

Faculdade de Engenharia da Universidade do Porto



INFLUENCE OF PRODUCT ATTRIBUTES ON CONSUMER PREFERENCE

UNVEILING MAIN PURCHASING DRIVERS AND INNOVATION POTENTIALS
IN THE SPORTS APPAREL AND FOOTWEAR INDUSTRY

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Abstract

In an increasing competitive environment, it is critical for companies to understand consumers' buying behavior. This study attempts to investigate the influence of the attributes of sports performance fashion on consumers' preferences. More specifically, the work aims to identify and categorize influential attributes of running shoes and performance shirts, to further investigate their effect on consumers' product preference and buying decision.

Results aim to contribute to an enhancement of the state of art in this research area by providing novel perspectives and research directions. Furthermore, findings may also provide important managerial implications for the sports fashion industry. Findings may enable to develop and design products better responding to market needs. This again may increase business profitability and help to sustain a strong position in the fierce market competition.

The research builds on multiple methods, qualitative and quantitative, to ensure a holistic perspective of analysis. The findings of an in-store camera observation and store-intercept in-depth interviews with consumers of the target products provide primary insights, allowing to draw first assumptions. These were further cross-checked by performing a laboratory experiment including eye tracking and a survey. The multi-method approach enables to triangulate the findings and obtaining a high degree of consistence in the conclusions.

The findings suggest that visual- and haptic-related product attributes generally play a major role for consumers' shirt preference, whereas the product performance and fit are very important when evaluating shoes. Furthermore, the work unveils differences in product attribute perception linked to the respective running level of the consumers. It seems that more frequent and experienced runners value the fit and performance ability of shirts and shoes higher than less frequent running consumers. The latter, however, tend to focus more on visual and appearance-related attributes for product evaluation.

These insights provide managerial contributions for sports manufacturers that need to concentrate on shirt material and design innovations. Although performance aspects affect consumers' shirt preference, developments must always consider fabric-feel as a major impact factor. Shoe research should be performance-driven and emphasizing excellent fit or comfort, while design seems to be more important for recreational running shoes.

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1. Introduction

The global apparel and footwear industry has experienced deep transformation in the past decades, facing the fast evolution of socio-cultural patterns and lifestyles, as well as the dynamics of a progressive globalization (Ciappei & Simoni, 2005). Numerous researches (Bhardwaj & Fairhurst, 2010; Ciappei & Simoni, 2005) prove, that one of the major changes in the industry environment is the increased level of fierce competition. The emergence of a continuously growing number of brands has shaped a competitive market never seen in the past (North, Vos, & Kotzé, 2003). The significant evolvement of the fashion industry, in particular within the last 20 years, forces participants in this market to overcome various challenges to maintain a profitable position in the competition (Bhardwaj & Fairhurst, 2010).

One formidable difficulty is dealing with the change of the consumers, who became more self-aware and gained decisional autonomy (Ciappei & Simoni, 2005). Whereas designers and fashion icons traditionally initiated and guided trends in apparel and footwear, consumers nowadays are increasingly demanding (North et al., 2003), and discerning when it comes to fashion - they require the “right” product. Especially considering the strong competition, modern fashion suppliers need a sense for the market requirements to be able to respond effectively to those (Bhardwaj & Fairhurst, 2010). The industry shifted to what the consumers want. This is why manufacturers must understand the behaviors of consumers, and what value they attach to certain product attributes when making a purchase decision (North et al., 2003). Studies of new product successes and failures underline the importance of understanding the market, as they identified consumer satisfaction, and the assessment of consumer needs and wants, as key to success (May-Plumlee & Little, 2006).

However, solely being aware of consumer requirements does not represent a sufficiently competitive advantage. A company seeking for success must combine this knowledge with superior product innovation and development capabilities, which are managed efficiently and effectively. Only then, a valuable strategic position in the competitive market can be achieved and sustained (Ciappei & Simoni, 2005). Thus, designers and manufacturers should constantly seek to reach increased compliance between the consumers’ expectations and their product developments (Borgianni & Rotini, 2015). Hence, predicting consumer needs and wants, and responding accordingly with consumer-oriented products, is the recent paradigm in the apparel and footwear industry (Senanayake & Little, 2001). Some of the leading fashion suppliers try to tackle this tremendous challenge by democratizing innovation. By applying fundamentally new approaches, such as lead user involvement or customer co-design for instance, they enable consumers throughout several innovation stages to be part of the new product development, shortly called NPD (New Product Development) (Fuchs & Schreier, 2010). These direct consumer involvements are just one possible attempt to increase harmonization between market requirements and product developments. However, independently from the chosen method, fashion suppliers must be aware, that without listening to the consumers, they likely will not withstand the fierce market competition.

1.1. Problem statement

Beside proactively empowering consumer contribution, plenty fashion manufacturers still tend to favor already existing internal knowledge for their product innovation processes. However, disregarding external input and relying on the own knowledge reduces the solution space for developments, and resulting products may not perform well enough to meet the high market requirements (Piller & Walcher, 2006). Moreover, to shorten NPD cycles and cut costs, designers try to avoid novel product concepts and radical re-designs. Instead, modifications are kept on low levels to ensure certainty of feasibility (Borgianni & Rotini, 2015).

Ciappei and Simoni (2005) investigated key success factors in NPD practices of sport shoe manufacturers, finding that companies anticipate consumer demand and needs rather than replying to explicit market requests. The analyzed company investments, which are higher on research and design compared to spendings on market research, substantiate this finding. Their study proves, that product innovations are primarily triggered by technology-push, like new materials or processing techniques, instead of market-pull (Ciappei & Simoni, 2005).

As wrong assumptions in the critical early phase of product development processes can lead to costly revisions in later stages, or even to the failure of the design project (Borgianni & Rotini, 2015), fashion manufacturers undoubtedly must reduce their psychological distance to consumers, to avoid undesirable business consequences and increase consumer satisfaction (Endo & Kincade, 2005).

Previous research (Balaji, Raghavan, & Jha, 2011; Forney, Joo Park, & Brandon, 2005; Laiwechpittaya & Udomkit, 2013; Tay, Sterzing, Lim, Ding, & Kong, 2017) highlighted the great importance of product attributes for consumers' preference, when judging alternative products and making a purchase decision. Hence, manufacturers must understand how consumers perceive those particular dimensions and characteristics underpinning the product choice - like style, brand name, price, color, or fit, to name a few (May-Plumlee & Little, 2006).

However, consumers' needs and desires are not yet explored well enough. There is still a gap in research concerning the impact of various product attributes on consumer perception and behavior (Rahman, Fung, Chen, & Gao, 2017), as well as their relation to the final product preference (Sanad, 2016). The majority of companies also still lack sufficient knowledge on how trade-offs between various product attributes are made by buying decision makers in the fashion market (North et al., 2003).

To summarize, plenty manufacturers in the apparel and footwear industry clearly miss the opportunity to increase product quality, to reach a better fit with the market requirements, and to maximize consumer satisfaction, by generating a greater understanding of how their consumers evaluate product attributes.

1.2. Research objectives

In attempt to decrease the existing lack of consumer understanding in the sports apparel and footwear industry, this research *primarily* aims to identify what product attributes are used by prospective buyers for product evaluation and preference building, and the value they link to these when making a purchase decision. By listing the main attribute categories driving the product evaluation and ranking these according to their impact level during the consumers' decision-making procedure, the findings shall further contribute to guide apparel and footwear NPDP processes towards higher market orientation.

The *secondary* research objective is to emphasize existing commonalities of consumers' product attribute evaluation in apparel and in footwear, as well as possible dissimilarities in perceiving products of those two sectors. This is an attempt to unveil promising product innovation potentials by highlighting the respective product attribute categories, which are most valued by consumers in the apparel and footwear segment.

Although, both extrinsic and intrinsic attributes influence the consumers' product evaluation during the buying process (Rahman et al., 2017), the research is limited to the latter. Restricting to intrinsic attributes will enable revealing improvement potentials for product developments. Extrinsic product cues, such as brand name, price, or packaging, are not within the scope and objectives of this research. Moreover, in contrast to learnt stimuli, like brand or logo (extrinsic), consumers react instinctively and subconsciously to sensory stimuli, like touch or vision, which belong to intrinsic attributes (Balaji et al., 2011). As such, intrinsic attributes are very interesting when aiming to reduce the psychological distance to consumers. Further considering that various research results pointed out intrinsic characteristics as more important for consumers (e.g. North et al., 2003), the study should provide great insights into consumers' product perception, although extrinsic product attributes are left out of scope.

To answer the research objectives, the study focuses on apparel and footwear products in the segment of exercise and performance sports. Especially these product types need to highly comply with various functional requirements like fit, durability or comfort. Hence, consumers evaluating exercise or performance products involve intrinsic functional attributes stronger than buyers of fashion articles (Tay et al., 2017). Moreover, consumers' demand of higher performance products is expected to result in a more selective evaluation approach, which might provide superior data of consumers' preference building.

The principal argumentation and reasoning throughout the study on hand will be kept on category level of intrinsic product attributes, rather than on specific individual attributes. Even with this limitation the study is the first, to the author knowledge, attempting to address these objectives using the proposed methods. More specific and detailed analyses into possibly identified areas of great interest are planned as follow-up studies.

1.3. Research structure

After introducing the context of the research topic, as well as highlighting existing gaps in knowledge and stating the objectives of the study, the following section concludes the first part by presenting the work's organization, and briefly summarizing the content of each chapter.

Chapter 2 illustrates the state to the art of the research area to provide a fundamental grasp and deeper insights. Therefore, a concept-centric literature review is conducted to cover existing relevant literature in a complete and scientific manner.

The review was divided into three parts. At first, the conventional concept of consumers' purchase decision making was reviewed. This process underlies the given field of study, and its analysis shall provide support and basic understanding for the planned research. A second part identifies and presents previously conducted studies with similar objectives. Special focus is put on applied methodologies and chosen approaches, to gain further insights regarding potential analysis methods and remained gaps in research. Lastly, the prior studies are used to unveil which main product attribute categories influence consumers' purchase decision, and hence should be considered during further research.

Following this, the existing research gaps were shortly recalled, by also covering new findings from the performed literature review. The research problem is not only presented in regards to practical implications in the apparel and footwear industry, but also concerning academic gaps in previous studies. Subsequently, resulting research objectives are derived, and specific research questions for the study on hand formulated.

Within chapter 4, advantages and downsides of potential research approaches were weighted out against each other. A target-aimed decision was made in favor of the research design, which was thought to best serve the research objectives. After introducing the planned general approach, the various specific market research techniques, which are arguably the most suitable for the given aim, were chosen and described in more detail.

The following main section presents more in detail the respective planning and the procedure of conduct for each of the chosen research techniques. Reasonings are done for the corresponding approaches. In subsequent sections, the findings of each of the applied methods get pointed out, and interpretations and conclusions based on the results are made.

In the last chapters the various insights obtained by applying different methodologies were compared. Commonalities or disconfirmations were highlighted, and overall results for the study on hand suggested. Lastly, conclusions were drawn, including critical reflections of potential advantages or disadvantages of the performed research. An outlook on potential possibilities for follow-up studies, to further enhance the state of the art, completes the work.

2. Literature review

The existing literature related to the concept of consumers' purchase decision was analyzed. Several well-known models were analyzed and contrasted to identify a common underlying sequence of main process steps. Conclusions for the optimal methodology to choose in the further progress of this study were drawn.

Moreover, previously done researches in the field of product attributes' influence on consumer preference of apparel and footwear are listed. The applied research approaches were compared, their respective advantages and downsides highlighted, and inferences regarding research gaps and methods to apply for the study on hand are made.

Lastly, the product attributes involved in identified previously conducted works were collected, processed, categorized, and listed in a comparison table. Findings were interpreted to provide a valuable basis for further and advanced research activities in the field of product attributes' involvement in consumers' decision-making.

2.1. Consumer purchase decision process

Due to the aim of studying the influence of product attributes on consumer preference, it is important to apprehend the consumers' psychology. Of particular interest is the opinion-forming process, how consumers think or feel, and how they argue and finally chose among various products. Understanding motivations, environmental influences, and decision strategies behind the distinction of given alternatives is crucial for companies to reach their consumers more effectively, and will facilitate the further study alike (Stankevich, 2016).

While today's intense competition and the fast-changing economic environment oblige fashion manufacturers to consider the driving forces of their consumers' behavior (Papafotikas, Chatzoudes, & Kamenidou, 2014), the purchase decision making was a long time neglected and undervalued field of research. Even nowadays, due to the complexity of this topic, there is no right answer for what is happening during this process. However, since the development of the first models in the 1960s, behavioral decision studies encompass various economical and psychological constructs, and common tendencies can be identified (Milner & Rosenstreich, 2013; Stankevich, 2016). Not all models specifically address the buying situation, but also the ones covering general decisioning, or consumer behavior, are applicable for the process of making a purchase decision.

Relevant models, which get general attention, were reviewed and analyzed to gain a deeper understanding of consumers' intentions and resulting purchases. Those eight key theories, ranging from 1959 to 2009, are listed in a tabular form in Appendix A, and are next described briefly.

Simon (1959) already stated that the complexity of the decision-making has made it essential to construct a theoretical model to shed light on it. He addressed decision-making with respect to cognitive processes, covering a set of three phases. 'Intelligence' involves information

collection for the identification of a problem, 'design' thematizes possible alternatives' recognition, and 'choice' the final decision making (Huang & Benyoucef, 2017).

Nicosia's concept (1966) is acknowledged to be the first comprehensive model for buyer behavior. It consists of four main actions. Namely the information communication to affect consumers' attitude, their search and evaluation process, a decision, and outcomes concerning the consumers' behavior, consumption, experience, and feedback. The model also includes an iterative repurchase cycle (Milner & Rosenstreich, 2013).

Engel, Kollat, and Blackwell (1968) adjusted Nicosia's model by integrating a 'search' loop to cover also partial decisions. Milner and Rosenstreich (2013) explained this adaption with the possibility of providing feedback of formerly halted or postponed decision processes as input for future need recognitions. The core of the Engel, Kollat, and Blackwell model conforms by proposing the steps of consumers getting stimulated, processing information and evaluating alternatives against a set of criteria, making a decision and finally enacting the purchase.

The model of Howard and Sheth (1969) again is an advancement with its specificity concerning the complex relations between multiple variables and internal processes, external triggers, and information sources. Buying behavior, and particularly brand choice, is seen as a systematic process and its structure described as an information flow through four main stages: inputs, perceptual and learning constructs, and lastly outputs (Howard & Sheth, 1969; Milner & Rosenstreich, 2013). Beside having differences in a variety of details, the concept conforms basically with the variable configurations of the Nicosia model (Farley & Ring, 1970).

With their paper about strategic decisions, Mintzberg, Raisinghani, and Theoret (1976) examined the immensely complex and dynamic consumer buying process and developed a conceptual structuring of its various steps. While they mentioned that still little is known about the most important routines, like diagnosis, design, and bargaining, they identified the three core phases of identification, development, and selection. Their key assumption was, that this basic structure underlies every unstructured decision process (Stankevich, 2016).

Keeney (1982) decomposed decision analysis into four major steps: structuring the decision problem, assessing possible impacts of alternatives, determining preferences (values) of the decision maker, and evaluating and comparing alternatives. He particularly pointed out the interdependency and potential complexities of these steps. Important to mention are the facts that results of preliminary steps may affect the execution of subsequent ones, and decision analyses focusing on some steps by nearly excluding others, are often useful (Keeney, 1982).

Smith and Rupp (2003) interpret the decision-making process as three stages, which are distinct but interlocked with each other. During the operational input stage, marketing efforts and socio-cultural influences trigger the decisioning process. The second stage, named processing, involves considerations of experience, psychological factors, and intentions. Finally, the purchase and post-purchase decisions depict the output stage (Smith & Rupp, 2003).

The most recent concept is McKinsey's Consumer Decision Journey model. Court, Elzinga, Mulder, and Vetvik (2009) invented a more sophisticated, and less linear approach, which is applicable to various markets. Four primary phases frame their view on decision-making. These

are namely the initial consideration, the information gathering and evaluation, the closure, and the post-purchase phase. However, the model should be interpreted in a more circular way and not as a sequence (Stankevich, 2016).

The models described cover all broadly accepted points of view related to consumer decision theories. The outdated funnel concept, which states that consumers start with several potential brands in mind, and finally chose one to purchase after getting directed by marketers and excluding the residual brands, was consciously left out of focus. This metaphor is too linear and simple to capture all touch points and key buying factors of nowadays sophisticated market environments (Court et al., 2009). Moreover, the non-linear view of the decision process of Armano (2007), which did not receive much attention, also got excluded from the review. His so-called Marketing Spiral amplifies in a repeating manner with the degree of consumer engagement. From interaction, over engagement to participation, conversation, affinity and finally community (Stankevich, 2016).

When examining the reviewed key models, their differences in terms of structure and quantity of process stages are easily recognizable. However, a commonly underlying sequence can be detected: (1) problem recognition, (2) information search, (3) alternatives' evaluation, (4) decision (and purchase), and (5) post-purchase evaluation.

Despite varying viewpoints around decision process theory, these five steps illustrated in Figure 1 below are commonly accepted by scholars and researchers, and their relevance cannot be denied (Hall & Towers, 2017; Liang & Lai, 2002; Stankevich, 2016), although they are not covered by every of the key models entirely. The integrated cycle of 'Interest' and 'Exploration' gets discussed later within this chapter.

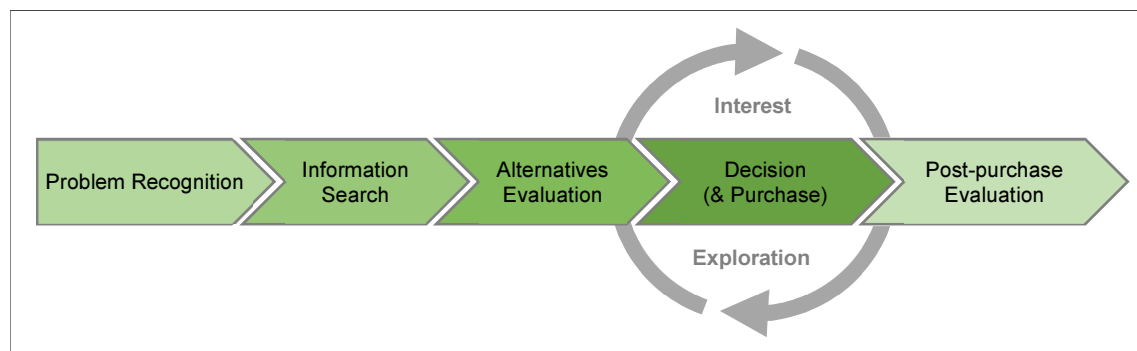


Figure 1: Consumer purchase decision process - 5 general steps

Decisioning is usually triggered when a desired state, like owning a specific product, differs from the actual state (May-Plumlee & Little, 2006). Triggers are internal stimuli such as immediate basic impulses, or external stimuli affecting the decision maker. Marketers intentionally create imbalances between the present and preferred status, by means of advertising or promotions. In that case, consumers realize a need for something, and thus recognize a problem. Then, demand for a product capable of improving the situation occurs (Liang & Lai, 2002; Stankevich, 2016). Once stimuli are reaching a threshold level, a decision process is initiated, and resources get activated to deal with it (Mintzberg et al., 1976).

After a need or want is provoked, the consumer aims to develop a set of alternative purchase options that can solve the problem or contribute to a desire. Therefore, a set of information search activities gets carried out, described as the “heart of decision-making” by Mintzberg et al. (1976). Information is collected both internally, by reconsidering past experiences or stored memory, and externally, by involving fellows, public sources or in-store interactions (Stankevich, 2016). Court et al. (2009) found out, that only a third of information sources during this phase are marketing activities driven by companies and aiming to have influence.

In the third phase, the gathered alternatives get evaluated based on their impacts, as well as on possible consequences and their probability of occurring (Keeney, 1982). Evaluative criteria differ individually from consumer to consumer but include both cognitive and emotional factors. Attributes like price, quality or location are underlying the assessment, as well as information from fellows and advertisers, or emotions, mood, situational factors and experience. The preferred alternatives usually result from rational and impulsive aspects alike (Schiffman & Kanuk, 2000; Smith & Rupp, 2003; Stankevich, 2016).

