norm, appearance and support a value of 1.000 is found. This value cannot be evaluated as it results from the fact that both latent variables each only contain one reflective indicator.

In a second step, Ken Kwong-Kay (2013) recommends to investigate discriminant validity. To do so, Fornell and Larcker (1981) explain that the values for square root of “AVE” of each latent variable should be higher than the latent variables’ correlations among each other. In terms of the model resulting from EFA the latent variable correlations are presented in the following Table 47. The values for square root of “AVE” of each latent variable are presented in bold numbers. The result is that 0.885 for Intention and 0.710 for choice values are higher than the highest correlation value of 0.289 and therefore satisfying. Also here, in terms of the latent variables subjective norm, appearance and support a value of 1.000 is found. This value cannot be evaluated as it results from the fact that both latent variables each only contain one reflective indicator.

| | Intention | Subj Norm | choice | Appearance | support |
|---|---|---|---|---|---|
| Intention | **0,885** | | | | |
| Subj Norm | 0,168 | **1,000** | | | |
| choice | 0,206 | 0,289 | **0,710** | | |
| Appearance | 0,213 | 0,115 | 0,311 | **1,000** | |
| support | 0,036 | 0,004 | -0,073 | 0,134 | **1,000** |

**Table 47: Fornell-Larcker Criterion for checking discriminant validity of reduced version of EFA model**

Therefore, the validity investigation of the reflective model of the present research is satisfying.

Cross loadings

The following Table 48 represents results for cross loadings of the EFA model's reflective indicators. According to Ken Kwong-Kay (2013) the result of cross loadings is satisfying when reflective indicators mainly load on their assigned latent variables (primary loading) and in all cases the absolute values of their loadings on other latent variables are smaller by more than 0.2 in comparison to the primary loading. As shown in Table 48 for all indicators the differences between the loading value of their assigned latent variable and the loading values of other latent variables are higher than 0.2. Therefore in terms of cross-loadings for reflective indicators of the model resulting from EFA a satisfying result is found.

| | Subj Norm | support | Appearance | choice | Intention |
|---|---|---|---|---|---|
| family | 1,000 | 0,060 | 0,245 | 0,380 | 0,168 |
| professional assistance | 0,060 | 1,000 | 0,124 | -0,073 | 0,036 |
| self concept | 0,332 | 0,213 | 1,000 | 0,196 | 0,043 |
| pleasant / unpleasant | 0,196 | 0,031 | 0,022 | 0,742 | 0,201 |
| valuable / worthless | 0,175 | -0,005 | 0,213 | 0,682 | 0,289 |
| nunber of choices | -0,206 | 0,251 | 0,411 | -0,707 | -0,065 |
| interesting / boring | 0,187 | 0,034 | 0,214 | 0,719 | 0,280 |
| easy / difficult | 0,193 | -0,039 | 0,032 | 0,667 | 0,094 |
| can / can't perform | 0,317 | -0,051 | -0,114 | 0,759 | 0,106 |
| valued approve | 0,306 | 0,000 | 0,231 | 0,616 | 0,082 |
| I should / should not | 0,433 | -0,036 | 0,433 | 0,783 | 0,106 |
| possible / impossible | 0,276 | 0,018 | 0,077 | 0,766 | 0,142 |
| expected to perform | 0,419 | -0,113 | 0,410 | 0,639 | 0,162 |
| effort to improve knowledge | 0,097 | 0,018 | 0,310 | 0,156 | 0,882 |
| improve knowledge in 1 year | 0,136 | 0,046 | 0,112 | 0,118 | 0,867 |
| improve knowledge regularly | 0,190 | 0,032 | 0,087 | 0,239 | 0,907 |

**Table 48: Cross loadings of PLS Algorithm with reflective indicators of model resulting from EFA**

Significance of Formative Indicators

When analysing formative indicators in a first step Ken Kwong-Kay (2013) suggests to evaluate significance values of formative indicators' loadings and

weights. Therefore, the significance values or T-statistics of indicators' loadings and weights resulting from the Bootstrapping calculation have to be evaluated. With using the Bootstrapping function of Smart PLS the structural path significance of the inner and outer model can be checked. In doing so, the input parameters were 258 cases and as recommended by Ken Kwong-Kay (2013) the value of 5000 for samples. What is more, in terms of "sign changes" the option "construct level changes" was used as according to Ken Kwong-Kay (2013) this option is known as a good compromise. Ken Kwong-Kay (2013) and Marcoulides and Saunders (2006) state that with a significance level of 5 % the path coefficient is significant if the T-statistics are larger than 1.96. According to Ken Kwong-Kay (2013) those indicators should be excluded from the model whose both significance values or T-statistics of loadings and weights are below the value of 1.96. As presented in the following Table 49 in terms of the conceptual research model's formative indicators no indicator has to be excluded from the model as for all indicators at least one significance value of indicator loading or weight is higher than 1.96.

| | loadings T Statistics | weights T Statistics |
|---|---|---|
| attractive styling | 2,567 | 0,650 |
| colour | 2,581 | 1,981 |
| convenience | 11,742 | 6,162 |
| expensive brand is high quality | 2,556 | 0,803 |
| friends | 13,469 | 2,557 |
| high price | 3,551 | 1,468 |
| like-minded people | 15,340 | 3,256 |
| low experience | 15,324 | 5,498 |
| milieu | 15,819 | 1,710 |
| number of storage spaces | 2,185 | 0,802 |
| upholstery | 5,725 | 2,137 |

**Table 49: Indicator weights and loadings of EFA model**

Collinearity of Formative Indicators

As suggested by Ken Kwong-Kay (2013), collinearity of formative indicators is evaluated. To do so, using the SPSS programme in terms of each formative latent variable the collinearity statistics including the values for "tolerance" and

"VIF" of its formative indicators are calculated. In this context, Ken Kwong-Kay (2013) and Hair, Ringle and Sarstedt (2011) explain that no collinearity problems exist when the value for VIF is lower than 5 and the value for tolerance is higher than 0.2. The calculation within the present research is presented in the following Table 50 for formative indicators of the reduced versions of the EFA model. The result is that for all formative indicators the VIF value is lower than 5 and the tolerance value higher than 0.2 therefore no collinearity problems exist.

**Coefficients** [a]

| Model | | Collinearity Statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| 1 | Attractive styling | ,551 | 1,816 |
| | Convenience | ,793 | 1,261 |
| | Colour | ,600 | 1,668 |
| | Exp. brand is high quality | ,639 | 1,564 |
| | High price | ,578 | 1,731 |
| | Friends | ,469 | 2,132 |
| | Like-minded people | ,362 | 2,759 |
| | Milieu | ,428 | 2,338 |
| | Low experience | ,890 | 1,123 |
| | Many storage spaces | ,764 | 1,308 |
| | Upholstery | ,611 | 1,636 |

a. Dependent Variable: Intention

**Table 50: Tolerance and VIF values for formative indicators of reduced version of EFA model**

Explanation of model paths

The result of the CFA as described before is that no indicators of the resulting model from EFA as shown in Figure 80 have to be excluded. In the following an explanation of model paths is offered. According to Ken Kwong-Kay (2013) an effect of a latent variable is statistically significant when the absolute weight value from a variable to another variable is above 0.1. In terms of values of inner model path coefficient sizes of the model resulting from EFA then it becomes evident that statistical significance is indicated by the value of 0.169 from choice to intention. The values for the paths from subjective norm to intention (0,092), from appearance to intention (0,045) and from support to

intention (0.039) indicate no statistical significance. The high $R^2$ value for choice (0.385), appearance (0.287) and subjective norm (0.328) show that these latent variables are explained with a high percentage by their indicators. The low $R^2$ value of support (0.069) shows that this latent variable is explained by its indicators with a low percentage. The $R^2$ value for intention of 0.061 represents that 6.1 % of variance of intention are explained by explanatory variables choice, appearance, subjective norm and support.

#### 4.6.6.2.2 Confirmatory Factor Analysis and Structural Equation Modelling for the conceptual research model

Within the following section a CFA and SEM for the conceptual model of the present research is offered.

Stop-criterion

In a first step, as recommended by Ken Kwong-Kay (2013) the stop criterion is evaluated. As explained before, the Smart PLS software will stop the estimation either when the stop criterion of the algorithm is reached or if the maximum number of iterations is reached. Within the present research as maximum number of iteration the Smart PLS default value 300 is taken over. When examining the stop criterion of the conceptual research model then it becomes evident that in total eight iterations have been carried out. According to Ken Kwong-Kay (2013) this is a satisfyingly low value.

Reliability

In terms of reliability, Ken Kwong-Kay (2013) suggests in a first step to investigate indicator reliability. To do so, all outer loadings have to be squared in order to obtain indicator reliability values. The result of this calculation is presented in the following Table 51. Ken Kwong-Kay (2013) states that in this context values above 0.7 are preferred to indicate a satisfying reliability. What is more, according to Hulland (1999) values above 0.4 also are acceptable. In the case of the conceptual research model, as shown in Table 51, all indicators of the latent variables Attitude and Intention show values above 0.7. In terms of the latent variables the values of nearly all indicators are above the minimum

threshold of 0.4. Only the values for “shopping imaginary” (0.062) and “professional assistance” (0.126) are below the minimum threshold of 0.4. As recommended by Ken Kwong-Kay (2013), for the following evaluation these two indicators will be excluded from the conceptual research model. Therefore, the result for evaluation of indicator reliability for conceptual research model is satisfying beside the values of the indicators “shopping imaginary” and “professional assistance”.

| | Attitude | Subj Norm | Intention | PBC |
|---|---|---|---|---|
| pleasant / unpleasant | 0,797 | | | |
| valuable / worthless | 0,824 | | | |
| interesting / boring | 0,834 | | | |
| family | | 0,658 | | |
| valued approve | | 0,410 | | |
| I should / should not | | 0,658 | | |
| expected to perform | | 0,624 | | |
| effort to improve knowledge | | | 0,775 | |
| improve knowledge in 1 year | | | 0,752 | |
| improve knowledge regularly | | | 0,824 | |
| shopping imaginary | | | | 0,062 |
| nunber of choices | | | | 0,692 |
| professional assistance | | | | 0,126 |
| easy / difficult | | | | 0,458 |
| can / can't perform | | | | 0,569 |
| knowledge about cars | | | | 0,543 |
| possible / impossible | | | | 0,459 |

**Table 51: Reflective indicators’ reliability for conceptual research model**

In a second step, Ken Kwong-Kay (2013) suggests to investigate internal consistency reliability. Here, Ken Kwong-Kay (2013) explains that values for composite reliability should be above 0.7. In this context, Bagozzi and Yi (1988) claim that values above 0.6 also are acceptable. In terms of the conceptual research model the values for composite reliability as presented in Table 52 for the variables attitude (0.931), intention (0.916), PBC (0.733) and SN (0.850) are above the thresholds of 0.6 and 0.7 and therefore represent a satisfying result in terms of internal consistency reliability.

| | AVE | Composite Reliability | R Square | Cronbachs Alpha | Communality | Redundancy |
|---|---|---|---|---|---|---|
| Attitude | 0,818 | 0,931 | 0,227 | 0,890 | 0,818 | 0,184 |
| Intention | 0,783 | 0,916 | 0,092 | 0,868 | 0,783 | 0,059 |
| PBC | 0,561 | 0,733 | 0,516 | 0,718 | 0,561 | 0,175 |
| Subj Norm | 0,587 | 0,850 | 0,269 | 0,783 | 0,587 | 0,131 |

**Table 52: Quality criteria overview of conceptual research model**

Summarizing, in terms of reliability satisfying results for the conceptual research model can be found. However, due to low indicator reliability values the indicators “shopping imaginary” and “professional assistance” have to be excluded from the conceptual research model.

Validity

In terms of validity, Ken Kwong-Kay (2013) suggests in a first step to investigate convergent validity. In doing so, the “AVE” (average) values as presented in Table 52 should be checked. According to Bagozzi and Yi (1988) these values should be above 0.5. In terms of the conceptual research model the “AVE” values for attitude (0.818), intention (0.783), PBC (0.561) and SN (0.587) are beyond the recommended threshold of 0.5 and therefore satisfying. In a second step, Ken Kwong-Kay (2013) recommends to investigate discriminant validity. To do so, Fornell and Larcker (1981) explain that the values for square root of “AVE” of each latent variable should be higher than the latent variables’ correlations among each other. In terms of the conceptual research model the latent variable correlations are presented in the following Table 53. The values for square root of “AVE” of each latent variable are presented in bold numbers. The result is that in terms of all latent variables the square root values of “AVE” are higher than the correlation values between these latent variables and therefore a satisfying result in terms of discriminant validity is found.

| | Attitude | Intention | PBC | Subj Norm |
|---|---|---|---|---|
| Attitude | **0,905** | | | |
| Intention | 0,288 | **0,885** | | |
| PBC | 0,550 | 0,130 | **0,749** | |
| Subj Norm | 0,412 | 0,179 | 0,560 | **0,766** |

**Table 53: Fornell-Larcker Criterion for checking discriminant validity of conceptual research model**

Therefore, the validity investigation of the reflective model of the present research is satisfying.

Cross loadings

The following Table 54 represents results for cross loadings of the conceptual research model's reflective indicators. According to Ken Kwong-Kay (2013) the result of cross loadings is satisfying when reflective indicators mainly load on their assigned latent variables (primary loading) and in all cases the absolute values of their loadings on other latent variables are smaller by more than 0.2 in comparison to the primary loading. As shown in Table 54 for all indicators the differences between the loading value of their assigned latent variable and the loading values of other latent variables are higher than 0.2. Therefore in terms of cross-loadings for reflective indicators of the conceptual research model a satisfying result is found.

| | Attitude | Subj Norm | PBC | Intention |
|---|---|---|---|---|
| pleasant / unpleasant | 0,893 | 0,390 | 0,527 | 0,201 |
| valuable / worthless | 0,908 | 0,353 | 0,461 | 0,290 |
| interesting / boring | 0,913 | 0,379 | 0,511 | 0,280 |
| family | 0,204 | 0,811 | 0,300 | 0,169 |
| valued approve | 0,355 | 0,641 | 0,459 | 0,082 |
| I should / should not | 0,490 | 0,811 | 0,611 | 0,106 |
| expected to perform | 0,324 | 0,790 | 0,478 | 0,163 |
| nunber of choices | -0,425 | -0,418 | -0,825 | -0,065 |
| easy / difficult | 0,468 | 0,373 | 0,699 | 0,095 |
| can / can't perform | 0,433 | 0,532 | 0,785 | 0,106 |
| knowledge about cars | -0,272 | -0,296 | -0,706 | -0,094 |
| possible / impossible | 0,510 | 0,512 | 0,722 | 0,142 |
| effort to improve knowledge | 0,216 | 0,106 | 0,134 | 0,880 |
| improve knowledge in 1 yea | 0,192 | 0,124 | 0,067 | 0,866 |
| improve knowledge regularl | 0,319 | 0,213 | 0,134 | 0,909 |

**Table 54: Cross loadings of PLS Algorithm with reflective indicators of conceptual research model**

Significance of Formative Indicators

When analysing formative indicators in a first step Ken Kwong-Kay (2013) suggests to evaluate significance values of formative indicators' loadings and

weights. Therefore, the significance values or T-statistics of indicators' loadings and weights resulting from the Bootstrapping calculation have to be evaluated. With using the Bootstrapping function of Smart PLS the structural path significance of the inner and outer model can be checked. In doing so, the input parameters were 258 cases and as recommended by Ken Kwong-Kay (2013) the value of 5000 for samples. What is more, in terms of "sign changes" the option "construct level changes" was used as according to Ken Kwong-Kay (2013) this option is known as a good compromise. Ken Kwong-Kay (2013) and Marcoulides and Saunders (2006) state that with a significance level of 5 % the path coefficient is significant if the T-statistics are larger than 1,96. According to Ken Kwong-Kay (2013) those indicators should be excluded from the model whose both significance values or T-statistics of loadings and weights are below the value of 1.96. As presented in the following Table 55 in terms of the conceptual research model's formative indicators no indicator has to be excluded from the model as for all indicators at least one significance value of indicator loading or weight is higher than 1.96.

| | loadings T Statistics | weights T Statistics |
|---|---|---|
| attractive styling | 3,488 | 0,432 |
| colour | 2,683 | 2,022 |
| convenience | 13,544 | 8,014 |
| environmental friendliness | 1,803 | 2,372 |
| expensive brand is high quality | 3,062 | 0,221 |
| friends | 13,554 | 2,814 |
| high price | 4,969 | 0,896 |
| income | 1,327 | 2,856 |
| like-minded people | 14,410 | 2,590 |
| long distance drivability | 5,808 | 4,249 |
| low boot opening | 2,663 | 2,143 |
| low experience | 12,316 | 3,298 |
| low price | 3,527 | 2,160 |
| milieu | 11,587 | 1,186 |
| number of storage spaces | 3,964 | 1,204 |
| privacy | 5,318 | 2,658 |
| self concept | 4,171 | 1,962 |
| time efficiency | 4,934 | 1,205 |
| upholstery | 6,241 | 2,269 |

**Table 55: Formative indicators' weights and loadings for conceptual research model**

Collinearity of Formative Indicators

As suggested by Ken Kwong-Kay (2013), collinearity of formative indicators is evaluated. To do so, using the SPSS programme in terms of each formative latent variable the collinearity statistics including the values for “tolerance” and “VIF” of its formative indicators are calculated. In this context, Ken Kwong-Kay (2013) and Hair, Ringle and Sarstedt (2011) explain that no collinearity problems exist when the value for VIF is lower than 5 and the value for tolerance is higher than 0.2. In the following Table 56 tolerance and VIF values for formative indicators of the conceptual research model are presented. The result is that for all formative indicators the VIF value is lower than 5 and the tolerance value higher than 0.2 and therefore no collinearity problems exist.

**Coefficients** [a]

| Model | | Collinearity Statistics | |
|---|---|---|---|
| | | Tolerance | VIF |
| 1 | Attractive styling | ,510 | 1,960 |
| | Convenience | ,671 | 1,491 |
| | Colour | ,559 | 1,790 |
| | Exp. brand is high quality | ,565 | 1,770 |
| | High price | ,459 | 2,181 |
| | Friends | ,449 | 2,229 |
| | Like-minded people | ,324 | 3,084 |
| | Milieu | ,413 | 2,419 |
| | Low experience | ,818 | 1,222 |
| | Self-concept | ,630 | 1,586 |
| | Many storage spaces | ,680 | 1,471 |
| | Upholstery | ,556 | 1,800 |
| | Environementally friendly | ,718 | 1,392 |
| | Income | ,814 | 1,229 |
| | Drivability for long distances | ,811 | 1,233 |
| | Low boot opening | ,636 | 1,573 |
| | Low price | ,582 | 1,719 |
| | Privacy | ,830 | 1,205 |
| | Time efficiency | ,754 | 1,327 |

a. Dependent Variable: Intention

**Table 56: Tolerance and VIF values for formative indicators of conceptual research model**

Explanation of model paths of resulting model

As described before, one result of the CFA is that two reflective indicators, “shopping imaginary” and “professional assistance”, have to be excluded from the conceptual research model. In the following Figure 82 a version of the conceptual research model is presented which does not contain these two reflective indicators. In the following an explanation of model paths is offered. According to Ken Kwong-Kay (2013) an effect of a latent variable is statistically significant when the absolute weight value from a variable to another variable is above 0.1. In terms of values of inner model path coefficient sizes of the conceptual research model it is evident that statistical significance is indicated for all paths from explanatory variables to intention by values of 0.269 from attitude to intention, 0.113 from SN to intention and 0.103 from PBC to intention. What is more, all explanatory variables show high $R^2$ values with 0.227 for attitude, 0.269 for SN and 0.526 for PBC indicating that these latent variables are explained with a high percentage by their indicators. Finally, the $R^2$ value for intention of 0.093 represents that 9.3 % of variance of Intention are explained by explanatory variables attitude, SN and PBC.

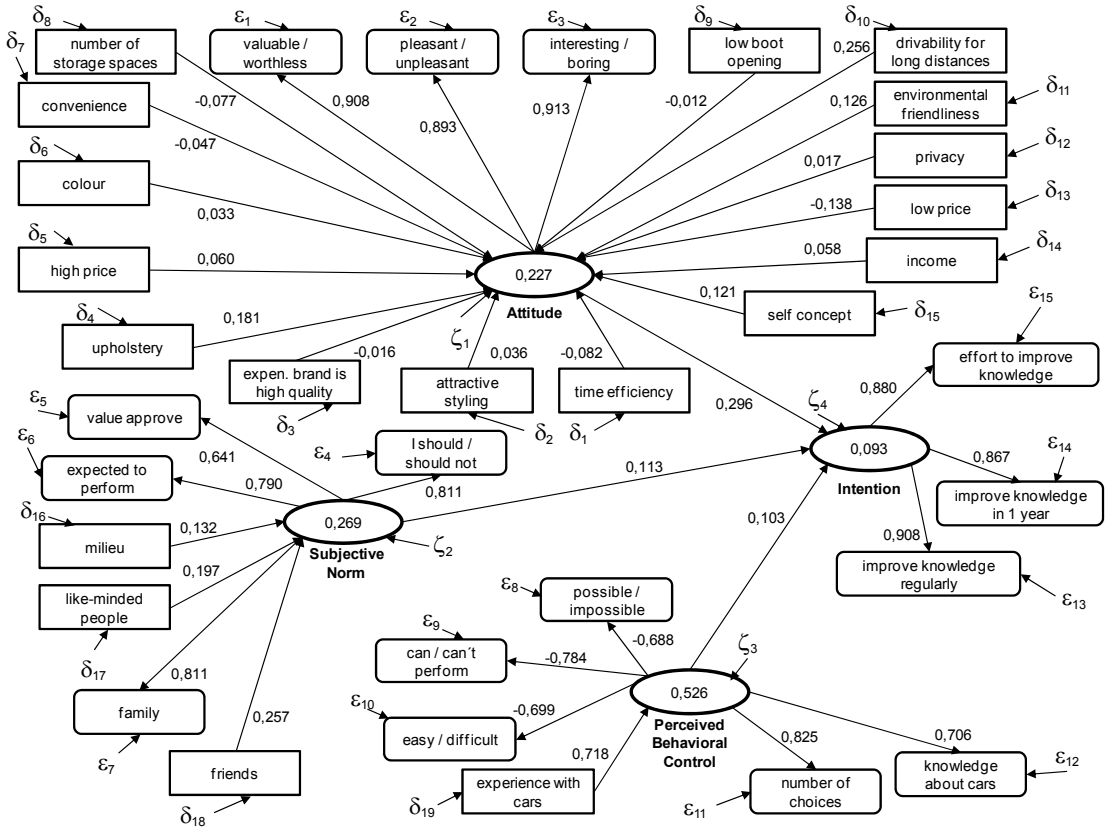



**Figure 82: Resulting research model of female customers' car purchase decision making process**

### 4.6.7 Result of Factor Analysis

CFA and SEM were worked out for both models, the conceptual model of the present research and the resulting model of the EFA. As a result, in terms of the conceptual research model two reflective indicators, "shopping imaginary" and "professional assistance", had to be excluded. In terms of the model resulting from EFA no further indicators had to be excluded. What is more, both models were investigated in terms of stop-criterion, indicator reliability, internal consistency reliability, convergent validity, discriminant validity, cross-loadings, indicator significance values and indicator collinearity with showing satisfying results. Finally the conceptual research model as presented in Figure 82 offers better results in terms of significance of inner model paths between explanatory variables and intention than the model resulting from EFA (see Figure 80). What is more, the final conceptual research model explains 9.3 % of variance in

intention compared to a lower value of 6.5 % within the model resulting from EFA. Therefore, a result from CFA is that in comparison to the model resulting from EFA the conceptual research model is more appropriate to explain the female car purchase decision making process. Due to that, in the following of the research the final conceptual research model as presented in Figure 82 is operationalised.

### 4.6.8 Operationalization of hypotheses

In the following chapter the hypotheses of the present research as presented in the Hypotheses chapter 3.9 (page 142) are operationalised to the final research model as presented in Figure 82.

**Hypothesis 1**

The conceptual model will satisfactorily represent the female car purchase decision making process.

**Operationalization**

As described in the Analysis and Findings chapter within the present research a model which describes female customers' car decision making process was developed. The model (see Figure 82, page 250) is based on the original conceptual model of the present research as shown in Figure 28 on page 142. Within the CFA a reduced version of the original model was developed which shows statistically significant and satisfying values. When analysing the conceptual research model as presented in Figure 82 on page 250 it is evident that this model is based on the originally postulated structure of the TPB as this model still contains the latent variables attitude, SN and PBC. What is more, all latent variables load directly on intention. Within the inner model the highest path value is found between the latent variable attitude and intention (0.296). This result presents that as expected within the car decision making process an increase of the value of female customers' attitude towards a car has a positive effect on the female customers' intention to decide for a car. Analysing other path values of the inner model then the path value of 0.113 for SN to intention

does reach statistical significance. What is more, this positive value indicates that an increase of the value of SN will have a positive effect on the female customers' intention to decide for a car. What is more, the path value of 0.103 between PBC and intention also does reach statistical significance. Additionally, this value indicates that an increase of the value of PBC as expected will have a positive effect on the female customers' intention to decide for a car. In total, the final version of the conceptual research model explains 9.3 % of the variance in intention. One result of the present research is that a model can be developed which satisfyingly represents the female customers' car decision making process and therefore the hypothesis can be upheld.

**Hypothesis 2**

Time efficiency within the car purchase decision making process will have an influence on the female car purchase decision making process.

**Operationalization**

In the final version of the conceptual research model (see Figure 82) the indicator "time efficiency" is included. This formative indicator loads with a value of -0.082 on attitude indicating that this indicator only has a small and negative effect on female customers' car decision making process. Therefore, this result is contrary to former literature. For example, Silverstein and Sayre (2009a) state that to women time efficiency is an important factor within purchase and service processes because still today women are more involved into household tasks and therefore their time is limited. In this context Mitchell and Walsh (2004) and Assael (1997) add that many female customers want to make their shopping trips fast. Therefore, within the present research an influence of "time efficiency" on the female car purchase decision making process was found however the importance of this indicator is much lower than in former research. Nevertheless, as a result the hypothesis that "time efficiency" has an influence on the female car purchase decision making process can be upheld with results of the present research.

**Hypothesis 3**

Income will have an influence on a female customer's car purchase decision making process.

**Operationalization**

In the final version of the conceptual research model (see Figure 82) the indicator "income" is included. This formative indicator loads with a value of 0.058 on attitude indicating that this indicator only has a small positive effect on female customers' car decision making process. As a result of the present research the hypothesis that income has an influence on a female customer's car purchase decision making process can be upheld.

**Hypothesis 4**

Experience with cars will have an influence on the female car purchase decision making process.

**Operationalization**

In terms of the conceptual research model as presented in Figure 82 on page 250 the indicator "experience with cars" is included. This indicator has a strong loading of 0.718 on the latent variable PBC which indicates that if the value of the variable "experience with cars" increases then the value of PBC increases as well. In the following due to the path value of 0.103 from PBC to intention the indicator "experience with cars" has a positive effect on intention. Therefore, the hypothesis that personal experience with cars has an influence on the female car purchase decision making process can be upheld with results of the present research.

**Hypothesis 5**

Availability of assistance in choosing cars will have an influence on the female car purchase decision making process.

**Operationalization**

In terms of the conceptual research model as presented in Figure 82 on page 250 the indicator “professional assistance” is not included. The exclusion of this indicator is explained in the chapter 4.6.6.2.2 presenting that an unacceptably low reliability value for this indicator was found (see Table 51). Therefore, the hypothesis that availability of assistance in choosing cars will have an influence on the female car purchase decision making process cannot be upheld with results of the present research.

**Hypothesis 6**

Number of choices will have an influence on the female car purchase decision making process.

**Operationalization**

In terms of the conceptual research model as presented in Figure 82 on page 250 the indicator “number of choices” is included. This reflective indicator has a loading value of 0.825 on PBC indicating that “number of choices” allows a good measurement of this latent variable. Therefore, the hypothesis that the number of choices has an influence on the female car purchase decision making process can be upheld with results of the present research.

**Hypothesis 7**

The aspect of convenience will have an influence on the female car purchase decision making process.

**Operationalization**

In terms of the conceptual research model as presented in Figure 82 on page 250 the indicator “convenience” is included. This indicator has a low weight value of -0.047 to attitude showing that the impact of “convenience” on attitude is low. Therefore, the hypothesis that convenience has an influence on the female car purchase decision making process can be upheld with results of the present research.

**Hypothesis 8**

A woman's family will have an influence on her car purchase decision making process.

**Operationalization**

In terms of the conceptual research model as presented in Figure 82 on page 250 the indicator "family" is included. This reflective indicator has a loading value of 0.811 on SN indicating that "family" allows a good measurement of this latent variable. Therefore, the hypothesis that the number of choices has an influence on the female car purchase decision making process can be upheld with results of the present research.

# 5 DISCUSSION OF FINDINGS

In the following chapter the present research's findings are discussed. Due to the high number of filled out questionnaires within the present research and due to the feedback which the researcher received from women throughout the process of development of the present research it is evident to the researcher that women want to participate in the car decision making process and that they want to make their voices being heard. Therefore, this outcome of the present research supports findings of former research as conducted by Mattila (2010), Eagly and Johnson (1990), Oakley (2000) and McColl-Kennedy, Daus and Sparks (2003) who found that women tend to want to participate in product and car decision making processes.

## 5.1 Comparison to former research

In the following chapter the contribution to knowledge of the present research is evaluated by comparison of present research's outcomes to former research.

### 5.1.1 Car usage

In their research Kortus-Schultes and Moos (2006) investigated women's preferences in the context of cars' attributes and their car purchase process. Participants of the research as conducted by Kortus-Schultes and Moos (2006) were women in Germany. Therefore the target groups of the present research and the research of Kortus-Schultes and Moos (2006) are compareable. One result in terms of favourite car brands within the research as conducted by Kortus-Schultes and Moos (2006) is that the ten most favourtie car brands of women are Volkswagen followed by Audi, BMW, Mercedes, Opel, Ford, Peugeot, Renault, Toyota and Volvo. Within the research as presented by Kortus-Schultes and Moos (2006) Porsche only was on eleventh position within the list of most favourite brands. The result of the present research differs to results presented by Kortus-Schultes and Moos (2006). Within the present research, the ten most favourite brands are Audi followed by Volkswagen, BMW, Mercedes, Porsche, Opel, Peugeot, Skoda, Ford and Toyota. As a result, within the present research the top four brands are the same compared to results of Kortus-Schultes and Moos (2006) however the position order is changed. Interestingly, within the present research the brand Porsche is on fifth place of most favourite brands which is a strong improvement compared to the result of the research as conducted by Kortus-Schultes and Moos (2006). Therefore, the contribution to knowledge of the present research is that when evaluating female car customers' most favourite car brands changes in the order of brands emerge when surveys differ in point of time and demographics of survey participants. What is more, in terms of indicators which influence the car decision process of women, Kortus-Schultes and Moos (2006) found that "low boot opening" and "upholstery" have a high importance to women. Within the final model of the present research as presented in Figure 82 on page 250 the indicators "upholstery" and "low boot opening" are included. The indicator "upholstery" loads with a value of 0.181 on attitude showing that this indicator has a remarkable effect on this latent variable. Analysing the present research's participants' evaluation of this indicator then it is evident that with 61 (23.6 %) respondents nearly one fourth of the whole sample evaluated upholstery's importance with a high value of 6. The chart representing the evaluation of this

indicator by respondents of the present research is available in the „Appendix“ chapter (Appendix F) of the present research. Therefore, these present research's results in terms of "upholstery" support results of former research as conducted by Kortus-Schultes and Moos (2006). However, analysing the present research's results in terms of the indicator "low boot opening" then different results can be found. This indicator loads with a low value of -0.012 on attitude showing that this indicator's effect on attitude is quite low. What is more, the present research's participants' evaluation of this indicator demonstrates that with 171 (66.3 %) respondents a majority of the sample evaluated the importance of "low boot opening" with a low value between 1 and 3. The chart representing the evaluation of this indicator by respondents of the present research is available in the „Appendix“ chapter (Appendix F) of the present research. Therefore, in terms of the indicator "low boot opening" with results of the present research the findings of former research as conducted by Kortus-Schultes and Moos (2006) cannot be supported. What is more, in terms of the variable "number of storage spaces" Kortus-Schultes and Moos (2006) reveal that within their research women evaluated this indicator as neutral and therefore no high importance of this indicator to the femal car choice process was found. Analysing the final research model of the present research as presented in Figure 82 on page 250 then it is evident that the indicator "number of storage spaces" has a low negative loading of -0.077 on the latent variable attitude. What is more, with 142 (54.8 %) respondents a majority of the present research's participants' evaluated this indicator with a low value of between 1 and 3. The chart representing the evaluation of this indicator by respondents of the present research is available in the „Appendix“ chapter (Appendix F) of the present research. One result of the present research is that "number of storage spaces" has no high importance within the female car choice process. Therefore, with the present research's results the findings of former research as conducted by Kortus-Schultes and Moos (2006) cannot be supported.

### 5.1.2 Car classes

In the following chapter, in terms of vehicle classes findings of former research and of the present research are compared in order to demonstrate present research's contribution to knowledge.

One finding of the researches as conducted by Potoglou (2008), Bhat and Sen (2006) and McCarthy and Tay (1998) is that Vans are more likely to be chosen when the number of persons in a household rises. Results of the present research (see Figure 54, page 184) show that in terms of the vehicle class Van the more persons live in a respondent's household the more did respondents of the present research state to favour the vehicle class Van. The share of respondents who stated to favour Vans rises from 2.8% for respondents who stated to live in a one person household over 8.1 % for respondents who stated to live in a three person household up to 24.2 % for respondents who stated to live in a five persons household. Therefore, results of the present research support this finding from the researches as conducted by Potoglou (2008), Bhat and Sen (2006) and McCarthy and Tay (1998) and what is more these finding also can be extended to a sample of respondents which consists only of women living in Germany.

In their research Choo and Mokhtarian (2004) investigated the relationship between consumers' travel attitude, personality, lifestyle, mobility and the individual's vehicle type choice. In doing so, data from a 1998 survey in the San Francisco Bay area was evaluated. As one finding, in terms of the choice of type of car, Choo and Mokhtarian (2004) state that people who live in an urban area tend more to own smaller cars due to their greater manoeuvrability in the dense traffic and limited parking spaces in cities. What is more, Choo and Mokhtarian (2004) found that people with higher incomes tend more to live in urban areas and they also tend more to drive expensive cars as Upper Class vehicles and SUVs. Additionally, Figure 42 represents results of the present research in terms of separation of vehicle class by the respondents' location of living. The result is that within the present research a slight difference in the choice of smaller vehicles between the two groups of respondents, those who

live in an urban and those who live in a rural location, can be found. The three smaller vehicle classes Mini vehicles, Small vehicles and Compact size vehicles in total are chosen by 35.8 % respondents living in an urban location and by 32.5 % of respondents who live in a rural location. The highest difference between both groups of respondents is represented by the fact that the most favourite vehicle class of respondents living in an urban location are Compact size vehicles (18.7 %) whereas for the group of respondents living in a rural location the most favourite vehicle class are Middle size vehicles (19.4 %). As a result, in terms of association of vehicle class to location of living with results of the present research a tendency is evident which supports the findings as presented by Choo and Mokhtarian (2004). Therefore, with results of the present research in terms of women living in Germany a tendency is evident that respondents living in an urban location tend more to decide for smaller cars than respondents living in a rural location. What is more, Choo and Mokhtarian (2004) found that respondents who stated to drive long distances do not favour smaller cars or Sportscars as these cars are not that convenient and comfortable for longer trips. These respondents favour more to drive larger vehicles. An evaluation of the present research's results in terms of the association of long distance driveability and vehicle class can be found in the „Appendix" chapter (Appendix F) of the present research. Analysing that association it is evident that respondents who stated to favour smaller cars evaluated the importance of long distance driveability on a 7-point Likert Scale with a lower value as 4.6 for Mini vehicles, 4.4 for Small vehicles and 4.8 for Compact size vehicles. Also respondents who stated to favour Sportscars evaluated long distance driveability with a lower value of 4.7. On the other hand, respondents who evaluated long distance driveability with a higher value also prefer bigger size vehicles as Upper midsize vehicles (5.1), Upper class vehicles (5.4) and Vans (5.0). Therefore, results of the present research support the finding of the research as conducted by Choo and Mokhtarian (2004) whereas customers who evaluate a car's long distance driveability with a high value do not favour smaller cars or Sportscars. The present research shows that this finding can be extended to female car customers from Germany.