After gathering information and evaluating alternatives, the consumer synthesizes all inputs in a logical manner to make the most desirable decision. As in many decisions the achievement of best level satisfaction is impossible, it is an issue of value tradeoffs and risk attitudes to gain the highest comfort by the chosen product in regard to comply best with defined preferences (Keeney, 1982; Papafotikas et al., 2014). Despite emerging online stores, and due to growing market complexity, consumers increasingly hold off the final purchase decision until they could inspect the product physically in-store. Up to 40% change their previously preferred alternative because of something they see, do, or experience in the store (Court et al., 2009). Eckman, Damhorst, and Kadolph (1990) explored, that even in-store, during the selection of products from display racks and their try-on in the dressing room, different attributes are having primary effects. For this reason, the two distinguishable phases of ‘Interest’ and ‘Exploration’ (product try-on), which might appear in a repeating cycle, are highlighted in Figure 1.

The fifth phase represents the closely related post-purchase consumer behavior and product evaluation. The experience, a consumer makes after a purchase, affects his psychological factors and determines his opinion for all subsequent buying decisions. Either becoming a positive influencer for a product or brand, or spreading negative word of mouth after dissatisfaction, this phase is significant for follow-up activities. Hence, decision-making is as a circular and on-going process (Court et al., 2009; Smith & Rupp, 2003; Stankevich, 2016). This is emphasized by the color shadings of the process steps in the figure above.

Although the described process covers key concepts of decision-making to a high degree, it still has some limitations. Purchase decision concepts are steadily criticized for merely being theoretical models not applicable for different types of buying decisions and products. Nonetheless, those critics are mainly addressing low-priced, frequently purchased, and as unimportant perceived products in context of an automated choice process, where the consumer spends little to no effort in search and evaluation (Belch & Belch, 2012).

Solomon, Bamossy, Askegaard, and Hogg (2006) miss the consideration of irrational factors and mention that these five steps are not accurately portraying many buying decisions. Also, they

state, not every time a consumer goes through the entire sequence. Instead, the applicable strategy is chosen according to the situation and required level of effort, or impulses even just lead to unplanned purchases. This so called “shopping momentum” is supported by Dhar, Huber, and Khan (2007). Finally, according to Stankevich (2016), decision behaviors may differ between cultures, and also depend on the type of products purchased.

Even taking those limitations into account, the described general decisioning process is considered suitable for the purchase of valuable and durable performance fashion. Product purchases of this kind are usually carefully considered and cannot be categorized as being perceived unimportant and occurring frequently or being triggered by an impulse.

Hence, according to the general model, buyers of performance fashion judge the products during information search, at the time of purchase, and during consumption (Abraham-Murali & Littrell, 1995). Even in today’s technological markets, the in-store evaluation remains a cornerstone for fashion products, because consumers are unable to touch or try apparel and footwear online (Court et al., 2009; Smith & Rupp, 2003). This indicates that research data about consumers’ preference building on fashion products should be collected at the point of purchase, to gain important insights directly at this key evaluation stage.

Findings of consumers tending to change their decision after inspecting a product physically, lead to the assumption that different attributes have greater impact on the product evaluation in different process stages. Many researches coincide that extrinsic and intrinsic attributes play a significant role in decisioning alike. However, the more specific nature of the latter contributes especially in product-related evaluation, whereas extrinsic attributes, such as brand image or social influence, most notably affect consumers’ awareness of products in the early process stages (Garrido-Morgado, González-Benito, & Martos-Partal, 2016). Due to this study focus on intrinsic product cues, these findings reinforce the need of conducting the research in-store, where consumers are accessible and observable just before making their final purchase decision. This would allow portraying the research topic in a more realistic manner.

2.2. Prior studies on apparel & footwear attributes’ perception

Within this chapter, previously performed and relevant studies on the topic of consumers’ evaluation of product attributes in the apparel and footwear industry get analyzed. Besides providing insights on previous research, it will help uncovering knowledge gaps, and areas where further studies are needed. Thus, shaping the direction of the work and pointing out its relevance in greater context (Booth, Papaioannou, & Sutton, 2012; Webster & Watson, 2002).

To ensure a relatively complete review, a structured search approach, suggested by Webster and Watson (2002), was used. In a first step, leading journals got browsed through to identify major contributions. Scientific databases like *Scopus*, *b-on*, *ScienceDirect*, *SAGE Journals* and *Elsevier* helped accelerating the identification process. Combinations of relevant keywords (see Appendix B) narrowed down the search to the necessary focus. Additionally, selected conference proceedings with high quality reputation were examined. The citations of found

papers were reviewed in a second step, to identify previous studies, which should be considered as well. Lastly, possibly relevant researches done more recently were traced by using *Web of Science*, which shows by which works the respective given article was cited.

The literature review unveiled that the topic of consumers' evaluation of footwear and apparel products already attracted many researchers. However, this study focus lies on more recent studies from 1990 up to the present, as consumer behaviors change over time and research methods improve (Borgianni & Rotini, 2015). Appendix C lists relevant works identified, which are examined more in detail below.

Due to an increasingly competitive apparel and footwear industry, it is not surprising that studying influences of product attributes on consumer preferences enjoyed growing interest, especially in the last decade. Even though the listed researches examined diverse problem formulations and populations, they all generally cover the question of which, and how, product attributes influence the consumers' preference. In this context, they allow identifying what has been already studied, and which gaps in research are remaining unexplored. The findings will help framing the study approach (Booth et al., 2012).

Different methodological approaches were undertaken in the studies analyzed. Variations occur regarding the product attributes considered for the analysis, as well as for the realism of the research setting in terms of stimuli used and the point of conducting the study. In addition, differing sampling and data collection methods, and divergent response formats were chosen. Table 1 provides an overview of different techniques and approaches used. The full table can be seen in Appendix D.

Table 1: Overview of methodological approaches in previous research

	Apparel	Footwear	Intrinsic	Extrinsic	Real Product	Substitution	None; Description	Point of Purchase	Other	Convenience	Random	Experiment	Interview; Focus Group	Questionnaire	Open-end	Closed-end
	Products analyzed		No. Attributes studied (Qty.)		Stimuli used			Point of Action		Sampling Method		Data Collection			Response Format	
Study 1	General		(15)	(9)	X			X		X			Interview		Free response	
Study 2	Shirts		(1)	(3)		the sketch add. info			X	X				X		Continuous & Likert scales
Study 16	General		(8)	(4)			X		X		X			X		5-point Likert scales
Study 17	General		(8)	(4)			X		X	X				X		5-point Likert scales
Σ	11	6	17	14	4	2	12	5	14	14	4	2	3	14	4	16

*NS: 'not stated'

Looking at the products analyzed in the 17 studies above, it can be seen that only five of them investigated a specific fashion product - namely shirts, sweaters, and jeans apparel. Three researches focused on a stated apparel or footwear category, either casual or running. For the

remaining nine studies no specification was given, thus consumer preferences were examined related to apparel or footwear in general. The results of the latter must be interpreted critically, and conclusions drawn carefully, since consumer requirements and perceptions differ depending on the fashion category. For instance, McLoughlin and Sabir (2017) identified significant differences in consumers' evaluation of everyday clothing and sports apparel. The latter must meet athletic requirements by using innovative fabrics or techniques (Fowler, 2015), and require more application-specific properties to improve performance, rather than just serving the basic needs like casual wearings (McLoughlin & Sabir, 2017). Fashion always serves for a particular purpose, and therefore is perceived and evaluated by consumers based on linked attributes. Hence, studies done on specific products or a defined product category provide more detailed insights compared to generalized researches.

Consumers usually base evaluations of fashion products on various descriptive, inferential, informational, and visual cues. These can be classified into two groups: extrinsic attributes (have a relation with the physical product, but are not an inherent part of it, such as brand, price, or packaging); and intrinsic attributes (specific product characteristics like size, fabric, or color, that cannot be changed or manipulated without impacting the physical appearance of the apparel or footwear itself) (North et al., 2003; Rahman et al., 2017). Although, both are relevant for the purchase decision making, consumers consider intrinsic cues overall more important and determinant (Hopfer & Istook, 2016; Hugo & van Aardt, 2012). This might explain why all listed studies involve intrinsic attributes, and three even only focus on those, excluding extrinsic ones. The number of involved intrinsic and extrinsic product attributes within each study varies immensely, ranging from four to fifty.

The realism of the research environment, and hence the validity of its findings, is strongly determined by the stimuli used, and the location where it takes place.

Many studies demonstrate that consumers base product evaluations, beside other input, on tactile information, which give confidence for the decision. This accounts especially for objects whose most diagnostic attributes are of materially nature and best explored by touch, such as apparel and footwear (Citrin, Stem, Spangenberg, & Clark, 2003; Grohmann, Spangenberg, & Sprott, 2007; McCabe & Nowlis, 2003). Thus, when analyzing how product attributes influence consumers' preference on fashion, tactile stimulation must be considered an important factor to portray the decision making process and avoid lacking accuracy (Eckman et al., 1990). Otherwise, following McCabe and Nowlis (2003), the product to be evaluated must be described also in terms of touch properties, rather than just visual attributes. Clearly, the majority of the studies reveal a weakness in this regard, with less than a quarter involving real products, and only one of the remaining studies using a style sketch as substitutive stimulus. It seems almost common to just describe the product, without giving respondents additional stimuli.

Evidentially, consumers' purchase behavior and product perception are also determined by a complex interaction with the store environment and its atmospheric stimuli (Ramlee & Said, 2014; Sherman, Mathur, & Smith, 1997). Those impacts should be best possibly eliminated if the focus lies only on studying the influence of intrinsic product attributes. However, it still must be taken into consideration, that cognitive neuroscience shows differences in behavior,

when humans make hypothetical or real choices (Camerer & Mobbs, 2017). Already Eckman et al. (1990) stated, that in artificial or remote research settings, where respondents are asked to imagine a product or buying situation, the findings might be distorted, as memories of past purchases or generalizations of product categories impinge the response accuracy. Despite that, only in three cases of the listed researches, the point of action was also the actual point of purchase for the product of interest.

The approach of data collection, including the chosen response format and sampling method, is a critical factor to consider during the research design to obtain valid conclusions.

It is remarkable, that in a vast majority of 14 studies, data were collected by using questionnaires with closed-end questions in form of scale ratings. This allows reaching a large number of respondents, as well as easy processing and interpretation of the received data (Iacobucci & Churchill, 2010; Kotler, 2002). However, product attributes getting studied must be preselected by the researcher for survey development, and therefore reflect his judgment about what is relevant for consumers (Webb, Campbell, Schwartz, & Sechrest, 1966). Furthermore, specific attributes might catch the attention and get chosen by respondents, just because being listed in given response options, even though in real-life circumstances they might not even be considered (Eckman et al., 1990).

Personal interviews and focus groups, which allow free responding, were only used in three researches to identify product attributes considered by consumers during product evaluation. Even though the focus groups only served as a preliminary exploration, before analyzing respondents' perception of identified attributes, they reveal deep and valuable insights in consumers thoughts (Iacobucci & Churchill, 2010). Same accounts for store-intercept interviews, which are versatile and allow asking more specifically as in surveys. Observing subjects at the point of purchase might provide additional data about consumer behavior. Both focus groups and interviews involve a risk of being biased or distorted by the interviewer, beside requiring high time effort (Iacobucci & Churchill, 2010; Kotler, 2002; Shiu, Hair, Bush, & Ortinau, 2009).

Within 17 studies, only two used an alternative data collection method. Kong, Lim, Ding, and Sterzing (2015) approached experimentally, by letting subjects use running shoes on a treadmill, to compare them afterwards head-to-head, based on their respective attributes. In a second step, they also asked to rate the models on a Visual Analogue Scale. Jegethesan, Sneddon, and Soutar (2012) otherwise, performed a conjoint-analysis with their respondents, after conducting initial focus groups. This method is very useful to examine subjects' trade-off making among competing products, by using various models to infer their part-worths for attribute levels. Hence, it is well applicable for evaluating respondents' product attribute preferences (Green, Krieger, & Wind, 2001).

Regarding sampling, nonprobability convenience sampling was predominantly chosen, and seems to be the preferred approach. This might be due to its affordable and quick implementation character, or the easy accessibility of subjects, who get chosen based on certain practical criteria (Kotler, 2002). The questionnaires are either handed out remotely to reachable members of the target population, or personally to subjects available and willing to

participate at a given time and location, like a relevant store for instance. These advantages come along with the fact, that results cannot be generalized from the sample to the population (Shiu et al., 2009). General inferences are only possible with the data gained from the three remaining studies. Those got conducted by using random sampling, a probability approach, and therefore portray the study population more representatively (Etikan, 2016; Kotler, 2002). While this method allows stronger and general conclusions, it is more sophisticated and costly to access the subjects.

The review of relevant studies shows, that more than half of the researches addressed apparel or footwear in general, not focusing on a specific product or category. However, this cannot lead to valuable conclusions, because consumers perceive the importance of product attributes differently for distinct product categories. Therefore, this study should be conducted focusing on a specific category, such as performance fashion.

Intrinsic attributes are the major determinants during consumers' product evaluation process. Also, having the aim of the study on hand in mind, which is to examine product perception to unveil promising attributes on whose to focus in product innovations, intrinsic attributes are the ones of interest. Various works already covered the identification of potentially relevant intrinsic attributes by conducting quantitative and qualitative research. Those findings can be used, to filter out valuable data to be further examined.

Although Eckman et al. (1990) already listed various advantages of store-intercept research - high accuracy of direct observation, getting more insight through respondents' self-reports, or higher personal motivation of subjects when discussing personally selected products - this method is rarely used. Even the disadvantages of potential biasing due to direct interaction with subjects, and the need of nonprobability sampling, do not offset these. This lack of studies at the point of purchase must be reduced. As positive side-effect, it could be profited from using real products as stimuli, which was also not frequently done in previous works.

As data collection method, questionnaires are obviously preferred among previous works, with just a few using interviews or experiments with free response possibility. Even though not as many subjects can be interviewed than can be reached with a survey, the first approach can generate much deeper insights in the real thoughts behind product evaluation processes. Therefore, store-intercept observation and interviews with convenient sampling represent promising methods. Findings of these approaches could be even complemented, and handicaps counteracted, by conducting a quantitative survey in an additional step, if the work frame allows (Eckman et al., 1990). Lastly, an experimental setting could be used to approach the research topic in a complete novel way to gain valuable and previously left out data. Such a method can be added up with modern technological opportunities, such as eye tracking for instance, which generates a uniquely objective view of consumers visual and attentional processes (Duchowski, 2007). Unlike all prior researches, this could be a way of data collection, which is not dependent on the respondents' conscious thoughts.

To conclude, all identified studies analyzed in some way the consumers' perception of fashion products. But no study aimed to examine, if the consumers' perception of apparel differs fundamentally from the perception of footwear. The influences of product attributes on the

evaluation of products of those two different categories might be especially for big suppliers or manufacturers of great interest.

2.3. Evaluative apparel and footwear product attributes

The extant research covering the influence of product attributes on consumers' preference, unveiled a wide range of cues that are considered during the evaluation process by prospective buyers of sports apparel and footwear. The following review of those product attributes will provide valuable insights. Connecting the findings of the 17 studies, does not only sensitize for what is perceived important by consumers, but also enables to base further research on already existing knowledge (Booth et al., 2012).

Methodically, all product attributes considered during consumers' evaluation process, which got unveiled by the listed researches, were collected in a first step. According to this study aim, extrinsic cues got excluded, and the review was limited on the remaining intrinsic ones. Multiple mentions of identical attributes from two or more studies were eliminated, with only one mention for each attribute being left over. A same approach was applied to differing namings of product cues with the same meaning and signification. In this case, the mentions got reduced to the one unified naming, which was perceived the most practical one in terms of definition and understanding (e.g. aesthetics, appearance, attractiveness, beauty, elegance, general appearance - unified to 'general aesthetics'). Then, inadequate attributes got excluded because of a, for instance, too specific nature (increasing leg muscle activation; making you feel like having a slim feet), or too broad formulation (performance) of the attributes. Also excluded got the ones, which simply became unsuitable in recent times because they are standards nowadays (availability of various sizes; being sex appropriate). Lastly, the filtered product attributes were grouped, and specifications for main categories defined.

Table 2 illustrates the outcome of the review of apparel and footwear product attributes, perceived important by the consumers surveyed or interviewed in the previous studies listed in Appendix C. The analysis reveals that some product attributes were involved just in few researches, whereas others were identified or analyzed in most of the studies, which might imply a high importance of those for the consumers. Broadly speaking can be suggested, that visual, material-related, and physical attributes, as well as the fit, play a significant role in consumers' product evaluation. Except for durability, it seems that performance properties and other product attributes, like versatility and reparability, are perceived subordinated.

Table 2: Overview of product attributes involved in previous researches

		Researches														Sum ↓				
		Apparel Segment							Footwear Segment											
		1	2	3	5	6	7	10	12	15	16	17	4	8	9		11	13	14	
Product Attributes	Visual	Color	x		x	x		x			x	x	x		x				9	
		Design	x		x	x		x	x	x	x			x					8	
		Style	x	x	x	x	x				x	x	x				x		x	10
		Fashionability			x			x	x	x						x			x	6
		General aesthetics	x		x	x		x			x				x				x	7
	Material	Fabric	x		x	x		x			x	x	x				x		8	
		Breathability															x		1	
		Ease of care	x			x		x			x	x	x			x			7	
		Environmental friendly													x		x		2	
	Physical	Construction	x		x	x		x			x								5	
		Workmanship						x	x	x	x	x	x						x	7
		Physical Quality	x		x														x	3
	Fitting	Fit	x			x			x	x	x	x	x					x	8	
		Comfort	x			x		x			x	x	x			x	x	x	x	10
	Performance	Light weight															x		1	
		Stability																	x	1
		Cushioning																	x	1
		Durability	x		x	x		x			x	x	x	x		x	x			10
		General quality						x	x	x		x	x	x		x				7
	Other	Versatility						x	x										x	3
Reparability														x		x			2	

Some attributes, such as ‘light weight’ or ‘construction’, were involved just in studies of either apparel or footwear. But due to their applicability in both segments, they might be considered for analyzing their influence on consumer preference of both product segments. Other attributes, which got only considered in studies of either of the segments, are truly specific and therefore cannot be broadened. For example, the ‘stability’ and ‘cushioning’ of shoes.

The review clearly shows that a large proportion of overlaps can be detected among the studies regarding the attribute categories involved. Since the mentioned five main categories (visual-, material-, physical-, fit-, and performance-related attributes) appear consistently across most studies, they can be taken as a good orientation for further research.

It is noticeable that the identified attribute categories are allocable to different information levels, which consumers usually pass through and obtain when purchasing a new product in-store. Armstrong, Kotler, Harker, and Brennan (2009) describe a mental product adoption process, from the point a consumer first learns about a product or gets attracted by it, until finally becoming the product’s user or not. Within that journey, following five stages get passed: awareness, interest, evaluation, trial, and adoption. Even though this model is not specifically referred to in-store purchase decisions, many similarities and overlaps exist, which allow projecting it on a scenario such as a consumer’s store visit. Awareness and interest in a product is usually triggered after processing the first visual information when entering the store. In case of interest, a more specific evaluation of the product is then performed most of

the times by inspecting it more closely. Preferably by touching and feeling it with the hands, which may be labelled as the second, the haptic information level. The last stage before adoption or rejection is the trial, which can be considered with the try-on of fashion products in the store. Due to the nature of the additional information obtained within this stage, it could be specified to be the fit and performance information level.

Following the argumentation visualized in Figure 2, it can be concluded, that consumers do not perceive all information about an investigated product at once. Rather it is a progressive process of gathering additional information in several steps. Within these distinct phases, due to the respective information level perceived, the consumer gets insights about specific product attribute categories. For instance, information about all product attributes linked to its appearance is gathered by consumers in the initial phase of an in-store product evaluation, when looking at the product. Material- and physical-related attributes can be allocated to the haptic information level, as those product characteristics usually get investigated by touching and feeling the product with the hands. The remaining information, which consumers obtain by finally trying on a product, is linked to fitting and performance attributes. Therefore, these can be allocated to the fit and performance information level.

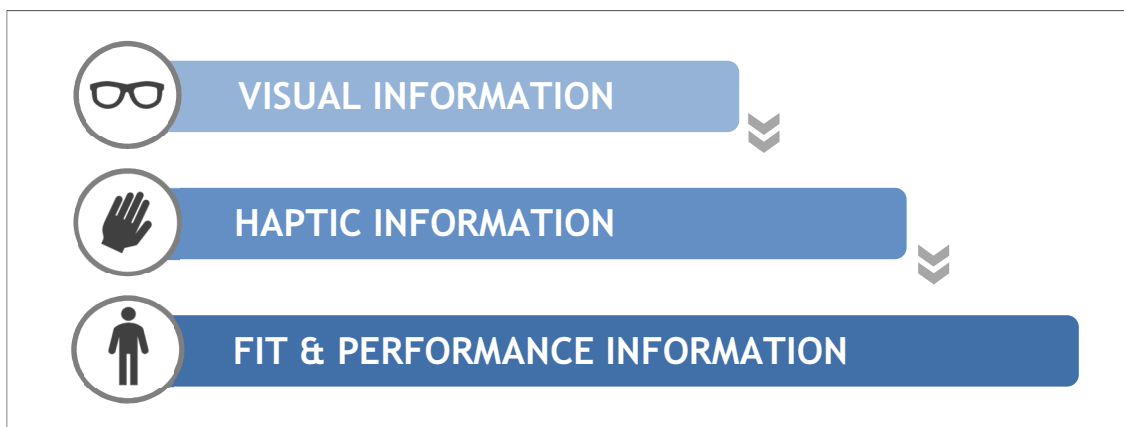


Figure 2: Usual sequence of information levels perceived during product investigation

This classification can be used as guidance, providing a useful framework for a study aiming to investigate product attributes' influence on the purchase decision at information level.

As most of the previous studies did not take place at the actual point of purchase and were conducted by using predefined questionnaires, as previously argued in Subchapter 2.2, the findings about product attributes' influence on consumer preference have limitations. Therefore, the identified evaluative product attributes will only serve as valuable input and sensitization for the data collection process, however this study will not be limited to those. Additional attributes, such as 'touch of a product' for instance, should be included during data collection, if they are perceived as potentially important as data collection is undertaken and analyzed.

3. Problem characterization

This chapter outlines the practically existing problem and resulting implications for the fashion industry, reveals limitations and gaps of prior studies, and states specific research questions.

3.1. Problem formulation and research gaps

The progressive intensification of competition in the global fashion market forces its players to continuously increase the offered product value. However, plenty manufacturers still do not sufficiently link themselves to their consumers. Instead of developing products, which explicitly serve market requirements, a common approach is to rather just anticipate demands and needs. High expenditures are made on research and design, pushing evermore apparel and footwear on the market, which are results of technology-push. Involving a certain degree of information, gathered by market research activities, gets to a large share left out (Ciappei & Simoni, 2005). This disregard of external information and the focus on existing knowledge inside the organization clearly reduces the potential of product development. Even more alarming is the trend to cut costs by shortening NPD cycles, as designers get constrained to apply modifications to existing product lines, rather than making radical re-designs or complete novel creations (Borgianni & Rotini, 2015). Eventually, downsides of these practices will catch up the executives, as some products' performance fails to meet the high consumer requirements, or wrong assumptions in critical product design stages lead to immense revision expenditures or costly project failures (Borgianni & Rotini, 2015; Piller & Walcher, 2006). To counteract these threats, manufacturers must seek greater understanding of consumers' perception regarding the attributes of offered products. Their importance for making a purchase decision is undoubted and proved by numerous researches.

Although various studies already got conducted to shed light on consumers' perception of product attributes, the theoretical research on this topic still exhibits several gaps. Potentialities to advance the state of art in studying this field relate to general aspects, the realism during the research conduct, and the choice of methodologies. Most prior researches are too generalized, without the necessary focus on a specific product or category. Although several studies, like the one from McLoughlin and Sabir (2017), indicate that consumers prefer different product attributes, when comparing distinct categories. To draw evidenced conclusions, additional studies with sufficiently narrowed focus are needed. Furthermore, no study was found, trying to highlight specifically the differences in product attribute perception, when it comes to a comparison of apparel and footwear. Weaknesses in evidence also exist due to the lack of realism in a majority of prior studies. Main reason therefore is the chosen location, which was many times remote, and not directly at the point of purchase. The review of consumers' purchase decision process unveiled, that the in-store stage is still a cornerstone, and hence is not neglectable to generate unbiased and valuable data. Hand in hand comes the involvement of real products as stimuli for the respondents, which was also rarely practiced. From a methodical viewpoint, research gaps still exist, since questionnaires were by far the most favored data collection tool. With just few researchers, who gave the respondents the

possibility of free responses, important insights might have been neglected and unconsidered until now. In general, none of the studies approached the research with a complete objective method, although possibilities are given with newly emerged technologies.

Obviously, the influence of product attributes on consumers' preference is still not adequately investigated. Due to insufficient accuracy in research, market players in the apparel and footwear industry lack understanding on consumers' preferences and their trade-off makings when evaluating products. Advanced studies are needed to increasingly be able to comply with market requirements and enhance consumer satisfaction.

3.2. Study frame and research questions

The study on hand aims to unveil the product attribute categories, which play a superior role in the formation of consumers' preference during product evaluation. To contribute advanced findings to prior studies, part of the data collection will be conducted in-store. Furthermore, focusing only on the segment of running shirts and shoes will minimize generalization of results. As King and Horrocks (2010) already noted, encompassing insights from a too broadly chosen set of social contexts will lead to scattered findings and rather unrelated snapshots. For these reasons the study scope will be kept relatively narrow. Nevertheless, the study outcome shall provide product developers and designers guidance on which category of intrinsic product features and characteristics should be preferably focused during NPD, to ensure high compliance between final products and consumers' needs or desires. This aim frames the general scope of this research.

The research questions are defined below. Presuppositions are avoided in their formulation, since it might distort or lead the study process into any direction (King & Horrocks, 2010).

- (1) Which intrinsic attribute categories (information level) influence consumers' product evaluation regarding performance shirts and running shoes?
- (2) How can these attribute categories be ranked according to their importance for consumers?
- (3) Are consumers' intrinsic product attribute preferences regarding running shoes and performance shirts different? How do they differ?

The study aims to contribute to knowledge by comparing consumers' preferences towards attributes of footwear and apparel identifying potentially existing dissimilarities or commonalities.

4. Research approach & methodology

This section presents the general research approach. Then the intended approach is described in more detail, specifically focusing on the methodologies applied. Reasonings, including a contrast of related advantages and disadvantages, are made to substantiate the selection of methods.

4.1. Multi-methodological design including counterchecks

To guide the research towards specified objectives, a suitable approach must be chosen, which requires several interrelated decisions on how to obtain data. The choice affects the overall research quality and the accurateness of final conclusions (Aaker, Kumar, Leone, & Day, 2013).

Due to stated existing research gaps and limitations in the study field on hand, it is inevitable to collect further primary data in addition to the review of secondary data in form of published research articles. Moreover, the given study frame and the derived research questions imply, that the study on hand must be conducted in an exploratory and descriptive manner. One of the several issues to be taken into account, is the question of what kind of insights are desired to produce (King & Horrocks, 2010). The tackled practical problem by the study on hand shall be the existing lack of consumer understanding. More precisely, the aim is to minimize the psychological difference between apparel and footwear manufacturers and their consumers. Therefore, a personal confrontation with the subjects in the context of a qualitative research would serve best as a technique, helping to comprehend their opinions and identify possibly existing attitudes (Bradley, 2013). Qualitative research tools provide deep understanding by unveiling consumers' emotions and motivations, which underly specific behaviors. This is of immense value, especially when trying to throw light on consumers' thoughts during the purchase decisioning process. In addition, the direct consumer involvement allows reacting on their comments and expressions even during the data collection, thus ensures a constant iterative refinement of the interaction with the subjects (Mariampolski, 2001). Due to those reasons, a qualitative data collection is chosen to be performed as a first part.

As different research methods are meant to serve different purposes, it is prevalent to use them in combination, rather than singly. By doing so, the results from one can be either confirmed or disconfirmed by another. Thus, using varying approaches in sequence will improve the final validity of presented results (Aaker et al., 2013). As already suggested in Chapter 2.2 according to Eckman et al. (1990), it is intended to base the research on at least two distinct and independent methodologies. This approach shall minimize the downsides of each applied method, by counteracting them with the advantages of the respectively other. Furthermore, it is expected to contribute to the enhancement of the state of the art of the given research field, since very few previous studies relied on a multi-methodological research design.

Qualitative methodologies always imply the possibility of being leading or biasing the results due to the way the researcher approaches to explore the given topic (King & Horrocks, 2010). Therefore, the second applied tool is chosen to be a quantitative method, since a qualitative-

quantitative-comparison could provide very interesting and novel outcomes. Obtained findings, potentially validating previous assumptions, can further reinforce the results of the study, or guide the direction of potential follow-up researches. Generated accounts and statistical statements regarding consumers' evaluation and perceived importance of different product attribute categories may provide less subjective insights (Bradley, 2013). Not eliciting subjects' individual responses for further interpretations may help to crosscheck qualitative-based, exploratively obtained findings, with formal and empirical measurements (Zikmund & Babin, 2007). Also, biasing by misinterpreting the collected data is heavily limited (Bradley, 2013).

Beside the two main data collection methods - qualitative and quantitative - it is intended to perform further complementary crosschecks with different techniques for each of them. To keep the scope of the study limited, the planned crosschecks will be kept basic. However, they ensure a broad and extensive investigation of the given research questions. In addition, they limit once again potential disadvantages of the respective other approach (Aaker et al., 2013).

4.2. Choice of specific data collection techniques

As the methodological frame of the research got defined and justified in the previous section, the specific techniques for the intended data collection need to be selected.

The first qualitative study part shall help understanding consumers' attitudes and opinions. The aim is to assess, how the consumers' mind is working during the store visit, while making decisions regarding future purchase actions. Gaining a deep understanding of the subjects' perspectives, as well as unveiling the range and complexity of their activities, is the main goal (Aaker et al., 2013). The two most predestined techniques to obtain that kind of qualitative insights, are face-to-face interviews with single consumers, or focus groups with a higher number of consumers at the same time. Each technique has its advantages, with focus groups for instance, being extremely useful frameworks to brainstorm, gather, and unveil many topic-related aspects within a dynamic group discussion, in which numerous stimuli trigger questions and answers. However, individual in-depth interviews seem better fitting the research aim, as the one-to-one setting allows the respondents to express details and thoughts about their purchasing behavior and product assessment in a non-competitive environment, and in the absence of group pressure potentially biasing or directing given answers. The interviewees' statements are free of potential influence from other respondents, role playing is minimized, and peer pressure eliminated (Aaker et al., 2013; Mariampolski, 2001). Especially when seeking information about an individual's decisioning approach, it is essential to avoid any influence by third party statements. Moreover, the given environment can be suited better to the respondents' needs, as conversation pace and question wording will be adapted to the single interviewee. Also, the time of the interview is variable and can be adjusted according to the course of each individual interview, instead of having a predefined length. Lastly, in-depth interviews are a mobile technique, thus allowing to get performed at any place and any time. This helps counteracting the existing gap in research, with just few studies have been including real consumers and taken place at the actual point of purchase in the store (Aaker et al., 2013; Bradley, 2013). To reach a high degree of psychological depth with the subjects, the interviews

will be performed personally, instead of remotely, and in a semi-structured manner. This type of interview guidance still enables to investigate motivations and explanations behind respondents' product preference, but prevents the conversation to lead into the wrong direction (Aaker et al., 2013; King & Horrocks, 2010).

As a complementary crosscheck for the in-depth interviews, an in-store observation of running shoe and performance shirt consumers gets chosen. In contrary to personal interviews, an observation cannot deliver insights about motives, attitudes, or intentions behind the purchase behavior of a subject, but it might give answers to some overarching behavior patterns within the group of observed consumers. In addition, interviewees might be unable to answer some specific questions about their in-store habits, due to memory loss or inability in precisely reflecting undertaken actions (Aaker et al., 2013). This information can be obtained by directly observing consumers during their store visit, which is an extremely powerful technique to complement interview insights (Bradley, 2013). Regardless of the structure of an observation, it is highly desirable to avoid subjects realizing to be observed. Otherwise, they might alter their natural behaviors in an unpredictable manner, and thus bias the outcome. This is why the observation will be performed remotely via in-store cameras (Aaker et al., 2013).

To not only cover the subjective underlying psychological thoughts and motivations of consumers' product preference, but also obtain some quantifiable accounts for a comparison, the conduct of a laboratory experiment is suitable (Mariampolski, 2001). This kind of research approach uses artificial or laboratory settings to detect or confirm casual relationships, and precisely express them in numbers or percentages (Aaker et al., 2013; King & Horrocks, 2010). Laboratory settings tend to be more artificial than field experiments, but they have the great advantage of allowing a manipulation of environmental conditions. Variables determining the subjects' product preference can be clearly specified and controlled to gather insights, which cannot be obtained in ordinary routines. Furthermore, disturbing external influences can be minimized. One major disadvantage however is, that respondents are aware of participating in an experiment, and thus are potentially sensitized and behave unnaturally. But bearing in mind that the outcoming findings will be combined and crosschecked with the conclusions of the qualitative research part, this is an acceptable compromise (Aaker et al., 2013). The goal, however, should be to reach high validity of results by creating an experiment setting, which is as close to the natural store environment as possible. The trade-off to be made will be between the degree of realism, the costs, and the data desired to obtain (Bradley, 2013).

According to Bradley (2013), another obvious methodology in quantitative research is the application of a questionnaire. Depending on the intention of its usage, this is a mean which is easy to construct and requires low investments in regards of time and monetary efforts. Furthermore, by using closed-end questions, it is easy to quickly obtain information from respondents. Given options of answers are standardized for all participants, and the subsequent analysis therefore is of a straightforward nature (Gillham, 2008). Thus, a basic questionnaire represents a very appropriate method to use as a complementary data collection tool for the planned laboratory experiment. Even though it is proposed to perform the questionnaire survey right before, after, or during the conduct of the experiment, a self-completion variant still

seems to be the better option compared to other potential methods. This signifies that respondents can go through the questions without help and need of the researcher. Hence, a major source of bias, which potentially originates from the researcher itself, can be eliminated. However, having still the chance to clarify unclear questions, or to repair potential misunderstandings of how to proceed, is given. This minimizes one of the great disadvantages of self-completion questionnaires (Brace, 2008). To alter the effectiveness of such a variant, the questions should be formulated closed-end, as already suggested above and due to different reasons. Nevertheless, designing closed questions with predefined answer options requires the anticipation of the type of answers which might be given by respondents for the respective questions (Bradley, 2013). As an excessive literature review on the given field of study got performed beforehand, this is not seen as a limiting factor. Statements and thoughts, which potentially pop up in the subjects' mind when reading the questions, should be already known to a high degree. Beside a short question or task about desired product attributes, it is only intended to add some few screening questions, which shall provide information about the respondents' characteristics, so that obtained data can be classified respectively (Brace, 2008). The chosen research design, including the specific methods as described above, is illustrated in the following Figure 3.





QUALITATIVE		IN-STORE CAMERA OBSERVATION	objective	REAL-LIFE CONSUMERS
		STORE-INTERCEPT INTERVIEWS	subjective	
QUANTITATIVE		LABORATORY EXPERIMENT	objective	RECRUTED SUBJECTS
		QUESTIONNAIRE SURVEY	subjective	

Figure 3: Research design and chosen data collection methods

The multi-pillar approach, in a methodological sense, promises to tackle the given research issue on several levels and with the respective advantages of each method. Some chosen techniques, namely the laboratory experiment and the store intercept in-depth interviews, will contribute in an alteration of the current state of the art in the study field, as it was already suggested after the performed literature review. Results gained by the different data collection approaches may either corroborate each other or show disconfirmation, but they likely will provide novel and pathbreaking insights. The following chapters present the procedures, and findings obtained using the multi-method approaches described.

5. In-store camera observation procedure and results

This chapter presents how the in-store camera observation was planned, prepared, and conducted, as well as the findings, and results discussion.

5.1. Procedure, sample, and data collection

As explained in Chapter 4.2, a camera observation shall provide insights to potentially existent overarching behavior patterns of consumers investigating running shoes and performance shirts in the store. Such a technique faces the limitation of not being able to deliver knowledge about motives and intentions behind the observed consumers' actions, as well as suffering from ambiguousness of collected data. However, it can still generate valuable complementary information beside the planned in-depth interviews (Aaker et al., 2013; Lowrey, 2008).

Before starting the observation as suggested by Daymon and Holloway (2011), it is necessary to select the observation setting. For this study a flagship store of a globally leading sports brand in New York City was considered suitable. The store already has installed an observational camera system on the ceiling, which facilitates data collection. More precisely, two cameras covering the space in front of the men's footwear wall, and the men's training section with performance shirts, get used (photos available in Appendix E).

The sample includes the observation of 30 male shopping for shoes, 10 subjects each at the dates 14th (evening), 16th (morning), and 18th of March 2018 (noon time). To also cover different daytimes and weekdays to eliminate potential time-related influences, the same was applied for the shirt observation, with 10 subjects each at 23rd (morning), 25th (noon), and 29th of March 2018 (afternoon).

Even though observational data collections are often considered to be time-consuming, the usage of an already installed in-store camera system limits the time efforts to gain access to the setting to be observed (Bradley, 2013; Daymon & Holloway, 2011). However, the technical setting of the used cameras comes along with some limitations, as the camera perspectives only capture the area in front of the running shoe wall, and the area around the shirt section, but obviously not the changing rooms. Also, the entire path of subjects in the store cannot be observed. This way, the privacy of subjects is secured, and legal or ethical barriers are not endangered (Lowrey, 2008). Even though this reduces external validity of results, the possibility of capturing in-store behavior on video offsets that disadvantage, as subjects' movements and expressions could be reviewed as many times as necessary, and data could get analyzed more accurately without missing important sequences (Daymon & Holloway, 2011).

The video material belonging to the in-store recording of the selected sample, as well as to the days and times of interest, was viewed and analyzed to detect potentially existing behaviors of the subjects. To facilitate data analysis, pre-defined behavior patterns were identified from the literature review, researcher expertise, meetings with sports company personnel (scientists', designers, and salespersons), and runners. The method for analysis involved contrasting the observed behaviors on the video with the pre-identified patterns, and whenever

a subject performed the respective action, the pre-defined behavior was selected (see Appendix F or H as an example). Furthermore, the length of time each subject spent within the camera perspective was noted down. Whenever a subject left the observation area, the next male person entering the area and starting to inspect the running shoes or performance shirts was observed. Unfortunately, due to the remote observation it could not be checked, whether observed subjects really intended to buy the inspected products for running, and what age range they belong to.

5.2. Findings and discussion

As mentioned above, predefined behavioral actions concerning running shoes and performance shirts got ticked in an observational framework, in case the respective subject performed it. For the analysis, some numerical measurements such as sums of how many subjects did a specific action, percentages, or averages were calculated. Furthermore, obtained data was inspected to detect groups of subjects with commonalities, and suppositions regarding the underlying reasons were made.

5.2.1. Running shoe findings

The average observation time per subject was six minutes, ranging from 1-20 minutes maximum. Most interesting finding was that 79% of all subjects browse the footwear wall first, before approaching an individual running shoe for further inspection. The others directly approached a specific model without paying attention to the remaining offered assortment. Furthermore, 93% of all observed consumers grabbed or touched at least one of the shoes displayed on the footwear wall. This results in an average of 4,72 shoes being touched by each subject during the respective observation period. Out of the subjects touching or grabbing a shoe, just 15% hold at least one shoe next to their feet to check the look, and only 19% bend a shoe to possibly obtain information about its flexibility or cushioning. None of the subjects twisted the shoe. Store assistance was asked for a try-on pair by 34% of all subjects, and for further expertise by 45%. Additional general insights are listed in Appendix F.

Figure 4 shows the time observing the shoes and number of touched shoes for the 30 subjects, which are each represented by one bar, except for the two spending less than one minute. The data were clustered using the time range the respective subjects spent in the observation area and ordered by number of shoes touched. These criteria were chosen as they might reflect the individuals' level of real purchase intention and potentially characterize their purchase approach in terms of slow or fast decision maker.

It can be seen that consumers spending more time in front of the shoe wall, tend to touch a higher number of shoes. However, this is no general rule and most likely depending on personal purchase behaviors and habits. One subject clearly stands out with 15 touched shoes while just spending 2-3 minutes in front of the shoe wall. Due to that reason the respective bar got greyed out to mark it as a residual. The collected data belonging to this subject was not included in the observation analysis.