Additionally, Choo and Mokhtarian (2004) found that also the respondents' age is associated with the choice of car type. The higher the respondent's age is the lower the probability to choose a smaller car, a Sportscar or a SUV. The evaluation of present research's respondents' age according to vehicle class is offered in the „Appendix" chapter (Appendix F) of the present research. As a result, in terms of the vehicle class of Sportscars no real association to age is visible as 22 % of respondents in the age between 18 and 24 years favour this vehicle class but also 20 % of respondents aged between 55 and 65 years. A look at the vehicle class of Compact size vehicles offers a similar result. Also here, differences in age groups are small as 18 % of respondents aged between 18 and 24 years favour this vehicle class and 20 % respondents aged between 55 and 65 years also choose this vehicle class. However, a difference between age groups can be found for the vehicle class of SUVs. On the one hand, higher values of 14 % for respondents aged between 18 and 24 years and 15 % for respondents aged between 25 and 34 years are reached. However on the other hand, this value decreases as the respondents' age increases. Finally, only 7 % of respondents aged between 55 and 65 years evaluate SUVs as one of their favourite vehicle categories. What is more, the vehicle category of Vans mostly is desired by middle-aged respondents of between 35 and 44 years (15 %). The share of respondents stating that Vans belong to their favourite vehicle class decreases to younger ages and to older ages with 2 % for respondents aged between 18 and 24 years and 7 % for respondents aged between 55 and 65 years. This result can be explained by the fact that middle-aged women have the highest number of tasks with managing children, private life and job. Therefore in these ages a necessity for bigger cars as Vans exists. This finding of the present research is supported by Silverstein and Sayre (2009a) who found in their research that especially middle-aged women face many challenges with managing home, work and children and therefore need products which help them manage their life easier. What is more, the present research's finding also is supported by the research as conducted by Choo and Mokhtarian (2004) who found that Minivan and Van drivers tend to be middle-aged female persons with children. With results of the present research in terms of smaller vehicle classes and the vehicle class of Sportscars the findings of the research as conducted by Choo and Mokhtarian

(2004) are not supported. However, a supporting of the research by Choo and Mokhtarian (2004) can be found for the vehicle class of SUVs. Therefore, in terms of the vehicle class of SUVs the finding of the research by Choo and Mokhtarian (2004) can be extended to the customer group of women in Germany. Beyond that a result of the present research is that the group of middle-aged women in Germany tends more to favour Vans than younger or older women.

What is more, Choo and Mokhtarian (2004) revealed in their research that as the household income rises respondents tend more to choose expensive vehicles as Mid-Size vehicles, Upper Class vehicles, Sportscars and SUVs. When analysing the relationship between present research's respondents' vehicle classes and net household income it is evident that for the high household income group 3.601 to 5.000 EUR respondents of the present research stated to favour Compact vehicles (17 %), Middle Size vehicles (17 %) and Sportscars (14 %). SUVs are not as much favoured by respondents from this household income group with 11 %. In terms of the high household income group of 5.001 to 18.000 EUR the result is different. 20 % of these respondents stated to favour Sportscars and each 13 % stated to favour Middle Size vehicles and SUVs. When having a look at a lower income group of 1.300 to 2.600 EUR then the result is similar to higher household income groups with 20 % respondents favouring each Compact vehicles and Sportscars, 15 % of respondents favouring Middle Size vehicles and 13 % of respondents favouring SUVs. A similar distribution of favourite vehicle classes also can be found for the lowest household income group of below 1.300 EUR. Therefore, the result of present research only partially supports the finding of the research as conducted by Choo and Mokhtarian (2004) in terms of association of household income and choice of vehicle class. Contrary to results of Choo and Mokhtarian (2004) within the present reseach for all household income groups up to the group of 3.601 to 5.000 EUR household income no real differences in vehicle type choice can be found. Only for the highest evaluated household income group of 5.001 to 18.000 EUR a correspondence with Choo and Mokhtarian (2004) in terms of Sportscars is found. However, in terms of other expensive vehicle classes as Mid-Size vehicles, Upper Class vehicles and SUVs no clear

differences to all other household income groups can be found. Therefore, within the present research in terms of the customer group of women in Germany no real association of favourite vehicle class and household income can be found.

### 5.1.3 Environmental friendliness

The comparison of present research's outcomes with former research outcomes in terms of the indicator "environmental friendliness" offers an interesting result. In their research Kortus-Schultes and Moos (2006) found that this indicator has a high importance to female customers when deciding for a new car. Analysing the final version of the present research model as presented in Figure 82 on page 250 the indicator "environmental friendliness" is included. This indicator loads with a value of 0.126 on the latent variable attitude showing that this indicator has a remarkable effect on this latent variable. When analysing the present research's participants' evaluation of this indicator then it is evident that with 146 (56.4 %) respondents the majority of the sample evaluated the importance of environmental friendliness with high values between 5 and 7. The chart representing the evaluation of this indicator by respondents of the present research is available in the „Appendix" chapter (Appendix F) of the present research. Therefore, these present research's results in terms of "environmental friendliness" support results of former research as conducted by Kortus-Schultes and Moos (2006).

In this context, researches of Ziegler (2012) and Ewing and Sarigöllü (1998) show that the respondents' age has a negative effect on the stated preference for vehicles which have an environmentally friendly propulsion technology. When comparing this finding to the result of the present research it is evident that a different effect can be found. The respondents of the present research evaluated the importance of "environmentally friendly" with higher values as the respondents' age increased. The chart representing this effect is available in the „Appendix" chapter (Appendix F) of the present research. Within this chart it is evident that younger respondents with age of 18 to 24 evaluated "environmentally friendly" with a low mean value of 2.28, respondents with an

age between 35 to 44 with a mean value of 4.55 and respondents aged over 65 years even evaluated “environmentally friendly” with a mean value of 5.77. Therefore, the result of the present research is in terms of the variable “environmentally friendly” contrary to the finding of the research as conducted by Ziegler (2012) and Ewing and Sarigöllü (1998). Therefore results of the present research do not support former research finding as presented by Ziegler (2012) and Ewing and Sarigöllü (1998) in the context of the indicator “environmentally friendly”. In this context, Torgler, Garcia-Valinas and Macintyre (2008) state that women have higher preferences towards environment and Torgler and García-Valiñas (2007) mention that this effect results from women’s traditional socialisation towards caregivers. This can be an explanation for the differences of results of the present research where only female customers’ opinion is evaluated in contrast to the findings of the research as conducted by Ziegler (2012) and Ewing and Sarigöllü (1998) in which both genders were regarded and therefore female participants’ strong positive environmental attitude is mixed with male participants’ environmental attitude.

### 5.1.4 Vehicle price

In her research Ziegler (2012) investigated car customers’ preferences for environmentally friendly vehicle propulsion technologies as hybrid, bio fuel, hydrogen, electric and gas. In doing so, computer assisted personal interviews were conducted with 598 potential car buyers in Germany. Within this sample 25 % of respondents were women. One interesting finding of the research as developed by Ziegler (2012) is that a high vehicle price has a negative effect on the respondents’ car choice process and a low price has a positive effect on the respondents’ car choice process. When analysing the final model of the present research (Figure 82, page 250) then it is evident that indicators “low price” and “high price” are included. Indicator “low price” loads with a negative value of -0,138 on attitude showing that this indicator has a negative effect on this latent variable within the car choice process of female customers. On the other hand, the indicator “high price” loads with a small positive value of 0.060 on attitude showing that this indicator has a small positive effect on the car choice process of female customers. Therefore, the present research’s results in terms of the

indicators “low price” and “high price” are contrary to former research as conducted by Ziegler (2012) and therefore the present research’s findings do not support former research in this context. What is more, in terms of “low price” 196 (75.7 %) and in terms of “high price” 208 (80.3 %) strong majorities of respondents of the main study of the present research evaluated the indicator with a low value between 1 and 3. The charts representing the evaluation of these indicators by respondents of the present research is available in the „Appendix“ chapter (Appendix F) of the present research. These represent show that both, a low and high price, are not important to female customers within the car choice process. The findings of the present research supplement the finding of the research as conducted by Ziegler (2012) whereas only “high price” has a negative effect on customers’ attitude. Therefore, when pricing new products, car manufacturers should regard that a low price might not always lead to higher acceptance of a car by female customers and in the following might not lead to expected high sale volumes. Therefore, when developing a business case car manufacturers should take this aspect into account.

### 5.1.5 Knowledge about cars

In terms of the aspect of knowledge about cars, Odekerken-Schröder *et al.* (2003) state that customers are becoming more knowledgeable about cars and therefore car dealers will have to redefine their services. Analyzing the final research model as presented in Figure 82 the reflective indicator “knowledge about cars” is included. This reflective indicator offers a satisfying value of 0.706 presenting that this indicator is a valuable indicator at measuring the latent variable PBC. This result supports the finding of the research as presented by Odekerken-Schröder *et al.* (2003) in terms of the indicator “knowledge about cars”.

However, in the following the present research’s participants’ evaluation of reflective indicators considering “knowledge about cars” is discussed. All charts representing present research’s participants’ evaluation of questions in the context of “knowledge about cars” can be found in the „Appendix“ chapter (Appendix F) of the present research. With using results of the present research

in terms of improvement of “knowledge about cars” validity of the statement as mentioned by Odekerken-Schröder *et al.* (2003) can be examined for the group of female car customers. In terms of the question “I intend to improve my knowledge about cars within 1 year”, the present research’s result is that most respondents, 71 (27.5 %), evaluated this statement with the lowest value of 1 with showing that they do not intend to improve their knowledge about cars within one year. In total only 65 (25.2 %) respondents evaluated this statement with a value of 5 or higher. Therefore, the majority of respondents, 142 (55.0 %), evaluated this statement with a value of 3 or lower. In terms of the question “I will make an effort to improve my knowledge about cars” the result is similar as described for the question “I intend to improve my knowledge about cars within 1 year”. Within the present research also most respondents, 71 (27.5 %), evaluated this statement with the lowest value of 1 indicating that many women do not intend to make an effort to improve their knowledge about cars. Also here, nearly the half of the sample, 123 (47.7 %), evaluated this statement with a low value of 3 or less. Only 25 (9.7 %) of respondents evaluated this statement with the highest value of 7. The result as described for the questions “I intend to improve my knowledge about cars within 1 year” and “I will make an effort to improve my knowledge about cars” also can be found for the third question in the research’ questionnaire in this context, “I intend to improve my knowledge about cars regularly". Also in this case, a high number of the present research’s respondents, 139 (53.9 %), evaluated this statement with a value of 3 or less. This indicates that the majority of women do not want to improve their knowledge about cars regularly. Additionally, also here only few respondents, 25 (9.7 %), evaluated this statement with the highest value of 7. As a result of the evaluation of the present research’s results in terms of the questions “I intend to improve my knowledge about cars within 1 year”, “I will make an effort to improve my knowledge about cars” and “I intend to improve my knowledge about cars regularly" the statement as formulated by Odekerken-Schröder *et al.* (2003) whereas customers are becoming more knowledgeable about cars cannot be supported for a sample which exists only of women living in Germany. What is more, this result of the present research also indicates that an improvement of female customers’ attitude towards a car is difficult as former researches as conducted by Campbell (1988) and Gilbert, Lee-Kelley and

Barton (2003) found that experience with technology is a main supposition in the process of reducing women's negative attitudes towards technology.

### 5.1.6 Age

As described before in chapter 5.1.2 interesting results in terms of respondents' age and choice of vehicle class were found within the present research. In the following chapter further results in the context of respondents' age are described.

In their research Szmigin and Carrigan (2006) found that the consumption behaviour of female consumers changes with the consumers' age. In this context, Szmigin and Carrigan (2006) state that marketers have to adapt their marketing strategies according to the age of their target customers. In this context, the following Figure 83 represents the final research model for respondents until the age of 44 years and Figure 84 represents the final research model for respondents aged over 45 years. In doing so, in total 190 (73.6 %) respondents of the present research are aged until 44 years and 68 (26.4 %) respondents are aged over 45 years. All values for calculations within Smart PLS remained unchanged to all calculations as explained in former chapters of the present research. In a first step the main differences between both age groups in terms of the latent variable attitude are described. Interestingly, in terms of age group until 44 years (Figure 83) 26.5 % of variance in attitude is explained by the model and in terms of age group above 45 years (Figure 84) 42.6 % of variance in attitude is explained. This result presents that in terms of attitude the final research model does fit better to customers from a higher age group. What is more, in the context of formative indicators of the latent variable attitude interesting differences between both age groups can be found. In terms of "high price" a remarkable positive effect (0.211) is found in terms of respondents from age group until 44 years and a remarkable negative effect (-0.219) is found for respondents from age group above 45 years. This result presents that a high price of a vehicle has a positive effect on younger female customers' attitude towards a car choice and a negative effect on older female customers' attitude towards a car choice. Additionally, in the context of

the indicator “low price” a similar result is found. While in terms of younger respondents this indicator loads with a low negative value of -0.071 on the latent variable attitude in terms of older respondents this indicator’s negative loading on attitude is much higher with a value of -0.431. Therefore, in terms of price the result of the present research is that to younger female customers a high price tends to have a positive effect on attitude towards a car choice and to older respondents a high and a low price both have negative effects on the car choice. An explanation of this effect may be that older customers are not that much interested in the price of a car. This result supports findings of former research as conducted by Thomas and Peters (2009) and Birtwistle and Tsim (2005) who found in their researches that older women are a lucrative customer group which tends not to look that much at product prices within their product decision making processes.

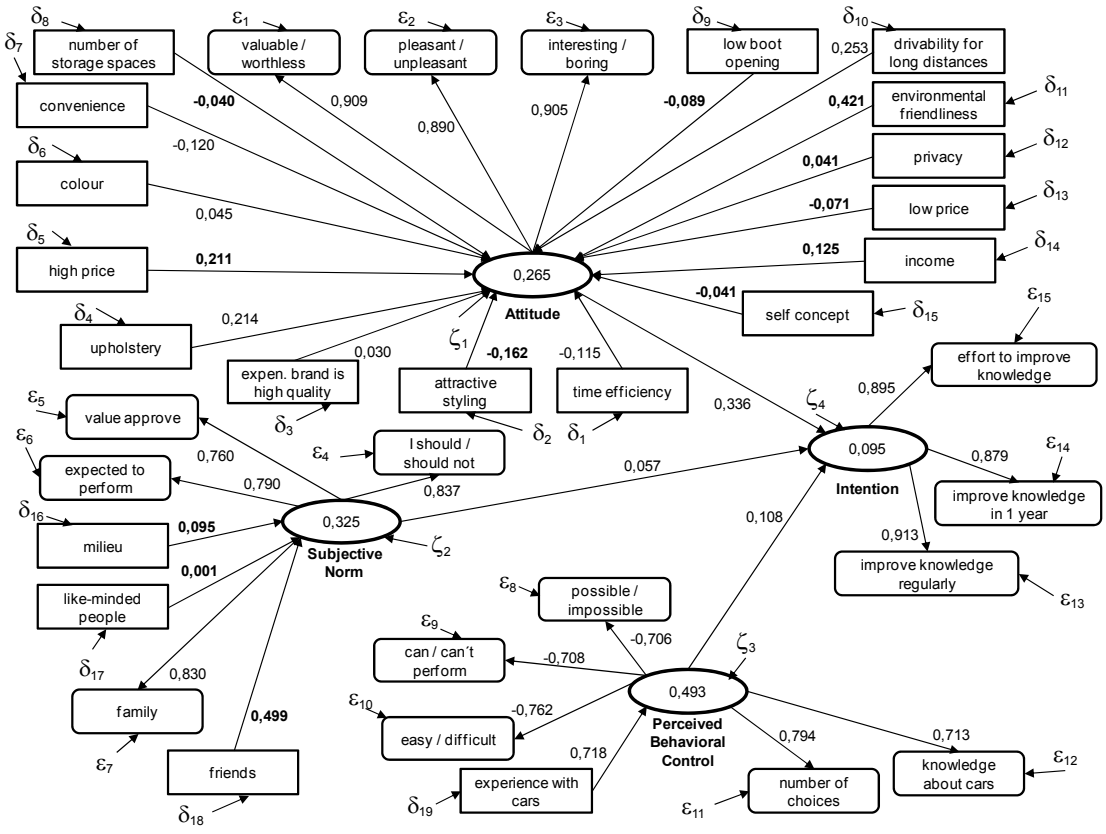



**Figure 83: Final research model for respondents of present research aged until 44 years**

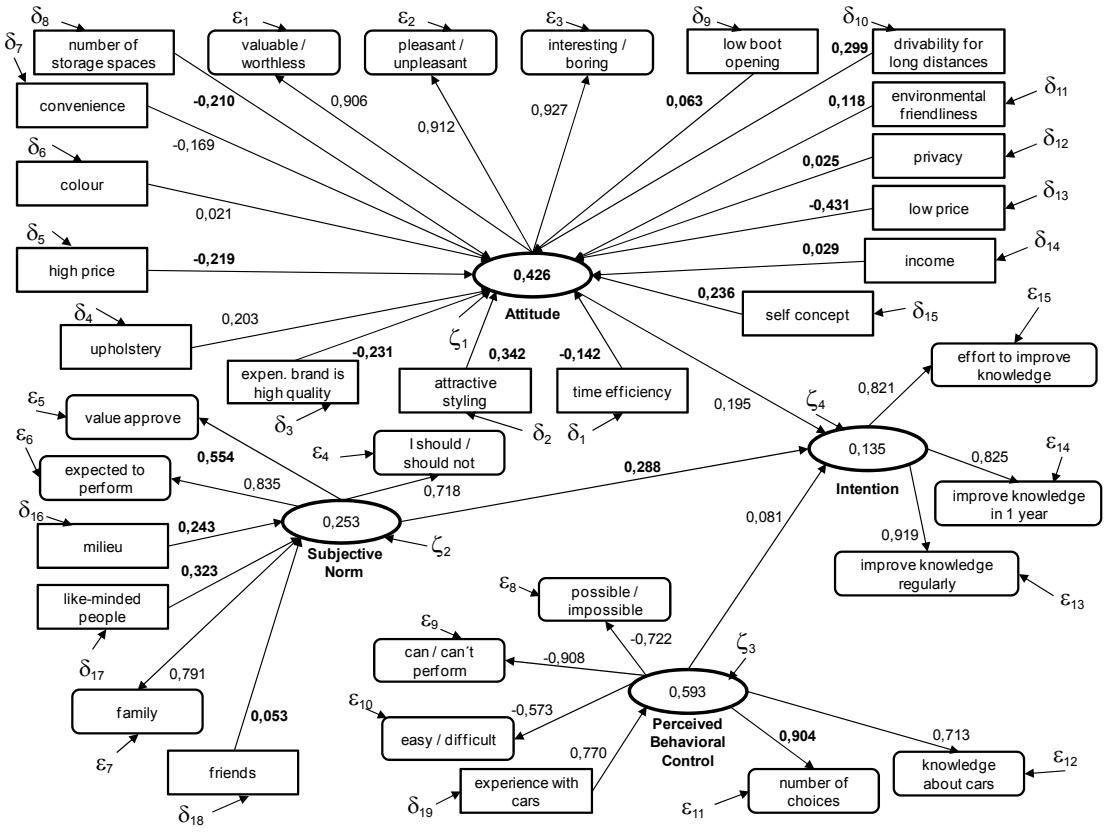



**Figure 84: Final research model for respondents of present research aged above 45 years**

In the next step the evaluation of affective and symbolic indicators of the latent variable attitude is investigated. In this case, interestingly in terms of respondents with an age below 44 years the indicator “attractive styling” has a negative influence (-0.162) on female customers’ attitude towards a car choice process and in terms of respondents over 45 years this indicator has a strong positive influence (0.342) on female customers’ attitude towards the car choice process. In the context of the indicator “colour” no differences between both age groups in terms of this indicator’s influence on female customers’ attitude towards the car choice process can be found. However, when analysing the evaluation of these indicators by respondents from both groups then remarkable differences can be found. The charts offering the evaluation of the indicators “colour” and “attractive styling” separated by age groups can be found in the „Appendix“ chapter (Appendix F) of the present research. In terms of “attractive styling” the majority (53.2 %) of respondents aged below 44 years evaluated this indicator with a high value between 5 and 7. On the other hand, only 45.6 %

of respondents aged above 45 years evaluated this indicator with a high value between 5 and 7. Additionally, analysing the evaluation of the indicator “colour” a similar result can be found. In total 68.4 % of respondents aged below 44 years and 61.7 % of respondents aged above 45 years evaluated this indicator with high values between 5 and 7. Therefore, one present research’s finding is that for younger respondents a car’s “colour” and “attractive styling” are more important than to older respondents. Or in other words, the importance of “colour” and “attractive styling” decrease as the female respondents’ age increases. This finding of the present research supports the finding of the research as conducted by Steg (2005) who found that to younger respondents affective and symbolic functions of a car are more important than to older respondents. In this context, also Dongyan and Xuan (2008) found that to young Chinese car purchasers “exterior design” is one of the most important attributes when deciding for a new car. The researches as conducted by Steg (2005) and Dongyan and Xuan (2008) included samples consisting of male and female respondents. Therefore, with results of the present research the finding of the research as conducted by Steg (2005) and Dongyan and Xuan (2008) also can be extended to a sample consisting only of German female respondents.

Analysing results in terms of the latent variable SN then differences between participants from both age groups can be found. In terms of respondents aged until 44 years the indicators “milieu” (0.095) and “like-minded people” (0.001) only have low effects on the latent variable SN. On the other hand the indicator “friends” (0.499) has a strong effect on the latent variable SN. Evaluating the corresponding results in terms of participants aged over 45 years interestingly a low effect on SN is found for the indicator “friends” (0.053). On the other hand, for the indicators “milieu” (0.243) and “like-minded people” (0.323) remarkable effects on SN are found. Therefore, one result of the present research is that in terms of younger respondents “milieu” and “like-minded people” only have little importance within the car choice process. On the other hand “friends” have a strong importance on the car choice of younger respondents. In terms of older respondents an opposite result is found with a low importance of “friends” and a remarkable importance of “milieu” and “like-minded people” on the car choice

process. This present research's finding supports findings of the research as conducted by Holmlund, Hagman and Polsa (2011) who found that mature women tend not to choose too conspicuous clothing and fashion as to them the opinion of like-minded people is more important than to younger women.

Analysing differences between both groups in the inner model then an interesting result is that in terms of respondents aged until 44 years the strongest loading is found from attitude (0.336) to intention and in terms of respondents aged above 45 years the strongest loading is found from SN (0.288) to intention. This result presents that to younger respondents the latent variable attitude has the highest effect on intention to decide for a new car and in terms of older respondents the latent variable SN has the highest importance on intention to decide for a new car. This present research's finding is interesting to marketers of car companies. Therefore, one result of the present research is that differences between younger and older female customers within the car choice decision making process can be found. What is more, these results support previous findings in terms of the female product choice process as presented by Szmigin and Carrigan (2006), Holmlund, Hagman and Polsa (2011) and Steg (2005).

However, when analysing results of the present research in terms of the indicator "convenience" then no support of former research can be offered. One finding of the research as conducted by Silverstein and Sayre (2009a) was that women in younger years who have kids especially put high importance to convenience in their product choice processes. When comparing results of the present research's final model as offered in Figure 82 on page 250 then it is evident that in terms of younger respondents "convenience" has a negative effect (-0.120) and also in terms of older respondents this indicator has a similar negative effect (-0.169) on the latent variable attitude. Even when analysing the evaluation of this indicator by the present research's respondents aged until 44 years and respondents aged above 45 years similar results are found. The charts representing the evaluation of present research's participants of the indicator "convenience" can be found in the „Appendix" chapter (Appendix F) of the present research. In total 51.6 % of younger respondents and 45.6 % of

older respondents evaluated this indicator with a high value of between 5 and 7. These present research's results show that to respondents from both groups convenience is important within the car choice process and that no significant difference between both groups can be found.

### 5.1.7 Attractive styling

Another interesting aspect in terms of customer attitudes within the car choice process was found within the research as conducted by Häubl (1996). Within his research Häubl (1996) investigated the effects of country of origin and brand name on the evaluation of a new car. In doing so, 309 face to face interviews were conducted with car owners in Germany. Within this sample 31.2 % or participants were women and 68.8 % of participants were male. One interesting finding of the research as conducted by Häubl (1996) is that the variable "attractive styling" has a strong direct effect on intention and that this variable bypasses the variable attitude. One finding is that "attractive styling" does not affect strongly attitude towards a new car but it strongly affects customers' intention to decide for a new car. In the following a comparison of this finding to results of the present research is offered. Within the present research the indicator "attractive styling" is part of the final research model as presented in Figure 82 on page 250. As a result "attractive styling" only has a small loading on attitude with a value of 0.036. As shown in Figure 85 when linking the formative indicator "attractive styling" directly to intention no significant improvements in the model can be found. All loading values of latent variables to intention do not show improvements and the loading of "attractive styling" remains low with a value of -0.018. Therefore, with results of the present research the findings of the research as conducted by Häubl (1996) whereas the effect of the indicator "attractive styling" can be extended by a direct link to intention cannot be supported.

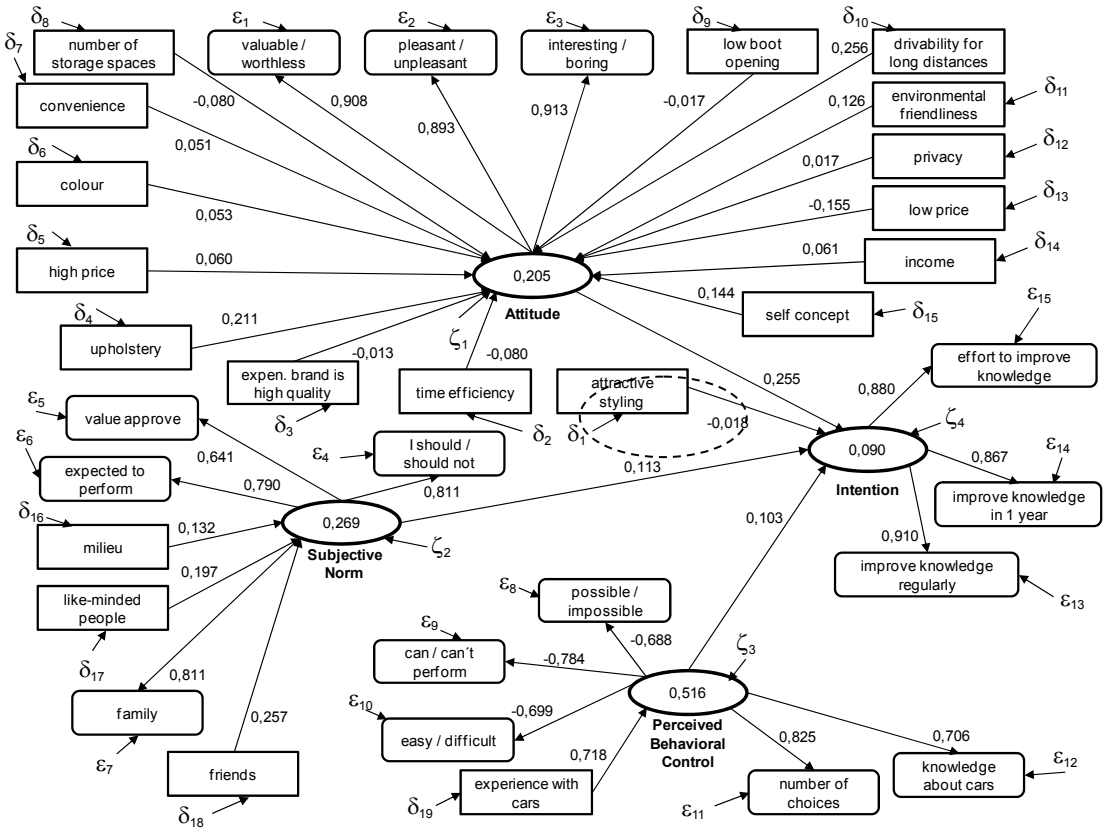



**Figure 85: Conceptual research model with direct link of attractive styling to intention**

### 5.1.8 Income

Creusen (2010) states that to people with higher income level the attributes product quality, ease of use and functionalities are more important than to people with a lower income level. According to Statistisches-Bundesamt (2013b) the mean net household income in Germany (see Figure 32) in 2011 was 2.988 EUR. Therefore in order to investigate the differences between respondents from higher and lower income groups for the following evaluation respondents who state to have a maximum net household income of up to the level of “2.601 EUR to 3.600 EUR” will be assigned to the lower income group and all respondents who stated to have a higher net household income than this level are assigned to the higher income group. As a result, in total 75 (29.1 %) participants are assigned to the higher income group, 112 (43.4 %) participants are assigned to the lower income group and 71 (27.5 %) participants did not state their net household income. The following Figure 86 shows the result of the final version of the research model for the lower income group and the

following Figure 87 shows the result for the higher income group. In terms of the aspect of expensive car brand interesting differences between both groups can be found. Whereas in terms of the lower income group the indicator “expensive brand” has a strong negative effect on attitude (-0.202) for the group of higher income respondents the negative effect of “expensive brand” on attitude is much lower (-0.093). This result presents that in terms of both income groups an expensive brand has a negative effect on Attitude within the female car purchase decision making process but to respondents from higher income group the effect is much lower. Therefore in terms of high quality and expensive brands results of former research as conducted by Creusen (2010) cannot be confirmed.

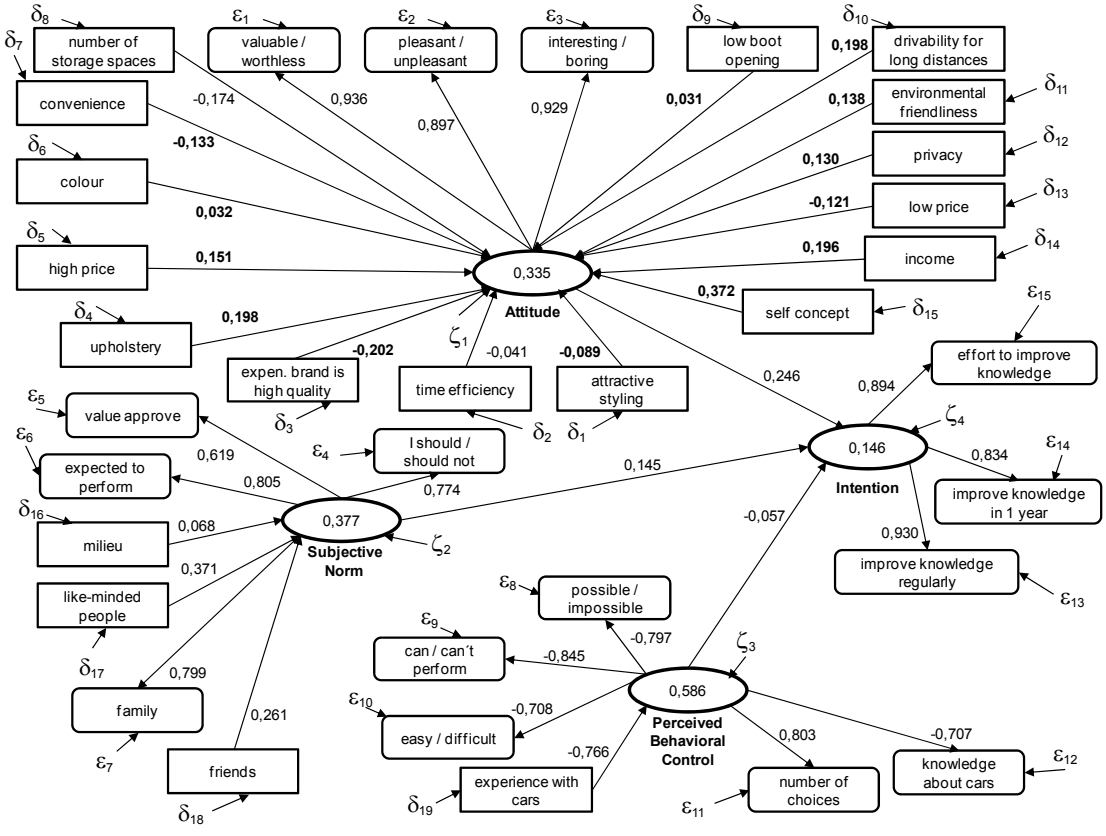



**Figure 86: Final conceptual research model for lower income group**

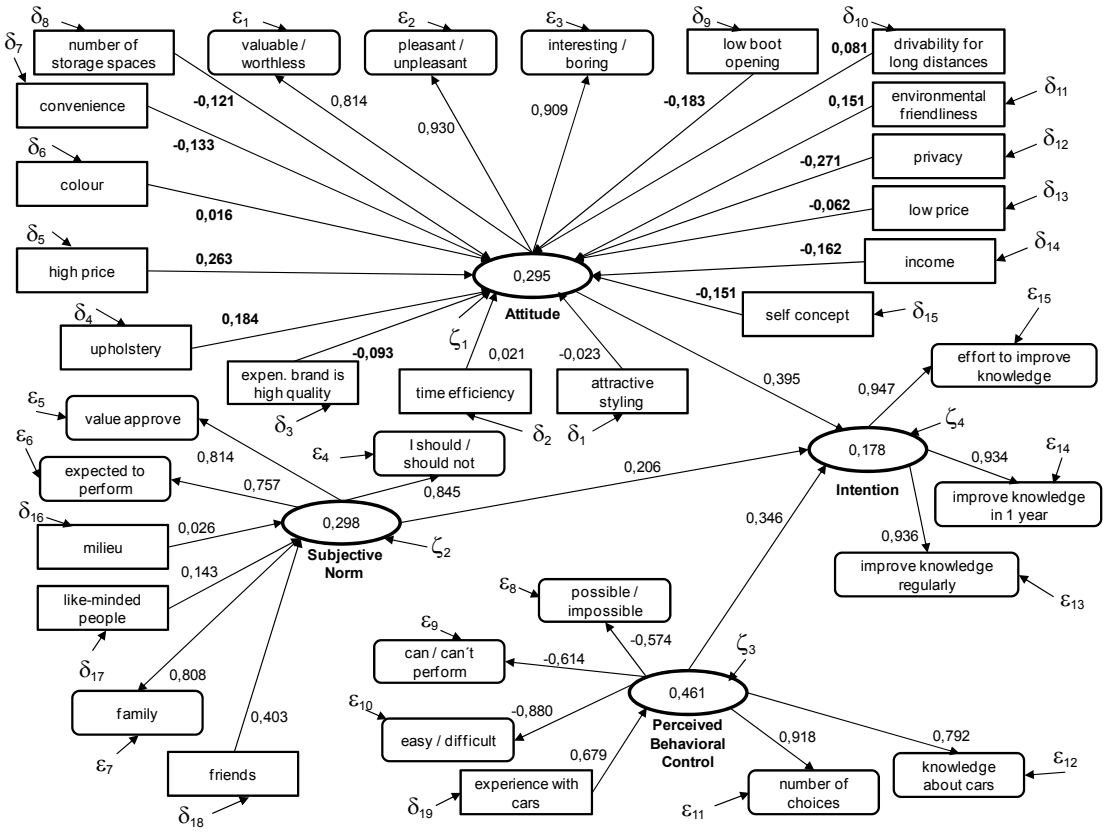



**Figure 87: Final conceptual research model for higher income group**

In this context, in the following the result in terms of location of living of the research as conducted by Choo and Mokhtarian (2004) is compared to the result of the present research. The highest share of respondents living in an urban location can be found for the middle household income group of 2.601 to 3.600 EUR (85.0 %) and the lowest share of respondents living in an urban location is found for the highest household income group of 5.001 to 18.000 EUR (see Figure 41). Therefore, as a result, in terms of location of living the finding of the research as conducted by Choo and Mokhtarian (2004) whereas higher income groups tend to live in urban locations cannot be supported. On the one hand, from all household income groups of the present research most respondents stated that they live in an urban location. On the other hand, when analysing income groups then the lowest share of respondents who stated to live in an urban location actually is found for a high household income group and a high share is found for a lower household income group. Therefore, results of the present research which includes a

sample of women from Germany do not support the finding as found within the research as conducted by Choo and Mokhtarian (2004).

### 5.1.9 Number of choices

Analysing the evaluation of the indicator “number of choices” by the present research’s respondents then it is evident that most respondents, 70 (27.1 %), stated that they do not feel confused by too many choices within the car choice process. This result is represented by evaluation of this question with a value of 1. What is more, in total 176 (68.2 %) respondents evaluated this question with values between 1 and 3 indicating that they tend more not to be confused by too many choices within the car choice process. The chart representing the evaluation result of the present research can be found in the „Appendix“ chapter (Appendix F). Therefore, these results of the present research do not support former research to the topic of number of choices. For example, Stevens and Maclaran (2005) state that as the number of product or service choices rises it is more difficult to female customers to find the right product or service. In this context, Mitchell and Walsh (2004) found in their research that women tend to feel confused by too many brands when they choose products. Therefore, in terms of creating confusion by too many choices results of the present research are contrary to results of former research.

### 5.1.10 Convenience

Analysing the evaluation of the indicator “convenience” by participants of the present research as presented in the „Appendix“ chapter (Appendix F) it is evident that exactly every second respondent, 129 (50.0 %), evaluated the importance of “convenience” with a value of 5 or higher. This result indicates that results of the present research do not allow a general statement that convenience is important to women within their car choice process. Therefore, results of the present research do not support former research to this topic. Odekerken-Schröder *et al.* (2003) found that “convenience” has a high importance within the choice process of potential car buyers. Within their research, Odekerken-Schröder *et al.* (2003) investigated opinions about the car

buying process of Mitsubishi, Volkswagen, Opel and Toyota car drivers in The Netherlands. In total 1.070 valid questionnaires were collected, however only 14 % of participants were women. Therefore, the finding of the present research in terms of “convenience” does not support the findings of the research as conducted by Odekerken-Schröder *et al.* (2003) and therefore does not allow an extension of these findings to a sample consisting of female participants from Germany. This finding of the present research also does not support results of the research as conducted by Rodgers and Harris (2003) who found in their research that “convenience” is an important determinant within female customers’ attitude towards a product decision process.

### 5.1.11 Family

Analysing the evaluation of the indicator “family” as offered in the „Appendix“ chapter (Appendix F) by participants of the present research then it is evident that less than half of all respondents, 110 (42.6 %), evaluated the importance of the indicator “family” within their car decision making process with a value of 5 or higher. This means that most respondents, 148 (57.4 %), evaluated this indicator with a value of 4 or lower. This finding of the present research does not support the findings of former research as conducted by Tan (1999) and Molesworth and Suortti (2002) whereas within customers’ product decision processes recommendations from family are important within the product information search process and an important purchase risk reliever to respondents of their studies. What is more, the findings of the present research also does not support the finding of Szmigin and Carrigan (2006) whereas female respondents of their study stated to be strongly influenced within product decision processes by their children. Additionally, results of the present study also do not support the finding of the research as conducted by Molesworth and Suortti (2002) that to many car customers the car purchase process has a strong social aspect. Respondents of the study as conducted by Molesworth and Suortti (2002) stated that when looking for a new car they enjoy walking around car dealers with their family. In this context, Kortus-Schultes and Moos (2006) found in their research that “family” plays an important role within the car choice process of women. This result also is supported by results of the

research as conducted by Kortus-Schultes (2005). Within this research German women were interrogated about their car choice process. An important finding was that 66 % of the respondents stated that their family is important within their car choice process. Also these results can not be supported with results of the present research whereas to a sample consisting from women living in Germany “family” only has a low importance within the car choice decision making process.

### 5.1.12 Subjective Norm and Perceived Behavioural Control

In their research Yang *et al.* (2010) found that SN has a stronger loading on PBC than on intention. Yang *et al.* (2010) use the TPB in the context of the health decision making process. Yang *et al.* (2010) describe that in their research the interaction between SN and PBC has significant effects on intention. In this context, Fu *et al.* (2010) use TPB to explore the development of selling intentions and the success of new product launches. In their research Fu *et al.* (2010) found that when SN increases it weakens the positive effect of PBC on selling intentions. Also Singh, Verbeke and Rhoads (1996) found that normative pressure from SN adds counterproductive stress and doubts which have negative effects on a salesperson’s psychological well-being and therefore have a negative effect on the selling process.

In this context, Figure 88 offers the final conceptual model of the present research with a modified linking of the latent variable SN. Here, SN is directly linked to PBC and not to intention. The result is that on the one hand the path loading from SN to PBC is statistically significant with a value of 0,362 but on the other hand the resulting path loading from PBC to intention becomes not statistically significant with a value of -0.040. What is more, as a result the modified model explains 8.3 % of variance in intention and presents with that a less satisfying result compared to the model version before the explained modification (9.3 %, see Figure 82 on page 250). Therefore, the modified linking of SN directly to PBC instead of directly to intention does not improve the conceptual research model’s statistical significance and the explanation of variance in intention. Therefore results as found by Yang *et al.* (2010), Fu *et al.*

(2010) and Singh, Verbeke and Rhoads (1996) cannot be supported with results of the present research.

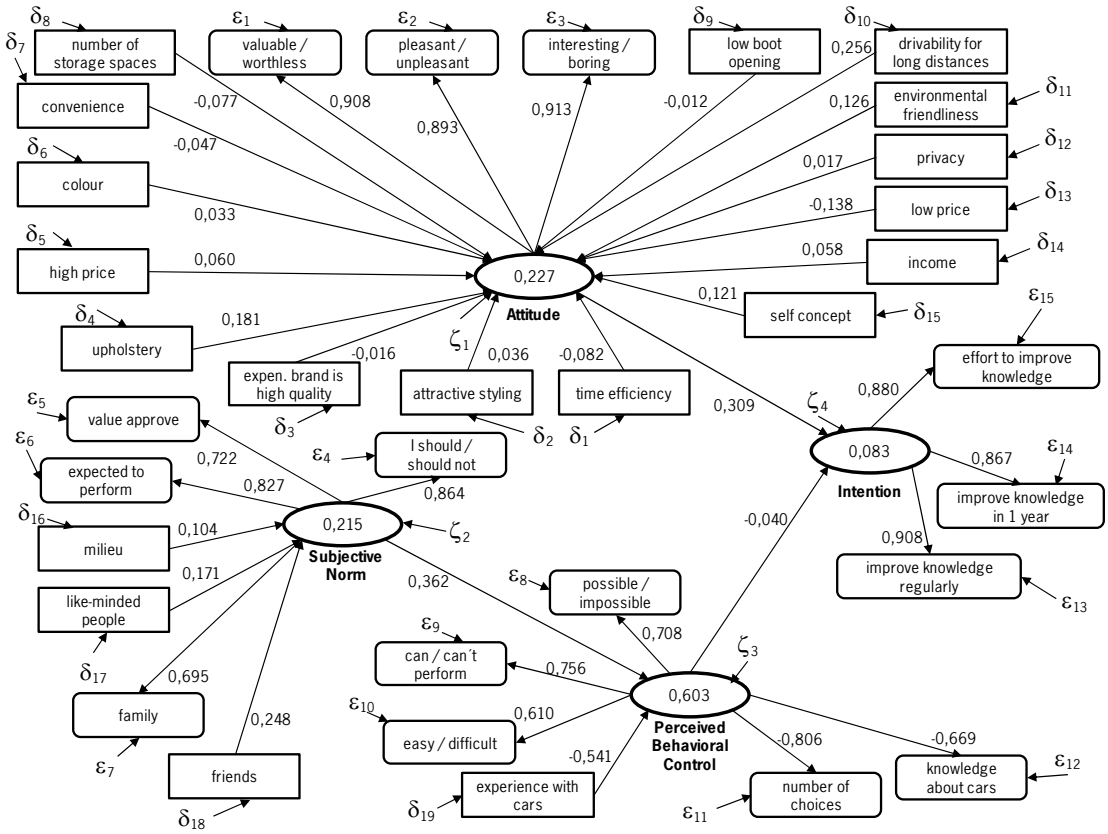



**Figure 88: Conceptual research model with SN directly linked to PBC**

## 5.2 Discussion of findings with practical implications

In the following chapter a discussion of present research's findings with practical implications is offered. As explained in chapter 1.5 due to the background of the present research's author the implications of the present research's outcomes to the Porsche Company are explained in detail. Therefore, besides offering a general discussion of the present research's results to marketing professionals' work also the relevance of the present research's results for the Porsche Company is evaluated.

In the context of marketing practice Murray, O'Driscoll and Torres (2002) state that a great diversity can be found among different companies. What is more, Murray, O'Driscoll and Torres (2002) work out that the type of marketing

develops over time and that the way how companies manage and organise marketing has to be reshaped in the process of co-evolvement with the marketplace. When discussing the present research's outcomes' relevance to practice then it is important to regard that business with cars does not stand still. Odekerken-Schröder *et al.* (2003) state that those car companies have the best chances to stay or become successful who actively and dynamically evolve and anticipate changing requirements from customers and also changes in customer target groups. In this context, Cockburn and Ormrod (1993) state that a technology as a microwave oven in the beginning was developed by men for men. Only throughout years the usage of microwave ovens gendered, meaning that more women and less men used this technology. As a result also marketing strategies for microwave ovens had to be adapted to the changing customer group. In this context, according to Kortus-Schultes (2011) about 20 % of Porsche car buyers are women. What is even more interesting, Kortus-Schultes (2011) states that within the research as conducted by Kortus-Schultes and Laufner (2011) all female Porsche car drivers stated that their presently driven Porsche car is their dream car. This extremely positive result only was achieved for female Porsche car drivers and for no other car brand. However for a company as Porsche the achievement of positive results cannot lead to a resting and living from achieved targets. The company Porsche has to look for further opportunities of improvement.

In the following section the present research's implications to practice are presented. This is done in three steps. In a first step, the present research's results concerning women as car buyers are offered. In a second step, the present research's findings considering women and Porsche cars are presented before in a third step present research's results concerning the Porsche car selling process to women are explained.

### 5.2.1 Women as car buyers

In the following chapter the present research's outcomes' implications to practice concerning women as car buyers are offered.

#### 5.2.1.1 Professional assistance

LaReau (2013) states that women behave differently and also have different expectations to their cars than men do. What is more, Price-Walker (2014) mentions that women have the tendency to purchase on a more emotional level than men do and therefore car manufacturers are about developing sale solutions which are developed especially for women. In this context, Price-Walker (2014) states that Nissan provides in an increasing number of car dealerships a shopping experience which is more welcoming to women. In doing so, these car dealerships are mainly managed and manned by women. As a result, female customers are offered information about a new car or the necessary work on their own car in the workshop not in a unneccessary auto jargon but in a way they are more likely to understand it. As described in chapter 4.6.8 the indicator “professional assistance” is not included in the final conceptual research model as presented in Figure 82 on page 250. The exclusion of this indicator was executed due to a not satisfying reliability (see Table 51). However, an analysis of present research’s participants’ evaluation of the indicator “professional assistance” offers the result that in total 168 (64.9 %) respondents, a clear majority, evaluated this indicator with a high value between 5 and 7. The chart offering the evaluation result for this indicator is available in the „Appendix“ chapter (Appendix F) of the present research. This result presents that to women within the car choice process "professional assistance” is necessary. One result of the present research is that female customers evaluate “professional assistance” as necessary however as not helpful in their car choice process as this indicator is not included in the final research model. Therefore, the necessity for changes within the process of addressing female customers by car manufacturers as described by Price-Walker (2014) is supported by results of the present research. In a future research an investigation should be carried out to investigate which aspects of professional assistance within the female car choice process have to be improved in order to create a helpful process to female customers.

What is more, within their research Reed, Story and Saker (2004) investigate customers’ perceptions within the introduction of a computer assisted car selling process in car dealerships in UK. In doing so, the research as conducted by

Reed, Story and Saker (2004) included interviews with potential customers in car dealerships. An interesting finding of the research as presented by Reed, Story and Saker (2004) is that the interaction with salespeople within car dealerships especially to women is not favourable. Women often stated to feel not comfortable in sales discussions in car dealerships and they also felt to be less treated seriously by salespeople in car dealerships compared to male customers. However, an important result of the research by Reed, Story and Saker (2004) is that male and female customers stated that a computer assistance within the selling process in car dealerships would be favourable and helpful. As described before, when analysing the final version of the conceptual research model as presented in Figure 82 on page 250 it is evident that the indicator “professional assistance” is not included. The reason for the exclusion was justified with a low value of indicator reliability (see Table 50, page 242) of this indicator’s loading and weight (Table 49, page 241). Therefore, with results of the present research the findings of the research as conducted by Reed, Story and Saker (2004) in terms of “professional assistance” cannot be supported.

#### 5.2.1.2 Knowledge about cars

Another interesting finding of the present research is found in terms of the indicator “knowledge about cars”. As presented in Figure 82 on page 250 in the final research model this indicator presents a satisfying result in measuring the latent variable PBC with a value of 0.706. Analysing the evaluation of this indicator by the present research’s participants as presented in the „Appendix“ chapter (Appendix F) then it is evident that with 125 (48.3 %) respondents nearly the majority of female respondents evaluated the importance of knowledge about cars with a low value between 1 and 3. This result corresponds with the result as descirbed before within chapter 5.1.5 that particpants of the present research tend to not improving their knowledge about cars. This result of the present research in terms of “knowledge about cars” does not support the result of the resarch as conducted by Kortus-Schultes and Moos (2006). In their research Kortus-Schultes and Moos (2006) found that to female customers knowledge about cars is important within the car choice

process and that female customers desire to have a better support from car dealerships when they choose a new car. Kortus-Schultes and Moos (2006) state that in this context, car manufacturers can find potentials of improvement how to influence the female car choice process. One contribution to practice of the present research is that to female customers who live in Germany an improvement of knowledge about cars is not very important even though the indicator “knowledge about cars” is important within the car choice process model. This result has to be regarded by marketers of car manufacturers in a correct way. Therefore, in a future research an investigation should be carried out to find out how this ambivalent result as to female car customers knowledge about cars is an important indicator within the car choice process but they do not want to improve their knowledge about cars can be regarded in a satisfying way by professional marketers. This aspect is important because, as mentioned before, according to Campbell (1988) and Gilbert, Lee-Kelley and Barton (2003) an improvement of female customers’ experience with technology is a main supposition in the process of reducing women’s negative attitudes towards technology. Therefore, an improvement of female customers’ experience with or knowledge about cars will also improve their attitude towards cars.

#### 5.2.1.3 Shopping imaginary

In the context of the car selling process, Odekerken-Schröder *et al.* (2003) state that due to an easier becoming access of car customers to information about vehicles car manufacturers have to redefine their car selling processes. Odekerken-Schröder *et al.* (2003) suggest that new experiences as 3D virtual tours or car configurators should be available to potential customers within their decision making process. Within the present research this aspect was investigated by implementation of the indicator “shopping imaginary” into the research model. However, analysing the final research model as presented in Figure 82 on page 250 the indicator “shopping imaginary” is not included. The exclusion of this indicator was executed due to a not satisfying reliability (see Table 51). An analysis of the evaluation of the indicator “shopping imaginary” by respondents of the present research offers interesting results. In total 136 (52.7 %) respondents, therefore a majority of the sample, evaluated this

indicator with a low value between 1 and 3. An evaluation of the present study's participants' evaluation of the indicator "shopping imaginary" is available in the „Appendix" chapter (Appendix F) of the present research. Therefore, one result of the present research is that findings of the research as conducted by Odekerken-Schröder *et al.* (2003) in terms of importance of 3D virtual tours cannot be supported with the findings of the present research.

### 5.2.2 Results concerning women and Porsche cars

In the following chapter an evaluation is offered in which the present research's participants are divided into two groups. The first group consists of respondents who stated to like Porsche cars and the second group consists of participants who did not state to like Porsche cars. In order to create a simplification of description in the following part of the chapter participants of the first group are described as "Porsche likers" and participants of the second group are described as "Porsche non-likers". The aim of this separation is to work out differences between different customer groups which may be important for coming marketing strategies of the Porsche Company. In total, 66 (25.6 %) respondents of the present research stated to like Porsche cars and 192 (74.4 %) did not state to like Porsche cars. In this context, in the following Figure 89 the result of the final research model is presented for "Porsche likers". On the other hand, in Figure 90 the result of the final research model is presented for "Porsche non-likers". Results are generated with using the Smart PLS programme. Also in this case, to calculate correlation coefficients as maximum number of iterations the value 300 is chosen. In the following, results for the outer and inner model in terms of both groups of respondents, "Porsche likers" and "Porsche non-likers", are compared to each other. Interestingly, in terms of "Porsche-likers" 50.8 % of variance in the latent varibale attitude is explained and in terms of "Porsche non-likers" only 23.3 % of variance in the latent variable attitude is explained. Analysing indicators of the latent variable attitutde then main differences between both groups are found for example for "income" with a value of 0.102 for "Porsche likers" and a low value of 0.002 for "Porsche non-likers". This result indicates that to respondents who stated to like Porsche cars "income" has a positive effect on attitude towards the car decision

making process whereas to respondents who did not state to like Porsche cars no influence of this indicator can be found. What is more, in terms of “Porsche likers” with a low value of 0.116 “environmental friendliness” only has a low influence on attitude compared to a nearly doubled value of 0.201 for “Porsche non-likers”. Also in terms of “drivability for long distances” an interesting difference between both groups can be found. In terms of “Porsche likers” a value of 0.552 indicates a high influence of “drivability for long distances” on attitude compared with a much lower importance in the case of “Porsche non-likers” (0.194). Also indicators “low boot opening” and “number of storage spaces” which describe a car’s convenience characteristics show similar interesting differences between both groups. In the case of “Porsche likers” the indicator “low boot opening” (-0.143) and “number of storage spaces” (-0.452) have a strong negative influence on female customers’ attitude towards the car choice process compared to no significant influence (-0.006 for “low boot opening”, 0.008 for “number of storage spaces”) in the case of “Porsche non-likers”. Therefore, a car’s convenience characteristic has a negative effect on attitude towards the car choice process of respondents who stated to like Porsche cars. This is an interesting result for marketers of the Porsche Company. In terms of “Porsche likers” the result of the present research does not support former research as conducted by Rodgers and Harris (2003) who found that to customers the aspect of convenience is important within the product purchase process. An explanation of this result may be offered by the research as conducted by Oumlil and Erdem (1997) whereas especially to working women convenience is important within purchase processes. It is possible that female participants of the present research who stated to like Porsche cars potentially do not belong to the group of working women why they do not tend to regard the aspect of convenience as helpful within their car choice process. As within the present study the working status of participants was not monitored further explanation to this result cannot be offered. Therefore, in a future research also the working status of participants should be monitored in order to allow further explanations of the aspect of convenience within the female car purchase decision making process.

Interesting results also can be found for indicators which describe a car's appearance. Whereas in terms of "Porsche likers" for "upholstery" (0.351) and "expensive brand is high quality" (0.181) high influence values on attitutde are found, in terms of "Porsche non-likers" a much lower importance value for "upholstery" (0.131) and even a negative importance for "expensive brand is high quality" (-0.113) is found. This result indicates that to "Porsche likers" indicators describing a car's appearance have a much more positive influence on the attitude towards a car choice process in comparision to "Porsche non-likers". Also this result is interesting to marketers of the Porsche Company. This finding of the present research also supports the finding of the research as conducted by Kortus-Schultes and Laufner (2011). Within their research Kortus-Schultes and Laufner (2011) found that "upholstery" is an important aspect for women who intend to buy a car. What is more, in terms of "Porsche likers" the result of strong importance of "upholstery" and "expensive brand is high quality" supports the satement of Kotler and Armstrong (2012) whereas Porsche drivers are interested in emotional attributes of their cars.

In terms of the indicator "attractive styling" in their research paper Kortus-Schultes and Laufner (2011) describe that to women who like Porsche cars "attractive styling" is the most important factor why they would decide for a Porsche car. When analysing the final research model for both groups (see Figure 89 and Figure 90) then in terms of "Porsche likers" a remarkable negative effect (-0.301) of "attractive styling" on attitude and in terms of "Porsche non-likers" a small positive effect (0.081) is found.

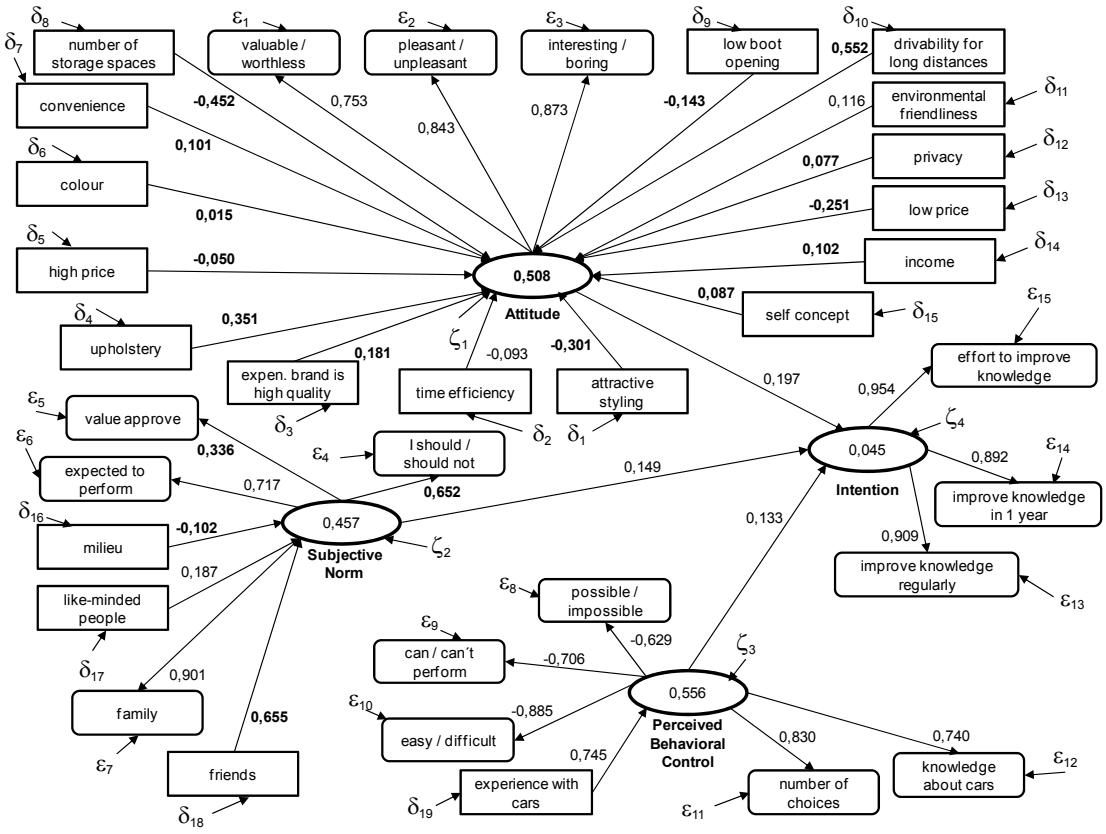



**Figure 89: Conceptual research model for Porsche-likers**

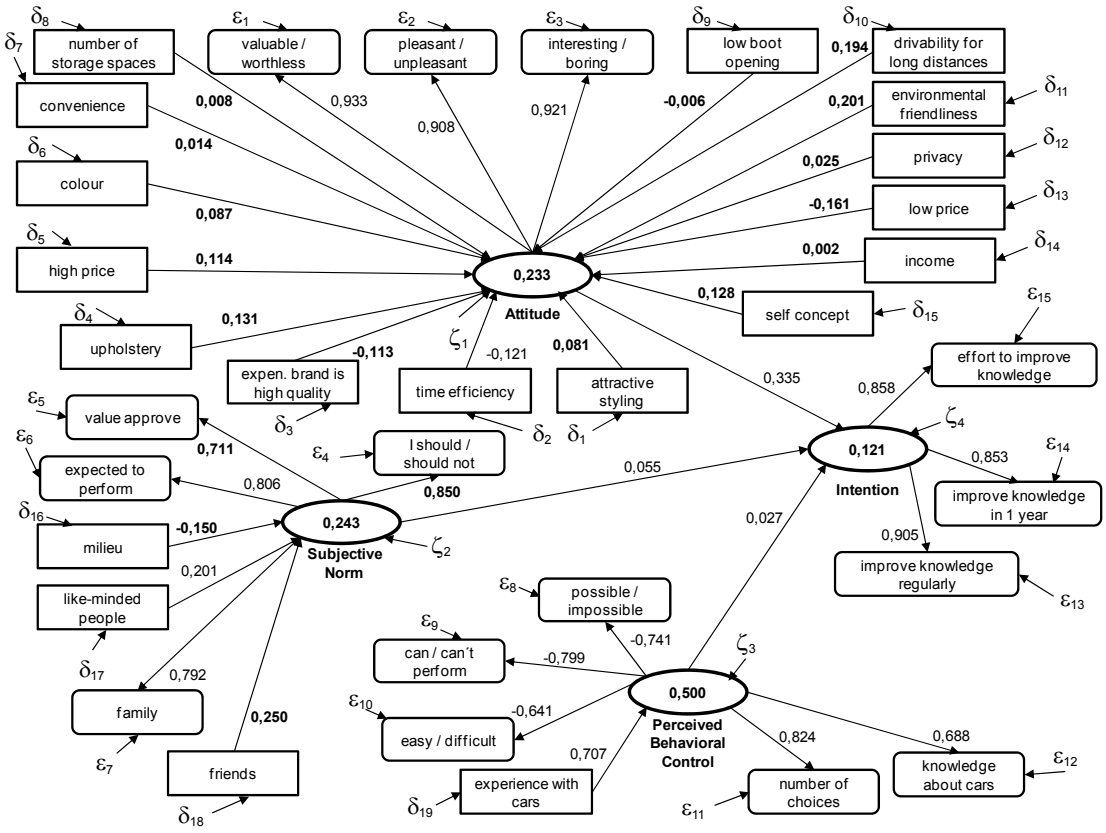



**Figure 90: Conceptual research model for non-Porsche-likers**

Also when analysing the evaluation of this indicator by participants from both groups as presented in the „Appendix“ chapter (Appendix F) of the present research no remarkable differences are found. In terms of “Porsche likers” 48.5 % of respondents evaluated “attractive styling” with a high value between 5 and 7 and in terms of “Porsche non-likers” 52.4 % of participants evaluated this indicator with a high value between 5 and 7. Therefore, one result of the present research is that in context of the formative indicator “attractive styling” no remarkable differences between “Porsche likers” and “Porsche non-likers” are found within the model of female customers’ car decision making process. As a result, former findings of the research as conducted by Kortus-Schultes and Laufner (2011) cannot be supported. What is more, many respondents of the present research evaluated the importance of “attractive styling” with high values. This outcome of the present research is an important result to marketers of the Porsche Company but also for all automobile marketers who desire to address women living in Germany.

Analysing the latent variable SN also interesting differences between both groups can be found. Whereas in terms of “Porsche likers” 45.7 % of variance in SN is explained in terms of “Porsche non-likers” a much lower value of 24.3 % is reached. Interestingly, in the case of “Porsche likers” the indicator “friends” (0.655) has a strong positive effect on SN and therefore also on the car decision making process. In the case of “Porsche non-likers” this value is much lower with 0.250. This result of the present research supports the statement of Kotler and Armstrong (2012) who say that Porsche cars drivers buy Porsches because these cars make their self-image visible to other people. What is more, marketers of Porsche Company have to be aware of the strong positive effect of the indicator “friends” in terms of “Porsche likers” and regard this result in their marketing strategies. Obviously ways have to be found how also friends of potential Porsche customers are addressed positively by marketing strategies as they inhabit an important role within the car decision making process of women living in Germany and who state to like Porsche cars.

### 5.2.3 The Porsche car selling process to women

Kotler and Armstrong (2012) describe that the company Porsche started to sell cars under its own nameplate in the 1950s and 1960s. Since these early days Porsche has targeted to a narrow segment of customers, financially successful people. These are people who set themselves high goals and who work hard to reach these goals. Additionally, according to Kotler and Armstrong (2012) these people buy Porsches because these cars mirror their self-image. Usually, people buy cars due to utility reasons as getting to work or transporting of children. Kotler and Armstrong (2012) state that this is not valid for Porsche buyers. These people want to enjoy a car and not only use it. What is more, Kotler and Armstrong (2012) mention that Porsche buyers are driven by feelings and not by information. Porsche buyers build up a personal relationshop with their car, a relationship which has to do with a car's sound, feeling and vibrations rather than a car's number of cupholders or size of trunk. In this context, it is interesting that Kotler and Armstrong (2012) do not specify the gender separation of Porsche buyers. In the context of Porsche's customer separation, Dent (2012) states that in 2002 hardly any woman bought a Porsche and only 10 years later in 2012 women already represent 20 % of Porsche car buyers. This effect was generated with the introduction of the Porsche Cayenne which is a four door luxury SUV and could be addressed to a broader group of customers who like Porsche but also need a car which has a great utility. What is more, Price-Walker (2014) mentions that with the introduction of a smaller SUV, the Macan, in 2014 the company Porsche porsitioned after the Cayenne a second model towards women. The new car even more was developed to meet women's expectations by being positioned as a smaller car below the Cayenne. In this context, LaReau (2013) states that due to the fact that more women buy Porsche cars the company Porsche has to learn how to take better care of female customers. As described before, the present research supports the finding of the research as conducted by Reed, Story and Saker (2004) whereas female customers do not feel comfortable in car dealerships and whereas female customers would favour an introduction of a computer assisted selling process in car dealerships. This finding should be regarded by the Porsche Company in terms of offering information about

Porsche cars to female customers in the company's car dealerships. Implications for further research which result from this finding of the present research are explained in the chapter "Conclusion and Recommendations".

What is more, within the present research a finding can be presented whereas especially women living in households with higher numbers of persons like Sportscars.

### 5.2.4 Car configurators

One important aspect within the discussion of present research's findings with practical implications is the development of the model of female customers' car choice process which enables professional marketers to adapt for example car configurators in such a way that they are more appropriate to female customers' requests within the car choice process. In this context, Faulkner (2001) suggests that one way to decrease technology rejection by women is to develop non-threatening ways for women which enable them to improve their knowledge about specific technologies and which make them to become less reliant on men's knowledge about these special technologies. In other words, technology products have to be more useful to females so that women accept and utilise them.

In 2006 the company Porsche instructed the conduction of a research aiming to develop a user friendly car configurator. In order to do so, Heilig *et al.* (2006) were instructed with this research. Within the process, Heilig *et al.* (2006) regarded a strong male dominated share of Porsche customers as user profile as presented by Automotive-World (2006) (see Figure 91).

| | Boxster | Cayman[3] | 911 | Cayenne | Overall |
|---|---|---|---|---|---|
| **Male drivers** | 87% | No data | 95% | 97% | 93% |
| **Average age** | 43 years | No data | 48 years | 46 years | 46 years |

**Figure 91: Analysis of Porsche drivers (Automotive-World, 2006)**

Therefore, the result of the research as developed by Heilig *et al.* (2006) was a car configurator which is orientated mainly on the requests of male customers. As described by Heilig *et al.* (2006) the main objectives were to deliver the user an opportunity to make easily information available about a desired car's technical features and to visualise all car options a user chooses. Those car options can be for example specific wheels, body parts and interior equipment. In this context, when analysing the final research model as presented in Figure 82 on page 250 then it is evident that formative indicators "upholstery", "environmental friendliness", "drivability for long distances", "experience with cars" and "friends" are important within the female car decision making process. Especially the result in terms of the indicator "drivability for long distances" is supported by a finding of a present study to the topic of customer expectations to Porsche cars which was conducted by the Porsche Company. Within this study, German female Porsche customers request a higher mean long distance drivability of their car than male respondents. One important outcome of the present research is that marketing tools as a Porsche car configurator which aims to meet female customers' needs has to focus on these indicators. As a result, the new version of the Porsche car configurator as developed by Heilig *et al.* (2006) does not meet German female customers' expectations to a car choice process which were evaluated within the present research. What is more, according to Heilig *et al.* (2006) the factor "shopping imaginary" is important within the development of a car configurator. Therefore, Heilig *et al.* (2006) developed a car configurator for the company Porsche which offers also the possibility to visualise a preferred car in front of an opera scenery. What is more, the user can choose between night and day time when the car is presented. As explained before in chapter 5.2.1, one finding of the present research was that in terms of a sample which consists only of women living in Germany with results of the present research no remarkable importance of the indicator "shopping imaginary" on intention was found within the female car decision making process. Therefore, as a result of the present research it can be stated that the findings of the research as conducted by Heilig *et al.* (2006) in terms of importance of "shopping imaginary" cannot be supported with the findings of the present research. Therefore, one outcome of the present research is that the importance of "shopping imaginary" might not be overrated

when a car configurator is presented to German female car customers. Summarizing, results of the present research do not support the research of Heilig *et al.* (2006). As further development, marketers of the Porsche Company should conduct investigations aiming to further improve the company's car configurator. Within this process, results of the present research can be an important contribution for a successful improvement. What is more, further research also should investigate in which way the aspect of "shopping imaginary" should be regarded within the company's car configurator.

Finally, results of the present research have to be compared to presently available car configurators as described in chapter 1.1.2. As described within this chapter, Volkswagen's British car configurator represents the furthest developed car configurator offering the user a possibility to filter the company's car portfolio by answering questions to the usage behaviour of the car. Nevertheless a woman living in Germany probably would not use a British car configurator. Nevertheless, this configurator will be used for the following evaluation as Volkswagen's British configurator represents the furthest developed car configurator which is available presently. The first question deals with driven distances. In this context, when analysing the final research model as presented in Figure 82 on page 250 then it is evident that the indicator "drivability for long distances" has a remarkable importance within the female car choice process which is represented by a loading value of 0.256 to attitude. Therefore, results of the present research support the choice of a question in the context of long-distance drivability within a car configurator. Within the next question of Volkswagen's British car configurator the user is asked about convenience related preferences as number of doors and storage spaces. Comparing these questions to the resulting model of the present research (Figure 82 on page 250) then it is evident that results of the present research do not support the choice of these questions. The indicator "low boot opening" only has a low importance within the female car choice process with a loading value of -0.012 on attitude. Also the indicator "number of storage spaces" has a low importance within the female car choice process with a loading value of -0.077 on attitude. Therefore, according to results of the present research the choice of questions within Volkswagen's British car configurator does not suite well to the

car choice process of female car buyers from Germany. One outcome of the present research is that today available car configurators do not meet correctly the car choice process of German female customers. This practical implication is valid even for Volkswagen's British car configurator which represents the presently furthest developed car configurator in terms of regarding customers' expectations to their car. Therefore, further research should investigate if a sample consisting of women living in Britain would lead to comparable results and if a comparable final research model would be developed. As a result a profound comparison between the model of British female customers' car decision making process and Volkswagen's British car configurator would be possible. What is more, further research should investigate how important indicators of the female customers' car choice decision making model as developed and described within the present research can be regarded correctly by car configurators.

# 6 CONCLUSION AND RECOMMENDATIONS

## 6.1 Introduction

The following chapter offers a summary of the present research's objectives and the study's research process. Additionally, conclusions and recommendations for marketing professionals are formulated. The chapter is finished with drawing limitations and implications for further research.