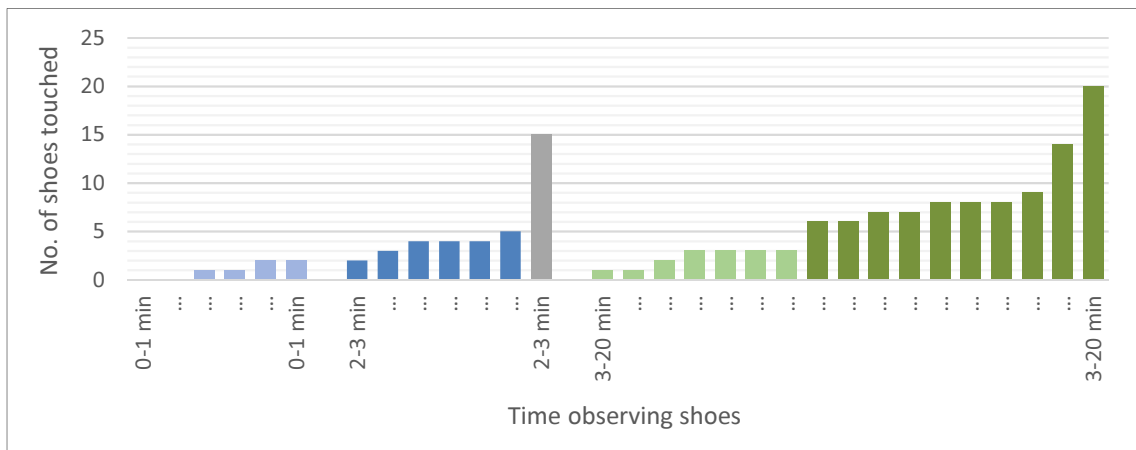


Figure 4: Subjects clustered by time observing shoes and number of shoes touched

By looking at Figure 4, four groups of subjects with common behavior characteristics can be identified. They are made visible by light and dark blue for the groups with lower observation time, and light and dark green for the ones with higher observation duration. In the following, these four groups will be analyzed in more detail and underlying reasons will be suggested.

The first group of six subjects spent nearly no time (max. 1 min) at the footwear wall, and the number of shoes they touched is very low (0-2). In fact, with 67% who touched a shoe, this is the only subject group, in which not every consumer touched at least one shoe. Furthermore, none of these six subjects either asked the store staff for a try-on pair or for expertise about any of the offered shoes. This leads to the assumption, that those consumers just passed the shoe section to have a quick check on the go, either visually or also haptic-wise, but most likely without any real buying intention.

Slightly more time was spent (2-3 min), and more shoes were touched (2-5) by the subjects of the second group. Interestingly, every second subject within that group directly approached a specific shoe model, without browsing the assortment first. Few (33%) asked the staff for expertise about a specific shoe. The underlying reason for the consumers directly approaching a specific shoe might be, that this product caught their attention when they passed the footwear wall. Then, they might have started to browse the assortment for a bit longer, and leave not having a real buying intention, thus not requiring expertise. The other subjects of this group might already have a desired shoe in mind with a real intention to buy it, and hence did not spend a lot of time to inspect the entire offer.

The subjects spending between 3 and 20 minutes in the shoe area, but touching less than 5 shoes each, belong to the third group. Most interesting findings were, that a high number required staff expertise for a specific shoe (86%), and 43% of the subjects took a picture from shoes displayed at the wall. Since the price tag and shoe information is displayed inside the shoe, it was not captured by the picture. Following these insights, the hypothesis is made, that the subjects have a real intention to buy a shoe or get information for future purchase. Spending more time on inspecting a small selection might indicate that a desired model or type is known. Subjects might be more frequent and experienced runners, which only inspect shoes

meeting their personal requirements. Requiring expertise could indicate a high interest in detail, while taking pictures might reveal an ongoing buying decision process.

The remaining subjects spent the same length of time in the observation area but touched between 6 and 20 shoes. With only every second consumer requiring expertise (50%), the amount is significantly lower compared to group 3. Also, fewer subjects took pictures of the displayed shoes (20%). Due to same reasons as above, a real buying intention or the will to collect information for a future purchase might be existent. Spending less time for each shoe, but inspecting a bigger shoe selection, leads to the assumption of the subjects not having a desired type or shoe model in mind. They rather could be less experienced runners trying to figure out their preferences by checking the offered assortment excessively.

Further findings and details regarding the identified groups can be seen in Appendix G.

5.2.2. Performance shirt findings

For the shirt section, the average observation time per subject was three minutes, with a maximum length of ten minutes. Nearly every consumer (93%) browsed the shirt assortment first, before approaching a specific product. Also, 93% of all subjects touched or grabbed at least one shirt during the observation period. In average it was 5,82 shirts. Out of the subjects who touched or grabbed a shirt, 18% were holding at least one in front of the body to check the look. Just one subject stretched a shirt. A specific component, for example the zipper, a pocket, or the seams, was inspected by 29%. Shirts were picked for try-on or purchase by 20% of all subjects, with only two out of 30 asking a staff for further expertise. Additional general insights are listed in Appendix H.

Similarly to the analysis done for the shoe section above, and due to same reasons, the data sets of the subjects were clustered regarding time spent in the observation area, and ordered by number of shirts touched. The obtained result can be seen in Figure 5.

Again, it can be seen, that consumers spending more time at the performance shirt area, tend to touch a higher number of shirts. However, this is no general rule and most likely depending on personal purchase behaviors and habits.

By looking at Figure 5, four groups of subjects with common behavior characteristics can be identified, which is next going to be discussed in more detail. The first group includes eight subjects who spent 0-2 minutes in the observation area and maximally touched one shirt. Thus, this is the only group which includes subjects not even touching a single shirt but just checking visually. Out of those touching a shirt, 33% took it off the shelf to check its look.

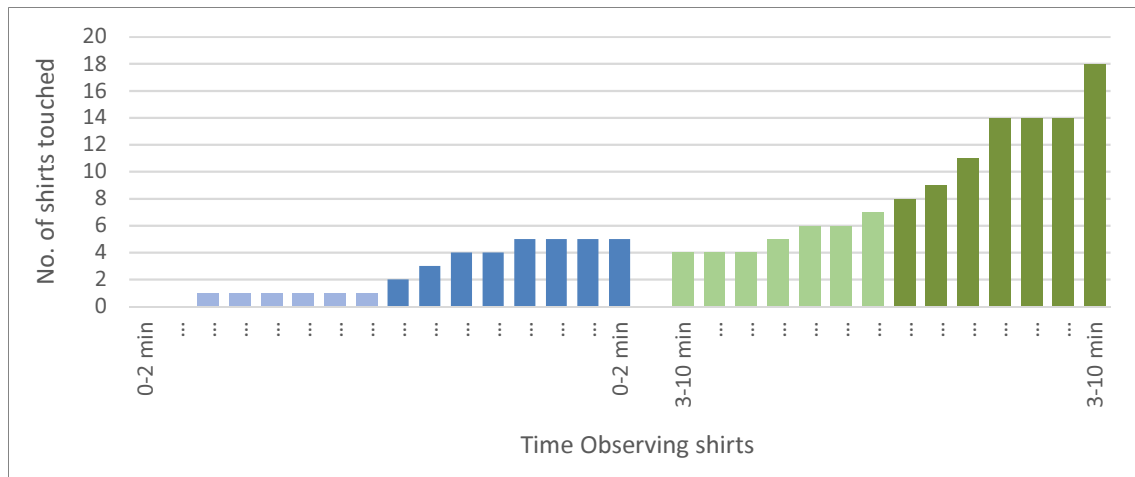


Figure 5: Subjects clustered by time observing shirts and number of shirts touched

However, none picked a shirt for try-on or purchase, and none asked staff for further information. The findings suggest that subjects of this group had no real buying intention. They spent short time checking few shirts and did not require any expertise.

Consumers belonging to the second group spent the same time at the shirts but touched or grabbed 2-5 shirts each. However, still a low number took shirts off the shelf to check their look (38%). On the other side, 25% of all subjects in that group were checking in detail a specific shirt component. Again, none picked a shirt for try-on or purchase, and none asked for expertise about a shirt. Findings could lead to the hypothesis that these subjects have a real buying intention, because they inspect shirts more intensely. However, the fact of no try-on or expertise required disconfirms that. Thus, it seems that there is no real buying intention.

Longer time was spent (3-10 min) and generally more shirts touched (4-7 pieces) by subjects of the next group. All touched at least four shirts, with 71% taking at least one off the shelf to check its look, 29% even hold one in front of the body. Nearly every second subject (43%) inspected a specific shirt component. None of the subjects asked staff for expertise, but 29% picked at least one shirt for try-on or purchase. This suggests that subjects might intend to buy a shirt or to collect information for a future purchase. Also, a desired or preferred type of shirt might be already known, or information been collected beforehand, as the observed consumers spent long time on checking a relatively small number of shirts. Thus, these subjects may be more experienced runners.

The last group consists of subjects who spent long time (3-10 min) for the product inspection. Between 8-18 shirts got touched by each of them. A high number (86%) took shirts off the shelf to see the look, 29% hold one in front of the body for visualization of the look. Specific shirt components got checked in detail by 43%. With 29%, this is the only group with subjects who required expertise from staff. It is also the group with the highest number of shirt picks (57%) either for try-on or purchase. Findings clearly seem to prove a real buying intention to be existent, or at least the will of information collection for a future purchase. A bigger shirt selection was inspected in the same time as in group 3, and additional expertise was asked.

Thus, subjects might not have collected information beforehand, and they might not have a desired shirt type, and therefore could be less experienced runners.

Further findings and details regarding the identified groups can be seen in Appendix I.

For subjects observed in front of the shoe wall and at the shirt area alike, it was possible to identify several groups, which represent common behaviors and habits. Results clearly show that consumers spend more time when investigating shoes in-store, compared to investigating shirts. However, the range of the number of touched or grabbed articles is nearly the same, with a respective maximum of 20 for shoes and 18 for shirts. This might either indicate a high demand to obtain haptic information when inspecting shirts, or a more extensive check of shoes' performance and fit for a potential purchase. This assumption is also substantiated by the general findings stated at the beginning of each analysis. To conclude the observation analysis, these insights are visualized below.

Results shown in Figure 6 seem to corroborate stated assumptions, of consumers tending to place more importance on visual-related product attributes when investigating performance shirts. But on the other side, they seem to weight performance criteria for shoes higher, compared to shirts. Or at least the observed subjects performed actions in the store, which suggest that they check performance-related aspects more often when inspecting shoes, compared to shirts. For haptic-related actions performed by the subjects, it can be said that nearly the same amount touched or grabbed products when comparing shoe and shirts results. However, more subjects bent an inspected shoe, than stretched a shirt. This is listed as haptic criteria but can be interpreted to be more related to the performance of the respective product, as the actions provide information about cushioning (bending shoe) and material flexibility (bending shoe; stretching shirt).

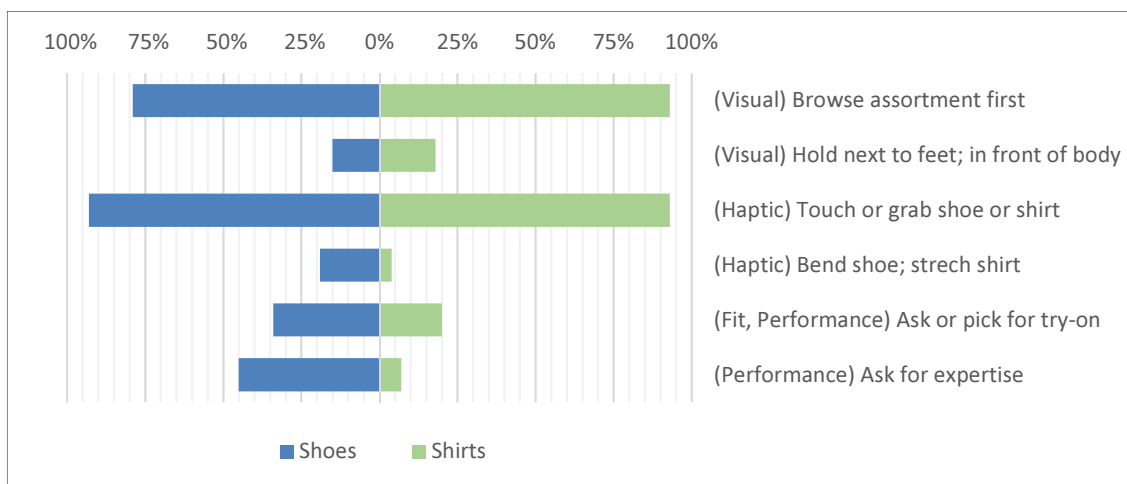


Figure 6: General comparison of observation results: shoes vs. shirts

6. Store-intercept in-depth interviews procedure and results

This chapter presents the qualitative in-depth interviews procedure, the findings, and results discussion.

6.1. Procedure, sample, and data collection

The in-depth interviews aim to discover the underlying motivations and attitudes of the consumers' product preferences. The purpose is to gather insights about how important different product information levels, and specific product attributes are perceived by subjects. To enable sufficient exploration of upcoming issues, and to allow a fluent and informative conversation, the questions to be asked should be adjustable, open-ended, and non-directive (Mariampolski, 2001).

An interview guide was developed to pre-draft superior topics to be addressed during the store-intercept interviews. Due to the researcher's inexperience, it was decided to use fully formulated questions for the guidance, instead of a bullet point format, which requires very good language questioning skills. Nonetheless, the questions were flexibly used during the interviews in regards of their wording and the order to be brought into the conversation (see interview guide in Appendix J). The interview guide was developed based on the literature review and discussion with workers from the sports company. Further issues popped up during three test interviews and were added. The interview guide was developed not too comprehensively, still ensuring opportunity for the interviewed consumers to mention previously unanticipated aspects in regards to the research interest (King & Horrocks, 2010).

The interview participants were selected according to the research objectives, thus, only involving male runners, that checked or bought either performance shirts or running shoes in-store. Furthermore, it was tried to recruit a diverse group of interviewees, representing different age and running levels, to potentially unveil behavioral differences.

A non-probability convenience sampling was applied to acquire subjects. This allowed getting information quickly and minimizing costs by simply contacting consumers in the target group, available at the point of conduct. Data was collected at the flagship store of a leading global sports brand in Berlin. Beside all the advantages, convenience shopping center sampling also comes along with a limited precision due to potential hidden biases and uncertainties, initiated by the selection procedure (Aaker et al., 2013). During data collection those downsides were tried to be minimized. For instance, the interviews were performed in the open-minded, touristic, and vibrant city of Berlin, to avoid just reflecting subjects with specific neighborhood characteristics as it might be in a small city. Interviews were undertaken on different weekdays (Monday-Wednesday) right after the International Berlin Half Marathon 2018. Interviews were stratified by day-times, each day between 10am and 7pm. This again intends to guarantee covering a broad range of subject-related and environmental characteristics. As Mariampolski (2001) suggests, most studies are effectively performed with 15-30 individual in-depth interviews, while it is not recommended to conduct less than ten. To keep the scope controlled

but still ensure comparability and comprehensiveness, 30 interviews were performed in total, half for performance shirts and half for running shoes.

To gain access to real life consumers in the chosen store without disturbing their comfort zone by surprisingly assaulting them with a request to participate, the store assistants helped to recruit willing interviewees. After every sales pitch regarding the study's target products, the store employees took advantage of the already existing bond of trust with the consumer, to kindly forward them to the interviewing researcher. This way, reflexive reactions of rejecting research participation requests could be avoided, and potential subjects of interest already pre-selected. In addition, participants received a 10€ gift voucher for all German stores of the sports brand involved in this study as an incentive to participate. Consenting consumers were informed about the study purpose, the reason to be chosen as participant, freedom to participate or not, their tasks, intention to record audio, and how results are going to be used (King & Horrocks, 2010). Afterwards, agreeing subjects had to sign an informed consent as shown in Appendix K.

Apart from having a good strategy to recruit consumers for store intercept interviews, it is also crucial for the success of the study to have a smooth starting into the conversation. King and Horrocks (2010) propose to use relatively simple initial questions, not threatening the respondents. Hence, participants were always firstly asked easy answerable facts about the reason for the store visit and whether they have a buying intention or not. Behavior questions about the individual in-store buying approach, as well as opinion and value questions regarding general product preferences formed the major interview part. In complement with further questions about sensory aspects of the store visit and product choice experience, this section generated tremendous decisioning insights, articulated by the subjects. General purchase and decisioning behaviors were also asked, as well as closing quantitative and demographic questions, which helped categorizing the respondents later. Questions were broadly asked to provoke unbiased answers truly coming from the respondents' perspective. If feedback was not deep enough, the questions became more narrowed and specific. Follow-up questions, called probes, got used throughout the conversations to encourage the interviewees to expand initial answers to achieve even greater insight details. If needed, prompts helped to intervene and clarify misconceived questions (King & Horrocks, 2010).

As already incidentally stated above, every interview was entirely recorded on audio via a small microphone fixed to the researcher's collar. Thus, no notes had to be taken during the conversations and the talk could be kept fluent and natural at all times.

6.2. Data coding

Audio recordings of the in-depth interviews were verbatim transcribed. Next, the raw data was coded by using the qualitative analysis tool NVivo. More precisely, all statements done by the subjects were broken down into short sequences, which were then labelled according to their content. The labels reflect the sequences' meaning and were named using expressions previously identified in the literature review, terms used by respondents', or others matching the content. All sequences that seem to have a common meaning were labelled with the same

code. This approach helped to organize all statements done by different consumers throughout the interviews (Bradley, 2013; King & Horrocks, 2010).

The first level codes were all grouped according to their content information in a first categorization. The chosen categories were built upon the first codes, encompassing a higher-level perspective. This already provided a more clear and structured overview about articulated thoughts of the interviewees. A second categorization was performed, again grouping the codes content-wisely related to each other into an even broader second category. By doing so, many factors supposedly influencing consumers' purchase decision and in-store investigation of running shoes or shirts were identified from the interviews (King & Horrocks, 2010).

6.3. Findings and interpretation

The findings report follows King and Horrocks (2010) proposal to describe and discuss the extracted overarching categories, most effectively addressing the given research topic, and using the most relevant respondents' statements to substantiate conclusions.

6.3.1. Running shoe findings

In total 15 subjects, who entered the store to check or purchase running shoes, were interviewed. Age ranges represented by those are under 18 years (1 subject), 18-25 years (2), 26-35 years (4), and over 40 years (8). Two of them stated to be beginner runners, while eight assessed themselves as moderate and the remaining five as experienced runners. However, the running level remains a subjective judgment done by the respondents, and therefore restricts the validity of following interpretations slightly. It was only double checked with the respective usual amount and length of training runs, to allow comparing all subjects' self-evaluations.

The analysis reveals numerous factors, which seem to influence the interviewed consumers' in-store buying behavior regarding running shoes. These diverse factors could be categorized into broader groups, which then again could be allocated to either consumer intrinsic factors or informational factors, as shown in Figure 7.

The term "consumer intrinsic factors" refers to all factors mentioned by interviewees, which influence the buying behavior in some way but are linked only to the individual subject itself, and not to the product or other external aspects. Three categories of consumer intrinsic factors were identified: personal preferences, health & body structure limitations, personal experience & habits. The individual influential factors of each of these three categories are not necessarily mutually exclusive. Most likely, consumers' buying behavior results from a synergy of various of those.

First level codes	First categorization	Second categorization	Highest level category
Health aspects Personal body structure	Health & body structure limitations	Consumer intrinsic factors	In-store buying behavior
Consumer's usual decisioning approach Purchase location preferences (online / physical store) Personal shoe preference	Personal preferences		
Past purchase experience & conclusions Shoe using habits	Personal experience & habits		
Information from store assistance In-store shoe investigation	In-store information	Informational factors	
Influence from advertisements Information from magazines & test reports Running expert opinions Advice from running team or coach	External pre-purchase information		
Performed online research Information from previous store visits Personal shoe experience	Self-gathered pre-purchase information		

Figure 7: Categorization of influential factors on subjects' in-store shoe buying behavior

The *consumer's usual decisioning approach* in-store is one of the aspects unveiled, which supposedly impacts the buying behavior, according to statements heard in the interviews. When searching for general patterns in the decisioning approach, it became obvious that consumers have very different methods to tackle a buying decision. No major or predominant strategy was detectable, which is used by several of the 15 interviewed subjects similarly.