## 6.2 Achievement of objectives

Today's society is changing constantly and within this process traditional structures and role divisions are refined. One effect of this process is that women more take part in business life and therefore become increasingly self-reliable and independent. As an effect to the automobile industry the structure of customers changes from mainly male dominated customer groups to mixed, male and female, customer groups. Therefore, car companies face the challenge to regard this effect and to adapt their selling processes to a

constantly changing customer structure. Only those companies will have a chance to stay or become successful who detect this effect and who react to it. The present situation is that women play an increasingly important role within the car decision making process and the car purchase process but many women feel uncomfortable with the opportunities they currently have to obtain information about cars within these processes. For example, a common tool which is offered by many car manufacturers is a web-based car configurator which offers an opportunity to customers to make an individual configuration of a car. However, car configurators in their current designs demand a certain amount of knowledge from customers about technology and existing car models which may be expected from male customers but mostly not from female customers. Therefore, the aim of the present research was to develop a model including indicators which are important to women within their car decision making process in order to offer opportunities to car manufacturers to optimise and refine their ways to address women within the car choice process. As a result, also concrete suggestions to optimise car configurators were to be presented.

In doing so, the first chapter “Introduction” offered an introduction into the topic of women as participants of the car decision making process and also presented an overview of some facts in terms of women and their attitudes towards cars. What is more, the research aim “Development of a model which represents the German female customers’ car purchase decision making process” was presented. Additionally, the research objectives were formulated with “To assess which indicators are important to women when they want to make a car purchase decision”, “To assess which indicators are not important to women when they want to make a car purchase decision”, “To evaluate the issue of gender within the car choice process”, “To investigate if and to which extent the Theory of Planned Behaviour or other expectancy theories can be applied to the car choice process of female customers” and “To develop a theoretical framework for the investigation of female customers’ car choice behaviour”. What is more, as a result of objectives of the present thesis the following research questions were formulated as “How can the female car purchase decision making process be modelled?”, “Which theories have to be

regarded when the car choice behaviour of female customers is to be investigated?" and "How is the methodology of the thesis to be developed?"

Within the following chapter "Literature Review" an insight into literature about expectancy theories was offered. This issue was important within the present research as the expectancy theory offers a possibility to develop a model which describes a customer's desire to achieve a desirable state or outcome. In doing so, in a first step some general issues about model design were presented. In the following the research question "Which theories have to be regarded when the car choice behaviour of female customers is to be investigated?" could be answered by offering an evaluation of different expectancy model types as Vroom's Expectancy Theory, Attitudes and Means-End-Chains, the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and the Behavioural Reasoning Theory (BRT). In terms of modelling the female customers' car choice decision making process the TPB was found to be the most appropriate expectancy theory. Therefore, within the chapter "Literature Review" the adaption of the model according to the TPB to the present research was described. In this context, a literature review to the topics of gender research, purchase, search of information and car usage offered relevant indictors to the female car decision making process. These indicators could be included into a model of female car decision making process which was based on the TPB. As a result of this part of the "Literature Review" chapter the research objectives "To assess which indicators are important to women when they want to make a car purchase decision" and "To assess which indicators are not important to women when they want to make a car purchase decision" could be answered partially by offering indicators which according to the literature review are relevant to female customers' car decision making process. What is more, in terms of the research' objective "To investigate if and to which extent the TPB or other expectancy theories can be applied to the car choice process of female customers" an interesting first answer could be developed. As explained, a Literature Review into different expenctancy theories indicated that the TPB represents the most appropriate expectancy theory in order to model female customers' car decision making process.

Additionally, within the chapter “Literature Review” the issue of “gender” was evaluated. In this context, the historical development of literature in this field was offered with presenting that in the 1970s researchers started to investigate women’s roles within product purchase processes supplemented by social aspects within these processes. Later in the 1980s researchers started to investigate meanings which are attached by consumers to purchase of a product or a service. This extensive phase of gender research then was followed by a lull in this field of literature in the 1990s as feminist voices began to mute. Gender research became interesting and important since the new millennium as technology became more important in the customers’ lives and as the role distribution between men and women changed. What is more, in the field of gender research the topic of “Gender and technology” was explained representing a description of female customers’ attitude to usage of technology. The topic of “Gender identity” also was briefly evaluated explaining that gender and person’s sex may not be the same. What is more, within the chapter “Gender and commerce” an evaluation of the female product choice process was offered investigating what is important to women within a purchase process. The following chapter “Gender and loyalty” described differences between women and men in terms of loyalty in purchase processes before the final chapter within the field of gender “Gender and the decision making process” described some general interesting aspects of the female decision making process. As one outcome this chapter offered interesting results in terms of the present research’s objective “To evaluate the issue of gender within the car choice process”. Former literature found that differences between genders exist when technology is used and therefore a justification for investigation of the car choice process of the group of female customers could be found.

The third chapter “Research Methodology” provided information about the present research’s philosophy and methods. In terms of research philosophy in a first step the research paradigm with its components epistemology, ontology and axiology was described. With doing so, a justification for leading through the research according to a positivistic philosophy with a subjective view was offered. In the next step, the research approach was worked out with explaining

the choice for a deductive research approach. What is more, the chapter “Qualitative and Quantitative research approach” explained why within the present research both approaches, a qualitative and a quantitative, were to be used. In a first step a qualitative research approach was chosen in order to define necessary variables for the research model and in a second step a quantitative research approach was chosen in order to have the possibility to work with larger samples to be able to work out generalisations of research findings. The following chapter “Research Methods” justified in a first step the procession of the present research in a descriptive way. After that the explanation why the survey method was chosen for the present research was offered. In a next step data collection techniques were explained. For the present research, in order to work out the qualitative research approach interviews were defined and in order to work out the quantitative research approach the leading through of a research questionnaire was defined. Finally, an explanation was offered why interviews were to be lead through in a semi-structured way and the questionnaire in a pre-coded or structured way. The next chapter of the “Research Methodology” dealt with the topic of rating scales. Within this chapter an explanation was offered why within the present research for pre-coded questions the Likert-style rating scale with a range of seven possible ratings was chosen. Going on with the chapter “First study – qualitative research” the working out of the research began becoming concrete. The aim of this chapter was to define which indicators finally were to be included into the model of the present research. This model should then be used as basis for the questionnaire of the main study of the present research. After explaining and justifying indicators and variables of the research model, within the following chapter “Conceptual Model” information about design of research models was offered. The chapter “Model of female customers’ car purchase decision making” presented the initial model of the present research as it was used as basis for the following main study before the present research’s hypotheses were presented. As a next step, the operationalization of the main study of the present research was described. In doing so, the chapter began with a description of advices in terms of wording of questionnaires and a description of former research questionnaires. In a following chapter, “Design of questionnaire of present research”, the relationships between the research model’ indicators

and variables and the questions of the main study's questionnaire were explained. In a next step, theory to sample sizes was offered with justifying the study's sample sizes of 15 valid questionnaires for the pilot study and 160 valid questionnaires for the following main study. In order to ensure the requested numbers of valid questionnaires for the pilot study a low response rate of 50 % was estimated and for the second study the resulting real response rate of 83 % of the pilot study was utilised. Therefore in total 30 questionnaires were sent out within the pilot study and within the main study at least 200 questionnaires had to be sent out. As a result, the next chapter described the leading through and results of the pilot study. What is more, consequences of the pilot study for the main study were explained. The description of the pilot study was finished with describing the issues of "Content Validity", "Construct Validity" and "Reliability". Finally, the chapter "Research Methodology" was finished with explanation to the topic of "Factor Analysis" and "Structural Equation Modelling". Therefore, within the chapter "Research Methodology" the present research's objective "To develop a theoretical framework for the investigation of female customers' car choice behaviour" could be evaluated and the research question "How is the methodology of the thesis to be developed?" could be answered with offering the theoretical framework of the present research's study.

The "Findings and Data Analysis" chapter described the main study's findings and data analysis, offered a result to the research aim "Development of a model which represents the German female customers' car purchase decision making process" and evaluated the research question "How can the female car purchase decision making process be modelled?" and the research objectives "To assess which indicators are important to women when they want to make a car purchase decision", "To assess which indicators are not important to women when they want to make a car purchase decision" and "To investigate if and to which extent the TPB or other expectancy theories can be applied to the car choice process of female customers". In a first step, the main study's operationalization was explained with presenting that in terms of the target group of women living in Germany during the data collection period between May, 29th 2014 and July, 31st 2014 in total 338 questionnaires could be collected. The next section explained the main study's demographics in terms of

respondents' gender and country of living. An explanation was offered that the present study was limited to female respondents who stated to live in Germany. Therefore, in total 258 validly answered questionnaires were used for the following data analysis. In the following, resulting respondents' location of living, age, number of children, persons in household and education level were evaluated. What is more, the kind of questionnaire, paper or online version, and the questionnaire's language, German or English, were evaluated. In this context, an explanation was offered that the influence of the questionnaire's language to the survey did not have to be evaluated as all regarded 258 respondents used the German version of the questionnaire. In a next step, an analysis of car data was offered presenting the values for respondents' number of cars owned and number of times being in charge for the car choice process. An interesting fining in this context was that with a rising number of already owned cars the share of German female respondents who have been also that many times responsible for their own car decision making process became smaller. In the next section an evaluation of the respondents' favourite car brands was offered. An interesting finding within this was that the most favourite car brand of German women is Audi followed by Volkswagen, BMW / Mini, Mercedes-Benz / Smart and Porsche. In a next step car classes were evaluated with the finding that for German women the most favourite vehicle class are Compact vehicles followed by Middle size vehicles, Sportscars, Sports Utility Vehicles and Small size vehicles. As next the questionnaire's questions to information sources were evaluated offering the finding that to German women the most important source of information about cars is the internet followed by car dealerships and that the tendency exists that automobile magazines and television programmes mostly are avoided. In a following section descriptive statistics of all indicators of the research model were offered before the issue of outliners was applied to the present research. The result was that within the evaluation of findings of the present research's main study no indicators had to be excluded due to outliners. In the next chapter, "Factor Analysis", at first the statistics for indicators of the constructs of the variables attitude, subjective norm (SN), perceived behavioural control (PBC) and intention were described. In doing so, the constructs of the inner research model also have been evaluated according to respondents' age, education level and household

income. This section was followed by the evaluation of the present research model's reliability. This was worked out by calculation of Cronbach's Alpha with the SPSS computer programme. The reliability values of reflective indicators of attitude, SN, PBC and intention were satisfying. In order to refine the research model, in a following chapter the Exploratory Factor Analysis (EFA) was worked out. In doing so, a justification for extraction of five factors and the working out of the rotation "Varimax" was offered. Within this process the indicators "income", "privacy" and "time efficiency" had to be excluded due to low loading values and the indicators "knowledge about cars", "low price", "environmental friendliness", "long distance drivability", "low boot opening" and "shopping imaginary" had to be excluded due to problematic cross-loadings. A following reliability analysis showed acceptable results. In the following a recalculation of the factor analysis including all remaining indicators was lead through. As a result the factors choice, subjective norm, appearance, intention and support could be excluded. In the following chapter the Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were lead through in order to create a comparison to results from the EFA. Within this chapter in a first step a justification of the method, a component-based SEM technique as Partial Least Squares (PLS), was presented. In the process of working out the CFA the computer programme Smart PLS was used. What is more, an explanation for the creation of second order models in order to use the Smart PLS programme with models which contain formative and reflective indicators was offered. The CFA was lead through for both models, the initial conceptual research model and also for the research model resulting from the EFA. In a first step the model resulting from EFA was investigated and in a second step the conceptual research model was investigated. Within this, at first for both models a determination of indicators if they are reflective or formative was lead through with offering results for both models. In the following an evaluation of the model resulting from EFA was offered. This evaluation contained a reliability analysis including indicator reliability and internal consistency reliability. After this, a validity analysis including convergent validity and discriminant validity was offered. What is more, for reflective indicators cross loadings were investigated and for formative indicators significance was checked and a collinearity analysis using SPSS was offered. The CFA for the model resulting from EFA was

finished with checking the model's path values. In a second step, a corresponding analysis also was worked out for the conceptual research model. Within this, two reflective indicators, "shopping imaginary" and "professional assistance", had to be excluded from the model due to not satisfying reliability values. As a result of the CFA the conceptual research model showed better results in terms of significance of inner model paths between all explanatory variables and intention than the model resulting from EFA. What is more, the final conceptual research model explained 9.3 % of variance in intention compared to a lower value of 6.5 % within the model resulting from EFA. Therefore, one result from CFA was that the conceptual research model is more appropriate to explain the female car purchase decision making process than the model resulting from EFA. As one important result of the present research a final research model could be offered. What is more, with this final research model the initial research question "How can the female car purchase decision making process be modelled?" could be answered and additionally a result to the research aim "Development of a model which represents the German female customers' car purchase decision making process" could be presented. What is more, on the one hand within this chapter the exclusion of indicators from the final research model was explained and on the other hand a final research model was presented which includes indicators which are relevant to female customers' car choice decision making process. Additionally, a justification was presented why the model according to the TPB represents the most appropriate model of female customers' car choice decision making process. Therefore, within this chapter the research objectives "To assess which indicators are important to women when they want to make a car purchase decision", "To assess which indicators are not important to women when they want to make a car purchase decision" and "To investigate if and to which extent the TPB or other expectancy theories can be applied to the car choice process of female customers" could be evaluated. In terms of the present research's objectives "To assess which indicators are important to women when they want to make a car purchase decision" and "To assess which indicators are not important to women when they want to make a car purchase decision" within the chapter "Discussion of Findings" interesting answers could be developed. Generally, the final research model as presented in Figure 82 on

page 250 offers all indicators which were developed within the present research as being important for the car purchase decision making process of female customers from Germany. However, as described within chapter “Discussion of Findings” the importance of indicators varies within this process. As a result of the present research a high importance to the car purchase decision making process of women living in Germany was found for the indicators “upholstery”, “number of persons in household”, “location of living”, “long-distance drivability”, “age”, “envirionmental friendliness”, “price”, “attractive styling”, “colour”, “friends”, “milieu”, “like-minded people”, “number of choices”, “convenience”, “professional assistance”. As a further result of the present research no importance for the car purchase decision making process of women from Germany was found for the indicators “low boot opening”, “number of storage spaces”, “family” and “shopping imaginary”.

## 6.3 Contribution

Within the following chapter the contribution of the present research is offered. This is done by presenting in a first step a comparison of the final model of the present research to existing models before explaining the present research’s contribution to knowledge and to practice followed by implications for marketing professionals.

### 6.3.1 Comparison to existing models

As presented in chapter 1.2 the aim of the present research was “Development of a model which represents the German female customers’ car purchase decision making process”. Within the present research this aim could be reached by presenting the resulting model of female customers’ car purchase decision making process as shown in the following Figure 92. This final research model represents the main contribution to knowledge of the present research. One important aspect within this is the fact that the final research model’s indicators are based on a literature review to the topic areas belonging to “purchase”, “gender research”, “search of information” and “car usage” (see Figure 2). Within literature no comparable model was found whose input and

indicators are based on these areas of literature. What is more, a literature review to the topic of “expectancy theories” lead to a development of the present research’s model according to the TPB. In literature many models can be found which are developed based on the TPB. However no model exists whose aim is to model German female customers’ car choice behaviour or in general female customers’ car choice behaviour. In order to show the present research’s final model’s contribution in the following a comparison to existing models which can be found in literature is offered.

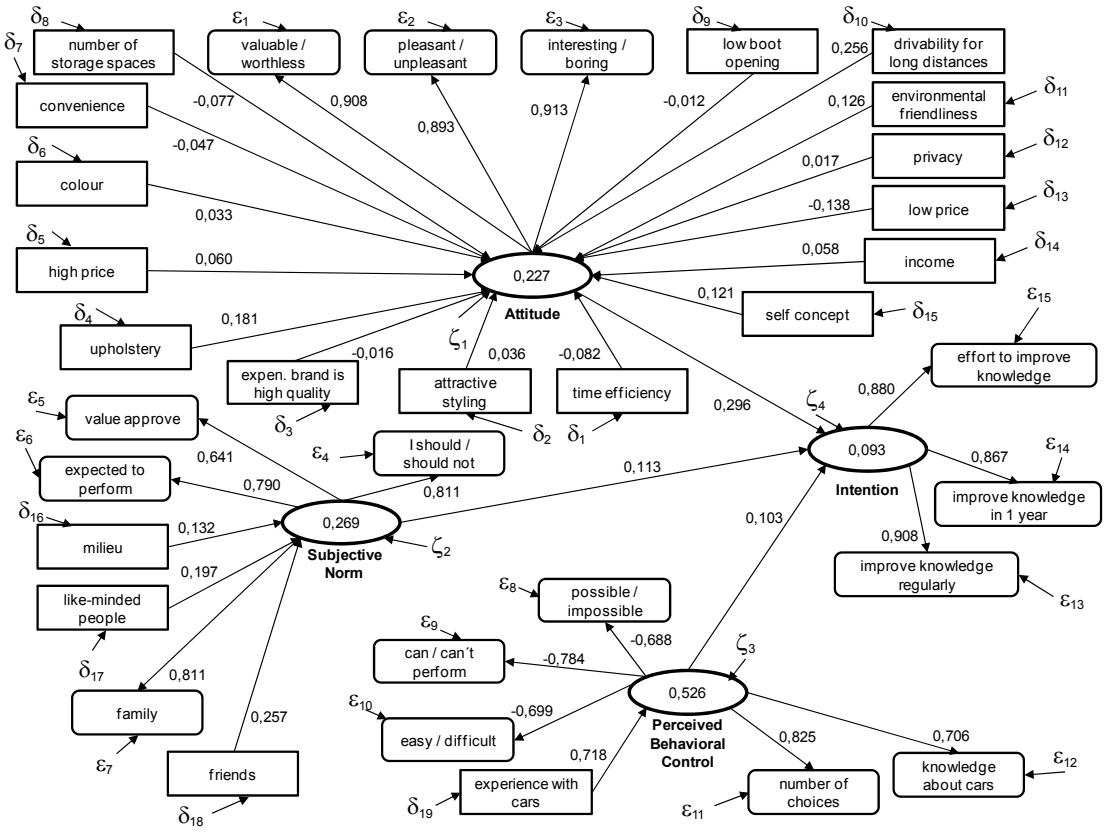



**Figure 92: Resulting research model of female customers’ car purchase decision making process**

In their research Santini and Vyas (2005) developed a new vehicle choice model. Within this model Santini and Vyas (2005) used different coefficients in order to predict vehicle choice decisions of car buyers. In this model all coefficients are related to car attributes as for example vehicle price, fuel cost, range, acceleration, maintenance cost, luggage space and top speed. However when predicting the vehicle choice of female customers this model is not

appropriate enough. In this context, the resulting model of the present research as presented in Figure 92 which is developed on the basis of the TPB reveals also other coefficients which are important within the female car choice behaviour. Beside those coefficients which describe vehicle attributes the final conceptual model of the present research shows that also coefficients related to SN as milieu, like-minded people, friends and family and coefficients related to PBC as experience with cars, number of choices and knowledge about cars are important within the female car choice process. Therefore, one contribution of the present research is that in the case of prediction of female car choice behaviour the model as developed by Santini and Vyas (2005) has to be extended by additional coefficients. What is more, in literature many models can be found which offer a prediction of vehicle sale numbers. However these models are limited to special usage applications without modelling a car purchaser's car decision making process. Examples for this are explained in the following of the "Contribution" chapter. In this context, within the research as conducted by Environmental-Protection-Agency (2012) a model was developed which predicts vehicle sales according to changes in fuel economy and price of vehicles. Within this model only few defined input variables are included, a car choice process of customers is not offered. Another example for a model of this kind is offered by the research conducted by Glerum *et al.* (2014) who developed a dynamic discrete-continuous choice model whose aim is to predict car customers' choices regarding fuel type and annual driving distance. In this context, Jaumandreu and Moral (2001) also developed a discrete choice model which estimates car choices depending from customers' income. Also the model which was developed by Greene (2001) offers a prediction of choice of a light-duty motor vehicle which is driven by an alternative fuel technology. Within this model two main input variables are regarded, value of time and discount rates. All these models are united by the fact that they only use few variables to simulate customers' choice. Therefore concrete statements to customers' car choice processes are not possible.

What is more, when analysing existing models in literature which are based on the TPB and relevant for the topic of the present research only a limited number of examples is available. Within the research of Setiawan, Santosa and

Sjafruddin (2014) the TPB was a basis for development of a model of students' car usage for travelling to campus. Within their research Setiawan, Santosa and Sjafruddin (2014) used a sample consisting of male and female students. What is interesting, within the model as developed by Setiawan, Santosa and Sjafruddin (2014) attitude has the lowest effect on intention compared to SN and PBC. The latent variable PBC even has the strongest effect on intention. This result of the research as conducted by Setiawan, Santosa and Sjafruddin (2014) is opposite to the result of the present research where attitude has the strongest effect and PBC the lowest effect on intention (see Figure 92). In terms of the layout of the model as developed by Setiawan, Santosa and Sjafruddin (2014) it is evident that latent variables are measured by a small number of indicators, attitude is measured by only four indicators and PBC by only two indicators. Another difference between the research as conducted by Setiawan, Santosa and Sjafruddin (2014) and the present research is the fact that the present research's sample consist only of female participants. As a result, one contribution of the present research is that when the model as developed by Setiawan, Santosa and Sjafruddin (2014) is to be operated on a sample consisting only of female participants an implementation of a higher number of indicators to predict latent variables potentially would lead to a different result. In that case a higher effect of attitude and a lower effect of PBC on intention may be possible.

Summarizing, it may be stated that in literature no comparable model was found which predicts female customers' car choice behaviour in the same way as it is offered by the final research model of the present research (see Figure 92). The characteristics of the final model of the present research are the focus on German female customers and the implementation of a wide variety of indicators belonging to attitude, SN and PBC. The contribution of specific indicators of the final model of the present research is explained in the following of the "Contribution" chapter.

### 6.3.2 Contribution to knowledge

Within chapter “Discussion of Findings” interesting outcomes and findings of the present research were discussed which lead to a contribution to knowledge of the present research as explained in the following chapter.

Within the topic of “car usage” one interesting result was that when analysing favourite vehicle brands the respondents of the present research named comparable vehicle brand names as respondents of former research however with a different ranking. Within the present research, the ten most favourite brands are Audi followed by Volkswagen, BMW, Mercedes, Porsche, Opel, Peugeot, Skoda, Ford and Toyota. Therefore, one contribution to knowledge of the present research was that changes in ranking of female car customers’ most favourite vehicle brands come up when the point of time or demographics of a survey change. What is more, another contribution to knowledge was that in terms of the importance of the variable “upholstery” to the female car decision making process with results of the present research a support of former research’ findings could be created. Also within the present research a high importance of “upholstery” to the female car choice process was found and therefore former research’ findings to this topic could be extended to female customers from Germany. On the other hand, the high importance of “low boot opening” and “number of storage spaces” to the female car decision making process could not be found within the present research and therefore former research could not be supported with results of the present research. Therefore, a contribution to knowledge was that the importance of these indicators could not be generalised to German female car customers.

In the next part of the chapter the issue of “car classes” was evaluated. In this context a contribution to knowledge of the present research was that former research’ finding found that the higher the number of persons in a household is the more do respondents choose the vehicle class of “Vans”. With results of the present research this former research result could be supported and extended to a sample consisting only of women living in Germany. In the context of car classes and car brands interesting additional results could be presented. One

result is that with the resulting research model distinct differences between household income groups of female respondents could be extracted. For example, on the one hand expensive car brands had a negative effect on the car decision making process of low and high income groups but the effect was much lower in terms of respondents from a higher income group. Additionally, a support of former research was found whereas people living in an urban location tend more to choose smaller cars than people living in a rural location. With the present research's results this finding of former research could be extended to women living in Germany. What is more, with results of the present research former research finding could be supported whereas respondents who evaluate the variable "driveability for long distances" as important tend more not to choose smaller cars or Sportscars. With the present research this finding could be extended to women living in Germany. A next interesting contribution to knowledge was associated with the relationship between respondent's age and choice of vehicle class. On the one hand, with results of the present research a support of former research findings could not be found whereas older respondents tend less to favour small cars or Sportscars. Within the present research no impact of age on this vehicle classes could be found. On the other hand, in terms of the vehicle class Sports Utility Vehicles (SUV) with the present research's findings a support of former research could be found whereas older respondents tend less to choose this vehicle class. Therefore this former research' finding could be extended to women living in Germany. Another interesting contribution to knowledge of the present research was that middle-aged women tend more to choose Vans than younger or older women. This finding supported former research findings in this context. In terms of the issue of relationship between respondents' household income and choice of vehicle class another interesting contribution to knowledge could be created with results of the present research. Interestingly, within the present research no clear association between respondents' household income and favourite vehicle class could be found. This result of the present research did not support former research' findings which found a relationship between household income and favourite vehicle class. Therefore, with results of the present research former research findings to this topic could not be extended to women living in Germany.

The third part of the chapter evaluated the issue of environmental friendliness. In this context the contribution to knowledge of present research was that in terms of the indicator “environmental friendliness” the present research’s findings show a high importance to the female car purchase decision making process. However with results of the present research former research findings whereas the customers’ age has a negative effect on importance of “environmental friendliness” could not be found. In contrary, within the present research a tendency was found whereas the importance of “environmental friendliness” increases as the respondents’ age increases. Therefore, in terms of “environmental friendliness” former research findings could not be extended to German female customers.

The fourth part of the chapter investigated the topic of “price”. In this context, former research found that a “high price” has a negative effect on customers’ attitude. Results of the present research supported this finding however within the present research the same negative effect of the indicator “low price” could be found. As a result in terms of women living in Germany former research’ findings in the context of “high price” had to be extended to the indicator “low price”. Therefore, when pricing new products car manufacturers should regard that a low price might not always lead to a higher car buying desire of a car by female customers and in the following might not lead to expected sale volumes. Therefore, when developing a business case car manufacturers should take this aspect into account.

The next part of the chapter evaluated the aspect of “knowledge about cars”. In this context, former research stated that car customers are becoming more knowledgeable about cars. Results of the present research showed that women living in Germany do not intend to improve their knowledge about cars and therefore this research did not support former research findings in this context.

The sixth part of the chapter investigated the topic of “age”. On the one hand, interesting results in terms of the relationship between age and favourite vehicle class could be found as described in the second part of this chapter. But on the other hand, interesting results could be found when the final research model

was executed for two groups, younger and older respondents. As a result, when analysing the issue of evaluation of product price depending from respondent's age a support of former research could be developed with the present research's findings. A contribution to knowledge of the present research is that also in terms of a sample which consists of women living in Germany differences in evaluation of product price can be found between younger and older respondents. In detail, one interesting finding of the present research was that within the car choice process "high price" has a positive effect in terms of younger respondents and a negative effect in terms of older respondents. What is more, one interesting finding of the present research is that the importance of affective and symbolic indicators was different to younger and older female respondents. For example, "attractive styling" had a positive effect on the car choice process of younger respondents and a negative effect on the car choice process of older respondents. What is more, the influence of "colour" on the female car decision making process decreases with the female respondents' age. These findings of the present research also supported former research findings whereas to younger consumers affective and symbolic functions of a car are more important than to older consumers. Additionally, another interesting finding of the present research was that to younger female respondents the opinion of "friends" has a strong positive effect and the opinion of "milieu" and "like-minded people" has a low effect on the car decision making process. On the other hand, to older female respondents the opinion of "friends" has a low effect but on the other hand the opinion of "like-minded people" and "milieu" has a strong effect on the car decision making process. This finding supported former research findings whereas to older women opinion of like-minded people is important. What is more, an interesting finding of the present research was that in general to younger respondents the latent variable attitude has the strongest effect on intention and in terms of older respondents the strongest effect was found from attitude to the latent variable SN. This result of the present research can be interesting to marketers of car companies. Within the present research differences between younger and older female customers within the car choice decision making process could be found and these results supported previous research findings to this topic. Therefore, these specific former research findings could be extended to women living in Germany. What

is more, in terms of the former research finding whereas marketers have to adapt their marketing strategies according to the age of their customers an interesting contribution to knowledge with results of the present research could be created. Results of the present research support these former research findings as differences in between younger and older respondents in terms of evaluation of the present research's indicators and variables were found. Therefore, with results of the present research also this former research finding can be extended to women living in Germany.

The next part of the chapter discussed the issue of "attractive styling". An additional contribution to knowledge created by the present research was that in terms of the indicator "attractive styling" former research could not be supported whereas the effect of the indicator "attractive styling" can be extended when it is directly linked to intention and not to attitude. Within the present research the effect of "attractive styling" did not increase when its link was changed from attitude to intention.

Within the eight part of the chapter the aspect of "income" was evaluated. In doing so the final research model was operationalised to two different groups, a lower and a higher income group. An interesting result of the present research was that to both groups an expensive brand had a negative effect on attitude within the female car purchase decision making process. However, to respondents from higher income group the effect was much lower. Therefore in terms of high quality and expensive brands results of former research could not be confirmed with results of the present research. What is more, the aspect of different income groups also was evaluated in the context of location of living. In this case also an interesting contribution to knowledge could be created within the present research. Former research found that people with higher incomes tend more to live in an urban location. Findings of the present research did not support this finding as this tendency was not found and therefore this result could not be extended to a sample of women living in Germany.

In the next part the issue of "number of choices" was investigated. In this context, former research found that as the number of product or service choices

rises it is more difficult to female customers to find the right product or service and that women tend to feel confused by too many brands when they choose products. Results of the present research indicate that women living in Germany do not tend to be confused by too many choices within the car choice process. Therefore, the present research's results in terms of creating confusion by too many choices are contrary to results of former research. As a result, former research findings to this topic cannot be extended to women who live in Germany.

The tenth part of the chapter investigated the issue of "convenience". One finding of the present research was that in terms of younger female customers the aspect of "convenience" had a much stronger positive effect on the car decision making process than in terms of older female customers. This finding also supported former research whereas especially women who have younger children put high importance on the aspect of convenience within their product choice processes.

The next part of the chapter evaluated the topic of "family". In this context former research found that family are important to female customers in their product decision making process. With results of the present research this former research' outcome could not be supported. Within the present research only a minority of respondents evaluated family as important within their car choice decision making process.

The final part of this chapter investigated the connection between the latent variables SN and PBC. In this context, former research found that SN has a stronger loading on PBC than on intention. In order to investigate this former research outcome the final research model was modified offering a direct link from SN to PBC. As a result, no improvement but even a worsening in the model's inner paths and explained variance of Intention were found. Therefore, with results of the present research former research' outcomes to this topic could not be supported.

### 6.3.3 Contribution to practice

Within chapter “Discussion of Findings” also interesting outcomes and findings of the present research were discussed which lead to a contribution to practice of the present research as explained in the following chapter.

In the context of “professional assistance” an interesting contribution to practice of the present research was presented. With the present research’s results former literature could be supported as to women “professional assistance” is necessary within the product choice process. Therefore, in this regard former research’ results could be extended to women living in Germany. However, contrary to existing literature women living in Germany evaluate “professional assistance” within the car choice process as not helpful as this indicator was not included in the final research model. Therefore, with the present research’s results former literature could be supported which stated that changes are necessary within the process of addressing female customers by car manufacturers. What is more, another interesting contribution to knowledge of the present research was that former research’ finding could not be supported whereas an interaction of female customers with salespeople in car dealerships is favourable. As described before, in the final model of the present research the indicator “professional assistance” was not included any more. This result represented that the present research’s respondents did not evaluate this indicator as important for their car decision making process. These findings of the present research are important to professional marketers as obviously presently car manufacturers do not meet German female customers’ expectations to professional assitance within the car choice process. A following research should investigate in which way professional assitance should be modified in order to meet German female customers’ expectations. One possible way could be to put a high focus on car characteristics as “upholstery”, “long distance drivability”, “colour” and “attractive styling” but also on demographic information as “number of persons in household” and “location of living” as within the present research those indicators were found to have a high importance within the car choice process of German female customers.

In a second step, within this chapter the issue of “knowledge about cars” was investigated. In this context, another interesting contribution to practice of the present research was presented. On the one hand former research’ findings whereas female customers evaluate “knowledge about cars” as an important variable within the car choice process were supported with results of the present research. But on the other hand, with findings of the present research former research findings’ were not supported whereas car customers become more knowledgeable about cars. A contribution to practice of the present research was that this ambivalence in terms of “knowledge about cars” in terms of female car customers living in Germany has to be regarded by professional marketers of car manufacturers. A following research should investigate this ambivalence in terms of “knowledge about cars”. One possible solution can be that professional marketers use existing knowledge about cars of female customers. This can be done by in a first step asking questions regarding boundary conditions of situations in which female customers want to use their car and therefore asking questions considering existing knowledge. In a second step then, on basis of answers to questions of first step, a car proposal should be offered to the female customer which meets her requests.

In a third and last step, within this chapter the topic of “shopping imaginary” was investigated. In this context, with results of the present research former research whereas for example to customers virtual 3D tours are important within the product decision making process could not be supported as no importance of the indicator “shopping imaginary” to the German female customer’s car choice decision making process was found. One contribution to practice of the present research was that the importance of 3D virtual tours might not be overrated when a customer group consisting of German female car customers has to be reached. Further research should investigate in more detail the importance of shopping imaginary within the female customers’ car choice process. However one potential explanation of this present research’ finding can be that as found within the present research female customers are interested in a car’s attractive styling and colour and do not need a shopping imaginary of a car in order to support their evaluation and imagination of a car.

Within chapter “Discussion of Findings” also interesting outcomes of the present research considering “Women and Porsche cars”, “The Porsche car selling process to women” and “Car Configurators” were presented which result in specific components of contribution to practice which are presented in the following part of the chapter.

In terms of “Women and Porsche cars” differences between the group of present research’s respondents who stated to like Porsche cars, so called “Porsche likers”, and the group of respondents who did not state to like Porsche cars, so called “Porsche non-likers”, were explained. In order to allow an evaluation, the present research’s respondents were divided into these groups and both groups were operationalised on the final research model of the present research. As a result, interesting differences between both groups of customers were found which represent valuable results for possible refinements of the Porsche company’s marketing strategies. Examples of these important results of the present research were a high positive effect of “income” in terms of “Porsche likers” and no remarkable effect of this indicator in terms of “Porsche non-likers”. This finding represents a potential starting point for a further research which investigates in more detail differences between both groups. However, an explanation for this interesting finding can be that “Porsche likers” tend more to be customers who are interested in more expensive cars and therefore evaluate income as an important indicator within the car choice process. A high income allows to buy a more expensive car and therefore has a positive effect on the car choice process. On the other hand, “Porsche non-likers” probably tend more to be customers who are not interested in expensive cars and therefore do not evaluate income as being important within their car choice process. A similar result could be found in terms of the indicator “long distance drivability” showing a high importance of this indicator for the car choice process of “Porsche likers” compared to a low importance for the second group of respondents. Opposite results could be found for indicators describing a car’s convenience aspects. The indicators “low boot opening” and “number of storage spaces” had a strong negative effect on the car choice process of “Porsche likers” compared to no remarkable effect within the car choice process of “Porsche non-likers”. An explanation for this finding can be

that “Porsche likers” tend more to be customers who are not interested in a car’s convenience aspects and therefore evaluate those indicators as not helpful within their car choice process. What is more, these results of the present research did not support findings of former research in terms of “convenience” within the car choice process and present a contribution to practice of the present research. What is more, in terms of indicators describing a car’s appearance also differences between both groups could be found. To “Porsche likers” a positive effect of this kind of indicators was found for the female car choice process compared to a negative effect of these indicators in terms of “Porsche non-likers”. These results of the present research support former research’ findings in this context and present a contribution to practice of the present research. An explanation for this finding can be that “Porsche likers” tend more to be customers who are interested in a car’s appearance aspects and therefore evaluate those indicators as helpful within their car choice process. Interestingly, this finding is opposite to the finding in terms of a car’s convenience aspects as described before. Especially professional marketers of the Porsche company should regard these present research’s findings.

In terms of the topic of the “Porsche car selling process to women” an interesting contribution to practice of the present research’s findings can be presented whereas women do not feel comfortable in dealerships. As a result an advice can be presented that the Porsche Company’s marketing department should investigate in which way addressing of women in car dealerships can be adapted to this customer group.