However, from the results it seems that a tendency evolves, with more experienced runners already having an idea about a preferred shoe type when entering the store, thus inspecting only shoes falling into that preferred category. Furthermore, findings suggest that higher-level runners pay more attention on fit and performance, rather than on visual attributes of a running shoe. These findings are further highlighted by the following example quotes:

"[...] appearance is no factor for me. This is the last I check, when deciding for a shoe. My choice is more pragmatic. [...] if there is the model available, with which I am already happy, I just check this one." (Experienced runner, 40+ years)

"When I go to the stores, I see what the lightest shoes are. Because I like when it feels that I almost have no shoes." (Experienced runner, under 18 years)

"Of course, you always have a shoe model, which you use at the moment. Usually I bring these to the store to check if there is a follow-up model, or a similar one available." (Experienced runner, 40+ years)

In contrary, beginners and moderate runners seem to have less or no idea about a preferred type or model of shoe when coming to the store. More likely they check a wider shoe selection or even the entire assortment offered, and then get inspired by the new information collected. The interview insights suggest that visual-related shoe attributes play a very important role

during that inspirational phase and are often a main reason for the final shoe decision of lower level runners. Respondents stated it as below for instance:

“[...] usually I first look around by myself to get an overview about the shoes offered, and what is available at the moment.” (Moderate runner, 18-25 years)

“I have no specific shoe type in mind. I get inspired by the assortment of the store [...], and then decide for one option. [...] Usually, I take the optical most appealing pair.” (Moderate runner, 26-35 years)

“I usually look straight to where the good designs are, in my point of view. What I find attractive. Then I pick those instead of further looking around.” (Beginner runner, 26-35 years)

Regarding the required store assistance by the consumers involved in the interviews, findings seem to indicate, that more experienced runners rather check running shoes on their own, whereas moderate and beginners seemly tend to require more assistance by staff. Respondents for example emphasized the following:

“Well, at first I look at what they have [in the store] and try by myself since I know what kind of shoe I want. Just if staff approaches me, then of course I let them help.” (Experienced runner, under 18 years)

“[...] I first grab a store assistant. These are my feet, I run 5 kilometers, and thus tell me what shoes I need or what model you can recommend.” (Moderate runner, 40+ years)

Findings suggest, that another aspect influencing the consumers' buying behavior and belonging to consumer intrinsic factors, are personal preferences. One criteria of that category which was mentioned by respondents, is the *personal shoe preference*. Results seem to support the hypothesis, that to some extent consumers individual preferences regarding shoe characteristics influence the in-store decisioning process. These preferences can be a result from previous experiences, influences from external information, trend dynamics, or many more. The fact that they already exist in the consumer's mind, before a decisioning process for a shoe purchase gets started, was the reason why they were included in the consumer intrinsic factors, even though external influences also play a role.

As already indicated above, the analysis results suggest that fit and performance aspects, as well as technical criteria weight heavier for the personal shoe preferences of experienced runners, when compared to less experienced runners, who pay more attention on visual-related attributes. Even though this finding cannot be generalized for the entire group of interviewed subjects, and a few exceptions exist, results suggest a tendency at least:

“[...] the most important is that the cushioning is comfy to wear. [...] If shoes provide me with the right degree of softness, I feel well [...]. But technical aspects are even slightly

more important. If a shoe is comfy but not supporting for what I need it, then it doesn't bring me forward. [...] Of course, the shoe should meet my preference regarding visual aspects, but this is a side effect - not important to the shoe itself." (Experienced runner, 40+ years)

"Pretty sure I value the look lower than aspects like fit, comfort, or cushioning. I do not need to make eyes at pretty girls during a half marathon. For that I have a casual shoe." (Experienced runner, 40+ years)

"But even though the fit and applicability of the shoes are good, and I don't like the optic, I rather keep looking for another pair. [...] The first thing of a shoe attracting my attention is the appearance. If I don't like the shoe visually, I don't need to try it on." (Moderate runner, 18-25 years)

"Oh no, normally I don't have a specific taste of shoe. But I do want the design. For me this is the most important thing. If the shoe design is nice, I take it." (Beginner runner, 26-35 years)

Usual decisioning approach and personal shoe preference are the only factors within consumer intrinsic factors directly linked to the intrinsic attributes of running shoes considered for purchase. In fact, the remaining ones such as health aspects or purchase location preferences influence the final buying decision, but they are not related to product-intrinsic attributes. Therefore, considering the study aim, they are not of specific interest to answer the research questions, thus will not get discussed explicitly. Same accounts to the informational factors, where only the *in-store shoe investigation* is linked to the study scope. As already indicated by the literature review, this is a main cornerstone influencing the buying behavior of consumers. That is why a comprehensive analysis of this aspect is performed next.

Insights obtained by the in-depth interviews revealed a wide variety of shoe intrinsic factors playing a role for the in-store decision making. Most factors, already identified by the review of prior studies, were also mentioned by the interviewees, and hence can be confirmed. The environmental friendliness and reparability of shoes were not named, but new aspects like the shoe being health supportive or functionally colored with security providing glow ink came up. Figure 8 provides deeper insights about the mentioned product attributes. Regarding the *visual information level*, which comprises among others the color and design of a shoe, the main findings were already mentioned above.

The results suggest a clear tendency with beginner and moderate runners placing higher importance on visual criteria compared to more experienced runners, which seem to perceive optical shoe aspects secondarily. Except for very few notwithstanding statements, this suggestion is confirmed by information obtained during the interviews. The two quotes below help explaining the line of thinking of interviewees.

First level codes	First categorization (Attribute category)	Second categorization (Information level)	Highest level category
Shoe can breath & feels fresh Upper material easy to care Fabric used for upper	Material-related	Haptic information	In-store shoe investigation
Shoe is lasting long / durable Good workmanship	Physical-related		
Shoe feels good & comfortable Shoe has exact fit	Comfort- & fit-related	Fit & performance information	
Health support Fulfills basic requirements	Other aspects		
Technical aspects Cushioning is sufficient / functional Enough flexibility provided Shoe enhances running performance Supportive attributes / providing stability Shoe weight	Performance-related		
Shoe has preferred colorway Design is functional (e.g. glows in darkness) General appearance is nice Shoe looks stylish Can be combined with other clothing	Appearance-related	Visual information	

Figure 8: Categorization of attributes considered during subjects' shoe investigation

“The color doesn’t mean anything to me personally. If [the shoes] are good, it is okay. [...] The color is low priority kind of. I don’t care, but if it is good, it is just a bonus.”
(Experienced runner, under 18 years)

“I once bought an Asics at a fair. The outward appearance in this case played a significant role [...]. The shoe leaped to my eye. It was presented, and I just liked it.” (Moderate runner, 40+ years)

The interviewees made relatively few statements and comments within the *haptic information level*. This might indicate a low weighting of haptic aspects during the decision-making. Moreover, if haptic criteria were mentioned, it was predominantly briefly stated about sufficient material functionality for the intended shoe use, and a comfortable feeling when slipping on or wearing the shoe. However, these statements are then again more related to the fit and performance information level. Hence the findings suggest that the touch and the perceived feeling of the shoe material itself are of potentially low importance for the buying decision. For example, one consumer (moderate runner, 18-25 years) emphasized: “In case I had two perfectly fitting shoes, one with the nicer upper material, and the other one with a more appealing design, I would choose the better design. Because, you know, usually I do not often touch the shoe material.”

Further results suggest that the *fit and performance information* strongly influence consumers’ shoe preference and thus the buying decision. This reflects previous insights from the literature review. Very outstanding are the aspects of comfort and cushioning, which were mentioned by most interviewees. Even though the less experienced runners focus generally more on the shoe appearance, the shoe fit still seems to impact the decision, although with lower weighting. For experienced runners, a good fit, which is closely linked to a comfortable feeling in the shoe,

seems to be even a main criterion for the decisioning. Cushioning however, was mentioned in diverse contexts. For some it is important to get support to protect joints and ligaments from heavy pressure exposure, some wish fewer cushioning for more performance-efficiency, and some just like the feeling of soft shoes. More specific performance aspects such as weight, flexibility, and technical shoe properties (e.g. sole grip) were mostly mentioned by experienced runners. Beginners and moderate runners seem to talk about performance more in general.

6.3.2. Performance shirt findings

In total 15 interviews were performed regarding performance shirts. Age ranges represented by the subjects are under 18 years (2 subjects), 18-25 years (3), 26-35 years (3), 36-40 (1), and over 40 years (6). The stated running levels of the subjects are again classified in beginner (2 subjects), moderate (8), and experienced runners (6). For those individual assessments, same accounts as already mentioned within the shoe analysis section.

The qualitative analysis shed light on consumers' performance shirt buying behavior in-store. A variety of influential aspects were revealed, and again allocated to either consumer intrinsic factors or informational factors as shown in Figure 9. Identified criteria are not mutually exclusive, consumers' decisions more likely result from a synergy of several of those.

First level codes	First categorization	Second categorization	Highest level category
Personal body structure aspects	Body structure	Consumer intrinsic factors	In-store buying behavior
Consumer's usual decisioning approach	Personal preferences		
Purchase location preferences (online / physical store)			
Personal shirt preference	Personal experience & habits		
Past purchase experience & conclusions			
Shirt using habits	In-store information	Informational factors	
In-store shoe investigation			
Influence from advertisements			
Athletes' social media influence	External pre-purchase information		
Information from sale offers			
Performed research in online-store	Self-gathered pre-purchase information		
Information from previous store visits			
Personal shirt experience			

Figure 9: Categorization of influential factors on subjects' in-store shirt buying behavior

Similar to the running shoes' analysis, three subcategories for consumer intrinsic factors can be defined: personal experience and habits, personal preferences, and body structure.

One influential factor belonging to behavioral criteria is the *consumer's usual decisioning approach in-store*. Results suggest that most consumers enter the store without already having a type or model of shirt in mind. Rather they arrive very dispassionately and browse the offered shirt selection, to get inspired and gather information. The decision for a shirt then seems to be spontaneous, towards the one catching the subject's attention. This can be due to diverse reasons, such as the shirt's optic, material, or novel technology. Very few interviewees stated to already have a desired shirt type, or to apply specific selection criteria during the in-store

decisioning process. These selection criteria can be either very specific functionalities (e.g. reflecting components for night runs) or related to personal preferences regarding material, shirt properties, or cut. It is noticeable that all subjects with an idea or selection criteria in mind, beside one exception, assessed themselves as experienced runners. The comment below highlights applied selection criteria related to the shirt material:

“In any case, I want it slack and light. It definitely shouldn’t be too tight, I really don’t like that at all. The fabric should be loose, that the skin can breathe. But normally I check what is new, color-wise I am open for everything.” (Experienced runner, 26-35 years)

An interesting finding is that, compared to decisioning processes regarding running shoes, the subjects seem to involve much less informational aspects in their shirt choice. Specifically, none of the interviewees stated to involve some advisory information of a running team, a personal coach, or from store staff. This could suggest, that a decision for or against a shirt is perceived less complex by consumers than for a shoe, hence they need less external advice. A possible reason might be the less critical nature of a shirt. For instance, a shirt is less health- and body-function-influential, and it supposedly has less impact on the consumer’s running performance. Therefore, it seems that respondents base shirt-related purchase decisions more on perceptual factors, like look or touch, and on material functionalities. This finding corroborates with the time duration spent of observation subjects in the shoe and shirt section.

As above results about the subjects’ decisioning approach already indicate, the *personal shirt preference* is not that highly developed, as it is for consumers interviewed about running shoes. Even though personal experience with previously used shirts or professional athletes wearing specific models, for instance, generate preference tendencies, the importance of individual predilection seems to play a relatively subordinated role in decisioning.

Findings suggest that the look of a shirt and its material properties are the most valued criteria, which were mentioned by most interviewees. Fit-related product attributes got stated much less frequented, which suggest, that visual, functional, and touch-related aspects might outweigh the cut and fit of a shirt. However, when asking subjects specifically how they perceive the fit of a shirt, two groups can be identified. One group of subjects, articulating that fit also plays an important role, and the others, not placing much importance on fit. Few even revealed, to buy shirts in their size without trying them on, which indicates, that fit plays a highly subordinated role for those. It is not possible to detect any correlation between the emphasis of fit-related aspects and the running level of the respective interviewees. Therefore, no general suggestion for either one of the groups can be drawn.

Besides the usual decisioning approach and the personal shirt preference, no other first level code within consumer intrinsic factors is directly linked to intrinsic attributes of shirts considered for purchase. Therefore, and bearing the study aim in mind, they are not of specific interest to answer the given research questions, thus will not get discussed explicitly. Within informational factors, only the *in-store shirt investigation* is of special interest for the study scope, thus gets analyzed comprehensively in the following.

As it can be seen in Figure 10, results revealed a wide variety of product intrinsic aspects influencing the in-store shirt investigation. All factors already identified during the literature review, except for environmental friendliness and ease of care, also got mentioned by subjects, and hence can be confirmed. In addition, several more attributes seemingly play a role in the decision making. They are either related to the visual information level, for instance the shirt's color functionality or its combinability with other apparel, or to the haptic level, namely fabric elasticity and skin-friendliness. But most newly unveiled shirt attributes belong to the fit and performance level, like the ability to prevent odor, discharge sweat, or dry fast.

First level codes	First categorization (Attribute category)	Second categorization (Information level)	Highest level category
Shirt is well ventilated and feels cool Fabric is elastic and allows flexibility Shirt feels light Main fabric used for shirt Material is skin-friendly	Material-related	Haptic information	In-store shirt investigation
Shirt construction prevents chafe marks Shirt is durable and has good quality / workmanship	Physical-related		
Shirt feels good on body and is comfortable Shirt is fitting well Shirt is defining body appearance sportively Cut and shape of shirt	Comfort- & fit-related	Fit & performance information	
Novel technology used Shirt is socially fair produced Conspicuousness of shirt	Other aspects		
Fastly drying Shirt is functional for running Shirt prevents strong odor Sweat gets discharged by shirt Good temperature regulation	Performance-related		
Shirt has nice colors Design is functional (reflective components) General appearance Shirt looks fashionable Shirt is easily combinable with other clothes	Appearance-related	Visual information	

Figure 10: Categorization of attributes considered during subjects' shirt investigation

Results suggest that the *visual information level*, comprising intrinsic attributes visualized by simply looking at the shirt, plays a very important role for the buying decision. Especially the color, design, and fashionability of running shirts were mentioned by most subjects. No pattern can be detected, which would allow to allocate those few subjects, who pay a substantial attention on visual aspects, to a specific running level. In fact, it seems to be more linked to the individuals' personality and preference rather than to the respective running level, whether a customer values the shirt appearance higher or lower. For example:

“No, well it has to please me visually. A shirt with a color, which is not appealing to me at all, won't be considered to get purchased. The color must fit. [...] There are some colors, which are not my taste, and they are out of question for me.” (Beginner runner, 40+ years)

“If there is a shirt with a suboptimal fit, I still consider using it. In my point of view, the modish aspect plays a role nowadays. If you feel well in a shirt, running is easier.” (Experienced runner, 26-35 years)

Following the subjects' statements, it seems, that besides appearance, also haptic aspects play a major role for most consumers, independently of their running level. A lot of comments regarding the *haptic information level* were made in the context of fabric properties and the impression of its quality, as well as the shirt's workmanship. Highly and frequently desired properties seem to be breathable and lightweight materials. As stated by a large majority, the fabric itself shall make a high qualitative impression, with no construction points of the shirt causing nor boosting chafe marks. Apart from those, some more specific criteria were mentioned, but not as often. It is remarkable, that the more detailed desires regarding shirt intrinsic attributes mainly came from consumers, who are regularly training and assessed themselves as experienced runners. Several consumers, as evidenced with following quotes, argued:

"If a shirt is for running, it is important that your skin can breathe, and you can run without getting too hot. The material is important. [...] something that feels right on the skin, something right for running and allowing air to ventilate." (Moderate runner, under 18 years)

"I like it slack and light. Not too tight... That the fabric really is breathable. That sweat is discharged and not absorbed, so that the skin can breathe." (Experienced runner, 26-35 years)

"[...] somehow breathable, so that especially in summer the body gets cooled down and doesn't get too hot while running." (Experienced runner, 18-25 years)

"In summer more light materials, air-permeable, little scratching. So that long runs don't evoke skin irritations, with spots getting rubbed sore." (Moderate runner, 40+ years)

The *fit- and performance information level* must be discussed in more detail. As already noted in the section of shirt preferences, the fit seems to play a more subordinated role in shirt choices, compared to visual and haptic aspects. Respondents rarely addressed the topic of fit importance. And if so, it was either weighted secondarily or mentioned after some specific probes during the interviews. Insights in the shirt preference section already suggested that runners of all levels value fit as inferior important.

Regarding performance however, very numerous criteria involved in the decisioning process were brought up by respondents, as shown in Figure 10. The fact, that several additional aspects came up, which were not revealed during the literature research phase, underlines that. Besides a shirt's comfort and its nice feeling on skin or body, which seems important to nearly all interviewees regardless their running level, many aspects related to material functionality got addressed. Aspects such as sweat dischargement, temperature regulation, or the material's drying speed, were stated predominantly by moderate or experienced runners. However, also the beginner runners involved in the interviews, stated to pay attention on whether a shirt is functional for running activities. This suggests, that performance criteria play a weighted role throughout most subjects' decisioning processes. Experienced runners are seemingly able to articulate desired shirt performance more specifically, while beginners tend to generalize, as expressed in the following quotes:

“Regarding function it must bring out humidity and sweat, but dry fast anyway, and still prevent me from feeling cold. Some additional reflectors would be great, so that I am visible during night runs. Or maybe some neon colorway or something...” (Experienced runner, 26-35 years)

“It simply has to be comfortable and appropriate for running. Something functional.” (Beginner runner, 40+ years)

To summarize the findings from the in-depth interviews, visual-related attributes seem to play a major role for consumers of all running levels when evaluating performance shirts, but only play a significant role for less experienced runners when investigating shoes. Haptic aspects seem to have great impact on all level runners’ buying decision regarding shirts but are low weighted in general when considering a shoe purchase. Consumers seem to value good fit of shirts not as much but pay great attention to performance aspects. For shoes, fit and performance both seem to be important for the product choice, although less experienced runners seemingly weight fit similar, sometimes even lower than the shoe appearance.

Findings about pre-purchase information involved in the decisioning, especially the experience from previously used products, substantiate the fifth stage of the general purchase decisioning model (Chapter 2.1). Moreover, results seem to confirm that in-store evaluation remains a cornerstone as stated in the literature review, since most respondents stated not to buy apparel and footwear online. However, the assumption also based on the review, that performance attributes are of subordinated importance for the consumers’ buying decision, cannot be confirmed by the interview results. Interviews also substantiate the assumption made in the observation analysis, that consumers’ product preference and buying behavior might be dependent on factors such as their running level or experience. In general, observation suggestions overlap with interview findings regarding the number of touched or grabbed products, and interviewees of respective running levels stating special product preferences.

7. Laboratory experiment procedure and results

This chapter presents how the laboratory experiment was planned, prepared, and conducted, as well as the findings, and results discussion. First, an eye tracking experiment was undertaken followed by a survey with the participants.

7.1. Eye tracking procedure, sample, and data collection

As a novelty in the research field under study it was planned to conduct a laboratory experiment to gain additional data to complement the insights generated through in-depth interviews and in-store observations. The design of the experimental setting aimed helping investigate the extent to which intrinsic product attributes' different levels of information influence consumers' preference regarding running shoes and performance shirts. Data were collected during subjects' selection of given products with different characteristics (McQuarrie, 2015). The experiment was set and took place in a small store imitation build up in the research hall of a sports fashion manufacturer.

Therefore, the idea is to give participants several product options, but to just provide information belonging to one information level in a first step. After ranking the products according to their personal preference, additional information will be given to participants in a next step. They then state, whether the product ranking remains the same, or if they want to change it due to the influence of the additional information obtained. This procedure will be continued and repeated, providing additional information in a third experiment stage. The gathered data about the changes in ranking, when getting specific additional product information, will give indications about the respective importance of the different information levels for the individual participants. In each additional product information stage, all changes in the product position were tracked. The number of changes expresses to some extent if the additionally given information between the respective experiment stages has some influence on the subjects' preference, and also the degree of the influence.

To give the subjects sufficient incentive to change product rankings within the experiment stages, and to be able to assign potential changes in rating to specific attribute information levels, it is important to involve a smartly picked diverse product selection. Furthermore, the chosen products also define the experiment coverage, as participants will only decide between those given options. McQuarrie (2015) suggest a maximum number of six products to involve in an experimental setting. The selection of products was done carefully including different colorways and designs (visual information), as well as different main materials and fabric-compositions (haptic information). To have diverse attributes belonging to the fit and performance information level, shoes were also selected according to their weight, the technology used, and the binding system (regular or lace-less). For the shirts, the focus was on the cut of the collars and on seams, as well as on the model type, which can be either slack or tight fit. The selected products are listed in Appendix L.

To ensure a successful experiment and generate valuable data, a detailed experiment design, which is shown in Figure 11, was carefully developed (Bradley, 2013). The planned sequence of distinctive experiment stages is based on the mental product adoption process, through which consumers usually pass during a store visit, as described in Chapter 2.3 (Armstrong et al., 2009).



Figure 11: Laboratory experiment stages reflecting the mental product adoption process

To give subjects just information about visual product attributes, they were only allowed to look at the products in a first step. To ensure, no haptic or performance- and fit-related information is directly perceived within that first stage, participants get placed at a pre-defined position in front of the product presentation. During this experiment phase, they were not allowed to approach the footwear wall and the mannequins, nor to touch shoes and shirts. At first, the products were curtained, thus invisible for the participants. Just after the subjects took their position with closed eyes, the curtains were removed, and they could inspect the products visually, giving a first preference ranking afterwards.

To ensure comparability among the participants, their preferences were specifically asked and linked to street training runs at summer time. Due to process facilitation and time constraints, only the best and worst ranked products need to be stated. The ranks between the best and worst position are treated like a bulk, without getting distinguished or captured in detail. To dress the mannequins, bigger sizes are used for tight shirt models to make them look slack. This avoids participants getting much information about cut and fit attributes in the first stage.

During the entire procedure of the first experiment stage, participants wear tracking glasses to record their eye movements. Collected information is not essential for the experiment but will provide interesting additional insights. Data obtained concerns the subjects' fixation time on each individual product, their looking path, and an estimate of the total time needed to decide for the most and least preferred product.

In the second experiment stage, the subjects could approach the products to feel, grab, and touch them. Besides having visual insights, this gives them the opportunity to also receive haptic information by investigating the product more in detail. Again, the subjects were asked to state their product preference ranking. The additional information obtained might cause

some changes in the participants' initial ranking from the first experiment stage, or the ranking might stay the same and not being affected by more product knowledge.

In a final stage, the participants tried on the products to get full information about the them. None of the three information levels was eliminated in the final stage, thus, subjects received visual, haptic, and fit-related information. Within the bounds of possibility of the experiment setting, the participants also obtained some performance-related information by walking with the shoes or shirts for a little bit. Of course, this is not a full performance insight, but it is close to the reality in retail stores. However, the opportunity to use an in-store treadmill for product evaluation was not given in the experiment. After trying every shirt or shoe, and comparing them to each other, subjects were asked to state their overall preference. Now they were supposed to involve all product aspects into their preference by making compromises in case it is needed.

All stated preference rankings for each experiment stage were registered for later analysis. Once the three stages for either shirts or shoes were completed, the same procedure was repeated for the other products. The used experiment set-up is shown in Appendix M.

To minimize potentially bias of results by the chosen set-up and procedure, the experiment was performed in a randomized manner. This means, for half of the subjects the shirt procedure was performed before switching to the shoes, and vice versa for the second half. In addition, the product presentation was changed regarding the placement positions after every sixth subject. This still ensures some comparability in each group of subjects, but avoids having preference rankings from the visual experiment stage, which is influenced by the positioning of presented products (Goos, 2002). Appendix N visualizes the controlled randomization.

Finding and acquiring a good experiment sample is essential for the reliability of data collected (McQuarrie, 2015). The method applied was similar to the interviews. Thus, male runners of diverse running levels and age ranges were sought and included. The only given limitation is due to the sizes available for shoes, which constrains the participant selection. The participants included ten employees of a sports company with various job functions either directly related to products or not, and seven external runners listed in that company's database. The last ones were contacted and asked to participate. Thus, the sample might not be the best composition and results should be interpreted with having the participants' origin in mind. However, due to time limitations, this option was chosen as it presents the most doable and convenient under the study circumstances. Results are still expected to give good insights, especially in combination with the qualitative data results from previous chapters.

7.2. Eye tracking findings and results interpretation

As stated above, the experiment protocol aims to collect two types of different data. First, the number of product position changes after each stage with provision of additional product information to participants. This measurement provided insights about the level of influence of the respective additional product knowledge on subjects' preference. And secondly, more detailed data about the visual product assessment of the participants is collected with an eye-

tracking tool. This data is not directly linked to the core research question of the study on hand. However, it will provide interesting discoveries about consumers' behavior in regards of a first visual product selection and preference building when entering a store. The eye-tracking data also gets shared with sports company departments, which are linked to retail management.

To ensure a smooth and convenient experiment, an excel form was prepared beforehand, which helped noting down the results obtained during each stage. Moreover, this guaranteed to always have structured and standardized written accounts, thus avoiding confusion or sources of errors at the later analysis phase. The form used is shown in Figure 12.

Subject 1	Product ranked...	1	w	w	g
		2-5	g	g	w
		2-5	r	t	r
		2-5	b	b	b
		2-5	s	s	s
		6	t	r	t
		Positions changed		2	4
		Ranks changed		2	4

Figure 12: Experiment form used to protocol stated preference rankings

All subjects' information and respective product rankings at the three experiment stages were registered. To facilitate the experiment, single letters were allocated to the different shirt and shoe models beforehand. All ranks were inserted into Excel generating two values: number of ranks changed, and percentage of the maximum possible changes. As already mentioned, the number of ranks changed indicates whether additional product information within the respective stage influences the subject's preference, and the strength of that influence. The second value indicates the percentage of the maximum possible number of rank changes. As the ranks 2 until 5 are treated like a bulk, each participant can change a maximum of three rank positions within each stage. Multiplied by the number of 17 subjects involved, this leads to a maximum number of changes within one stage and for the entire experiment of 51 ranks. Following these calculations, an overall analysis was obtained, as shown in Figure 13.

SHOES				SHIRTS					
SUM	Positions changed		20	31	SUM	Positions changed		37	30
% from max possible	Positions changed		39%	61%	% from max possible	Positions changed		73%	59%

Figure 13: Overall laboratory experiment results

In the first experiment stage only subjects' initial preference ranking, using visual product information, was obtained. However, looking into the second stage, data showed clearly that changes in participants' product preference were caused for shoes and shirts alike. These adjustments in the previous ranking can be directly linked to the additional information obtained during the next experiment stage. As the subjects were not just allowed to visually inspect the products but could also approach and investigate them with their hands, they received extra information about haptic-related product attributes. With subjects changing nearly twice the amount of positions of the shirts when compared to shoes, the results suggest a clear tendency. This suggests that haptic information plays a role for both the preference building regarding shoes and shirts. Although this information level seems to play a superior role in consumers' assessment of performance shirts, compared to running shoes. This is substantiated by the percentages of position changes, which show that more than 70% of all possible changes were made regarding shirts, but less than 40% for shoes.

The provision of performance- and fit-related product attributes in the last stage, when participants were asked to try-on and evaluate the shoes and shirts again, also caused several preference changes. The findings indicate that the amount and proportion of changes is very similar for both product types. With about 60% of the maximal possible changes performed, the subjects seem to involve performance and fit criteria to a high degree into their product preference. For shirts however, product attributes linked to this information level seem to be weighted less important by participants than haptic-related attributes. A different assumption can be drawn for running shoes, where haptic information seems to play a subordinate role for participants' overall preference, compared to the performance and the fit of a shoe.

Within the first experiment stage, additional data were collected while participants stood in front of the presented products to investigate them visually. Subjects wore special glasses for data collection, which allowed recording their eye-movement during the product inspection. This gave insights particularly about the gaze path over the inspection time, revealing in which way and order products were investigated, and if common patterns can be detected. Furthermore, the tracking tool provided information about how long it took participants to first fixate their eyes on each of the products, and how long they kept up the fixation, meaning how long they looked at them. Results were visualized by using a heatmap.

Figure 14 shows an example of a heatmap of participants looking at the running shoe wall presentation. This particular example visualizes the participants group 3, which consists of 6 subjects who had the same shoe presentation, bearing in mind that after every 6th participant the shoes' presentation was changed due to randomization reasons.

Looking at the red colored areas, it can be clearly seen that the subjects' visual attention is concentrated to a higher degree in the horizontal center of the shoe wall, which also represents the optical axis from the position the participants got placed. This seems to be the same for all three participant groups, independently of the shoes' presentation position (see Appendix O).

That fact might indicate, that no shoe was catching extraordinary attention.

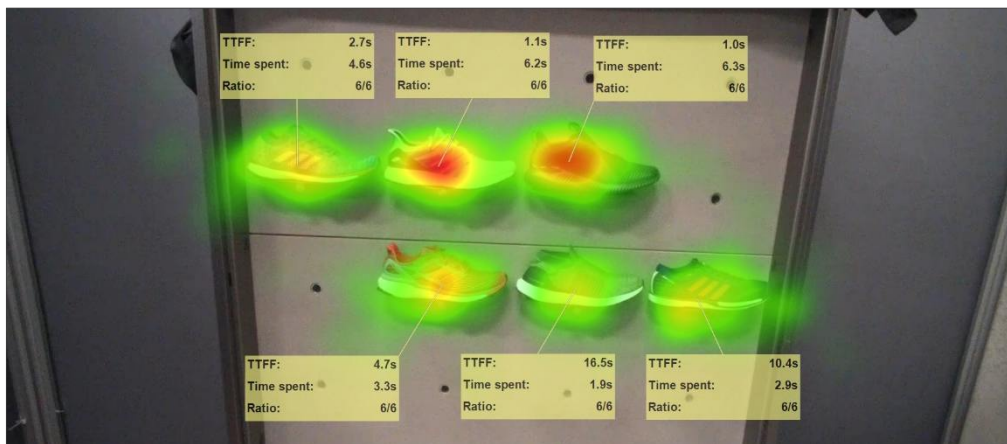


Figure 14: Heatmap for experiment participant group 3 showing shoe wall attention

The visual inspection of products and the fixation time spent are rather driven by the positioning of shoes, which can be either centrally in the field of vision or more on the borderlines. Similar insights were obtained regarding the shirt presentation (see Appendix P).

Participants of all groups seem to concentrate stronger on mannequins placed on the center, no matter what model of shirt they are dressed in. Also, it is interesting to see, that the visual attention is focused on height of the breast, with participants spending short time to investigate the lower seam of the shirts.

The time to first fixation (TTFF) indicates how long it takes the participants group in average to first look at the respective product. This allows inferences about the gaze path of subjects. For the chosen shoe presentations for instance, all average gaze paths of the three participants groups indicate, that subjects first checked all three shoes in the upper row, before switching to investigate the lower row. In the example above (Figure 14), participants first looked at the upper right shoe, and then moved their attention left, before investigating the lower row, when aggregating the individual gaze paths. Regarding the shirt investigation it is not possible to detect such a common pattern. This might be due to the width range of the six mannequins standing next to each other. Participants might not have been all focusing on the center of the curtain hiding the shirts before it got removed and they opened the eyes. The different starting point of participants aggregated gaze paths may be an explanation for no common pattern.

Interesting is the fact that it took participants in average 66 seconds to identify the shirt they prefer the most, and the one they prefer the least, out of the given six options. For shoes this took even less time, with an average of 57 seconds. That shows how fast product preferences based on visual information are made in the consumers' brain. It is assumed that in real life this process happens even faster in an unconscious manner, as there is no specific experiment task or question in the back of the mind, which must be answered.

To conclude, the results of the laboratory experiment substantiate the assumptions and findings linked to the literature review previously performed. Not only the fact of different product attributes effecting the consumer preference in several investigation phases, but also

the cycle of interest and exploration is detectable by looking at the obtained data. The high number of subjects changing their preference rankings made after they inspected products visually and haptic-wise, indicates that the try-on exploration provides them information, which in many cases causes adjustments in preference.

7.3. Survey procedure, sample, and data collection

The last market research method completing the method-mix of the study was a survey. The survey represents a complementary part of the laboratory experiment, as such it was undertaken with the small experiment sample and the results cannot be generalized. Gillham (2008) stated that questionnaires provide the most value when applied in combination with other methods. The aim is to check if subjects' behavior in the experiment correlates with their own personal assessment of the weight that product intrinsic attributes play. A wide range of attributes, which potentially have influence on consumers' product preference, already were collected in the literature review and the in-depth interviews. This supported the construction of the questionnaire, which was very comprehensive regarding product attribute choices.

Even though the planned survey had a very specific purpose, the steps of development proposed by Bradley (2013) were followed. The questionnaire included a list of product attributes that participants have to rate regarding their importance and some short questions covering demographic and classification information. This allowed to group respondents according to their age and running level. Participants of the laboratory experiment were given a tablet displaying the survey. They were asked to complete the questionnaire on their own, only requiring help, if questions were unclear and needed clarification. The online device-based approach was chosen due to easiness and rapidity of administration and analysis. The questionnaire was developed using the Qualtrics software, which directly transfers the data collected to a web-based analytics tool. Data obtained is collected and stored centrally, and basic analytic results can be displayed via the integrated surface or exported for further investigation.

Another main advantage is the adaptability of digital questionnaires (Bradley, 2013). The sequence and order of questions can be easily adjusted to the experiment procedure, which also gets changed after a specified number of runs for randomization reasons. Furthermore, given product attributes, which were ranked according to their importance to the subject, can be automatically displayed in a random order each time. This avoids results from being biased by the so-called order effect. Evidence exists, that answers are influenced by the order of a list of given answer options. The randomization of product attributes, that are going to be ordered by respondents, minimizes this effect (Bradley, 2013).

After designing the questionnaire, a pilot test was conducted, and the final form was used as shown in Appendix Q. Since the questionnaire was handed out to the subjects before the actual conduct of the experiment, the first part represents a general testing agreement. All necessary information about the participation in the study was given, and if agreed, the subjects signed the informed consent before starting the survey. Similar to the interviews, three introductory

questions aim to collect information regarding the age range, running level (beginner, moderate, or experienced), and average amount of hours spent running per week. The latter allows a crosscheck of the subjective running level assessment. As mentioned above, the main survey part consists a list of intrinsic product attributes, which participants ordered via drag and drop, according to the degree of importance for them. One list contains attributes for shirts and the other one for shoes. Depending on which products are investigated first in the experiment, the order of the lists is synchronized. The second list was always answered after the first part of the experiment was completed. This way, some time passed between, so that subjects did not remember the exact rankings they gave to the first list. Thus, a more trustworthy and valuable information from the respondents is expected.

7.4. Survey findings and results interpretation

All 17 participants in the laboratory experiment also agreed to answer the short survey. As described above, the survey contained three categorization questions about the respondents' age range, their self-assessed running level (beginner, moderate, experienced), and the number of hours they run in average per week. The main part was separated into two similar questions, asking to order 20 given intrinsic product attributes according to their personal importance weight, for running shirts and for shoes.

The questionnaire raw data was downloaded and analyzed. Table 3 illustrates how data were investigated, organized and presented.

The left column displays the 20 product attributes, which were given to the respondents to get ordered according to their personal importance. For analysis purposes, the attributes got grouped once more regarding the information level they belong to. Namely these are visual, performance & fit, other, or haptic. The middle column represents the importance ranking given by respondents, with 1 being the most important rank and 20 being the least important. For each attribute and each rank, the small squares indicate how many subjects ranked this respective constellation. For example, the attribute "color" was ranked by none of the

Table 3: Questionnaire analysis

		Running shoes																				Total no. subjects
Attributes (categorized according to belonging information level)	Unity (%)	Rank allocated by respective no. of respondent(s)																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
visual	Color	63,1		1	1	1		1	1			2	3	3		1		1	1	1		17
	Design & Pattern	55,0	1	1			2	1		2	3		1	1	1	1			1	1	1	17
	Fashionability	51,0	2	1		1			1	1	1				1	1	2	1	1	2	1	17
	General Aesthetics	58,0	2		1			1	1	1		1	2	1	1	2	1	2				17
	%- proportion of total info level	56,8				21%					25%				32%					22%		100%
performance & fit	Breathability	70,3		2		2	2	2	3	1			1	1	1		1			1	17	
	General quality of the product	80,5			3	3		1	2	1		1	1		1	1				1	17	
	Durability	71,2					2	1					2					1	2	2	17	
	Repairability	90,8													1	1		1	1	8	5	17
	%- proportion of total info level	79,1		12%					19%					27%				42%			100%	
haptic	Hand feel	72,5					1	1			1	1	3	2	1			2	3	2	17	
	Light weight	85,7			3	2	2	5		2	2	1									17	
	%- proportion of total info level	79,1		15%			41%						24%					21%		100%		

respondents as the most important attribute, two respondents ranked it on place 10, and one respondent ranked it on place 18, which also was the lowest rating of all for this attribute. For every information level, an extra row was created to present the percentage proportion of all ratings for each quartile. In the given example, 21% of the respondents rated visual attributes within the top five positions of the importance ranking, and 32% within the positions 11-15 (third quartile). The “Unity” column states how disperse or concentrated stated rankings for each attribute are. The higher the percentage, the more unity about the importance of respective attributes prevails within the subject set. For example, 90,8% unity for “Repairability” significates that most respondents rate the attribute similarly, in this case on an unimportant rank in the last quartile. The complete table can be seen in Appendix R.

When looking at the respondents’ importance perception of visual-related product attributes, no clear differences can be detected regarding running shoes and performance shirts. For both product types, the unity in responses is relatively low, which indicates very diverse opinions about the respective product attributes’ importance. For shoes and shirts alike, the attributes seem to get rated very uniformly throughout all ranks, with a slight tendency towards the second and third quartile.

Regarding the performance- and fit-related information level, the general rating tendency for the given attributes goes towards the more important ranks, with the highest percentage proportion in the first quartile. This accounts similarly for shoes and shirts. Especially the “general fit” and “wear comfort during activity” are rated by most respondents as very important. Beside those, “cushioning” seems to be a critical performance factor for shoe preference, and “breathability” for shirts. However, results suggest that the subjects rate performance and fit criteria slightly more important for shoes, compared to shirts.

For haptic product attributes, the result is vice versa. More than double the percentage proportion of respondents rated haptic attributes within the first quartile for shirts, compared to shoes. The second quartile unveils the same proportion, while the two last quartiles show higher percentage proportions for shoes. This indicates, that the subjects weight the haptic aspects of a shirt, namely its “hand feel” and “light weight”, as more important as the same characteristics for a shoe.

The product attributes not belonging to the three mentioned information levels were rated as generally unimportant, independently of product type. To a high degree this is caused by the very bad importance ranking of “repairability”. For both shoes and shirts, the “general quality” seems to be the most important attribute out of that category.

Like previously conducted analyses of other research methodologies within the study, the respondent set was divided into less and more frequent runners to aim to detect differences in product preference. This division was based on the stated average hours of running per week, which also reflects to a high degree the participants’ self-assessment of their respective running level. Thus, one group was created containing 10 respondents who run 1-4 hours per week, with 80% of those stating to be beginner or moderate runners. A second group contains the 7 remaining subjects who stated to be running more than 4 hours per week (71% of those stated to be advanced runners). The respective tables with analysis are listed in Appendix S.

The comparison of the results clearly suggests that less frequent runners weight visual product aspects for shoes and shirts alike as more important than more frequent runners do. This is substantiated by the ratings percentage proportions. They obviously tend to the first quartiles for the respondents running fewer hours per week, and to the last quartiles and therefore lower importance ranks for the ones running more hours.

Performance and fit attributes seem to be important for all subjects independently from their running frequency. Nonetheless, the tendency towards the important ranks is more distinct when looking at the answers given by more frequent runners. In contrary to visual attributes, they place high importance on performance and fit. This accounts especially for shoes but is also detectable when investigating the answers related to shirts.

Different from the statements above, there is no clear assumption that can be drawn about the haptic information level. Regarding shirts, the subjects tend to rate the hand feel and light weight in general more important rather than unimportant. Very few ranked those criteria within the third or fourth quartile. It seems that for more frequent runners, the haptic product characteristics play a slightly more important role as for less frequent runners. For shoes it can be said that, independently from running frequency, haptic attributes seem to be less important than for shirts. More frequent runners are more consistent in their given ratings, which mainly range in the second and third quartile. Less frequent runners on the other side, are low in unity, thus giving very diverse rankings for the haptic criteria.

Similar results for shirts and shoes, as well as regarding the running level, are obtained for the remaining product attributes categorized as “others”. No tendencies in differences of the given answers related to the respondents’ running level can be detected.

To conclude, it can be said that the results of the survey correlate with the experiment findings. Both conclusions suggest that haptic criteria weights more importance when it comes to shirts, compared to shoes. The measurements of both even agree with the statement, that for shirt evaluation, the haptic seems to be superior to the performance- and fit-related product attributes, while it is vice versa for shoe evaluation. However, both methodologies unveiled the finding, that performance and fit criteria are important for subjects’ shoe and shirt preferences alike. This insight is partly disagreeing with results of the in-store interviews, which suggested relatively low importance of fit in general for subjects investigating performance shirts.

8. Discussion and conclusion

The different research method findings are next going to be discussed to understand potential similarities or differences. A conclusion and the presentation of potential future research opportunities complete the study on hand.

8.1. Discussion of results

The review of previous works in the field of study enabled gaining a first understanding about the general topic and the current state of art. The main findings to be highlighted are on the one hand the documentation of several steps in consumers' product preference building process. This was considered during the research design, especially for the design of the experiment procedure. Secondly, the identification and collection of intrinsic product attributes, which influence consumers' shoe and shirt preference, was very useful to unveil attribute categories and respective information levels to be further investigated.