In context of the topic of “car configurators” former research was presented whereas the Porsche Company recently developed a new version of its car configurator. However, results of the present research demonstrated that implemented modifications do not meet German female customers’ requests to the car choice process. As a contribution to practice, the present research’s results suggested to develop modifications to the car configurator which regard the present research’s findings whereas to women living in Germany especially the indicators “upholstery”, “colour”, “attractive styling” and “convenience” are important. An evidence for a high importance of the variable “shopping

imaginary" which is represented by different possibilities of visualisation within car configurators could not be found with results of the present research. This result is important as presently this visualisation option is developed with a high effort within the Porsche Company's car configurator. In a next step, the present research's findings were compared to other existing car configurators. As a result an evaluation was presented that today available car configurators do not meet correctly the car choice process of German female customers. This contribution to practice is valid even for Volkswagen's British car configurator which represents the presently furthest developed car configurator in terms of regarding customers' expectations to their car.

### 6.3.4 Implications for marketing professionals

As described in previous chapters findings of the present research show that to women knowledge about cars is important but interestingly women do not want to improve their knowledge about cars. Additional finding of the present research is that female participants of the present research evaluate professional assistance in the process of choosing cars as important however presently as not helpful as this indicator is not included in the final research model. This present research finding supports former research findings whereas women do not want to go to a car dealer because they do not have the impression of being serviced impartially. These findings of the present research lead to a resulting implication for marketing professionals in order to improve the process of servicing female customers within the car choice decision making process. As a result of the present research a recommendation can be formulated whereas for example traditional car configurators have to be changed in such a way that in a first step a female customer's expectations to a new car including usage behaviour have to be asked. With doing so, a female customer's existing knowledge about cars and the attributes which are important to a customer are asked and no additional knowledge is necessary. As outcomes of the present research, questions in this context can be related to usage behaviour of a car, how many persons have to be transported, if long-distance drivability is important, evaluation of importance of environmental friendliness, which upholstery is important and evaluation of importance of

attractive styling. Within the present research, all these indicators were found to be relevant within the car choice decision making process of German female customers. After answering these questions a recommendation of one or more cars should be present to female customers and in a next step after choosing one car the configuration of this car could be started. This step of car configuration then could be similar to existing car configurators. With doing so the car choice process of female customers could be supported strongly without the necessity that female customers have to improve their knowledge about cars. Female customers would have the possibility to narrow down the available car choice to these models which are mostly relevant to their recommendations.

## 6.4 Hypotheses

In the last part of the "Findings and Data Analysis" chapter the research' hypotheses were operationalised. Results in this context were that hypothesis H1 "The conceptual model will satisfactorily represent the female car purchase decision making process", hypothesis H2 "Time efficiency within the car purchase decision making process will have an influence on the female car purchase decision making process", hypothesis H3 "Income will have an influence on a female customer's car purchase decision making process", hypothesis H4 "Personal experience with cars will have an influence on the female car purchase decision making process", hypothesis H6 "The number of choices will have an influence on the female car purchase decision making process", hypothesis H7 "The aspect of convenience will have an influence on the female car purchase decision making process" and also hypothesis H8 "A woman's family will have an influence on her car purchase decision making process" could be upheld with the present research's results. Only hypothesis H5 "Availability of assistance in choosing cars will have an influence on the female car purchase decision making process" could not be upheld with the present research's results.

## 6.5 Limitations

Within the following section limitations of the present research are explained and implications for further research are offered. The present research should be seen as a preliminary attempt at pointing out a more important becoming issue within the marketing practice of car manufacturers. However, a preliminary attempt also implicates several limitations. As a result of acknowledgement of these limitations new directions for future studies in this field of knowledge can be suggested. One result of the present research was that within the present research's sample the share of respondents who belong to a lower household income group was much lower compared to the share of this household income group within the target group, female inhabitants in Germany. Therefore, further research should be conducted whose sample represents in a more accurate way all household income groups of female inhabitants living in Germany. Another limitation of the present research is represented by the fact that the number of persons in household with an income of below 1.300 EUR per month was much higher within the present research's sample compared to the target group of female inhabitants in Germany. Therefore, further research should be conducted whose sample represents in a more accurate way the value of persons in household for all income groups of Germany's inhabitants. Another limitation of the present research is the fact that the age separation of the present research's sample only for lower and higher age groups met satisfyingly the target population's distribution. Therefore, further research should be worked out whose age separation of respondents meets more accurately the age separation of women in Germany. One interesting finding of the present research was that to German female car customers both price limits, a high price and a low price, have a negative effect on attitude. In terms of high price this finding supported findings of the research as conducted by Ziegler (2012). However the separation of gender within the present research and the research as conducted by Ziegler (2012) differed strongly. This fact represents a limitation of present research's findings. In order to make a better comparison of findings further research should not only concentrate on a female sample but also regard male respondents. This would facilitate a comparison of findings and a decision to which extend former

research' findings can be supported. An extension to both genders also would make a comparison of the present research's findings to findings of the research as conducted by Ziegler (2012) and Ewing and Sarigöllü (1998) easier. A limitation of the present research's findings is that on the one hand within the present research a connection between age and importance of environmental friendliness could be found but on the other hand this finding was compared to former research which included samples consisting of male and female respondents. An extension of further research to both genders is recommended. What is more, when analysing car customers' relationships between income, location of living and type of car interesting results within the present research were found. But also in this case a limitation exists that the present research's findings were compared to former research whose samples contained both genders, as for example the research as conducted by Choo and Mokhtarian (2004). Therefore, also in this case a recommendation for further research would be an extension of the sample to both genders, male and female respondents. In the context of possibilities for further research, a recommendation as formulated by Kotler and Armstrong (2012) is interesting. Kotler and Armstrong (2012) state that for a thorough understanding of customers' car buying behaviour also data about characteristics of owned vehicles can be helpful. These data can be information about vehicles' price, capacity, horsepower. These aspects were not monitored within the present research and therefore further research should also include a monitoring of this information. Another limitation of the present research is the fact that the working status of the present research's participants was not monitored. Due to this, no clear comparision of present research's results in terms of "convenience" to former research was possible as former research distinguishes between working and not working women when the aspect of "convenience" is evaluated within the female product choice process.

## 6.6 Further research

In terms of possibilities for further research then the present research's finding should be regarded that women living in Germany do not evaluate "professional assistance" as offered by car dealerships as helpful to them. This aspect has to

be regarded by car manufacturers and in a future research an investigation should be carried out to find out which aspects of professional assistance within the female car choice process have to be improved in order to create a helpful process to female customers. In this context, further research should investigate how the process of offering information to women in car dealerships can be improved. What is more, a finding of the present research is that women living in Germany who stated to like Porsche cars do not evaluate “attractive styling” as an important car characterstic. This finding of the present research is contradictory to former research and therefore within coming research this aspect should be further investigated. Reasons for this evaluation may be interesting for a car selling company. Another implication for further research is the present research’s ambivalent finding in terms of “knowledge about cars”. Further research should investigate which measures, tools or methods should be offered by car manufacturers to female customers in order to fulfil both contradictory research findings whereas on the one hand female customers evaluate “knowledge about cars” as important within their car decision making process and on the other hand female customers do not intend to improve their knowledge about cars. What is more, as described before further research also should monitor female respondents’ working status in order to allow a more thorough evaluation of the aspect of “convenience” within the female car choice process. Reason for this is that former research found that the importance of “convenience” within the female car choice process depends from female customers’ working status. As the working status was not monitored within the present research the influence of “convenience” within the female car choice process cannot be fully described with results of the present research. What is more, with its findings the present research has to be seen as a preliminary research for a further development of car configurators which are offered by car manufacturers. Further development of these car configurators represents an interesting direction for further research. In this context, the fact that within the present research the indicator “shopping imaginary” was not evaluated as important should be regarded. Therefore, in a future research an investigation should be carried out to find out in which way the aspect of “shopping imaginary” should be regarded within car configurators. What is more, one contribution to practice of the present research was that today available car

configurators do not meet correctly the car choice process of German female customers. This contribution to practice is valid even for Volkswagen's British car configurator which represents the presently furthest developed car configurator in terms of regarding customers' expectations to their car. Therefore, further research should investigate how important indicators of the female customers' car choice decision making model as developed and described within the present research can be regarded correctly by car configurators. What is more, further research should investigate if a sample consisting of women living in Britain would lead to comparable results and if a comparable final research model would be developed. As a result a profound comparison between the model of British female customers' car decision making process and Volkswagen's British car configurator would be possible. What is more, further research should be extended to samples consisting of women living in other countries in order to investigate specific differences within the car choice process of women living in different countries. This further research would be important to car manufacturers as mostly cars are not sold only in specific countries and therefore professional marketers have to regard country specific preferences of customers. Finally, as explained in the "Literature Review" chapter within the present research a model was developed on basis of the Theory of Planned Behaviour. This was appropriate and convenient with the present research objectives as female customers' reasons for behaviour were not to be investigated. However, further research could extend the present research's results by investigation of female customers' reasons for a car purchase decision which serve as linkages between customers' attitude, subjective norm, perceived behavioural control and intention to perform a behaviour. This could be evaluated by development of a model on basis of the Behavioural Reasoning Theory.

## 6.7 Conclusion

Within the chapter "Conclusion and Recommendations" a closer to the thesis was presented. Additionally, an overall contribution to knowledge and practice including implications for marketing professionals were offered. The chapter was closed with an evaluation of present research's hypotheses and an

explanation of present research's limitations as well as implications for further research.

The Research Methodology was successfully developed including a first qualitative study and a second quantitative study. This enabled the research to obtain a profound data basis which was used to validate a research model. In this context different expectancy theories were analysed offering the result that the Theory of Planned Behaviour was the most suitable theory in terms of evaluation of the present research's aim.

A following Data Analysis revealed that by application of an Exploratory Factor Analysis and a Confirmatory Factor Analysis with employment of a MIMIC Structural Equation Modelling approach the research model built on basis of the Theory of Planned Behaviour was most appropriate to model female customers' car choice decision making process.

The present research revealed that within existing literature no comparable model of female customers' car choice decision making process is available. The final model of the present research offered indicators which are important and not important within the female car decision making process. What is more, differences between several groups categorised by age, income or choice of vehicle brands were revealed. Interesting implications for marketing professionals were presented aiming to improve the car selling process to women.

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# APPENDIX A: Former research' questions to model indicators

Attitude towards behaviour

Questions considering the product brand as quality indicator (Mitchell and Walsh, 2004, Deeter-Schmelz, Moore and Goebel, 2000)

- The more expensive brands are usually my choice (Mitchell and Walsh, 2004).
- The well-known national brands are best for me (Mitchell and Walsh, 2004).
- I consider the brand name when purchasing clothing for myself (Deeter-Schmelz, Moore and Goebel, 2000).
- I consider the brand name when purchasing clothing for others (Deeter-Schmelz, Moore and Goebel, 2000).
- I will pay a higher price for clothing that is made by a popular designer or manufacturer (Deeter-Schmelz, Moore and Goebel, 2000).
- Clothing made by a well-known designer or manufacturer is worth more money (Deeter-Schmelz, Moore and Goebel, 2000).

Questions considering the respondent's age (Korgaonkar and Wolin, 1999, Mitchell and Walsh, 2004, Potoglou, 2008, Steg, 2005, Häubl, 1996, Deeter-Schmelz, Moore and Goebel, 2000)

- under 25, between 25 and 44, over 45 (Potoglou, 2008)
- under 20, between 20 and 30, between 31 and 40, between 41 and 50, between 51 and 60, over 60 (Korgaonkar and Wolin, 1999)
- between 18 and 31, between 32 and 44, between 45 and 57, over 58 (Mitchell and Walsh, 2004)
- under 25, between 25 and 40. between 41 and 55, over 55 (Steg, 2005)
- under 30, between 31 and 35, between 36 and 40, over 40 (Häubl, 1996)
- under 24, between 25 and 34, between 35 and 44, between 45 and 54, between 55 and 64, over 64 (Deeter-Schmelz, Moore and Goebel, 2000)

Questions considering the respondent's children (Costello, 2007, Fukukawa, 2002, Nocella, 2008)

- Do you have any children?
- Do you have children? How many persons live in your household?
- I have children under 18 living at home.

Questions considering the respondent's household income (Korgaonkar and Wolin, 1999, Potoglou, 2008, Steg, 2005, Deeter-Schmelz, Moore and Goebel, 2000)

- Annually under 29.999, between 30.000 and 79.999, over 80.000 CAN $ (Potoglou, 2008)
- monthly under 2.000, between 2.000 and 5.000, over 5.000 Dfl. (Steg, 2005)
- Annually under 20.000, between 20.000 and 40.000, between 40.001 and 60.000, between 60.001 and 80.000, between 80.000 and 100.000, over 100.00 US $ (Korgaonkar and Wolin, 1999)
- Annually under 10.000, between 10.000 and 19.999, between 20.000 and 39.999, between 40.000 and 59.999, between 60.000 and 79.999, over 80.000, did not report (Deeter-Schmelz, Moore and Goebel, 2000)

Questions considering the respondent's education level (Korgaonkar and Wolin, 1999, Mitchell and Walsh, 2004, Potoglou, 2008, Deeter-Schmelz, Moore and Goebel, 2000)

- High school, trade school, some college, college graduate, post graduate (Korgaonkar and Wolin, 1999)
- More educated, less educated 58 (Mitchell and Walsh, 2004)
- High school, Diploma, Bachelor's degree, Graduate school, not reported (Potoglou, 2008)
- Less than high school, high school graduate, technical school graduate, two-year college graduate, four-year college graduate, graduate school, did not report (Deeter-Schmelz, Moore and Goebel, 2000)

Questions considering the respondent's personal experience with cars (Potoglou, 2008, Häubl, 1996)

- car brand ownership Mercedes, other brands (Häubl, 1996)
- Number of vehicles already owned (Potoglou, 2008)

Questions considering the product price (Mitchell and Walsh, 2004)

- The higher the price of the product, the better the quality (Mitchell and Walsh, 2004).
- A product doesn't have to be perfect or the best to satisfy me (Mitchell and Walsh, 2004).
- The lower price products are usually my choice (Mitchell and Walsh, 2004).

Questions considering the shopping convenience (Mitchell and Walsh, 2004)

- Shopping is not a pleasant activity to me (Mitchell and Walsh, 2004).
- Going shopping is one of the most enjoyable activities of my life (Mitchell and Walsh, 2004).
- It's fun to buy something new and exciting (Mitchell and Walsh, 2004).

Questions considering time efficiency (Mitchell and Walsh, 2004, Reed, Story and Saker, 2004)

- I take the time to shop carefully for the best buys (Mitchell and Walsh, 2004).
- I shop quickly, buying the first product or brand I find that seems good enough (Mitchell and Walsh, 2004).
- I really don't give my purchases much thought or care (Mitchell and Walsh, 2004).
- I make my shopping trips fast (Mitchell and Walsh, 2004).
- Shopping in many stores wastes my time (Mitchell and Walsh, 2004).
- It is important that a car dealership salesperson is efficient (Reed, Story and Saker, 2004).

Questions considering the respondent's self-concept (Steg, 2005, Deeter-Schmelz, Moore and Goebel, 2000)

- My car shows who and what I am (Steg, 2005).
- A car provides status and prestige (Steg, 2005).
- I can distinguish myself from others (Steg, 2005).
- You can know a person by looking at his or her car (Steg, 2005).
- The brand of a car is more important to me than its functional qualities (Steg, 2005).
- Wearing high-quality designer clothing makes me feel special (Deeter-Schmelz, Moore and Goebel, 2000).

Questions considering privacy (Rodgers and Harris, 2003, Wolin and Korgaonkar, 2005)

- When doing purchases within an online environment I am concerned about my privacy (Wolin and Korgaonkar, 2005).
- My perception of online purchases is positive (Rodgers and Harris, 2003).
- I am sceptical considering online purchases (Rodgers and Harris, 2003).

Questions considering the attitude towards automobiles (Mitchell and Walsh, 2004, Steg, 2005)

- A product doesn't have to be perfect or the best to satisfy me (Mitchell and Walsh, 2004).
- I change the brands I buy regularly (Mitchell and Walsh, 2004).
- Fashionable, attractive styling is very important to me (Mitchell and Walsh, 2004).
- The most advertised brands are usually very good choices (Mitchell and Walsh, 2004).
- car attitude very positive, positive, neutral, negative, very negative (Steg, 2005)
- I only have a car to travel from A to B (Steg, 2005)
- The functional quality of a car is more important to me than its make (Steg, 2005)
- I love driving (Steg, 2005)
- I like to drive just for the fun (Steg, 2005)
- I feel free and independent if I drive (Steg, 2005)
- If I did not need a car I would dispose of it immediately (Steg, 2005)

What is more, in the context of attitudes towards automobiles, Kortus-Schultes and Moos (2006) list as important factors for female car purchasers a low boot opening, car's upholstery, lots of storage spaces and a car's colour.

Questions considering the respondent's pro-environmental attitudes (Ziegler, 2012)

- A vehicle's fuel costs are important to me (Ziegler, 2012).
- A vehicle's $CO_2$ emissions are important to me (Ziegler, 2012).
- To drive an environmentally friendly vehicle like hybrid or electric is important to me (Ziegler, 2012).
- The driving range of an environmentally friendly vehicle like hybrid or electric is important to me (Ziegler, 2012).

Subjective norm

Questions considering recommendations from family and friends (Tan, 1999, Deeter-Schmelz, Moore and Goebel, 2000, Molesworth and Suortti, 2002)

- Recommendations from my family and friends are important to me when I collect information about products prior to a purchase (Molesworth and Suortti, 2002).
- Recommendations from my family and friends to me are important risk relievers within a product purchase process (Tan, 1999).
- I often ask friends where they buy their clothes (Deeter-Schmelz, Moore and Goebel, 2000).

Questions considering recommendations from reference groups (Tan, 1999, Deeter-Schmelz, Moore and Goebel, 2000)

- Recommendations from reference groups to me are important risk relievers within a product purchase process (Tan, 1999).
- Sometimes I would like to know where important people buy their clothes (Deeter-Schmelz, Moore and Goebel, 2000).
- I like to shop in the same clothing stores as people I admire (Deeter-Schmelz, Moore and Goebel, 2000).

Question considering other like-minded people (Deeter-Schmelz, Moore and Goebel, 2000)

- It is important to shop in the same clothing stores as my friends (Deeter-Schmelz, Moore and Goebel, 2000).

Question considering the values from milieu (Mitchell and Walsh, 2004)

- I keep my wardrobe up to date with the changing fashions (Mitchell and Walsh, 2004).

Perceived behavioural control

An extract of questions from former research projects considering “personal experience with products” corresponds to “experience with technology” and is offered in the section concerning attitudes towards behaviour.

An extract of questions from former research projects considering “product price” is offered in the section concerning attitudes towards behaviour.

Questions considering the presence of too many choices (Mitchell and Walsh, 2004)

- The more I learn about products, the harder it seems to choose the best (Mitchell and Walsh, 2004).
- Sometimes it’s hard to choose which stores to shop (Mitchell and Walsh, 2004).
- All the information I get on different products confuses me (Mitchell and Walsh, 2004).
- There are so many brands to choose from that I often feel confused (Mitchell and Walsh, 2004).

Questions to imbalance of product knowledge (Reed, Story and Saker, 2004)

- It is important that within a car dealership staff is accessible (Reed, Story and Saker, 2004).
- It is important that a car dealership salesperson is honest (Reed, Story and Saker, 2004).
- It is important that a car dealership salesperson is attentive (Reed, Story and Saker, 2004).
- It is important that a car dealership salesperson is knowledgeable (Reed, Story and Saker, 2004).
- It is important that a car dealership salesperson is professional (Reed, Story and Saker, 2004).
- It is important that within a car dealership products are placed conveniently (Reed, Story and Saker, 2004).
- It is important that within a car dealership product information and brochures are available (Reed, Story and Saker, 2004).

Questions considering the assistance in choosing products (Mitchell and Walsh, 2004, Reed, Story and Saker, 2004, Deeter-Schmelz, Moore and Goebel, 2000)

- I go to the same shops each time I shop (Mitchell and Walsh, 2004).
- To get variety I shop in different stores and choose different brands (Mitchell and Walsh, 2004).
- Nice department and speciality stores offer me the best products (Mitchell and Walsh, 2004).
- It is important that a car dealership salesperson is approachable and friendly (Reed, Story and Saker, 2004).
- It is important that a car dealership is uncluttered (Reed, Story and Saker, 2004).
- It is important that a car dealership has attractive furniture and carpets (Reed, Story and Saker, 2004).
- It is important that a car dealership has attractive colour schemes (Reed, Story and Saker, 2004).
- It is important that a car dealership has adequate lightning (Reed, Story and Saker, 2004).
- Personal service is important to me when buying clothes (Deeter-Schmelz, Moore and Goebel, 2000).

Demographical questions

An extract of questions from former research projects considering “respondent’s age”, “respondent’s household income”, “respondent’s education level” and “respondent’s number of owned cars” is offered in the section concerning attitudes towards behaviour.

Question considering the respondent’s gender (Korgaonkar and Wolin, 1999, Mitchell and Walsh, 2004, Potoglou, 2008, Häubl, 1996, Deeter-Schmelz, Moore and Goebel, 2000)

- male, female (Korgaonkar and Wolin, 1999, Mitchell and Walsh, 2004, Potoglou, 2008, Häubl, 1996)
- male, female, did not report (Deeter-Schmelz, Moore and Goebel, 2000)

# APPENDIX B: Ranking of indicators

## Ranking of indicators assigned to control beliefs after interviews

| Ranking | | Respondent 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Assistance in choosing cars from too many choices | 6 | 7 | 7 | 6 | 5 | 5 | 5 | 3 | 4 | 6 | 5,4 |
| 2 | Imbalance of Product knowledge | 6 | 5 | 6 | 4 | 7 | 7 | 3 | 4 | 5 | 5 | 5,2 |
| 3 | Product price | 5 | 4 | 3 | 6 | 7 | 6 | 4 | 3 | 4 | 6 | 4,8 |
| 4 | Income and money | 2 | 3 | 6 | 7 | 7 | 5 | 4 | 5 | 4 | 5 | 4,8 |
| 5 | Personal experience with cars | 5 | 3 | 4 | 3 | 2 | 4 | 4 | 5 | 6 | 5 | 4,1 |
| 6 | Human interaction within online process (help) | 2 | 3 | 5 | 2 | 1 | 5 | 3 | 2 | 6 | 2 | 3,1 |
| 7 | Trust | 4 | 7 | 2 | 1 | 4 | 7 | 1 | 1 | 2 | 1 | 3 |
| 8 | Presentation of data (fragmented portions, easiness of reading) | 3 | 2 | 1 | 7 | 4 | 3 | 4 | 2 | 1 | 1 | 2,8 |
| 9 | Technological knowledge about cars | 4 | 3 | 2 | 4 | 3 | 2 | 2 | 2 | 1 | 5 | 2,8 |
| 10 | Presentation of data (verbal form) | 4 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 2,2 |

chosen variable for present research' model

## Ranking of indicators assigned to normative beliefs after interviews

| Ranking | | Respondent 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Recommendations from members of reference group | 4 | 5 | 6 | 7 | 7 | 7 | 6 | 6 | 5 | 2 | 5,5 |
| 2 | Values from milieu | 3 | 4 | 6 | 7 | 7 | 6 | 5 | 5 | 5 | 5 | 5,3 |
| 3 | Opinion of like-minded people | 5 | 4 | 3 | 6 | 6 | 6 | 3 | 4 | 5 | 5 | 4,7 |
| 4 | Recommendations from friends | 4 | 5 | 6 | 4 | 3 | 6 | 7 | 2 | 5 | 5 | 4,7 |
| 5 | Recommendations from family | 4 | 5 | 6 | 7 | 2 | 3 | 5 | 5 | 5 | 4 | 4,6 |
| 6 | Shopping imaginary | 4 | 4 | 7 | 3 | 3 | 4 | 6 | 7 | 3 | 4 | 4,5 |
| 7 | Social acceptance | 4 | 7 | 2 | 1 | 4 | 7 | 1 | 1 | 2 | 1 | 3 |

chosen variable for present research' model

# Ranking of indicators assigned to behavioural beliefs after interviews

| Ranking | | Respondent 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Product price | 6 | 7 | 7 | 6 | 5 | 4 | 5 | 6 | 7 | 7 | 6 |
| 2 | storage spaces | 4 | 5 | 6 | 7 | 7 | 7 | 6 | 6 | 5 | 2 | 5,5 |
| 3 | car's colour | 6 | 7 | 7 | 6 | 5 | 5 | 5 | 3 | 4 | 6 | 5,4 |
| 4 | Income and money | 3 | 4 | 6 | 7 | 7 | 6 | 5 | 5 | 5 | 5 | 5,3 |
| 5 | Time efficiency | 5 | 6 | 7 | 4 | 3 | 5 | 6 | 5 | 4 | 7 | 5,2 |
| 6 | Knowledge about technology and cars | 6 | 5 | 6 | 4 | 7 | 7 | 3 | 4 | 5 | 5 | 5,2 |
| 7 | Convenience in information collecting | 5 | 6 | 7 | 4 | 3 | 1 | 4 | 6 | 6 | 7 | 4,9 |
| 8 | Environmental friendliness | 7 | 6 | 1 | 6 | 5 | 3 | 6 | 7 | 3 | 5 | 4,9 |
| 9 | Driving distances | 5 | 7 | 6 | 5 | 5 | 4 | 2 | 6 | 5 | 4 | 4,9 |
| 10 | Expensive product brand | 5 | 4 | 3 | 6 | 7 | 6 | 4 | 3 | 4 | 6 | 4,8 |
| 11 | upholstery | 2 | 3 | 6 | 7 | 7 | 5 | 4 | 5 | 4 | 5 | 4,8 |
| 12 | Self-concept or showing who and what one is | 4 | 5 | 6 | 4 | 3 | 6 | 7 | 2 | 5 | 5 | 4,7 |
| 13 | Privacy of personal data | 5 | 4 | 3 | 6 | 6 | 6 | 3 | 4 | 5 | 5 | 4,7 |
| 14 | Fashionable and attractive styling | 4 | 5 | 6 | 7 | 2 | 3 | 5 | 5 | 5 | 4 | 4,6 |
| 15 | low boot opening | 5 | 3 | 4 | 3 | 2 | 4 | 4 | 5 | 6 | 5 | 4,1 |
| 16 | Number of household members | 3 | 6 | 1 | 5 | 3 | 6 | 2 | 1 | 7 | 6 | 4 |
| 17 | Education | 3 | 6 | 5 | 1 | 2 | 3 | 4 | 1 | 2 | 4 | 3,1 |
| 18 | Location of residence | 2 | 3 | 5 | 2 | 1 | 5 | 3 | 2 | 6 | 2 | 3,1 |
| 19 | Age | 2 | 3 | 1 | 4 | 3 | 2 | 6 | 2 | 3 | 4 | 3 |
| 20 | Vehicle size | 4 | 7 | 2 | 1 | 4 | 7 | 1 | 1 | 2 | 1 | 3 |
| 21 | Female orientated websites (colour etc.) | 2 | 7 | 2 | 4 | 1 | 2 | 2 | 2 | 5 | 2 | 2,9 |
| 22 | Gender identity | 2 | 3 | 4 | 6 | 2 | 1 | 6 | 2 | 1 | 1 | 2,8 |
| 23 | Country of origin | 4 | 3 | 2 | 4 | 3 | 2 | 2 | 2 | 1 | 5 | 2,8 |
| 24 | Brand personality | 3 | 2 | 1 | 7 | 4 | 3 | 4 | 2 | 1 | 1 | 2,8 |
| 25 | Attitude towards automobiles | 1 | 2 | 3 | 4 | 3 | 2 | 1 | 4 | 5 | 2 | 2,7 |
| 26 | Physique preferences (senior women) | 5 | 3 | 2 | 1 | 1 | 1 | 4 | 7 | 2 | 1 | 2,7 |
| 27 | Information source | 2 | 3 | 4 | 7 | 2 | 1 | 2 | 3 | 2 | 1 | 2,7 |
| 28 | Helpfulness of technology in life | 3 | 4 | 2 | 2 | 1 | 5 | 4 | 2 | 1 | 2 | 2,6 |
| 29 | Success in job | 3 | 2 | 1 | 6 | 3 | 2 | 1 | 3 | 4 | 1 | 2,6 |
| 30 | Ownership of a house or apartment | 2 | 1 | 4 | 2 | 4 | 5 | 2 | 1 | 4 | 1 | 2,6 |
| 31 | Social identity | 3 | 2 | 4 | 2 | 1 | 1 | 3 | 4 | 2 | 2 | 2,4 |
| 32 | Involvement | 4 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 2,2 |
| 33 | Human interaction within online processes | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 4 | 3 | 2 | 1,9 |

chosen variable for present research' model

# APPENDIX C: Primary qualitative study

Section 1 – Each of the questions refers to your attitudes within the car choice process

Please indicate if according to you the following attitudes are important when looking for a new car.

1. Expensive product brand

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

2. Gender identity

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

3. Age

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

4. Income and money

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

5. Education

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

6. Human interaction within online processes

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

7. Product price

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

8. Involvement

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

9. Convenience in information collecting

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

10. Time efficiency

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

11. Country of origin

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

12. Physique preferences (senior women)

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

13. Self-concept or showing who and what one is

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

14. Social identity

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

15. Brand personality

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

16. Information source

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

17. Knowledge about technology and cars

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

18. Helpfulness of technology in life

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

19. Privacy of personal data

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

20. Female orientated websites (colour etc.)

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

21. Attitude towards automobiles

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

22. Driving distances

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

23. Environmental friendliness

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

24. Vehicle size

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

25. Number of household members

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

26. Location of residence

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

27. Success in job

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

28. Ownership of a house or apartment

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

Section 2 – Each of the questions refers to the subjective norm within the car choice process

Please indicate how important the following subjective norms are for you when you look for a new car.

29. Recommendations from family

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

30. Recommendations from friends

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

31. Recommendations from members of reference group

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

32. Opinion of like-minded people

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

33. Values from milieu

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

34. Social acceptance

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

35. Shopping imaginary

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

Section 3 – Each of the questions refers to the perceived behavioural control within the car choice process

Please indicate how important the following perceived behavioural controls are for you when you look for a new car.

36. Personal experience with cars

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

37. Assistance in choosing cars from too many choices

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

38. Presentation of data (fragmented portions, easiness of reading)

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

39. Trust

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

40. Imbalance of product knowledge

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

41. Human interaction within online process (help)

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

42. Technological knowledge about cars

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

43. Presentation of data (verbal form)

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

44. Product price

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

45. Income and money

| very unimportant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

Section 4 – This section investigates your personal issues when you look for a new car

Please indicate which attitudes are important for you when you look for a new car. Please assess the importance of these issues from 1 (very unimportant) to 7 (very important).

| **Issues** | **Assessment**<br>1 – very unimportant<br>7 – very important |
|---|---|
| | |

Please indicate which subjective norms are important for you when you look for a new car. Please assess the importance of these issues from 1 (very unimportant) to 7 (very important).

| **Issues** | **Assessment**<br>1 – very unimportant<br>7 – very important |
|---|---|
| | |

Please indicate which perceived behavioural controls are important for you when you look for a new car. Please assess the importance of these issues from 1 (very unimportant) to 7 (very important).

| **Issues** | **Assessment**<br>1 – very unimportant<br>7 – very important |
|---|---|
| | |

# APPENDIX D: Main quantitative study - Questionnaire of present research

Dear Recipient,

You were selected to participate in the following pilot study which is part of a Doctoral Research Project which is supported by the University of South Wales. Your participation in this study is highly appreciated, a high response rate of the questionnaire is necessary to obtain valid results within the research project.

To produce a validly answered questionnaire you do not have to provide your contact details and your identity will not be known to the researcher or any further party. However, at the end of this questionnaire you can voluntarily provide your contact details to give the researcher an opportunity to contact you in order to further improve the questionnaire. In this case, your identity will be treated with absolute confidentiality and will not be revealed to any further party.

In any case, you are asked to answer the following questions openly and to your best knowledge to assure valid results of the research project.

Overall 72 questions are clustered in 2 sections and their completion should take about 15 minutes.

Thank you very much in advance for your support.

Adam Kobielski

DBA Candidate

In order to assess the time it takes to answer the questionnaire you are kindly asked to provide your starting time.

Current time [hh:mm] |  |

Section 1 – Each of the questions refers to your car choice process

Imagine you have to choose a new car and you cannot hand over the car choice task to someone else, which means that you are the one who is in charge of the car choice process. Questions in the following section refer to this situation to evaluate how willing and able you are to make a car choice by yourself.

1. If I had to choose a new car, I would choose a low price car.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

2. If I had to choose a new car, then my income would have an influence on my car choice.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

3. If I had to choose a new car, then the way how conveniently information can be collected would have an influence on my car choice.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

4. If I had to choose a new car, I would make a fast and time efficient car choice.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

5. If I had to choose a new car, I would choose a car which shows who and what I am.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

6. If I had to choose a new car, I would use the opportunity to increase my knowledge about cars.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

7. If I had to choose a new car, I would choose a high price car.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

8. If I had to choose a new car, I would choose an environmentally friendly car.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

9. If I had to choose a new car, I would be concerned about privacy issues when giving out my private data to sales people or within online environments.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

10. If I had to choose a new car, I would choose an expensive car brand.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

11. If I had to choose a new car, I would choose a car with a low boot opening.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

12. If I had to choose a new car, the car's upholstery would have an influence on my car choice.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

13. If I had to choose a new car, I would choose a car with lots of storage spaces.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

14. If I had to choose a new car, the car's colour would have an influence on my car choice.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

15. If I had to choose a new car, I would choose a car with a fashionable and attractive styling.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

16. If I had to choose a new car, I would choose a car which is appropriate for driving long distances.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

17. For me, low price cars are

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

18. For me, making a car choice which is influenced by one's income is

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

19. For me, convenience in collecting information about cars is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

20. For me, time efficiency within the car choice process is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

21. For me, cars showing who and what one is, are

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

22. For me, knowledge about cars is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

23. For me, high price cars are

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

24. For me, environmentally friendly cars are

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

25. For me, taking privacy issues seriously when giving out private data to sales people or within online environments is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

26. For me, expensive car brands are

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

27. For me, a low boot opening of a car is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

28. For me, a car's upholstery is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

29. For me, the number of storage spaces in a car is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

30. For me, a car's colour is

| very irrelevant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very important |
|---|---|---|---|---|---|---|---|---|

31. For me, cars with a fashionable and attractive styling are

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

32. For me, driving long distances by car is

| very undesirable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very desirable |
|---|---|---|---|---|---|---|---|---|

33. For me, having to choose a new car by myself is

| interesting | 1 | 2 | 3 | 4 | 5 | 6 | 7 | boring |
|---|---|---|---|---|---|---|---|---|

| very worthless | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very valuable |
|---|---|---|---|---|---|---|---|---|

| very pleasant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very unpleasant |
|---|---|---|---|---|---|---|---|---|

34. For me, to perform well when having to choose a new car by myself is

| very difficult | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very easy |
|---|---|---|---|---|---|---|---|---|

35. I am sure that if I want I can perform well when I have to choose a new car by myself

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

36. For me, to perform well when having to choose a new car by myself is

| possible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | impossible |
|---|---|---|---|---|---|---|---|---|

37. Most people who are important to me think that

| I should | 1 | 2 | 3 | 4 | 5 | 6 | 7 | I should not |
|---|---|---|---|---|---|---|---|---|

choose a new car by myself.