First primary data collected to answer the research questions was attained by an in-store observation. Findings allowed understanding initial assumptions, which served as basis for following analyses. Several consumer groups showing common behavior patterns in the observed product sections could be identified, which led to the hypothesis that the subjects' background, such as their running level for instance, influences their habits of how they investigate products. Generally, results suggested that consumers place higher importance on visual-related product attributes of shirts, compared to shoes. Criteria related to product performance instead, seem to be valued higher for shoes. Observing consumer actions in-store allowed no clear statement about the importance of haptic product attributes. Both shoes and shirts were inspected through touching. However, these were actions that could be related to visual or performance criteria, such as holding the product next to body and feet or bending and stretching it. The fact of observed consumers generally touching more shirts than shoes within the same time, might indicate, that haptic information of shirts is required more to make a purchase decision than it is for shoes.

Statements of store intercept interviewees substantiated observation assumptions about the consumers' background influence on their buying behavior and preference building. Insights clearly brought up diverging buying approaches and product preferences when it comes to different running levels of the subjects. Interview results further led to the assumption that visual-related attributes generally play a major role during consumers' shirt evaluation. When investigating shoes, they seem only significant for less experienced runners. Haptic aspects are seemingly perceived very important regarding shirts but low weighted during shoe evaluation. For shirts it is assumed that a good fit is relatively low important but great attention is placed on its performance. Both aspects are perceived important by subjects when it comes to shoes, although less experienced runners sometimes weight fit similar or even subordinated compared to the shoes' appearance. These findings are in line with observation conclusions, although, proving more detailed information.

The laboratory experiment enables to get new insights upon the data already collected about consumers' product preference building. Again, the findings suggest a higher influence of haptic aspects on subjects' shirt preference, compared to shoes. Fit and performance aspects seemingly also play a significant role. For shoes, they might be weighted even more important as haptic attributes, whereas this is contrary when looking at the shirt results. Since fit and performance information were perceived by the participants within one experiment stage, it cannot be stated, which of these two criteria majorly caused the preference ranking change. Thus, even though fit is now declared as perceived important for shirt purchase decisions, this might be only to a low percentage. Hence the results are generally in line with findings from the previous research undertaken in this study. Due to the experiment protocol, no assumptions about the influence of visual-related product attributes can be drawn, as these served to receive an initial product ranking from participants.

General insights of the survey further substantiate the previous findings. More specifically, the survey analysis suggests that less frequent runners weight visual aspects for shoes and shirts more important than more frequent runners do. Performance and fit criteria are seemingly important independently from running frequency, although more frequent runners tend to weight them slightly higher, especially regarding shoes. This contradicts partly the interview findings, which suggested relatively low fit importance for consumers of all running levels when inspecting shirts. Once more, haptic criteria seem to be weighted more important in general, when evaluating shirts in comparison to shoes.

Figure 15 portrays the overall research findings, thus providing a global impression by relatively comparing how less and more frequent runners weight product attributes of the different information levels. Due to that, a precise scale for the spider charts is not given.

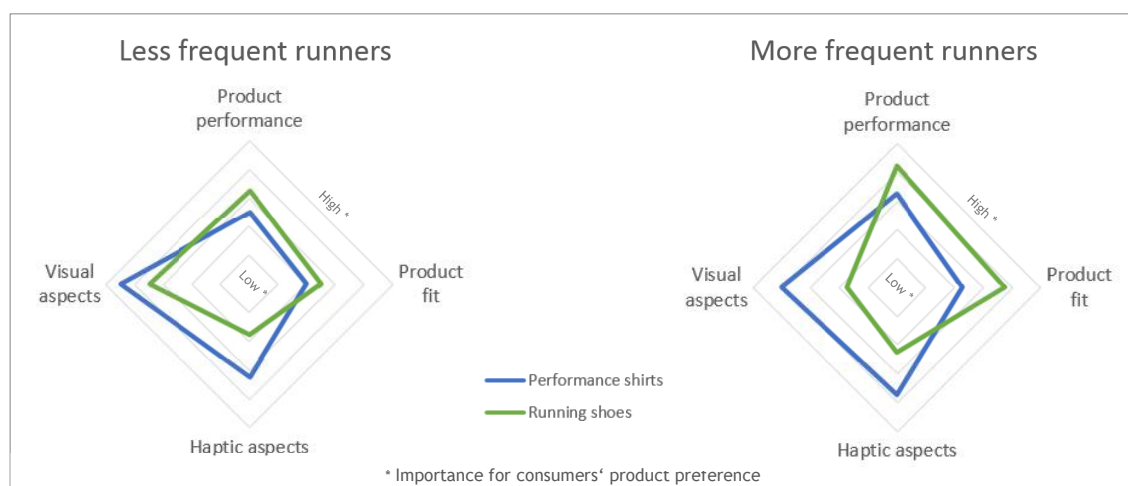


Figure 15: Overall findings on product attribute importance for different level runners

Findings suggest that visual aspects generally play a more important role for consumers' product preference regarding shirts than for shoes, and that less frequent or experienced runners tend to weight those aspects higher than more experienced. The latter by contrast

tend to weight performance and fit criteria more important, which is substantiated by the results of several data collection methods. After the interviews it seems that fit might be insignificant for shirt evaluation, however, this was disproved by the survey and experiment results. Nevertheless, in the charts above, fit is suggested to have the least influence overall on shirt preferences. Haptic aspects on the other side again, seem to be more important for shirts, compared to shoes, when interpreting the findings of the applied methods.

To conclude, the variety of used methods generally led to quite consistent findings, which strongly validates the generated insights and the suggested conclusions.

8.2. Conclusion and future research

By deeply investigating consumers' perception regarding running shoes and performance shirts, the study on hand enhances the current state of art in this research field in several ways. Not only a specific focus on the running category, but also the comparison between the footwear and apparel segment brought valuable and novel insights. Furthermore, the work shows in a great manner, how the application of several diverse research methodologies can substantiate findings within the study and thus reinforce final conclusions. Using qualitative and quantitative data collection methods helped investigating the research topic in a more holistic way by not missing out any important research perspective and consumer input. Methodological-wise, the study highly contributes to the enhancement of research activities related to the given study field, and its results unveil further insights which have not been previously achieved.

The overall findings will help companies in the sports footwear and apparel industry to better understand their consumers and hence to design products, which better meet consumers' wants and needs. The focus for future shirt developments should be on material and design innovations. Although performance is an important factor on consumers' product preference, material creations must always consider the fabric-feel as a major impact factor. Shoe development in the running segment on the other side, should be driven by performance aspects, such as novel midsole materials or upper material capabilities. Beside an emphasis for excellent fit and comfort, the design of shoes is not neglectable, especially if the designed product is meant for recreational and less frequent runners. These insights enable companies to link consumers' buying decision to future product innovation activities, which consequently increases compliance between product offers and market needs and wants. The research done on this study, can be complemented with proactive consumer involvement in new product developments, to further increase company performance.

Apart from new insights for the industry, findings also lead to additional research opportunities. As this study aims to serve as a first advance with a high-level perspective on product attribute categories, numerous possibilities for further investigations are left open. An attempt to look more detailed on attribute level, to investigate if similar findings occur in different cultures, or to analyze casual fashion as comparison are just few possible options.

The study also has some limitations regarding the applied approaches and methods. Chosen sample sizes for the individual research techniques are relatively small, the potential of used

methodologies was not always fully used, and comparability between respective results can be optimized. These arguments could also define the way of future research to be done to further enhance knowledge about consumers' product preferences. Samples might be increased and be used for several methodologies at once. To increase external validity of results, the observation might be performed in the same store as the interviews by involving the same subjects for instance. Novel data could be obtained by applying eye-tracking more specifically to even analyze subjects' in-store walking path, or which exact product components are inspected. Furthermore, also including extrinsic product attributes in the research activities could provide even more holistic perspectives on consumers' preference building and would help companies to link product innovation activities with marketing considerations to optimize the overall product package offered for consumers. These examples, just to name a few, show how research might be extended or optimized to further study product attributes' influence on consumer preference.

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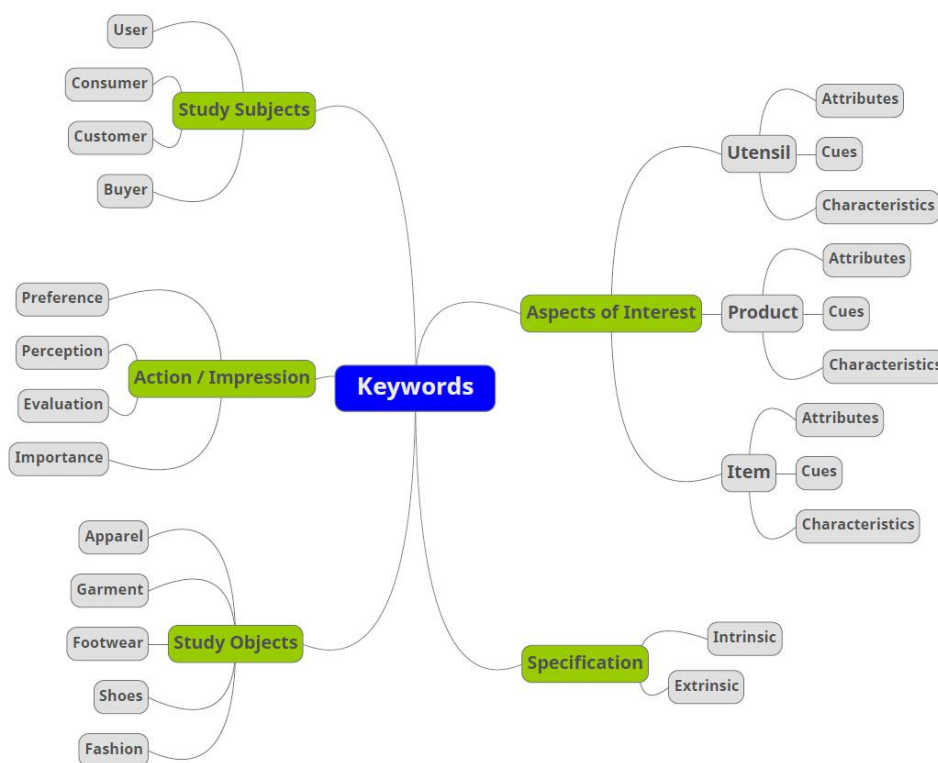
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Appendices

A - Key-models of the consumer decisioning process

	Pre-purchase Phase		Purchase Phase		Post-purchase Phase
	Problem Recognition	Information Search	Alternatives' Evaluation	Decision (& Purchase)	
Simon Model (Author: Simon H., Year: 1959)	Collecting, processing & examining raw data Intelligence	Inventing, developing & analysing decision alternatives	Testing/feasibility of implementation Design	Assessing the value of decision outcome Choice	Consumption experience Feedback Outcome
Nicosia Model (Nicosia F.M., 1966)	Marketer's communication affecting consumers' attitude	Consumer's search and evaluation	Decision Making	Purchase Action Outcome	
EKB Model (Engel J.F., Kolat D.T., Blackwell R.D., 1968)	Encouragement to become aware of product & information Stimuli	Information Filtering Information Processing	Evaluating & Attitude Formation Evaluating	Decision Making Enacting purchase tasks	
Theory of Buyer Behaviour (Sheth J., Howard J.A., 1969)	Significative, symbolic, or social stimuli Inputs	Attention and Information Search Perceptual Constructs	Concept Formation (Motives, Choice criteria, Intention...) Learning Constructs	purchase, intention, attitude, brand comprehension and attention Output Variables	
Mintzberg Model (Mintzberg H., Raisinghani D., Theoret A., 1976)	Decision Recognition Identification Phase	Searching Development Phase	Designing Screening	Evaluating Authenticating	
Keeney's four-stage Decision-making Model (Keeney R.L., 1982)	Structuring of Decision Problem (Specify objectives & attributes; generate possible alternatives)	Assessing possible impacts of alternatives (Determine magnitude & likelihood)	Determining preferences of decision makers Evaluate & compare alternatives		
Smith & Rupp's Model (Smith A., Rupp W., 2003)	Marketing Efforts Input	Socio-cultural Influences Processing	Considering Experience & psychological Factors	Purchase Choice Purchase	Post-purchase Decision Output
McKinsey's Model (Court D., Elzinga D., Mulder S., Verwik O.J., 2009)	Triggering - Initial Consideration	Information Gathering - Researching potential purchases Circular Process	Active Evaluation	Selection Purchase Closure	Post-purchase Experience

B - Keywords involved in literature research



Above listed key words got used to narrow down the literature search on the necessary focus. Therefore, the identified key words got applied to evolve numerous search strings in the format of: {StudySubjects} {Action/Impression} {StudyObjects} {AspectsOfInterest} {Specification}

Hence, following search strings got used to thoroughly look for studies of interest listed on the databases mentioned in Chapter 2.2:

- "Consumer Preference Apparel Product Cues Intrinsic"
- "Buyer Preference Apparel Product Cues Intrinsic"
- "Buyer Evaluation Fashion Product Attributes Intrinsic"
- "User Perception Footwear Item Characteristics Intrinsic"
- "Customer Importance Shoes Product Characteristics Extrinsic"
- "Consumer Evaluation Garment Utensil Characteristics Intrinsic"
- "Buyer Perception Fashion Product Attributes Intrinsic"
- ...

Beside the above listed search strings, several more combinations of the key words got applied.

Important note: Not every used search string consisted of all frame categories. For instance, searches were also done with only involving {StudySubjects}, {Action/Impression}, and {StudyObjects}. This led to search variants such as "Buyer Evaluation Footwear".

Intentional exclusions were not made during the search process, but findings got limited to literature from 1990 or earlier, as it is reasoned in Chapter 2.2.

C - Previous studies done in the research field

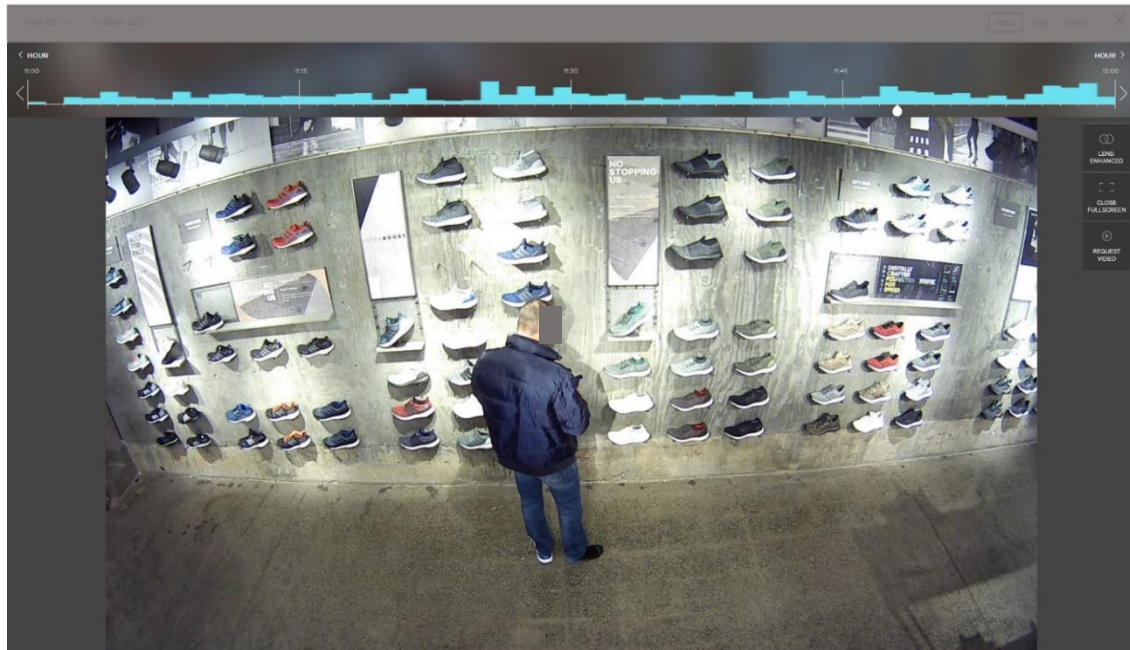
	Study Title	Research Objective(s)	Sample (Size)	Author(s)	Year (Publisher)
1	Toward a model of the in-store purchase decision process: consumer use of criteria for evaluating women's apparel	<ul style="list-style-type: none"> Identifying criteria considered by consumers for garment buying decisions Fulfilling a need for store intercept data collection Development of theoretical models of the apparel purchase process 	Female 18+ yrs (80)	M. Eckman; M. L. Damhorst; S. J. Kadolph	1990 (Clothing & Textile Research Journal)
2	The importance of apparel product attributes for female buyers	<ul style="list-style-type: none"> Examining influence of in- & extrinsic product attributes on buying decision Analyzing what value females attach to certain attributes during purchase Secondary: Analyzing relation between product attributes and (1) age, and (2) monthly expenditure on apparel 	Female 16-65 yrs (227)	E. J. North; R. B. de Vos; T. Kotzé	2003 (Journal of Family Ecology & Consumer Sciences)
3	Effects of evaluative criteria on fashion brand extension	<ul style="list-style-type: none"> Identifying evaluative criteria dimensions used when purchasing casual apparel & furnishings Determining which evaluative criteria served as predictors of brand extension purchase behavior of these products 	Female (442)	J. C. Forney; E. Joo Park; L. Brandon	2005 (Journal of Fashion Mktg. & Mgmt.)
4	Factors affecting consumer buying behavior of shoes in Kolkata: a case study	<ul style="list-style-type: none"> Identifying factors that influence the purchase decision of individuals Analyzing whether the importance assigned to the factors vary across gender & income 	Male & Female	S. Saha; M. Dey; S. Bhattacharyya	2010 (IUP Journal of Mgmt. Research)
5	Evaluative criteria applied by South African female fashion consumers when purchasing casual daywear	Examining which intrinsic criteria are applied by South African female consumers at point of purchase for quality assessment Analyzing if these consumers can be clustered into segments in accordance with the criteria they apply to assist marketers to distinguish viable market segments	Female majority 31-40 yrs (105)	S. H. Hugo; A. M. van Aardt	2012 (Inter. Journal of Consumer Studies)
6	Young Australian consumers' preferences for fashion apparel attributes	Stage 1: Collecting data on product & ethical attributes most valued by young apparel consumers (Focus Groups) Stage 2: Identifying relative values young Australian adult consumers attach to different denim jean product & ethical attributes (Conjoint Analysis)	Male & Female 18-24 yrs (20: focus groups, 206: conjoint analysis)	K. Jegethesan; J. N. Sneddon; G. N. Soutar	2012 (Journal of Fashion Mktg. & Mgmt.)
7	Perceived Apparel Quality Revisited: Testing of 1st Structural Dimensions from the Perspective of the Generation Y Female Consumers	Stage 1: Generating insights about the quality perception of apparel products from a college-aged consumer perspective (Focus Groups) Stage 2: Empirical testing of structural dimensions of perceived apparel quality construct (Questionnaire)	Female avg. 20.8 yrs (15: focus groups 361: quest.)	J. Kim	2012 (Journal of Global Fashion Mktg.)
8	Examining the purchase pattern of casual footwear by women in accordance to their attitudes and interests	Profiling women into different clusters based on their activities, interest and opinions Exploring the expectation of woman on her casual footwear according to the behavioral pattern Examining the association between the choices of casual footwear attributes of women in accordance with their behavioral pattern	Female 22-45 yrs (2356)	V.R Uma; M. I. Saifil Ali	2013 (Indian Journal of Mktg.)
9	A matter of shoes: the analysis of desired attributes of shoes and its retail shops from Bangkok consumers' perspectives	<ul style="list-style-type: none"> Studying desired attributes of shoes and its retail shop Exploring if there is a significant difference of such factors on consumers' gender, income level, and age 	Male & Female 18+ yrs (451)	T. Laiwechpittaya; N. Udomkit	2013 (International Journal of Mktg. Studies)
10	Cross-cultural investigation of US and Indian consumer's apparel attribute choices applying Kano's theory	Identifying & categorizing important consumers' apparel attributes in USA and India Comparing the findings to predict differences in developed and developing economies	Male & Female 20-30 yrs (335: USA, 335: IND)	S. Bennur; B. Jin	2013 (Journal of Fashion Mktg. & Mgmt)
11	Consumers' purchase intentions of shoes: theory of planned behavior and desired attributes	Investigating what factors make the difference in female shoes' purchase intentions	Female 18+ yrs (422)	Y. Wang	2014 (International Journal of Mktg. Studies)
12	Does the Importance of Apparel Product Attributes Differ by Country? Testing Kano's Theory of Attractive Quality in Four Countries	Examining how consumers in US, Korea, China, and India classify apparel attributes into Kano's five categories Analyzing how much each of the five categories is related to consumer satisfaction in each country Investigating if attributes' life cycles follow Kano's life cycle of successful attributes by tracing the paths from developing to developed countries	Male & Female 20-30 yrs (each 335: IND, CHN, KOR, USA)	S. Bennur; B. Jin	2015 (Clothing & Textiles Research Journal)
13	Subjective evaluation of running footwear depends on country and assessment method: a bi-national study	<ul style="list-style-type: none"> Examining running shoe perception between China (Beijing) and Singapore Analyzing if running shoe preference depends on assessment methods 	Male Runner 18-35 yrs (50: PEK, 50: SIN)	P. W. Kong; C. Y. Lim; R. Ding; T. Sterzing	2015 (Ergonomics)
14	Stakeholders' diverging perceptions of product requirements	<ul style="list-style-type: none"> Analyzing differences of used evaluative criteria for footwear between end consumers & retailers Building a proposal supporting the clarification of the design task in situations characterized by a plurality of subjects to be concurrently satisfied 	Retailer; Male & Female End-Consumer (15: RET, 112: EC)	Y. Borgianni; F. Rotini	2015 (Proceedings 20th Intern. Conf. on Eng. Design)
15	The importance of apparel attributes among young Mexican-American female consumers	Investigating which apparel attributes young Mexican-American females consider important in casual apparel purchase decision Examining how these attributes vary based on the garment type	Female 18-25 yrs (206)	E. N. Hoptler; C. Istook	2016 (Journal of Textile & Apparel, Tech. & Mgmt.)
16	A cross-national study of apparel consumer preferences and the role of product-evaluative cues	<ul style="list-style-type: none"> Investigating & identifying the salient effects of apparel evaluative cues Enriching the understanding of consumer preferences & behaviour in two different socio-cultural contexts – Canada (west) and China (east) 	Male & Female 18+ yrs (440: CAN, 445: CHN)	O. Rahman; B. C.M. Fung; Z. Chen; X. Gao	2017 (Asia Pacific Journal of Mktg. & Logistics)
17	A study of apparel consumer behaviour in China and Taiwan	Enriching the understanding of consumer preferences and behaviours Analyzing online and offline shopping behaviours Identifying product evaluative criteria and their importance for consumers Examining the influence of fashion information sources	Male & Female 18-25 & 26-33 yrs (338:CHN, 151: TVN)	O. Rahman; B. C. M. Fung; Z. Chen; W. Chang; X. Gao	2017 (Int. Journal of Fashion Design, Tech. & Education)