38. It is expected of me to choose a new car by myself.

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

39. Most people whose opinions I value would approve me choosing a new car by myself.

| strongly disagree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly agree |
|---|---|---|---|---|---|---|---|---|

40. I plan to improve my knowledge how to make a car choice within one year.

| extremely likely | 1 | 2 | 3 | 4 | 5 | 6 | 7 | extremely unlikely |
|---|---|---|---|---|---|---|---|---|

41. I will make an effort to improve my knowledge how to make a car choice.

| definitely will | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely will not |
|---|---|---|---|---|---|---|---|---|

42. I intend to improve my knowledge how to make a car choice regularly.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

43. How much do you care in general what your family thinks you should do?

| not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very much |
|---|---|---|---|---|---|---|---|---|

44. How much do you care in general what people you admire think you should do?

| not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very much |
|---|---|---|---|---|---|---|---|---|

45. How much do you care in general what other like-minded people think you should do?

| not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very much |
|---|---|---|---|---|---|---|---|---|

46. How much do you care in general what members of your milieu think you should do?

| not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very much |
|---|---|---|---|---|---|---|---|---|

47. How much do you care in general what your friends think you should do?

| not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | very much |
|---|---|---|---|---|---|---|---|---|

48. My family thinks I should choose a new car by myself.

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

49. People I admire think I should choose a new car by myself.

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

50. Other like-minded people think I should choose a new car by myself.

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

51. Members of my milieu think I should choose a new car by myself.

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

52. My friends think I should choose a new car by myself.

| definitely true | 1 | 2 | 3 | 4 | 5 | 6 | 7 | definitely false |
|---|---|---|---|---|---|---|---|---|

53. My level of experience with cars is low.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

54. There are so many cars to choose from that I feel confused when I have to choose a new car by myself.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

55. It is difficult for me to judge if the price of a car is reasonable.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

56. My level of knowledge about cars is lower compared to salespeople in car dealerships.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

57. My amount of saved money is low.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

58. I tend to imagine how it is for me to use a car in different situations.

| strongly agree | 1 | 2 | 3 | 4 | 5 | 6 | 7 | strongly disagree |
|---|---|---|---|---|---|---|---|---|

59. A low level of experience with cars makes it difficult to choose a new car by yourself.

| Definitely false | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Definitely true |
|---|---|---|---|---|---|---|---|---|

60. Feeling confused due to a high number of cars to choose from makes it more difficult to choose a new car by yourself.

| Definitely false | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Definitely true |
|---|---|---|---|---|---|---|---|---|

61. A difficulty in judgment if a car's price is reasonable makes it difficult to choose a new car by yourself.

| Definitely false | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Definitely true |
|---|---|---|---|---|---|---|---|---|

62. A lower level of knowledge about cars compared to salespeople in car dealerships makes it difficult to choose a new car by yourself.

| Definitely false | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Definitely true |
|---|---|---|---|---|---|---|---|---|

63. A low amount of saved money makes it difficult to choose a new car.

| Definitely false | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Definitely true |
|---|---|---|---|---|---|---|---|---|

64. Being offered a picture showing oneself in a preferred situation using a new car helps to decide for a new car.

| Definitely false | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Definitely true |
|---|---|---|---|---|---|---|---|---|

<u>Section 2 – concluding questions</u>

Questions in the following section refer to your background.

65. Please indicate your age.

- ☐ under 18
- ☐ between 18 and 24
- ☐ between 25 and 34
- ☐ between 35 and 44
- ☐ between 45 and 54
- ☐ between 55 and 65
- ☐ over 65
- ☐ no information

66. Please indicate your gender.

- ☐ Female
- ☐ Male
- ☐ no information

67. Do you have any children?

- ☐ Yes
- ☐ No
- ☐ no information

68. How many persons live in your household?

No. ☐

69. Please indicate your highest education level.

- ☐ no education diploma
- ☐ intermediate high school
- ☐ high school / German “Abitur”
- ☐ Bachelor diploma
- ☐ Master diploma
- ☐ Doctor or higher diploma
- ☐ no information

70. Please indicate your monthly net household income.

- ☐ under 1.300 EUR
- ☐ 1.300 EUR to 2.600 EUR
- ☐ 2.601 EUR to 3.600 EUR
- ☐ 3.601 EUR to 5.000 EUR
- ☐ 5.001 EUR to 18.000 EUR
- ☐ over 18.000 EUR
- ☐ no information

71. Please indicate how many cars you have already owned.

- ☐ none
- ☐ 1
- ☐ 2 to 4
- ☐ 5 to 6
- ☐ more than 6
- ☐ no information

72. Please indicate how often you have been in charge of your car choice process.

- ☐ none
- ☐ 1
- ☐ 2 to 4
- ☐ 5 to 6
- ☐ more than 6
- ☐ no information

73. Please indicate your favourite car brands (multiple choices allowed).

- ☐ Audi
- ☐ BMW & Mini
- ☐ Citroen
- ☐ Dacia
- ☐ Fiat
- ☐ Ford
- ☐ Hyundai

- ☐ Kia
- ☐ Mazda
- ☐ Mercedes-Benz & Smart
- ☐ Nissan
- ☐ Opel
- ☐ Peugeot
- ☐ Porsche
- ☐ Renault
- ☐ Seat
- ☐ Skoda
- ☐ Suzuki
- ☐ Toyota
- ☐ Volkswagen
- ☐ Other [ ]

74. Please indicate your favourite vehicle class (multiple choices allowed).

- ☐ Mini cars (e.g. Smart, Renault Twingo)
- ☐ Small cars (e.g. VW Polo)
- ☐ Compact cars (e.g. VW Golf)
- ☐ Middle class cars (e.g. Mercedes C-class)
- ☐ Upper middle class cars (e.g. Mercedes E-class)
- ☐ Upper class cars (e.g. BMW 7 series)
- ☐ SUVs / Offroad cars (e.g. BMW X3, Audi Q5)
- ☐ Vans (e.g. VW Touran)
- ☐ Sportscars, convertible cars (e.g. Porsche Carrera, Mercedes SLK)
- ☐ Utilities (e.g. VW Transporter, Caravelle)

Final section – feedback

Please provide the current time (will be used to calculate the time required to complete this questionnaire).

Current time [hh:mm] [ ]

The official questionnaire is herewith completed.

Now your opinion is appreciated to help further improve this questionnaire and the way it is administered. You are kindly asked to provide your feedback in the boxes below:

Optional: How do you perceive the technical aspects involved with this questionnaire? (i.e. is the platform working correctly? is it structured nicely? is the introduction adequate and useful? Do you feel fatigue during answering the questionnaire?) Please be critical and detailed.

Optional: How do you perceive the questions provided? Do you perceive any of them as imprecise, unclear or difficult to understand? If possible, please provide the number of the question and if possible, suggest improvements (if any).

Optional: Please provide any other Feedback.

Optional: If you are available to the researcher for additional questions on your feedback, kindly indicate your contact Details below.

First name

Last name

Email address

# APPENDIX E: Results of factor analysis

## Comparison of results of rotations Direct Oblimin, Promax, Varimax

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Attractive styling | | | ,743 | | |
| Attractive styling | | | | ,731 | |
| Attractive styling | | | ,724 | | |
| can perform well | ,737 | | | | |
| can perform well | ,726 | | | | |
| can perform well | ,732 | | | | |
| choose boring interesting | ,642 | | | | |
| choose boring interesting | ,639 | | | | |
| choose boring interesting | ,666 | | | | |
| choose unpleasant pleasant | ,681 | | | | |
| choose unpleasant pleasant | ,674 | | | | |
| choose unpleasant pleasant | ,693 | | | | |
| choose worthless valuable | ,605 | | | | |
| choose worthless valuable | ,604 | | | | |
| choose worthless valuable | ,634 | | | | |
| Colour | | | ,657 | | |
| Colour | | | | ,640 | |
| Colour | | | ,626 | | |
| Confused by high No of choices | -,708 | | | | |
| Confused by high No of choices | -,709 | | | | |
| Confused by high No of choices | -,710 | | | | |
| Convenience | | | | ,607 | |
| Convenience | | ,603 | | | |
| Convenience | | | | ,612 | |
| Drivability for long distances | ,405 | | | ,483 | |
| Drivability for long distances | | ,473 | | | |
| Drivability for long distances | | | | ,461 | |
| effort improve knowledge | | | | | ,901 |
| effort improve knowledge | | | | | -,896 |
| effort improve knowledge | | | | | ,887 |
| Environementally friendly | | | | ,479 | |
| Environementally friendly | | ,463 | | | |
| Environementally friendly | | | | ,468 | |
| Exp. brand is high quality | | | ,594 | | |
| Exp. brand is high quality | | | | ,593 | |
| Exp. brand is high quality | | | ,596 | | |
| expected choose | ,562 | | | | |
| expected choose | ,560 | | | | |
| expected choose | ,574 | | | | |
| Family | | ,650 | | | |
| Family | | | -,654 | | |
| Family | | ,670 | | | |
| Friends | | ,760 | | | |
| Friends | | | -,757 | | |
| Friends | | ,764 | | | |
| good performance easy | ,679 | | | | |
| good performance easy | ,669 | | | | |
| good performance easy | ,671 | | | | |
| good performance possible | ,722 | | | | |
| good performance possible | ,709 | | | | |
| good performance possible | ,718 | | | | |
| High price | | | ,568 | | |
| High price | | | | ,579 | |
| High price | | | ,594 | | |

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| improve knowledge 1 year | | | | | ,883 |
| improve knowledge 1 year | | | | | -,880 |
| improve knowledge 1 year | | | | | ,873 |
| improve knowledge regularly | | | | | ,816 |
| improve knowledge regularly | | | | | -,820 |
| improve knowledge regularly | | | | | ,815 |
| Income | | | | | |
| Income | | | | | |
| Income | | | | | |
| Like-minded people | | ,853 | | | |
| Like-minded people | | | -,847 | | |
| Like-minded people | | ,851 | | | |
| Low boot opening | | | | ,461 | |
| Low boot opening | | ,446 | | | |
| Low boot opening | | | | ,456 | |
| Low experience | -,722 | | | | |
| Low experience | -,718 | | | | |
| Low experience | -,711 | | | | |
| Low knowledge compared to sales people | -,502 | | | ,467 | |
| Low knowledge compared to sales people | -,514 | | | | |
| Low knowledge compared to sales people | -,520 | | | ,478 | |
| Low price | | | -,411 | | |
| Low price | | | | -,428 | |
| Low price | | | -,447 | | |
| Many storage spaces | | | | ,611 | |
| Many storage spaces | | ,606 | | | |
| Many storage spaces | | | | ,599 | |
| Milieu | | ,775 | | | |
| Milieu | | | -,769 | | |
| Milieu | | ,774 | | | |
| people approve choose | ,635 | | | | |
| people approve choose | ,619 | | | | |
| people approve choose | ,614 | | | | |
| people think should choose | ,745 | | | | |
| people think should choose | ,734 | | | | |
| people think should choose | ,738 | | | | |
| Privacy | | | | | |
| Privacy | | | | | |
| Privacy | | | | | |
| Professional assistance | | | | ,510 | |
| Professional assistance | | ,515 | | | |
| Professional assistance | | | | ,509 | |
| Self-concept | | | ,564 | | |
| Self-concept | | | | ,564 | |
| Self-concept | | | ,569 | | |
| Shopping imaginary | | | | ,420 | |
| Shopping imaginary | | ,406 | | | |
| Shopping imaginary | | | | ,431 | |
| Time efficiency | | | | | |
| Time efficiency | | | | | |
| Time efficiency | | | | | |
| Upholstery | | | ,658 | | |
| Upholstery | | | | ,646 | |
| Upholstery | | | ,643 | | |

Rotation

**Promax**

**Direct Oblimin**

**Varimax**

## Complete rotated Component Matrix (Varimax) after variable exclusion

**Rotated Component Matrix** [a]

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| people think should choose | ,755 | ,329 | ,000 | -,055 | ,000 |
| good performance possible | ,744 | ,161 | ,084 | ,033 | ,026 |
| choose unpleasant pleasant | ,724 | -,001 | ,174 | ,177 | ,076 |
| can perform well | ,712 | ,197 | ,134 | -,013 | -,091 |
| choose boring interesting | ,685 | -,024 | ,218 | ,278 | ,060 |
| good performance easy | ,677 | -,057 | ,183 | -,012 | -,055 |
| Confused by high No of choices | -,659 | -,058 | -,135 | ,004 | ,388 |
| choose worthless valuable | ,652 | -,043 | ,252 | ,285 | ,091 |
| Low experience | -,649 | -,063 | ,026 | -,119 | ,409 |
| people approve choose | ,644 | ,177 | -,076 | -,056 | ,099 |
| expected choose | ,585 | ,352 | ,012 | ,025 | -,050 |
| Like-minded people | ,075 | ,872 | ,049 | ,075 | -,012 |
| Milieu | ,099 | ,820 | ,064 | ,046 | -,077 |
| Friends | ,165 | ,799 | ,025 | ,048 | -,099 |
| Family | ,314 | ,687 | ,027 | ,059 | ,197 |
| Attractive styling | ,093 | ,199 | ,733 | ,006 | ,117 |
| Upholstery | ,161 | -,094 | ,655 | ,004 | ,324 |
| Self-concept | ,130 | ,124 | ,648 | ,043 | -,128 |
| Colour | -,056 | ,098 | ,632 | ,114 | ,238 |
| High price | ,200 | -,124 | ,617 | -,062 | -,311 |
| Exp. brand is high quality | ,139 | -,056 | ,604 | -,051 | -,098 |
| effort improve knowledge | ,071 | ,055 | ,033 | ,891 | -,054 |
| improve knowledge 1 year | ,039 | ,085 | -,001 | ,880 | ,048 |
| improve knowledge regularly | ,190 | ,065 | -,012 | ,825 | ,102 |
| Many storage spaces | ,140 | -,097 | -,023 | -,046 | ,668 |
| Convenience | -,118 | ,033 | ,066 | ,160 | ,621 |
| Professional assistance | -,059 | ,023 | ,027 | -,004 | ,617 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

# Correlation matrix for indicators of present research

**Correlation Matrix**

| Correlation | | choose boring interesting | choose worthless valuable | choose unpleasant pleasant | good performance easy | can perform well | good performance possible | people think should choose | expected choose | people approve choose | improve knowledge 1 year | effort improve knowledge | improve knowledge regularly | Low price | Income | Convenience | Time efficiency | Self-concept | High price | Environementally friendly | Privacy | Exp. brand is high quality | Low boot opening | Upholstery | Many storage spaces | Colour | Attractive styling | Drivability for long distances | Family | Like-minded people | Milieu | Friends | Low experience | Confused by high No of choices | Low knowledge compared to sales people | Shopping imaginary | Professional assistance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | choose boring interesting | 1,00 | 0,73 | 0,75 | 0,45 | 0,37 | 0,48 | 0,45 | 0,31 | 0,30 | 0,21 | 0,22 | 0,29 | 0,10 | 0,04 | -0,06 | -0,07 | 0,20 | 0,19 | 0,10 | -0,02 | 0,13 | 0,26 | -0,01 | 0,16 | 0,13 | 0,19 | 0,27 | 0,19 | 0,13 | 0,14 | 0,16 | -0,35 | -0,39 | -0,29 | 0,00 | 0,03 |
| | choose worthless valuable | 0,73 | 1,00 | 0,72 | 0,38 | 0,38 | 0,43 | 0,43 | 0,27 | 0,29 | 0,19 | 0,21 | 0,33 | 0,24 | 0,04 | -0,06 | -0,11 | 0,20 | 0,21 | 0,07 | 0,09 | 0,13 | 0,20 | 0,14 | 0,21 | 0,10 | 0,18 | 0,27 | 0,18 | 0,10 | 0,15 | 0,12 | -0,34 | -0,36 | -0,24 | 0,06 | -0,01 |
| | choose unpleasant pleasant | 0,75 | 0,72 | 1,00 | 0,46 | 0,44 | 0,49 | 0,44 | 0,30 | 0,38 | 0,11 | 0,15 | 0,24 | -0,16 | 0,06 | -0,06 | -0,04 | 0,16 | 0,18 | 0,09 | 0,07 | 0,15 | 0,24 | 0,01 | 0,16 | -0,35 | -0,43 | -0,47 | -0,52 | -0,23 | -0,24 | -0,23 | -0,42 | -0,36 | -0,24 | -0,02 | 0,03 |
| | good performance easy | 0,45 | 0,38 | 0,46 | 1,00 | 0,43 | 0,49 | 0,44 | 0,29 | 0,32 | 0,05 | 0,06 | 0,13 | -0,14 | -0,02 | -0,06 | -0,14 | 0,04 | 0,21 | 0,12 | 0,13 | 0,06 | 0,10 | 0,01 | 0,06 | 0,04 | 0,19 | 0,24 | 0,19 | 0,17 | 0,17 | 0,16 | -0,43 | -0,47 | -0,35 | -0,15 | 0,04 |
| | can perform well | 0,37 | 0,38 | 0,44 | 0,43 | 1,00 | 0,72 | 0,54 | 0,46 | 0,41 | 0,08 | 0,10 | 0,12 | -0,12 | 0,07 | -0,10 | 0,04 | 0,21 | 0,20 | 0,14 | 0,09 | 0,12 | 0,22 | 0,24 | 0,21 | 0,21 | 0,18 | 0,27 | 0,32 | 0,17 | 0,13 | 0,16 | -0,50 | -0,52 | -0,35 | -0,05 | -0,05 |
| | good performance possible | 0,48 | 0,43 | 0,49 | 0,49 | 0,72 | 1,00 | 0,57 | 0,43 | 0,40 | 0,10 | 0,13 | 0,15 | -0,08 | 0,10 | -0,07 | 0,06 | 0,23 | 0,12 | 0,10 | -0,05 | 0,09 | 0,13 | 0,13 | 0,18 | 0,24 | 0,23 | 0,28 | 0,22 | 0,21 | 0,18 | 0,27 | -0,44 | -0,41 | -0,24 | 0,06 | 0,01 |
| | people think should choose | 0,45 | 0,43 | 0,44 | 0,44 | 0,54 | 0,57 | 1,00 | 0,65 | 0,52 | 0,05 | 0,03 | 0,15 | -0,15 | 0,05 | -0,08 | 0,02 | 0,17 | 0,13 | 0,09 | -0,04 | 0,13 | 0,01 | 0,13 | 0,05 | 0,05 | 0,14 | 0,15 | 0,43 | 0,29 | 0,33 | 0,33 | -0,46 | -0,48 | -0,29 | 0,00 | -0,04 |
| | expected choose | 0,31 | 0,27 | 0,30 | 0,29 | 0,46 | 0,43 | 0,65 | 1,00 | 0,51 | 0,11 | 0,11 | 0,17 | -0,06 | 0,10 | -0,08 | 0,21 | 0,19 | 0,17 | 0,00 | -0,08 | 0,10 | -0,03 | 0,01 | 0,05 | 0,12 | 0,06 | 0,12 | 0,19 | 0,22 | 0,22 | 0,28 | -0,38 | -0,37 | -0,28 | -0,07 | -0,12 |
| | people approve choose | 0,30 | 0,29 | 0,38 | 0,32 | 0,41 | 0,40 | 0,52 | 0,51 | 1,00 | 0,03 | 0,07 | 0,11 | -0,10 | 0,10 | -0,10 | 0,01 | 0,12 | 0,06 | 0,14 | 0,01 | -0,02 | 0,12 | 0,04 | 0,04 | 0,00 | 0,00 | 0,11 | 0,21 | 0,31 | 0,21 | 0,21 | -0,38 | -0,35 | -0,28 | 0,02 | -0,01 |
| | improve knowledge 1 year | 0,21 | 0,19 | 0,11 | 0,05 | 0,08 | 0,10 | 0,05 | 0,11 | 0,03 | 1,00 | 0,76 | 0,63 | 0,02 | 0,18 | 0,16 | 0,08 | 0,06 | 0,07 | 0,01 | 0,08 | 0,16 | 0,08 | 0,04 | 0,09 | 0,08 | 0,04 | 0,01 | 0,04 | 0,12 | 0,09 | 0,08 | -0,12 | 0,00 | -0,09 | 0,18 | 0,04 |
| | effort improve knowledge | 0,22 | 0,21 | 0,15 | 0,06 | 0,10 | 0,13 | 0,03 | 0,11 | 0,07 | 0,76 | 1,00 | 0,66 | -0,03 | 0,07 | 0,08 | 0,01 | 0,06 | 0,08 | 0,00 | 0,05 | 0,03 | 0,07 | -0,01 | 0,08 | 0,09 | 0,03 | 0,04 | 0,07 | 0,14 | 0,07 | 0,10 | -0,08 | 0,09 | -0,09 | 0,17 | 0,01 |
| | improve knowledge regularly | 0,29 | 0,33 | 0,24 | 0,13 | 0,12 | 0,15 | 0,15 | 0,17 | 0,11 | 0,63 | 0,66 | 1,00 | -0,02 | 0,03 | 0,15 | 0,00 | 0,05 | 0,04 | 0,01 | 0,09 | 0,02 | 0,02 | 0,01 | 0,02 | 0,03 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,04 | -0,04 | -0,03 | -0,04 | 0,03 | 0,03 |
| | Low price | -0,14 | -0,22 | -0,16 | -0,14 | -0,12 | -0,08 | -0,08 | -0,06 | -0,10 | 0,02 | -0,03 | -0,02 | 1,00 | 0,29 | 0,12 | 0,07 | -0,08 | -0,08 | -0,02 | -0,04 | -0,01 | -0,03 | -0,04 | -0,01 | -0,02 | -0,01 | -0,01 | -0,02 | -0,01 | -0,01 | -0,01 | -0,01 | -0,01 | -0,01 | -0,01 | -0,01 |
| | Income | 0,04 | -0,05 | 0,06 | -0,02 | -0,12 | -0,08 | 0,10 | 0,05 | -0,10 | 0,18 | 0,07 | 0,03 | 0,29 | 1,00 | 0,15 | 0,08 | 0,06 | 0,06 | 0,05 | -0,08 | -0,01 | 0,14 | 0,06 | 0,03 | 0,06 | 0,04 | 0,09 | 0,10 | 0,11 | 0,09 | 0,06 | -0,21 | -0,19 | -0,13 | -0,09 | -0,06 |
| | Convenience | -0,06 | 0,00 | -0,06 | -0,14 | -0,10 | -0,07 | -0,08 | 0,01 | 0,01 | 0,16 | 0,08 | 0,15 | 0,12 | 0,15 | 1,00 | 0,36 | 0,07 | 0,08 | 0,06 | 0,07 | 0,12 | 0,08 | 0,09 | 0,13 | 0,17 | 0,09 | 0,11 | 0,12 | 0,15 | 0,19 | 0,20 | -0,18 | -0,16 | -0,12 | -0,04 | -0,06 |
| | Time efficiency | -0,07 | -0,11 | -0,04 | 0,04 | 0,04 | 0,06 | 0,02 | 0,21 | 0,12 | 0,08 | 0,01 | 0,00 | 0,07 | 0,08 | 0,36 | 1,00 | 0,10 | 0,10 | 0,07 | 0,13 | 0,15 | 0,27 | 0,09 | 0,14 | 0,02 | 0,07 | 0,10 | 0,14 | 0,07 | 0,09 | 0,07 | -0,16 | -0,15 | -0,10 | -0,06 | -0,04 |
| | Self-concept | 0,20 | 0,20 | 0,16 | 0,21 | 0,21 | 0,23 | 0,12 | 0,19 | 0,06 | 0,06 | 0,06 | 0,05 | -0,08 | 0,06 | 0,07 | 0,10 | 1,00 | 0,41 | -0,17 | -0,15 | 0,27 | 0,55 | -0,13 | 0,29 | 0,26 | 0,43 | 0,04 | 0,08 | 0,14 | 0,11 | 0,01 | -0,15 | -0,14 | -0,23 | 0,05 | -0,16 |
| | High price | 0,19 | 0,21 | 0,18 | 0,26 | 0,20 | 0,12 | 0,13 | 0,17 | 0,14 | -0,02 | 0,14 | -0,04 | -0,54 | -0,01 | 0,09 | -0,01 | 0,41 | 1,00 | -0,23 | -0,06 | 0,55 | -0,11 | 0,26 | -0,11 | 0,13 | 0,23 | 0,01 | -0,02 | -0,06 | -0,01 | 0,01 | -0,16 | -0,22 | -0,07 | -0,08 | |
| | Environementally friendly | 0,10 | 0,07 | 0,09 | 0,12 | 0,21 | 0,10 | 0,09 | 0,00 | 0,01 | -0,01 | 0,00 | 0,01 | 0,23 | 0,14 | 0,09 | 0,13 | -0,17 | -0,23 | 1,00 | 0,25 | -0,03 | 0,22 | 0,00 | 0,16 | -0,01 | -0,08 | 0,24 | 0,04 | -0,15 | -0,10 | -0,03 | -0,02 | -0,02 | 0,14 | 0,10 | 0,12 |
| | Privacy | -0,02 | -0,03 | -0,08 | -0,12 | -0,10 | -0,05 | -0,04 | -0,08 | -0,02 | 0,05 | 0,03 | 0,03 | 0,12 | -0,01 | 0,13 | 0,12 | -0,15 | -0,06 | 0,25 | 1,00 | 0,02 | 0,23 | -0,08 | 0,10 | -0,14 | -0,15 | -0,04 | -0,02 | -0,03 | 0,01 | -0,05 | 0,08 | 0,02 | 0,10 | 0,11 | 0,05 |
| | Exp. brand is high quality | 0,13 | 0,17 | 0,15 | 0,23 | 0,14 | 0,09 | 0,13 | 0,10 | 0,12 | -0,01 | 0,03 | 0,02 | -0,41 | -0,13 | 0,02 | 0,15 | 0,27 | 0,55 | -0,03 | 0,02 | 1,00 | -0,15 | 0,28 | -0,01 | 0,12 | 0,31 | 0,05 | 0,05 | 0,02 | 0,02 | -0,01 | -0,05 | -0,22 | -0,02 | -0,07 | 0,08 |
| | Low boot opening | -0,06 | -0,02 | -0,01 | -0,09 | -0,03 | -0,04 | 0,01 | -0,03 | 0,04 | -0,09 | -0,01 | -0,01 | 0,12 | 0,14 | 0,26 | 0,09 | -0,13 | -0,11 | 0,22 | 0,23 | -0,15 | 1,00 | -0,04 | 0,38 | -0,21 | -0,25 | 0,19 | -0,04 | -0,01 | -0,12 | -0,13 | -0,05 | 0,11 | 0,06 | 0,22 | 0,01 |
| | Upholstery | 0,26 | 0,32 | 0,24 | 0,23 | 0,14 | 0,13 | 0,13 | 0,01 | 0,04 | 0,04 | 0,06 | 0,06 | -0,16 | -0,07 | 0,04 | -0,11 | 0,29 | 0,26 | 0,00 | -0,08 | 0,28 | -0,04 | 1,00 | 0,27 | 0,43 | 0,42 | 0,20 | 0,05 | -0,05 | 0,02 | 0,02 | 0,01 | -0,08 | 0,02 | -0,01 | -0,04 |
| | Many storage spaces | -0,01 | 0,04 | 0,01 | 0,12 | -0,01 | 0,05 | 0,05 | -0,01 | 0,16 | 0,05 | -0,03 | 0,09 | 0,12 | 0,06 | 0,32 | 0,10 | 0,02 | -0,11 | 0,16 | 0,10 | -0,01 | 0,38 | 0,27 | 1,00 | 0,05 | 0,01 | 0,24 | 0,15 | -0,05 | -0,14 | -0,08 | 0,10 | 0,09 | 0,08 | 0,17 | 0,13 |
| | Colour | 0,16 | 0,13 | 0,12 | 0,00 | 0,09 | 0,07 | -0,06 | 0,05 | 0,00 | 0,08 | 0,08 | 0,09 | -0,06 | 0,03 | 0,17 | 0,11 | 0,26 | 0,13 | -0,01 | -0,14 | 0,12 | -0,21 | 0,43 | 0,05 | 1,00 | 0,55 | -0,03 | 0,10 | 0,11 | 0,01 | 0,04 | 0,05 | -0,02 | 0,02 | -0,03 | 0,06 |
| | Attractive styling | 0,19 | 0,20 | 0,16 | 0,14 | 0,23 | 0,20 | 0,14 | 0,12 | 0,11 | 0,04 | 0,06 | 0,03 | -0,19 | 0,09 | 0,15 | 0,09 | 0,43 | 0,23 | -0,08 | -0,15 | 0,31 | -0,25 | 0,42 | 0,01 | 0,55 | 1,00 | 0,01 | 0,23 | 0,15 | 0,14 | 0,12 | -0,07 | -0,18 | -0,10 | 0,01 | 0,07 |
| | Drivability for long distances | 0,27 | 0,24 | 0,19 | 0,22 | 0,23 | 0,15 | 0,06 | 0,21 | -0,01 | -0,01 | -0,01 | 0,11 | -0,01 | 0,03 | 0,15 | 0,06 | 0,04 | 0,01 | 0,24 | -0,04 | 0,05 | 0,19 | 0,20 | 0,24 | -0,03 | 0,01 | 1,00 | 0,02 | -0,10 | -0,02 | -0,04 | -0,10 | -0,05 | 0,06 | 0,11 | 0,18 |
| | Family | 0,19 | 0,18 | 0,20 | 0,19 | 0,32 | 0,28 | 0,43 | 0,42 | 0,31 | 0,14 | 0,11 | 0,20 | 0,10 | 0,04 | 0,09 | 0,07 | 0,08 | -0,02 | 0,04 | -0,02 | 0,05 | -0,04 | 0,05 | 0,15 | 0,10 | 0,23 | 0,02 | 1,00 | 0,52 | 0,50 | 0,50 | -0,22 | -0,21 | -0,16 | 0,15 | 0,06 |
| | Like-minded people | 0,13 | 0,10 | 0,17 | -0,02 | 0,21 | 0,18 | 0,29 | 0,30 | 0,17 | 0,12 | 0,08 | 0,13 | 0,12 | 0,19 | 0,07 | 0,02 | 0,14 | -0,06 | 0,15 | 0,07 | 0,02 | -0,03 | 0,05 | -0,05 | 0,11 | 0,15 | -0,10 | 0,52 | 1,00 | 0,71 | 0,67 | -0,10 | -0,15 | -0,17 | -0,06 | -0,04 |
| | Milieu | 0,14 | 0,15 | 0,16 | 0,14 | 0,21 | 0,18 | 0,33 | 0,22 | 0,13 | 0,09 | 0,07 | 0,10 | 0,06 | 0,09 | -0,06 | 0,14 | -0,01 | -0,10 | 0,01 | 0,02 | -0,12 | 0,02 | 0,02 | -0,14 | 0,01 | 0,14 | -0,02 | 0,50 | 0,71 | 1,00 | 0,62 | -0,10 | -0,13 | -0,13 | -0,03 | 0,03 |
| | Friends | 0,16 | 0,12 | 0,16 | 0,13 | 0,24 | 0,27 | 0,33 | 0,28 | 0,21 | 0,08 | 0,14 | 0,09 | 0,07 | 0,13 | -0,14 | -0,09 | 0,11 | 0,01 | -0,03 | -0,05 | -0,01 | -0,13 | 0,02 | -0,08 | 0,04 | 0,12 | -0,04 | 0,50 | 0,67 | 0,62 | 1,00 | -0,20 | -0,17 | -0,16 | -0,06 | 0,01 |
| | Low experience | -0,35 | -0,34 | -0,36 | -0,42 | -0,38 | -0,44 | -0,46 | -0,38 | -0,38 | -0,12 | -0,16 | -0,18 | 0,16 | 0,01 | 0,19 | -0,04 | -0,15 | -0,16 | -0,02 | 0,08 | -0,05 | -0,05 | 0,01 | 0,10 | 0,05 | -0,07 | -0,10 | -0,22 | -0,10 | -0,10 | -0,20 | 1,00 | 0,66 | 0,60 | 0,15 | 0,30 |
| | Confused by high No of choices | -0,39 | -0,36 | -0,42 | -0,47 | -0,52 | -0,41 | -0,48 | -0,37 | -0,35 | 0,00 | -0,09 | -0,10 | 0,29 | 0,13 | 0,21 | 0,03 | -0,14 | -0,26 | -0,22 | 0,02 | -0,22 | 0,11 | -0,08 | 0,09 | -0,02 | -0,18 | -0,05 | -0,21 | -0,15 | -0,13 | -0,17 | -0,17 | 0,66 | 1,00 | 0,57 | 0,25 |
| | Low knowledge compared to sales people | -0,29 | -0,24 | -0,23 | -0,35 | -0,35 | -0,24 | -0,29 | -0,28 | -0,28 | -0,09 | -0,16 | -0,06 | 0,22 | 0,00 | 0,22 | 0,04 | -0,23 | -0,22 | 0,14 | 0,10 | -0,02 | 0,06 | 0,02 | 0,08 | 0,02 | -0,10 | 0,06 | -0,16 | -0,17 | -0,13 | -0,16 | 0,60 | 0,57 | 1,00 | 0,19 | 0,41 |
| | Shopping imaginary | 0,00 | 0,06 | -0,02 | -0,15 | -0,05 | 0,06 | 0,00 | -0,07 | 0,02 | 0,18 | 0,17 | 0,14 | 0,06 | 0,06 | 0,22 | 0,09 | 0,05 | -0,07 | 0,10 | 0,11 | -0,07 | 0,22 | -0,01 | 0,17 | -0,03 | 0,01 | 0,11 | 0,15 | -0,06 | -0,03 | -0,06 | 0,15 | 0,24 | 0,19 | 1,00 | 0,16 |
| | Professional assistance | 0,03 | -0,01 | 0,03 | -0,04 | -0,05 | 0,01 | -0,04 | -0,12 | -0,01 | 0,04 | 0,01 | 0,03 | -0,01 | 0,13 | 0,26 | 0,05 | -0,16 | -0,08 | 0,12 | 0,05 | 0,08 | 0,01 | 0,15 | 0,13 | 0,06 | 0,07 | 0,18 | 0,06 | -0,04 | 0,03 | 0,01 | 0,30 | 0,25 | 0,41 | 0,16 | 1,00 |

# Communalities of present research

**Communalities**

| | Initial | Extraction |
|---|---|---|
| choose boring interesting | 1,000 | ,577 |
| choose worthless valuable | 1,000 | ,570 |
| choose unpleasant pleasant | 1,000 | ,557 |
| good performance easy | 1,000 | ,486 |
| can perform well | 1,000 | ,585 |
| good performance possible | 1,000 | ,571 |
| people think should choose | 1,000 | ,650 |
| expected choose | 1,000 | ,464 |
| people approve choose | 1,000 | ,425 |
| improve knowledge 1 year | 1,000 | ,779 |
| effort improve knowledge | 1,000 | ,800 |
| improve knowledge regularly | 1,000 | ,710 |
| Low price | 1,000 | ,436 |
| Income | 1,000 | ,206 |
| Convenience | 1,000 | ,436 |
| Time efficiency | 1,000 | ,119 |
| Self-concept | 1,000 | ,374 |
| High price | 1,000 | ,523 |
| Environementally friendly | 1,000 | ,357 |
| Privacy | 1,000 | ,124 |
| Exp. brand is high quality | 1,000 | ,400 |
| Low boot opening | 1,000 | ,379 |
| Upholstery | 1,000 | ,506 |
| Many storage spaces | 1,000 | ,375 |
| Colour | 1,000 | ,451 |
| Attractive styling | 1,000 | ,590 |
| Drivability for long distances | 1,000 | ,374 |
| Family | 1,000 | ,571 |
| Like-minded people | 1,000 | ,745 |
| Milieu | 1,000 | ,634 |
| Friends | 1,000 | ,640 |
| Low experience | 1,000 | ,618 |
| Confused by high No of choices | 1,000 | ,636 |
| Low knowledge compared to sales people | 1,000 | ,511 |
| Shopping imaginary | 1,000 | ,256 |
| Professional assistance | 1,000 | ,306 |

Extraction Method: Principal Component Analysis.

# Correlation matrix after indicator exclusion

**Correlation Matrix**

| | | choose boring interesting | choose worthless valuable | choose unpleasant pleasant | good performance easy | can perform well | good performance possible | people think should choose | expected choose | people approve choose | improve knowledge 1 year | effort improve knowledge | improve knowledge regularly | Convenience | Self-concept | High price | Exp. brand is high quality | Upholstery | Many storage spaces | Colour | Attractive styling | Family | Like-minded people | Milieu | Friends | Low experience | Confused by high No of choices | Professional assistance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Correlation | choose boring interesting | 1,000 | ,726 | ,746 | ,451 | ,374 | ,479 | ,453 | ,308 | ,305 | ,214 | ,216 | ,291 | -,059 | ,202 | ,193 | ,129 | ,264 | -,013 | ,155 | ,187 | ,193 | ,128 | ,136 | ,157 | -,347 | -,393 | ,030 |
| | choose worthless valuable | ,726 | 1,000 | ,716 | ,376 | ,375 | ,428 | ,430 | ,266 | ,295 | ,192 | ,212 | ,325 | ,004 | ,204 | ,209 | ,168 | ,324 | ,035 | ,134 | ,203 | ,180 | ,103 | ,151 | ,123 | -,340 | -,362 | -,009 |
| | choose unpleasant pleasant | ,746 | ,716 | 1,000 | ,456 | ,444 | ,492 | ,441 | ,302 | ,381 | ,108 | ,155 | ,242 | -,061 | ,157 | ,176 | ,147 | ,241 | ,011 | ,117 | ,158 | ,199 | ,172 | ,159 | ,164 | -,348 | -,420 | ,029 |
| | good performance easy | ,451 | ,376 | ,456 | 1,000 | ,431 | ,486 | ,436 | ,293 | ,323 | ,048 | ,056 | ,128 | -,140 | ,212 | ,261 | ,228 | ,226 | ,125 | ,001 | ,157 | ,194 | -,024 | ,141 | ,127 | -,430 | -,466 | -,039 |
| | can perform well | ,374 | ,375 | ,444 | ,431 | 1,000 | ,724 | ,541 | ,462 | ,404 | ,076 | ,097 | ,116 | -,100 | ,209 | ,203 | ,144 | ,143 | -,005 | ,085 | ,234 | ,214 | ,214 | ,206 | ,181 | -,504 | -,517 | -,053 |
| | good performance possible | ,479 | ,428 | ,492 | ,486 | ,724 | 1,000 | ,575 | ,430 | ,404 | ,100 | ,127 | ,154 | -,070 | ,234 | ,121 | ,088 | ,134 | ,049 | ,070 | ,197 | ,281 | ,176 | ,181 | ,271 | -,442 | -,411 | ,015 |
| | people think should choose | ,453 | ,430 | ,441 | ,436 | ,541 | ,575 | 1,000 | ,651 | ,524 | ,050 | ,033 | ,147 | -,077 | ,173 | ,134 | ,131 | ,127 | ,045 | -,058 | ,138 | ,431 | ,291 | ,325 | ,332 | -,460 | -,477 | -,036 |
| | expected choose | ,308 | ,266 | ,302 | ,293 | ,462 | ,430 | ,651 | 1,000 | ,506 | ,114 | ,111 | ,014 | ,077 | ,193 | ,174 | ,104 | ,008 | -,005 | ,053 | ,124 | ,424 | ,298 | ,218 | ,282 | -,379 | -,372 | -,117 |
| | people approve choose | ,305 | ,295 | ,381 | ,323 | ,415 | ,404 | ,524 | ,506 | 1,000 | ,026 | ,070 | ,114 | ,006 | ,060 | ,141 | ,123 | -,042 | ,155 | ,003 | ,107 | ,313 | ,172 | ,127 | ,207 | -,379 | -,348 | -,005 |
| | improve knowledge 1 year | ,214 | ,192 | ,108 | ,048 | ,076 | ,100 | ,050 | ,114 | ,026 | 1,000 | ,761 | ,635 | ,163 | ,063 | -,020 | -,009 | -,005 | ,048 | ,084 | ,039 | ,144 | ,120 | ,094 | ,084 | -,116 | ,005 | ,041 |
| | effort improve knowledge | ,216 | ,212 | ,155 | ,056 | ,097 | ,127 | ,033 | ,111 | ,070 | ,761 | 1,000 | ,665 | ,076 | ,063 | ,011 | ,017 | ,065 | -,033 | ,079 | ,060 | ,106 | ,077 | ,069 | ,139 | -,164 | -,089 | ,013 |
| | improve knowledge regularly | ,291 | ,325 | ,242 | ,128 | ,116 | ,154 | ,147 | ,170 | ,114 | ,635 | ,665 | 1,000 | ,150 | ,050 | -,042 | ,017 | ,065 | ,086 | ,092 | ,033 | ,198 | ,126 | ,103 | ,086 | -,182 | -,099 | ,026 |
| | Convenience | -,059 | ,004 | -,061 | -,140 | -,100 | -,070 | -,050 | ,026 | ,114 | ,163 | ,076 | ,150 | 1,000 | ,075 | -,088 | ,016 | ,037 | ,315 | ,167 | ,085 | ,091 | ,066 | -,053 | -,137 | ,195 | ,213 | ,260 |
| | Self-concept | ,202 | ,204 | ,157 | ,212 | ,209 | ,234 | ,173 | ,193 | ,060 | ,063 | ,063 | ,050 | ,075 | 1,000 | ,407 | ,271 | ,288 | ,019 | ,264 | ,429 | ,080 | ,139 | ,107 | ,107 | -,150 | -,136 | -,159 |
| | High price | ,193 | ,209 | ,176 | ,261 | ,203 | ,121 | ,134 | ,174 | ,141 | -,020 | ,011 | -,042 | -,088 | ,407 | 1,000 | ,548 | ,265 | -,112 | ,125 | ,233 | -,017 | -,063 | -,011 | ,007 | -,159 | -,265 | -,084 |
| | Exp. brand is high quality | ,129 | ,168 | ,147 | ,228 | ,144 | ,088 | ,131 | ,104 | ,123 | -,009 | ,028 | ,017 | ,016 | ,271 | ,548 | 1,000 | ,282 | -,015 | ,123 | ,311 | ,055 | ,021 | ,019 | -,014 | -,047 | -,221 | ,076 |
| | Upholstery | ,264 | ,324 | ,241 | ,226 | ,143 | ,134 | ,127 | ,008 | -,042 | -,005 | ,043 | ,065 | ,037 | ,288 | ,265 | ,282 | 1,000 | ,273 | ,427 | ,424 | ,053 | -,052 | ,016 | ,024 | ,009 | -,077 | ,155 |
| | Many storage spaces | -,013 | ,035 | ,011 | ,125 | -,005 | ,049 | ,045 | -,005 | ,155 | ,048 | -,033 | ,086 | ,315 | ,019 | -,112 | -,015 | ,273 | 1,000 | ,050 | ,008 | ,155 | -,051 | -,142 | -,085 | ,101 | ,088 | ,130 |
| | Colour | ,155 | ,134 | ,117 | ,001 | ,085 | ,070 | -,058 | ,053 | ,003 | ,084 | ,079 | ,092 | ,167 | ,264 | ,125 | ,123 | ,427 | ,050 | 1,000 | ,549 | ,102 | ,114 | ,008 | ,035 | ,046 | -,020 | ,057 |
| | Attractive styling | ,187 | ,203 | ,158 | ,241 | ,085 | ,197 | ,234 | ,124 | ,107 | ,039 | ,094 | ,126 | ,066 | ,139 | ,233 | ,311 | ,424 | ,008 | ,549 | 1,000 | ,229 | ,151 | ,136 | ,122 | -,071 | -,181 | ,071 |
| | Family | ,193 | ,180 | ,199 | ,194 | ,319 | ,281 | ,431 | ,424 | ,313 | ,144 | ,106 | ,198 | ,091 | ,080 | -,017 | ,055 | ,053 | ,155 | ,102 | ,229 | 1,000 | ,518 | ,499 | ,504 | -,217 | -,212 | ,055 |
| | Like-minded people | ,128 | ,103 | ,172 | -,024 | ,214 | ,176 | ,291 | ,298 | ,172 | ,120 | ,077 | ,126 | ,066 | ,139 | -,063 | ,021 | -,052 | -,051 | ,114 | ,151 | ,518 | 1,000 | ,712 | ,669 | -,103 | -,147 | -,036 |
| | Milieu | ,136 | ,151 | ,159 | ,141 | ,206 | ,181 | ,325 | ,218 | ,127 | ,094 | ,069 | ,103 | -,053 | ,143 | -,011 | ,019 | ,016 | -,142 | ,008 | ,136 | ,499 | ,712 | 1,000 | ,623 | -,101 | -,131 | ,026 |
| | Friends | ,157 | ,123 | ,164 | ,127 | ,237 | ,271 | ,332 | ,282 | ,207 | ,084 | ,139 | ,086 | -,137 | ,107 | ,007 | -,014 | ,024 | -,085 | ,035 | ,122 | ,504 | ,669 | ,623 | 1,000 | -,201 | -,165 | ,015 |
| | Low experience | -,347 | -,340 | -,348 | -,430 | -,504 | -,442 | -,460 | -,379 | -,379 | -,116 | -,164 | -,182 | ,195 | -,150 | -,159 | -,047 | ,009 | ,101 | ,046 | -,071 | -,217 | -,103 | -,101 | -,201 | 1,000 | ,662 | ,298 |
| | Confused by high No of choices | -,393 | -,362 | -,420 | -,466 | -,517 | -,411 | -,477 | -,372 | -,348 | ,005 | -,089 | -,099 | ,213 | -,136 | -,265 | -,221 | -,077 | ,088 | -,020 | -,181 | -,212 | -,147 | -,131 | -,165 | ,662 | 1,000 | ,253 |
| | Professional assistance | ,030 | -,009 | ,029 | -,039 | -,053 | ,015 | -,036 | -,117 | -,005 | ,041 | ,013 | ,026 | ,260 | -,159 | -,084 | ,076 | ,155 | ,130 | ,057 | ,071 | ,055 | -,036 | ,026 | ,015 | ,298 | ,253 | 1,000 |

## Communalities after indicator exclusion

**Communalities**

| | Initial | Extraction |
|---|---|---|
| choose boring interesting | 1,000 | ,599 |
| choose worthless valuable | 1,000 | ,580 |
| choose unpleasant pleasant | 1,000 | ,592 |
| good performance easy | 1,000 | ,498 |
| can perform well | 1,000 | ,573 |
| good performance possible | 1,000 | ,588 |
| people think should choose | 1,000 | ,681 |
| expected choose | 1,000 | ,469 |
| people approve choose | 1,000 | ,464 |
| improve knowledge 1 year | 1,000 | ,786 |
| effort improve knowledge | 1,000 | ,806 |
| improve knowledge regularly | 1,000 | ,732 |
| Convenience | 1,000 | ,431 |
| Self-concept | 1,000 | ,470 |
| High price | 1,000 | ,537 |
| Exp. brand is high quality | 1,000 | ,400 |
| Upholstery | 1,000 | ,568 |
| Many storage spaces | 1,000 | ,478 |
| Colour | 1,000 | ,482 |
| Attractive styling | 1,000 | ,600 |
| Family | 1,000 | ,614 |
| Like-minded people | 1,000 | ,774 |
| Milieu | 1,000 | ,694 |
| Friends | 1,000 | ,679 |
| Low experience | 1,000 | ,607 |
| Confused by high No of choices | 1,000 | ,607 |
| Professional assistance | 1,000 | ,386 |

Extraction Method: Principal Component Analysis.

## Result of indicator evaluation after EFA

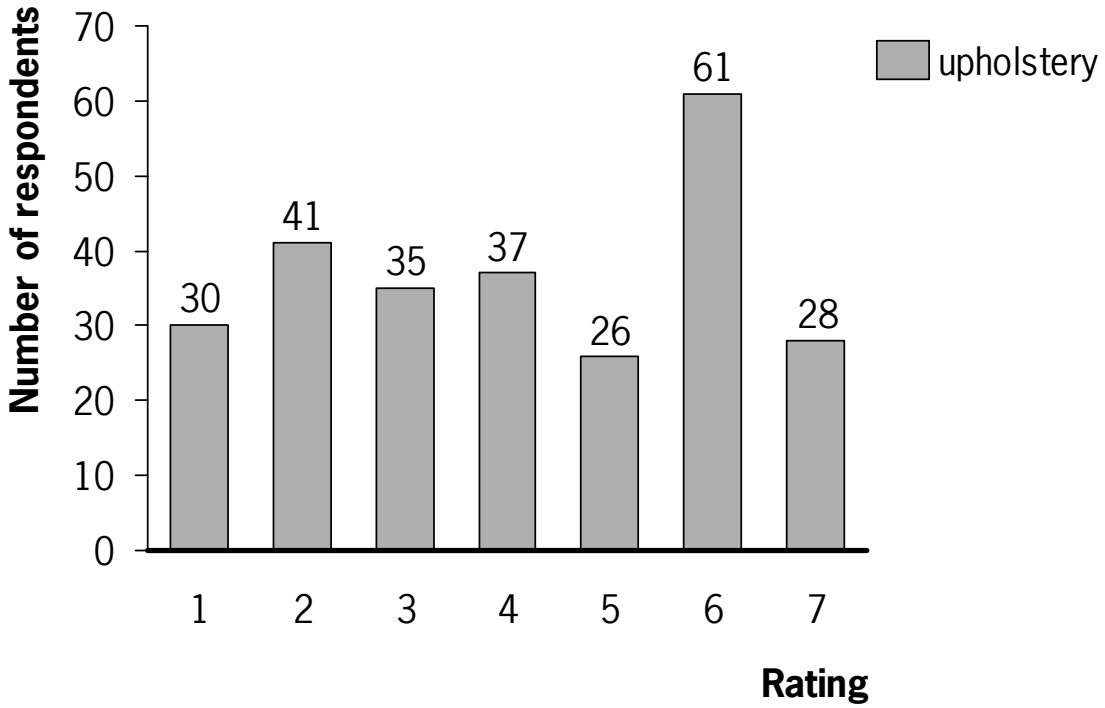
| indicator | interchangable | formative | reflective |
|---|---|---|---|
| colour | no | x | |
| convenience | no | x | |
| expensive brand is high quality | no | x | |
| high price | no | x | |
| self concept | yes | | x |
| number of storage spaces | no | x | |
| attractive styling | no | x | |
| upholstery | no | x | |
| interesting / boring | yes | | x |
| pleasant / unpleasant | yes | | x |
| valuable / worthless | yes | | x |
| effort to improve knowledge | yes | | x |
| improve knowledge in 1 year | yes | | x |
| improve knowledge regularly | yes | | x |
| low experience | no | x | |
| nunber of choices | yes | | x |
| professional assistance | yes | | x |
| possible / impossible | yes | | x |
| can / can't perform | yes | | x |
| easy / difficult | yes | | x |
| family | yes | | x |
| friends | no | x | |
| like-minded people | no | x | |
| milieu | no | x | |
| valued approve | yes | | x |
| I should / should not | yes | | x |
| expected to perform | yes | | x |
| total number | | 11 | 16 |

## Result of indicator evaluation for conceptual research model

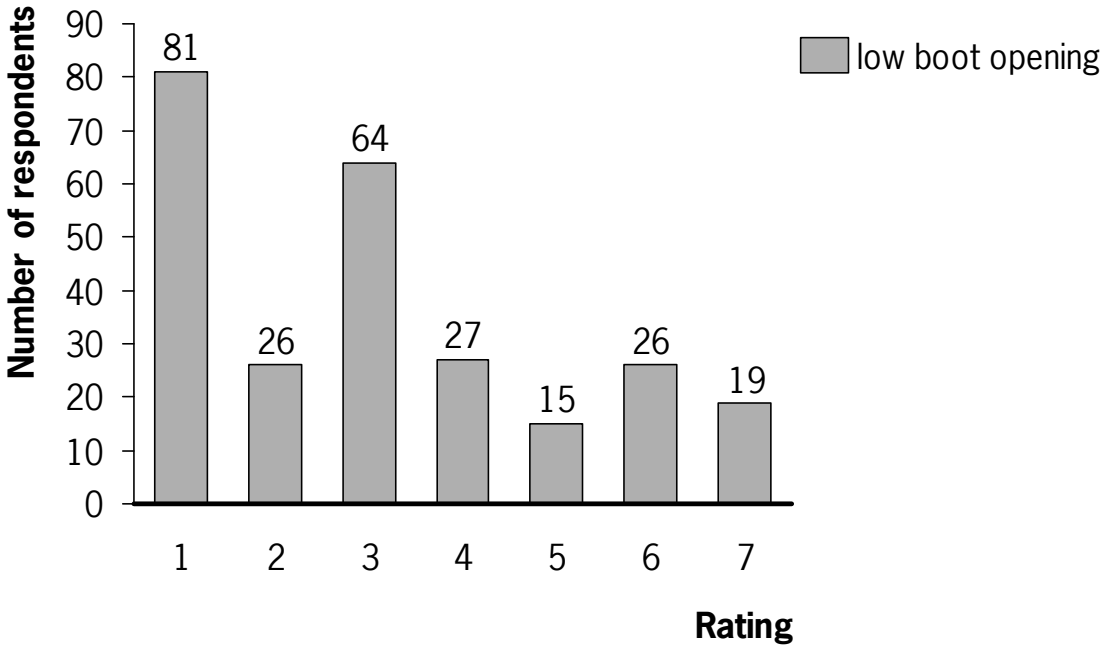
| indicator | interchangable | formative | reflective |
|---|---|---|---|
| colour | no | x | |
| convenience | no | x | |
| environmental friendliness | no | x | |
| expensive brand is high quality | no | x | |
| high price | no | x | |
| income | no | x | |
| long distance drivability | no | x | |
| low boot opening | no | x | |
| low price | no | x | |
| privacy | no | x | |
| self concept | no | x | |
| number of storage spaces | no | x | |
| attractive styling | no | x | |
| time efficiency | no | x | |
| upholstery | no | x | |
| interesting / boring | yes | | x |
| pleasant / unpleasant | yes | | x |
| valuable / worthless | yes | | x |
| effort to improve knowledge | yes | | x |
| improve knowledge in 1 year | yes | | x |
| improve knowledge regularly | yes | | x |
| low experience | no | x | |
| shopping imaginary | yes | | x |
| nunber of choices | yes | | x |
| knowledge about cars | yes | | x |
| professional assistance | yes | | x |
| possible / impossible | yes | | x |
| can / can't perform | yes | | x |
| easy / difficult | yes | | x |
| family | yes | | x |
| friends | no | x | |
| like-minded people | no | x | |
| milieu | no | x | |
| valued approve | yes | | x |
| I should / should not | yes | | x |
| expected to perform | yes | | x |
| total number | | 19 | 17 |

# APPENDIX F: Indicator histograms

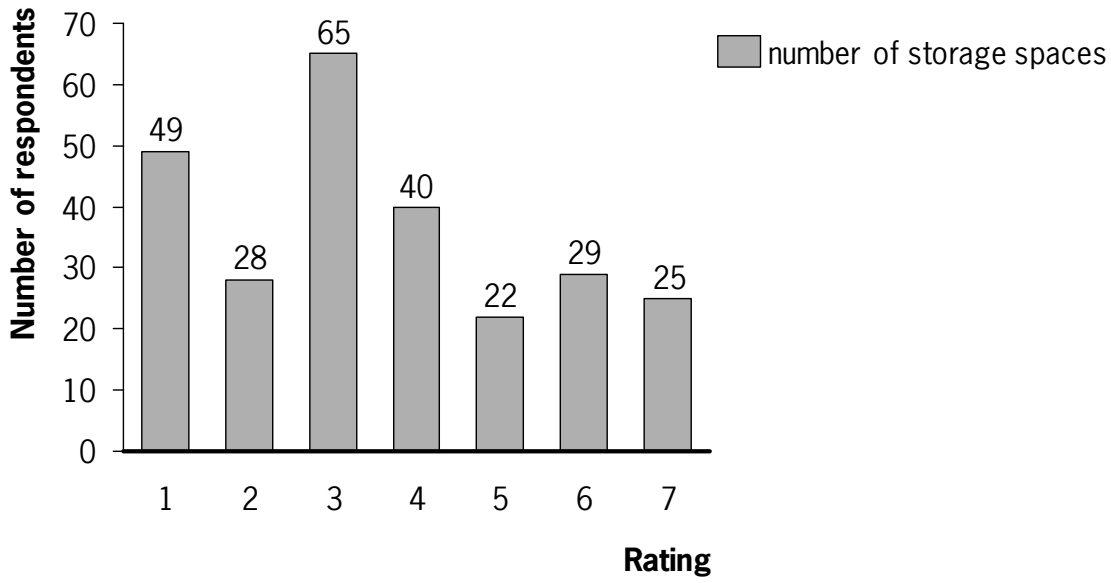
Histogram of upholstery for respondents of present research



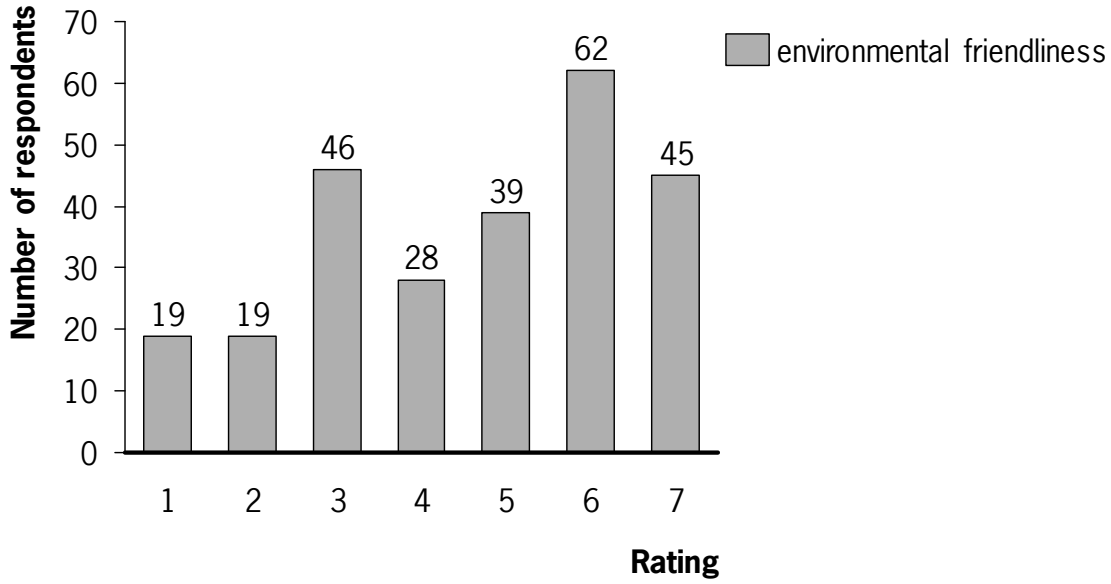

Histogram of low boot opening for respondents of present research



Histogram of number of storage spaces for respondents of present research

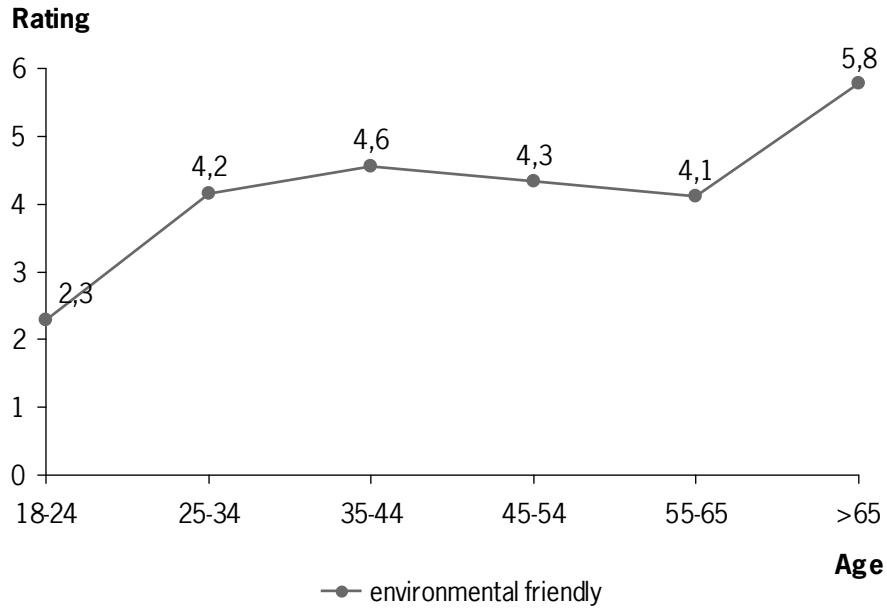



Histogram of environmental friendliness for respondents of present research

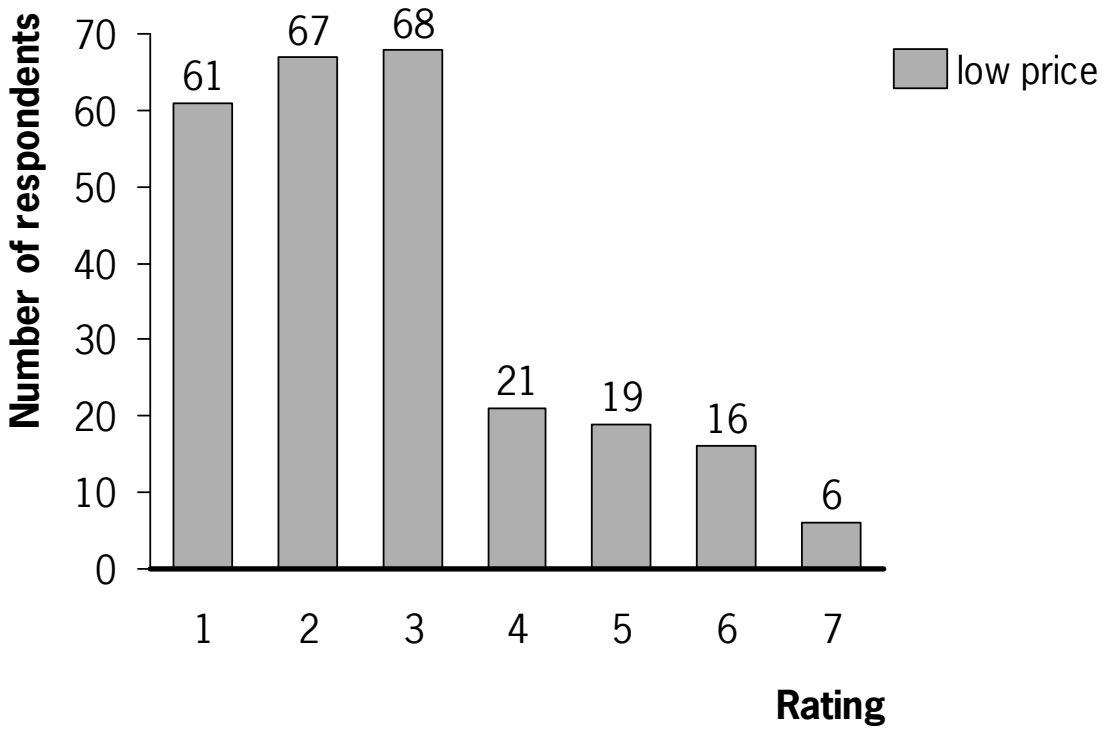


## Evaluation of "environmental friendly" by age by respondents of present research

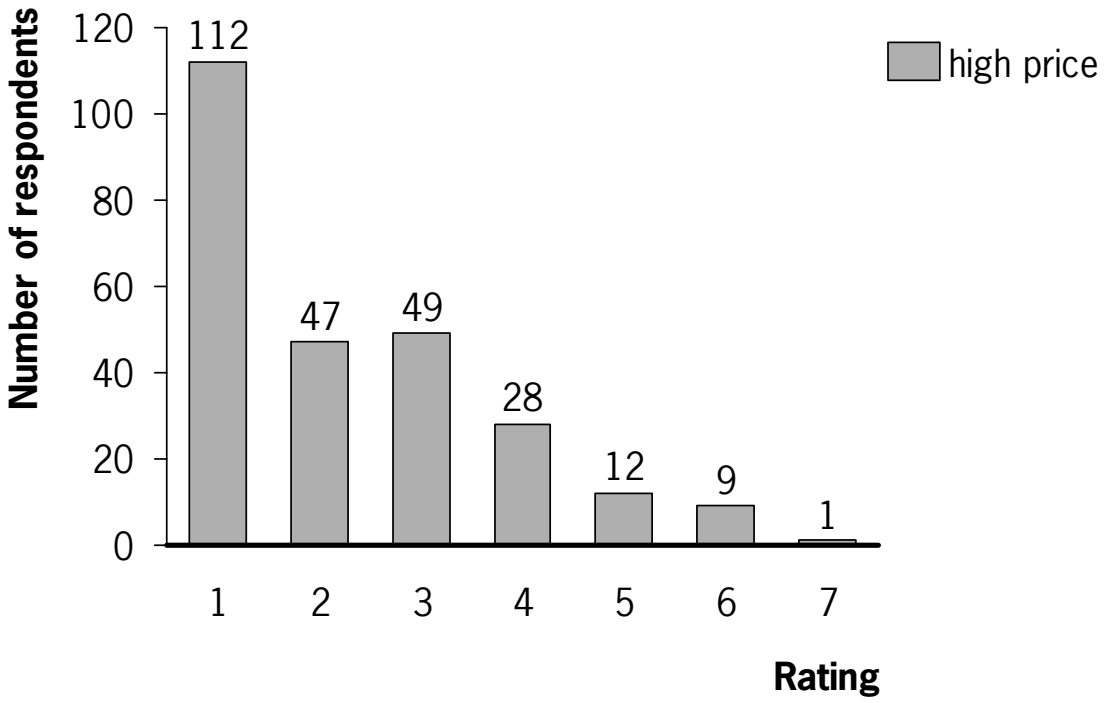
In the following chart results for present research's participants' evaluation of questions 7 and 32 from the questionnaire of the main study are presented. The mean value of this variable is evaluated by multiplication of both values from question 7 and 32 and in a second step normed to the maximum value of 7 by division by 7.



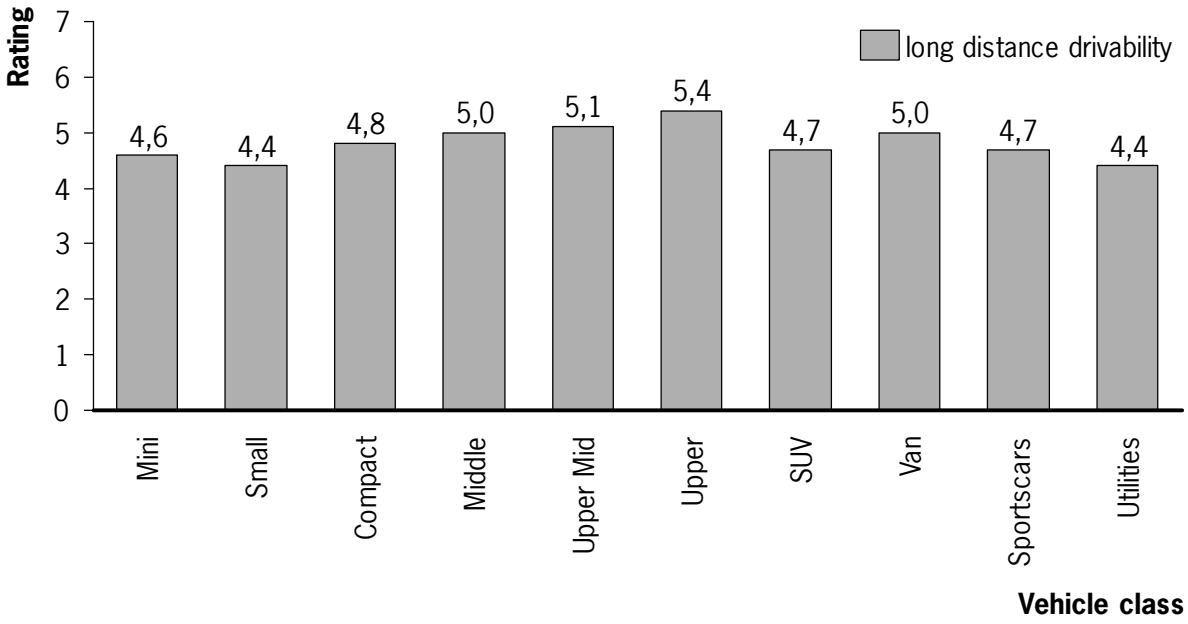

## Histogram of low price for respondents of present research



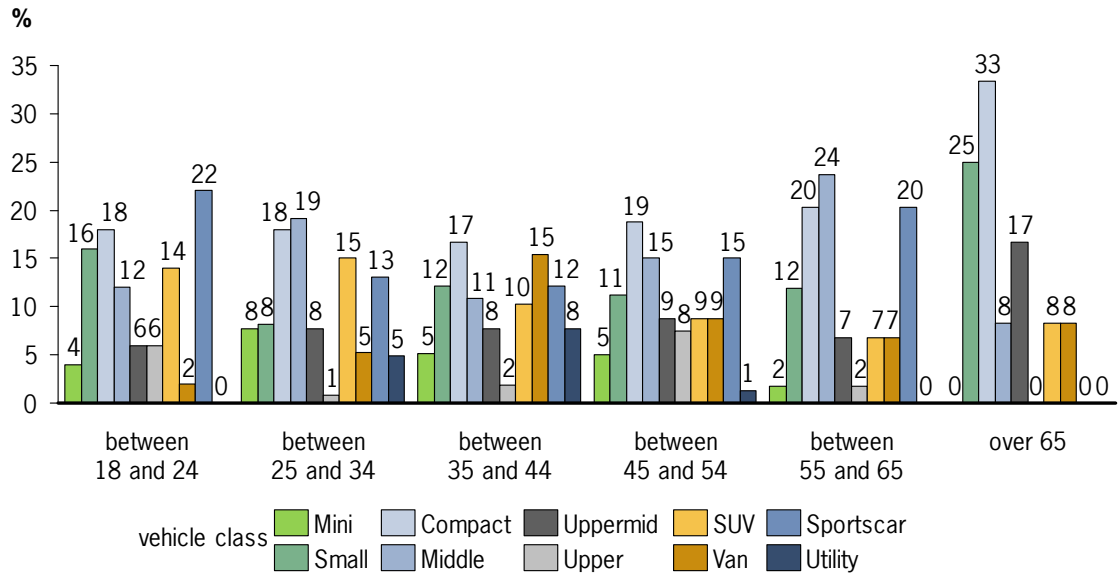
Histogram of high price for respondents of present research



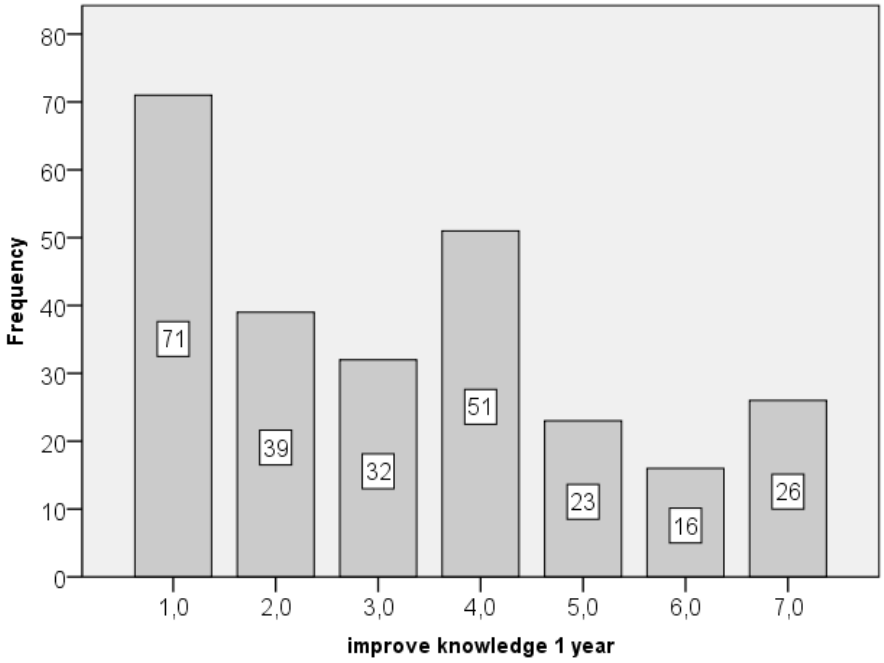

Long distance drivability vs. Vehicle class for respondents of present research



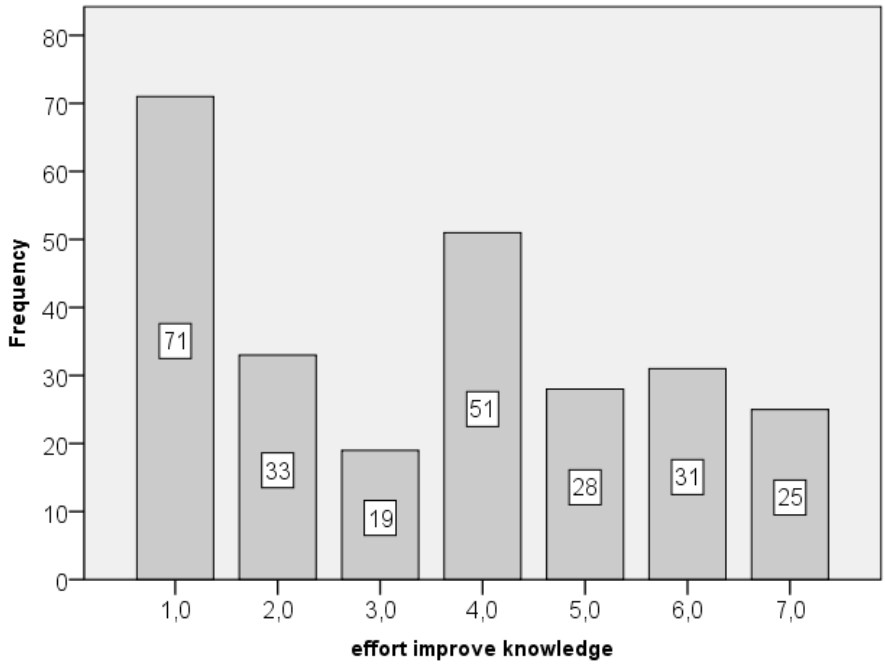
Age by vehicle class for respondents of present research



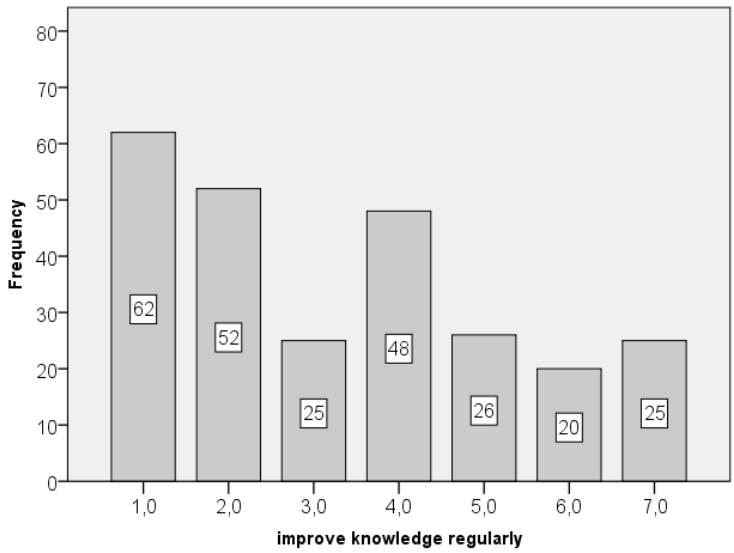

Result for "I intend to improve my knowledge about cars within 1 year" for respondents of present research



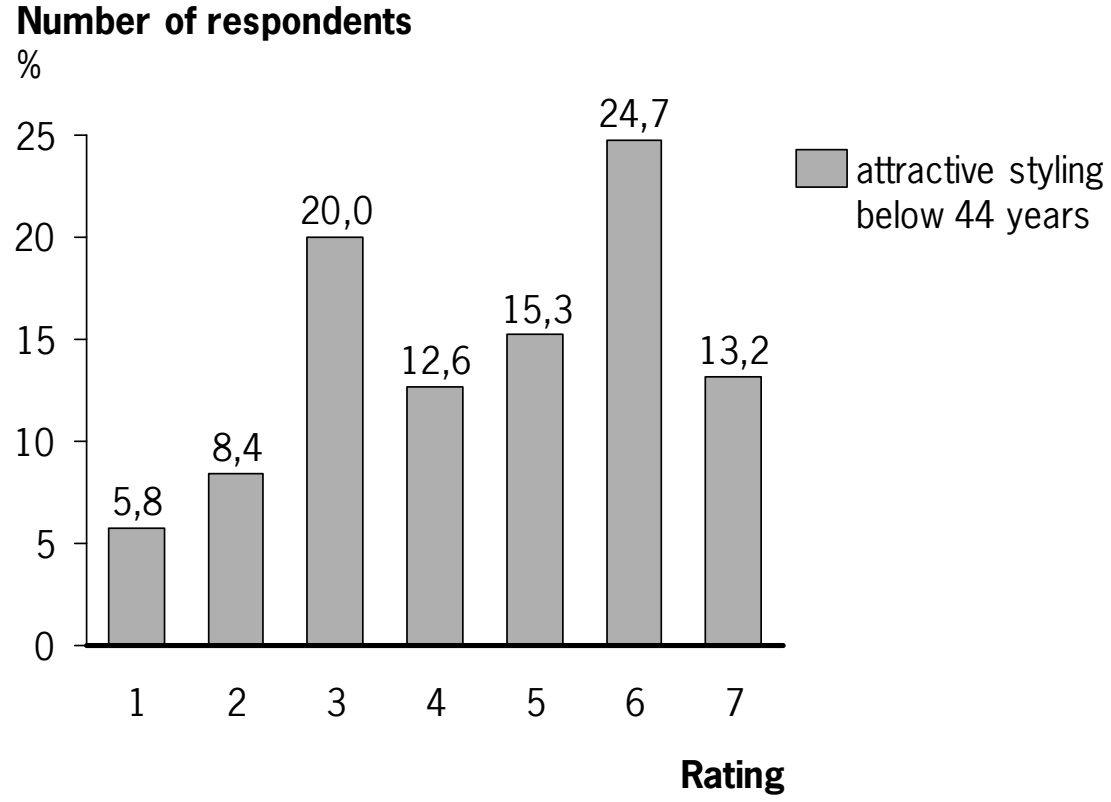
Result for "Will make effort to improve knowledge about cars" for respondents of present research



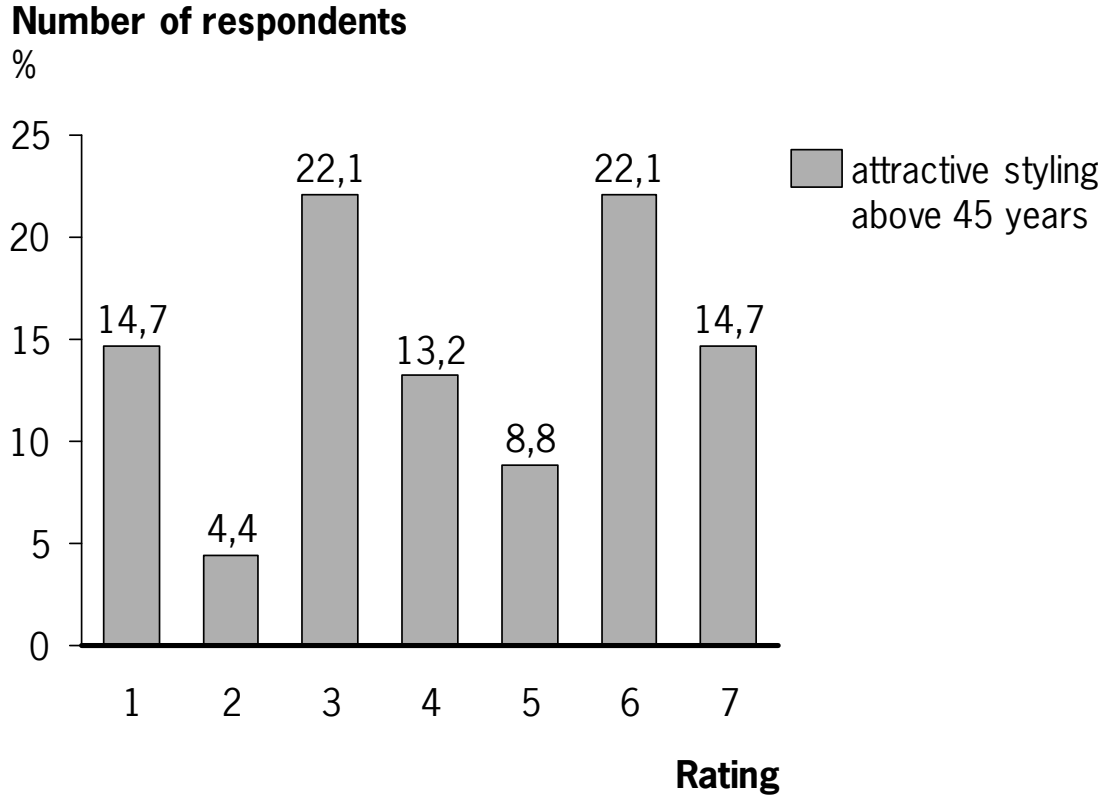

Result for "I intend to improve knowledge about cars regularly" for respondents of present research



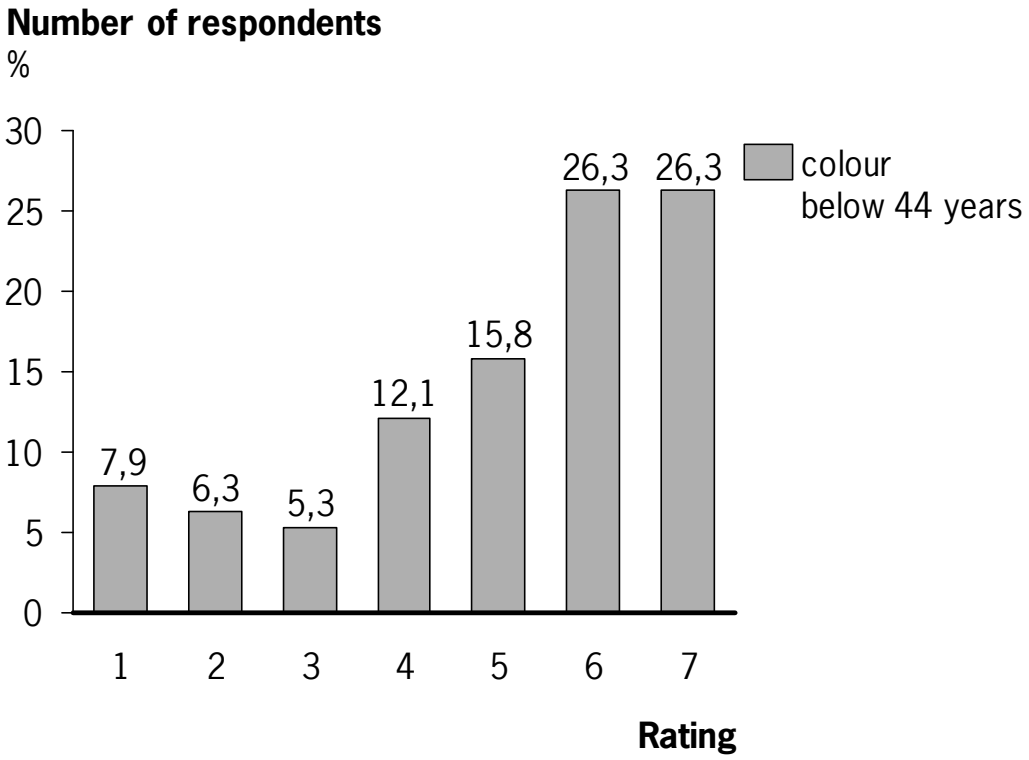
Evaluation of attractive styling by respondents with age below 44 years



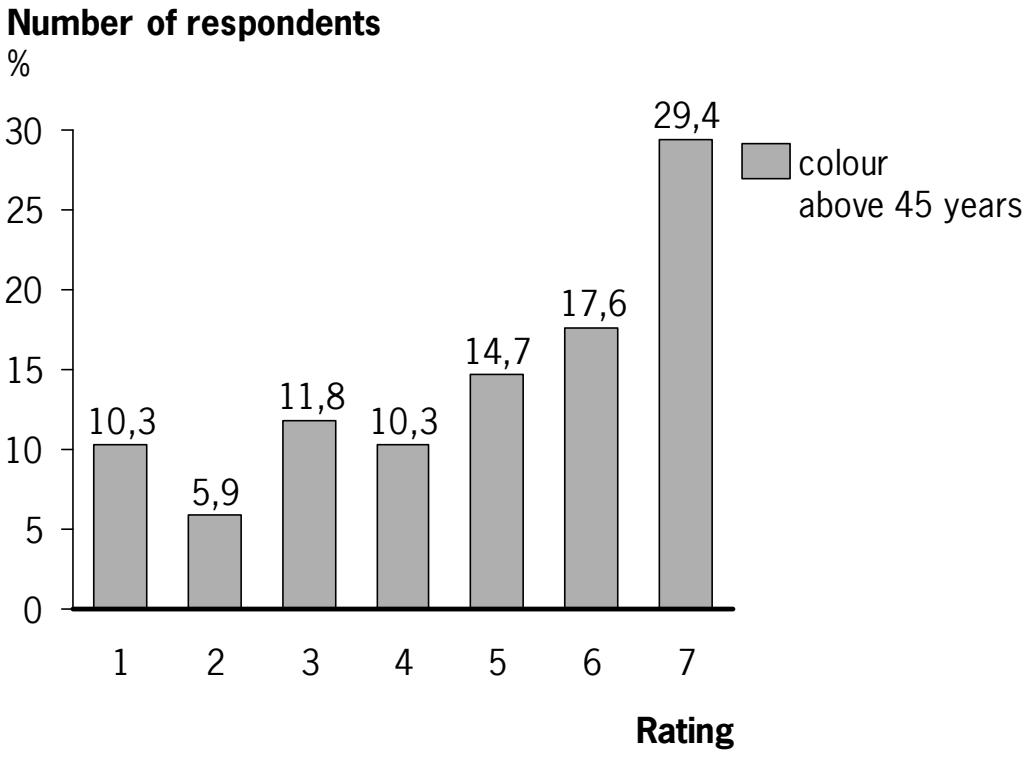
Evaluation of attractive styling by respondents with age above 45 years



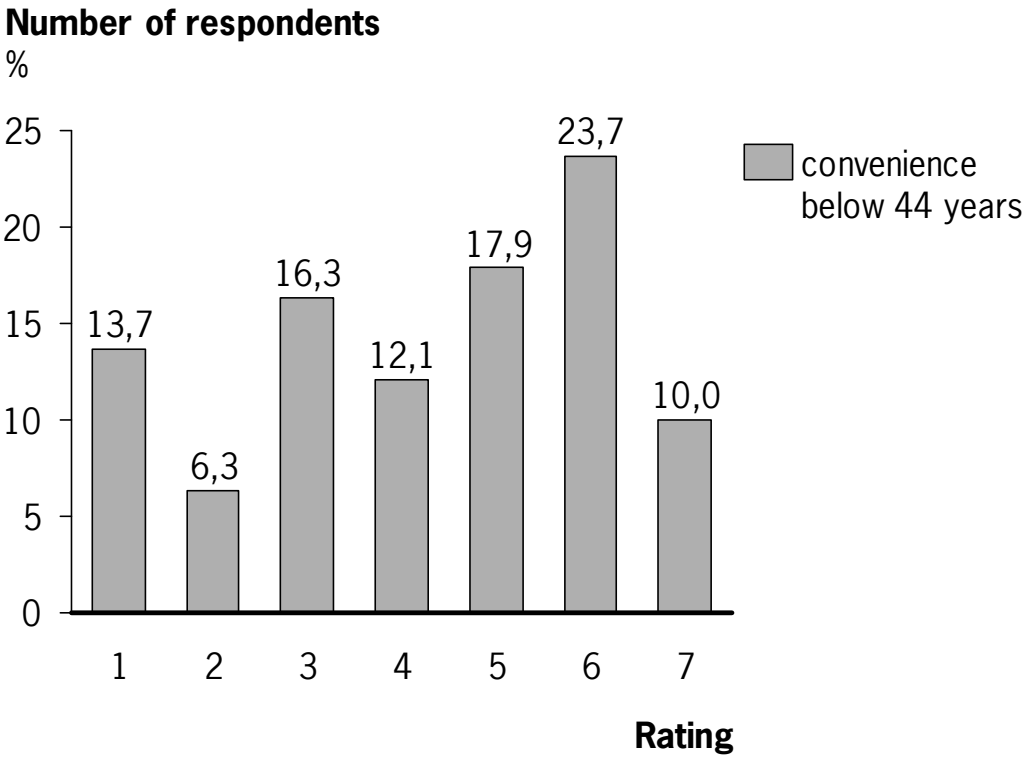
Evaluation of colour by respondents with age below 44 years



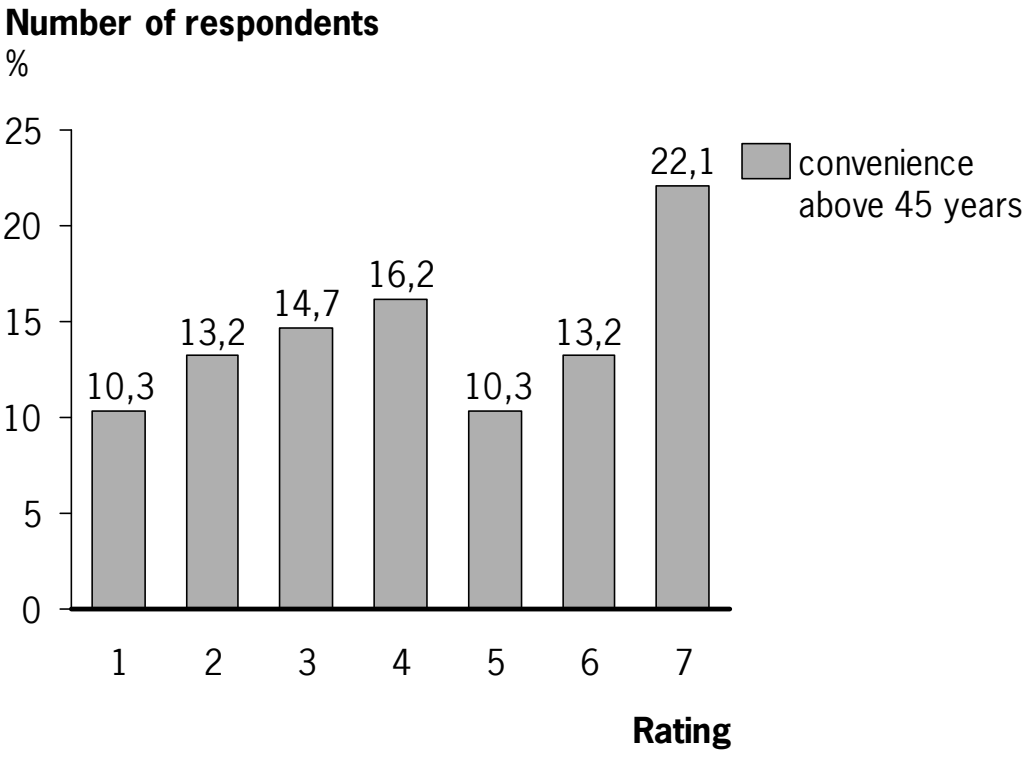

Evaluation of colour by respondents with age above 45 years



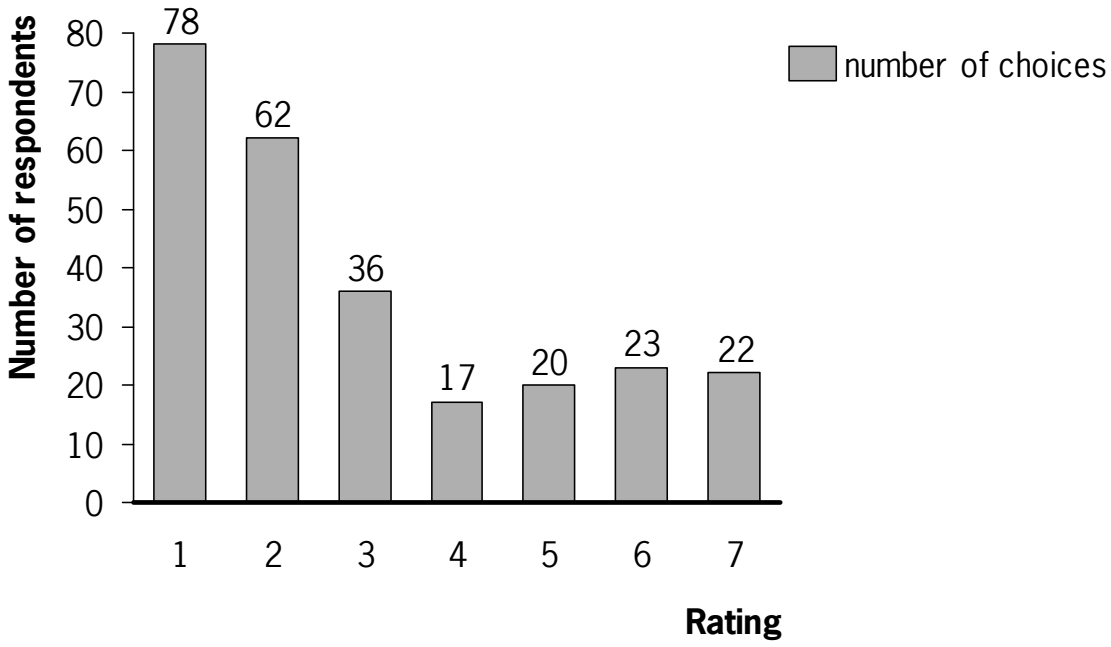
Evaluation of convenience by respondents with age below 44 years



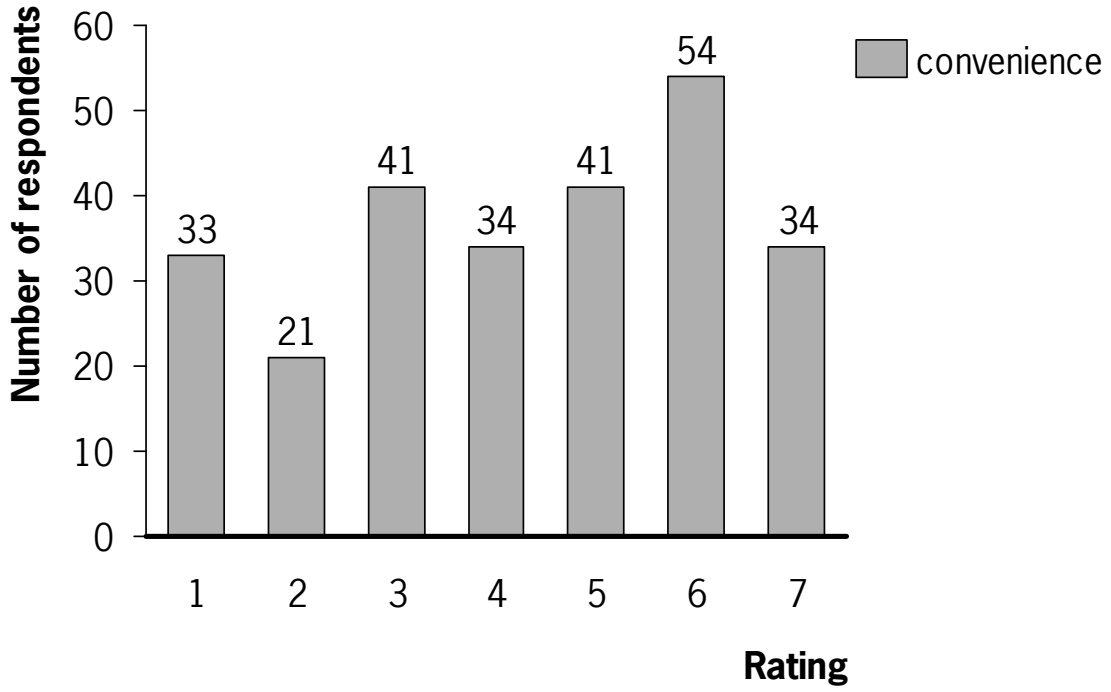

Evaluation of convenience by respondents with age above 45 years



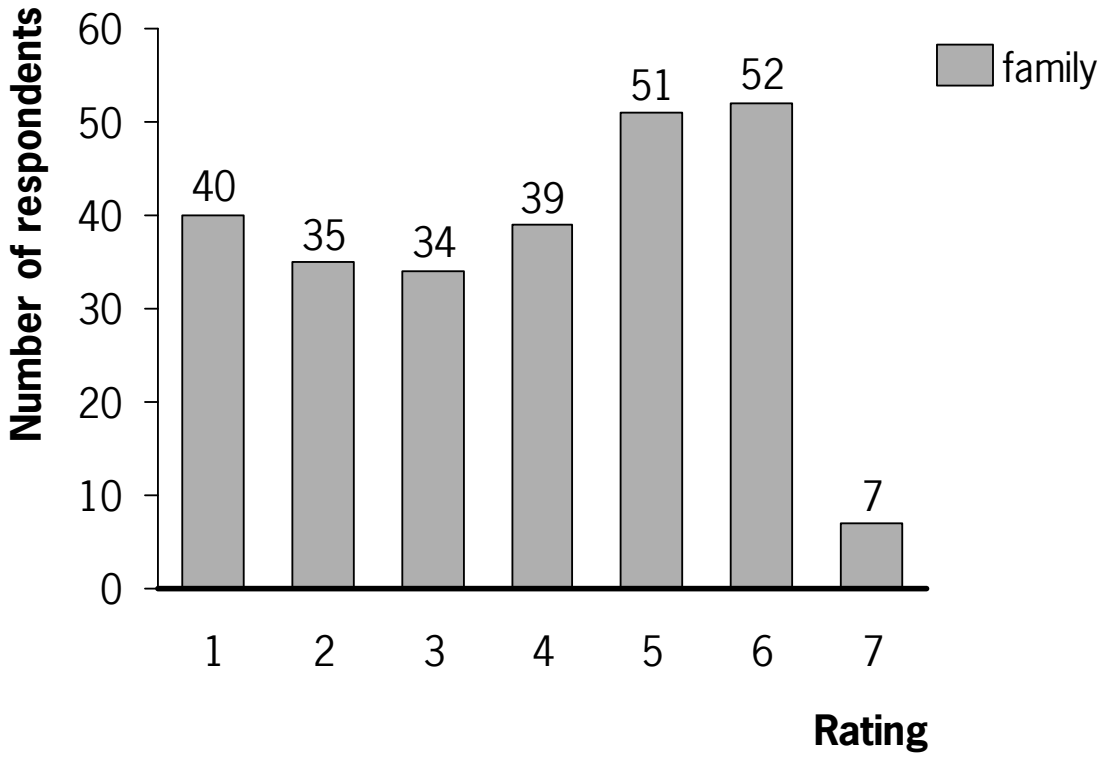
Evaluation of number of choices by respondents of present research



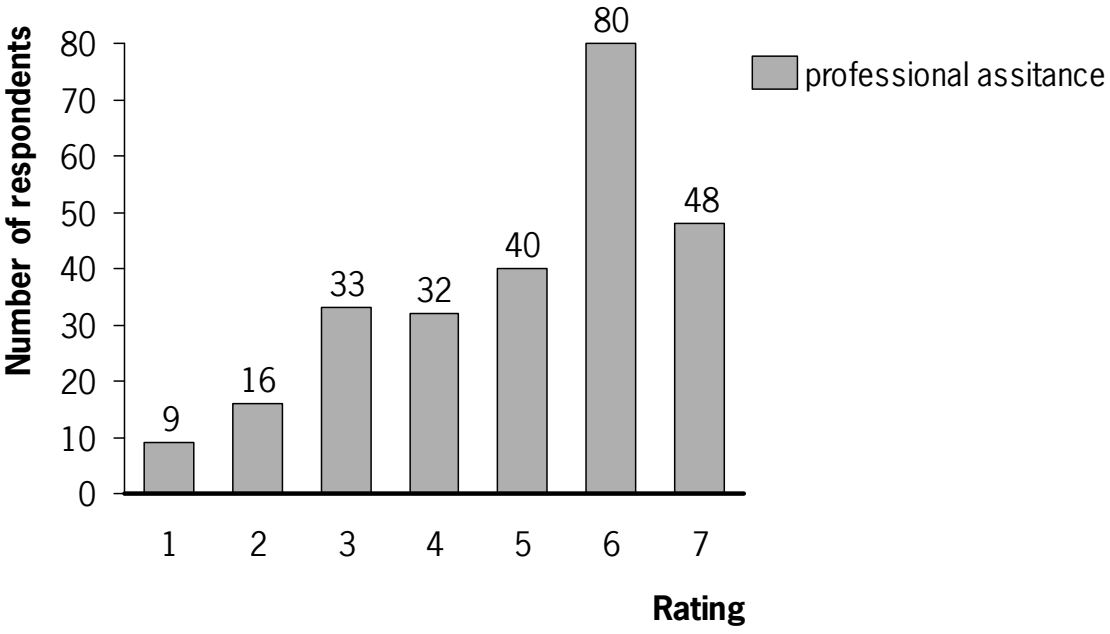

Histogram of convenience for respondents of present research



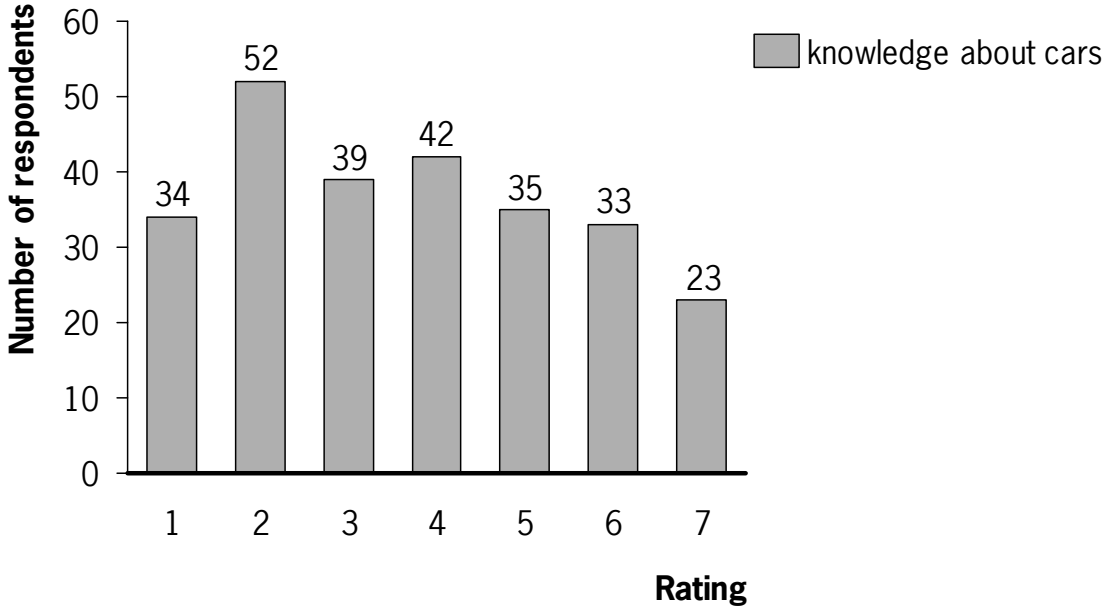
Histogram of family for respondents of present research



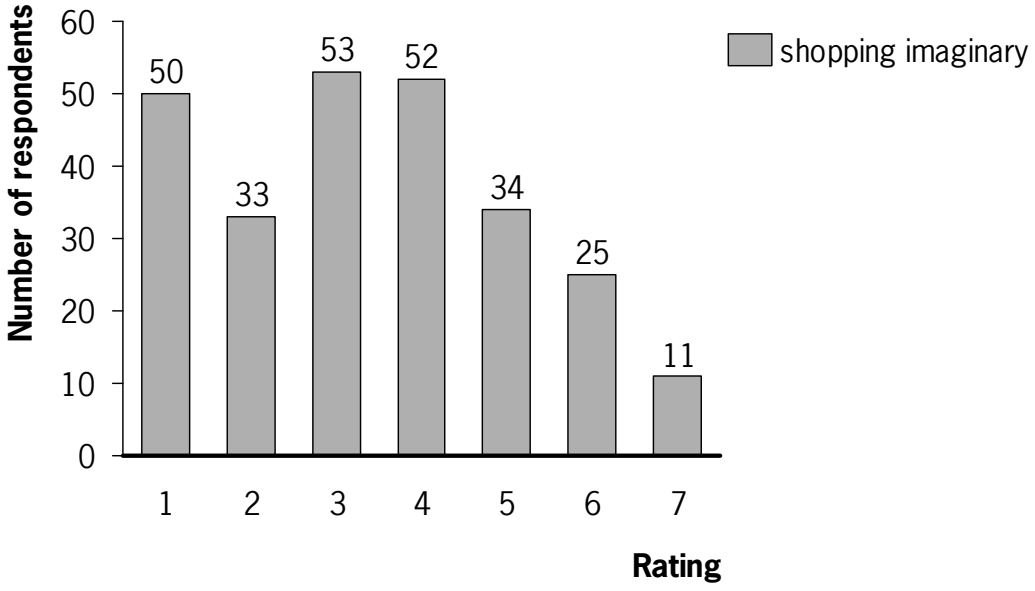

Evaluation of professional assistance by respondents of present research



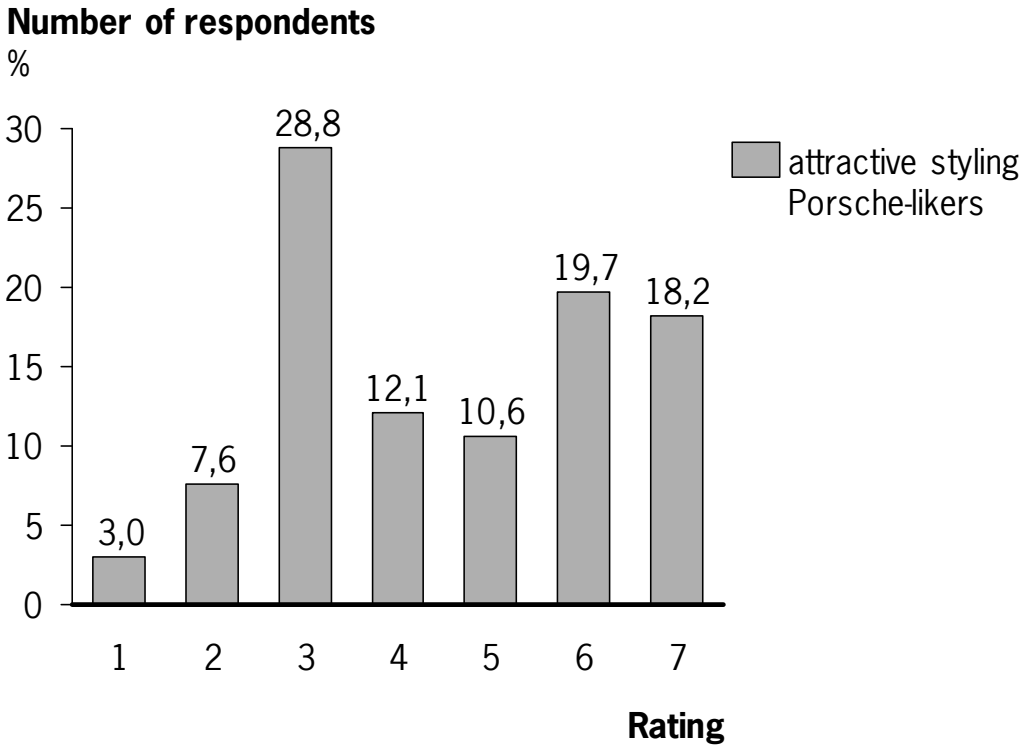
Evaluation of knowledge about cars by respondents of present research




Evaluation of shopping imaginary by research participants



Evaluation of attractive styling by Porsche-likers




Evaluation of attractive styling by Porsche non-likers