D - Methodological approaches applied in previous researches

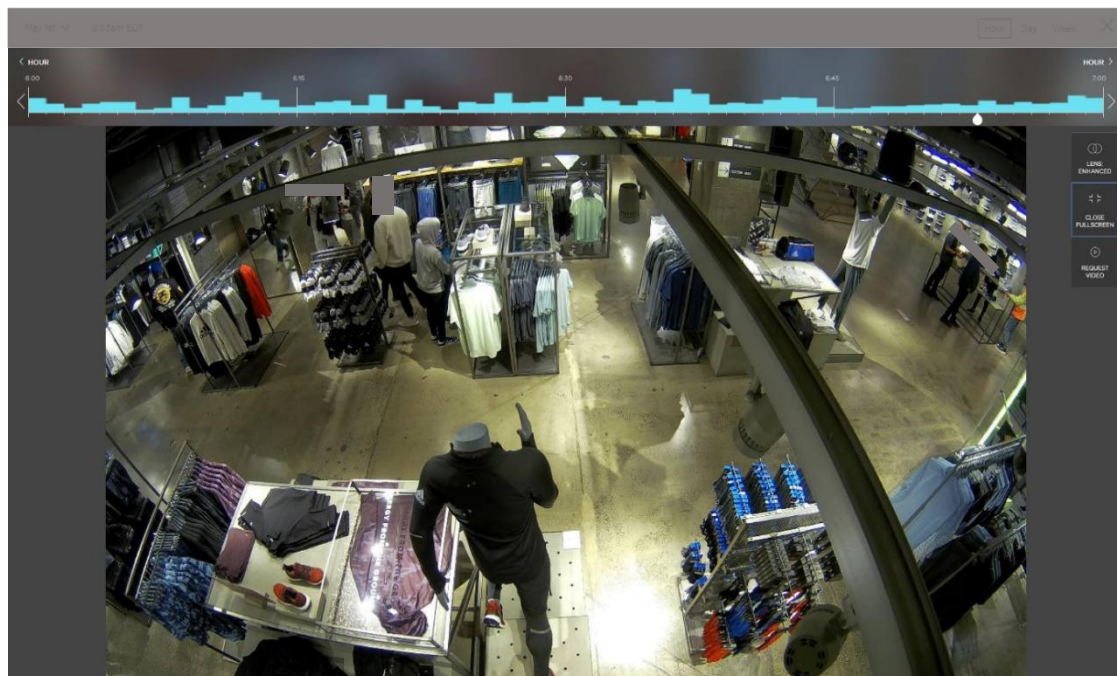
	Apparel	Footwear	Intrinsic	Extrinsic	Real Product	Substitution	None; Description	Point of Purchase	Other	Convenience	Random	Experiment	Interview; Focus Group	Questionnaire	Open-end	Closed-end
	Products analyzed		No. Attributes studied (Qty.)		Stimuli used			Point of Action		Sampling Method		Data Collection			Response Format	
Study 1	General		(15)	(9)	X			X		X			Interview		Free response	
Study 2	Shirts		(1)	(3)		Style sketch & add. info			X	X				X		Continuous & Likert scales
Study 3	Casual		(9)	(4)			X		X		X			X		7-point Likert scales
Study 4	General		(5)	(30)	X			X		NS*	NS*			X		5-point scales
Study 5	General		(9)				X		X		X			X		5-point Likert scales
Study 6	Jeans		(1)	(4)			X		X	X		Conjoint Analysis	Focus Group		Focus Group	Conjoint Analysis
Study 7	Sweaters		(12)		(for Focus Group)	Product photos (Quest.)			X	X			Focus Group	X	Focus Group	7-point Likert scales
Study 8	Casual		(3)	(2)			X		X		X			X		7-point Likert scales
Study 9	General		(13)	(37)			X	NS*	NS*	X				X		Scale ratings
Study 10	Jeans		(6)	(2)			X		X	X				X		Kano model: 3 options
Study 11	General		(6)	(2)			X	X		X				X		7-point Likert scales
Study 12	Jeans		(6)	(2)			X		X	X				X		Kano model: 5 options
Study 13	Running		(4)		X				X	X		Experiment (Treadmill Run)			Head to Head Comparison	Scale: Visual Analogue
Study 14	General		(8)	(5)			X	NS*	NS*	X				X		Kano model: 5 options
Study 15	General		(9)	(11)			X		X	X				X		5-point Likert scales
Study 16	General		(8)	(4)			X		X	X				X		5-point Likert scales
Study 17	General		(8)	(4)			X		X	X				X		5-point Likert scales
Σ	11	6	17	14	4	2	12	5	14	14	4	2	3	14	4	16

*NS: 'not stated'

E - Perspectives of cameras used for in-store observation



Camera perspective captured by “men’s floor - footwear wall”
(Faces greyed out within this research report due to protection of personal data)



Camera perspective captured by “men’s floor - training”
(Faces greyed out within this research report due to protection of personal data)

F - Framework and general observation insights (shoe section)

Subject:	18.03.2018 Sunday							14.03.2018 Wednesday							16.03.2018 Friday							Analysis							
	1	2	3	4	5	6**	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		22	23	24	25	26	27	28
Observed time of subject (minutes)	12:05	12:06	12:08	12:19	12:20	12:21	12:29	12:35	12:47	12:50	12:54	12:55	12:58	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00
Short subject description for potential later checks	green cap, black parka	black beanie, black jacket, blue jeans	aidas pullover, glasses on head, backpack	grey backpack, short black hair/beanie in hand	blue shoes, grey short hair, white bag in hand	brown shoes, blue/white jeans, black beanie jacket	short hair, shirt under jacket, holds book in hand	short hair, glasses, h&m bag	one of the two guys/black jacketed, no white hood	brown/black backpack, beanie, white pants	black jacket, blue hood, white sneakers	beige pants, brown shoes, black jacket	bold hair, glasses, blue jeans	glasses, brown handbag, brown shoes, beard	glasses, black parka, little bold, sth in left hand	black jacket with white fur, blue bag in hand	black & red backpack, red mtd's	blue jacket, grey right hair, white sneakers	short white hair, black backpack, black jacket, dark jeans, glasses	black hoodie, white cap, phone in hand	blue beanie, black jacket, glasses	black pants, black beanie, black jacket, black and white sneakers	blue backpack, grey pants, black hoodie, and glasses	blue jeans, blue jacket, black shoes	red cap, brown jacket, headphones	green jacket, black beanie, black and orange backpack	blue sneaker, black jacket, grey hoodie	black pants, black jacket, brown shoes	brown jacket, grey beanie, h&m bag
	Observed time of subject (minutes)	00:08	00:01	00:11	00:01	00:01	00:02	00:14	00:13	00:05	00:02	00:09	00:16	00:01	00:03	00:04	00:01	00:02	00:08	00:07	00:05	00:12	00:03	00:04	00:01	00:20	00:11	00:17	00:03
		00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06	00:06
Browse footwear wall first	X										X																		
Directly approach specific shoe(s)											X																		
Touch or grab shoe(s)	X																												
No. of touched or grabbed shoe(s)	8	0	9	1	8	15	20	7	5	14	6	2	2	3	2	4	6	3	2	3	4	3	8	1	1	1	3	4	
Ask assistance for a try-on pair of shoe(s)			X		X		X																						
Ask assistance for expertise, not just try-on shoe(s)																													
Turn shoe(s); look at sole	X				X		X																						
Hold shoe(s) next to feet to check look					X		X																						
Take picture of shoe(s)					X		X																						
Look inside shoe(s)			X		X		X		X		X																		
Touch; feel upper	X				X		X																						
Put hand inside shoe(s)					X		X																						
Check / compare weight of diff. shoes					X		X																						
Bend shoe(s); finger press cushioning							X																						
Twist shoe(s); check flexibility																													
Visual-related																													
Haptic-related																													
Performance-related																													
Averages																													
Sums	03:24																												
Percentages	79%																												
not of total amount of subjects who touched the shoe;	23																												
	6																												
	27																												
	137																												
	4,72																												
	10																												
	34%																												
	13																												
	45%																												
	20																												
	74%																												
	4																												
	15%																												
	5																												
	19%																												
	23																												
	85%																												
	17																												
	63%																												
	3																												
	11%																												
	3																												
	11%																												
	5																												
	19%																												
	0																												
	0%																												

* Look inside shoe(s): Not in analysis involved as most likely consumers checked the price tag inside the shoe - which is an extrinsic factor, thus not of interest

** Subject 6 greyed out, as it seems to be an outstanding data set

G - Observation insights about identified groups (shoe section)

Observed time of subjects (minutes)	Group 1			Group 2			Group 3			Group 4		
	Sums	Percentages	Averages	Sums	Percentages	Averages	Sums	Percentages	Averages	Sums	Percentages	Averages
Browse footwear wall first	5	83%	00:06	3	50%	00:16	7	100%	01:16	8	80%	01:44
Directly approach specific shoe(s)	1	17%		3	50%		0	0%		2	20%	
Touch or grab shoe(s)	4	67%	1,00	6	100%	3,67	7	100%	2,29	10	100%	9,30
No. of touched or grabbed shoe(s)	6	0%		22	50%		16	43%		93	40%	
Ask assistance for a try-on pair of shoe(s)	0	0%		3	33%		3	86%		4	50%	
Ask assistance for expertise; not just try-on shoe(s)	0	0%		2			6			5		
Turn shoe(s); look at sole	4	100%		5	83%		3	43%		8	80%	
Hold shoe(s) next to feet to check look	0	0%		1	17%		0	0%		3	30%	
Take picture of shoe(s)	0	0%		0	0%		3	43%		2	20%	
Look inside shoe(s) *	4	100%		5	83%		5	71%		9	90%	
Touch; feel upper	2	50%		4	67%		4	57%		7	70%	
Put hand inside shoe(s)	1	25%		0	0%		0	0%		2	20%	
Check / compare weight of diff. shoes	0	0%		1	17%		0	0%		2	20%	
Bend shoe(s); finger press cushioning	1	25%		2	33%		1	14%		1	10%	
Twist shoe(s); check flexibility	0	0%		0	0%		0	0%		0	0%	
percentages are of those who touched the shoe; not of total amount of subjects												

* Look inside shoe(s): Not in analysis; involved as most likely consumers checked the price tag inside the shoe - which is an extrinsic factor, thus not of interest

H - Framework and general observation insights (shirt section)

Subject	Observed Day		23.03.2018							25.03.2018							29.03.2018							Analysis															
	Weekday	Observed Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		22	23	24	25	26	27	28	29	30						
	Weekday	Friday	06:01	06:05	06:09	06:10	06:13	06:16	06:19	06:21	06:39	06:45	12:00	12:00	12:15	12:17	12:20	12:26	12:32	12:36	12:43	12:48	12:51	15:03	15:04	15:08	15:13	15:14	15:16	15:17	15:24	15:27	15:27	15:29					
	Time of day - Start		06:01	06:05	06:09	06:10	06:13	06:16	06:19	06:21	06:39	06:45	12:00	12:00	12:15	12:17	12:20	12:26	12:32	12:36	12:43	12:48	12:51	15:03	15:04	15:08	15:13	15:14	15:16	15:17	15:24	15:27	15:27	15:29					
	Time of day - End		06:01	06:05	06:09	06:10	06:13	06:16	06:19	06:21	06:39	06:45	12:00	12:00	12:15	12:17	12:20	12:26	12:32	12:36	12:43	12:48	12:51	15:03	15:04	15:08	15:13	15:14	15:16	15:17	15:24	15:27	15:27	15:29					
Short subject description for potential later checks			black cap, grey shirt, black jacket	black beanie, black backpack	grey suit jacket, card around neck	grey hoodie with white cordels, shoe box in hand, red pants	glasses, black hair, black jacket, backpack, grey nikes	men in garbage service dress, blue jeans, short hair	brown beanie, brown jacket, black pants	black jacket, black pants, shoe box in right hand	grey/silver down jacket, black pants, bag in right hand	black jacket, grey shirt in hand, short black hair	black parka, grey shirt, blue jeans dark shoes	black cap, brown/green pants, black jacket	black beanie, black down jacket, brown pants	grey hoodie, brownish jacket, with girl	grey hoodie, black 3/4 pants, white sneakers	blue sneakers, blue jacket with fur, black cap	orange cap, brown hoodie, red bag in hand	black cap, black jacket, grey jeans	black down jacket, bold / blond hair, black pants, with friend	glasses, blue shirt, surf jacket, brown shoes	black&white jacket, under armoured backpack	black&white jacket, black cap, shirt box in hand	white down jacket, black cap, shirt box in hand	black cap, glasses, grey adidas backpack	caro shirt, brown pants, brown shoes, grey jacket	white cap, brown paper bag, black jacket, backpack & friend	red pullover, white shoes, jeans	jeezys, black&white shirt, cardigan	black shirt, black jacket, jeans, black pants in hand	black hair, black jacket, with wife							
			00:01	00:03	00:04	00:02	00:01	00:04	00:01	00:02	00:06	00:03	00:02	00:10	00:02	00:02	00:03	00:03	00:05	00:02	00:02	00:02	00:02	00:09	00:04	00:02	00:02	00:02	00:01	00:02	00:03	00:02	00:03	00:03					
Observed time of subject (in minutes)			00:01	00:03	00:04	00:02	00:01	00:04	00:01	00:02	00:06	00:03	00:02	00:10	00:02	00:02	00:03	00:03	00:05	00:02	00:02	00:02	00:09	00:04	00:02	00:02	00:02	00:01	00:02	00:03	00:02	00:03	00:03						
Browse shirt section first			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
Directly approach specific shirt(s)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
Touch or grab shirt(s)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
No. of touched or grabbed shirt(s)			1	6	8	4	3	14	4	1	9	7	1	18	5	5	4	14	6	1	3	5	1	11	14	5	2	1	4	5	4	5	4	4					
No. of shirt(s) taken off from shelf			1	2	2	4	3	3	1	1	3	2	1	5	2	2	2	2	5	1	1	1	4	7	4	5	2	1	4	4	4	3	3	3					
Picks shirt(s) for try-on or purchase			2	2	2	4	3	3	1	1	3	2	1	5	2	2	2	2	5	1	1	1	4	7	4	5	2	1	4	4	3	4	3	4					
Ask assistance for expertise			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Take shirt(s) off from shelf to check look			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Hold shirt(s) in front of body to check look			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Take picture of shirt(s)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Look inside shirt(s)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Stretch shirt(s) - potentially check its flexibility			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Check specific part (sewing, pocket, zipper...)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Check hang tag*			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Extrinsic & haptic-related			16	5	0	12	1	4%	8	29%	16	57%	18%	0%	43%	1	4%	8	29%	16	57%	18%	0%	43%	1	4%	8	29%	16	57%	18%	0%	43%	1	4%	8	29%	16	57%

* Check hang tag: Not in analysis involved as most likely consumers checked the hang tag to see the price - which is an extrinsic factor, thus not of interest

I - Observation insights about identified groups (shirt section)

Observed time of subject (minutes)	Group 1			Group 2			Group 3			Group 4		
	Sums	Percentages	Averages	Sums	Percentages	Averages	Sums	Percentages	Averages	Sums	Percentages	Averages
Browse shirt section first	7	88%	00:01	7	88%	00:01	7	100%	00:03	7	100%	00:43
Directly approach specific shirt(s)	1	13%		1	13%		0	0%		0	0%	
Touch or grab shirt(s)	6	75%	1,00	8	100%	4,13	7	100%	5,14	7	100%	12,57
No. of touched or grabbed shirt(s)	6			33			36			88		
No. of shirt(s) taken off from shelf	2		0,07	4		0,13	14		0,47	24		0,80
Pick shirt(s) for try-on or purchase	0	0%		0	0%		2	29%		4	57%	
Ask assistance for expertise	0	0%		0	0%		0	0%		2	29%	
Take shirt(s) off from shelf to check look	2	33%		3	38%		5	71%		6	86%	
Hold shirt(s) in front of body to check look	0	0%		1	13%		2	29%		2	29%	
Take picture of shirt(s)	0	0%		0	0%		0	0%		0	0%	
Look inside shirt(s)	1	17%		4	50%		4	57%		3	43%	
Strech shirt(s) - potentially check its flexibility	0	0%		1	13%		0	0%		0	0%	
Check specific part (sewing, pocket, zipper...)	0	0%		2	25%		3	43%		3	43%	
Check hang tag *	2	33%		5	63%		4	57%		5	71%	

* Check hang tag: Not in analysis involved as most likely consumers checked the hang tag to see the price - which is an extrinsic factor, thus not of interest

percentages are of those who touched the shirt; not of total amount of subjects

percentages are of those who touched the shirt; not of total amount of subjects

percentages are of those who touched the shirt; not of total amount of subjects

percentages are of those who touched the shirt; not of total amount of subjects

J - Guide used for store-intercept in-depth interviews

Emil Krehl Master Thesis - Qualitative in-store interviews | Questioning guidance

Reason for store visit | Buying intention

Do you look for some specific shoes/shirts in-store today – planning to purchase or not?

If 'yes': What shoes/shirts – why specifically for those? Did you try them – still like them?

If 'no': What shoes/shirts (attributes) could attract your attention? If you see such a shoe/shirt – would you try it on, even if not looking for it specifically?

Why do you look for shoes/shirts – are there others at home you want to replace?

If 'yes': Why not using them anymore? Style? Performance? Fit? Durability?

If 'no': You need additional shoes/shirts? You used others before? What shoes/shirts type you used?

Do you check (and buy) the running shoes/shirts for running – or another occasion?

If 'running': Only use running shoes/shirts for running – could be less specific model (soccer, tennis, training)? Why – why not?

If 'other': What occasion - why running shoes/shirts for that?

In-store behavior | Buying approach

Please try to recapture store visit – what did you do step-by-step; what were your thoughts?

Probe: Did you look at products first? You liked a product you investigated further?

Probe: Did you touch products in the shelves? Why do you think you did that? You think you touch many?

Probe: Why did you pick the products you picked?

Probe: What shoes/shirts components, features, properties did you compare?

Probe: Did you try shoes/shirts on? What exactly did you check when trying on?

Did you find a shoe/shirt, you would say, that it is what you looked for?

If 'yes': What do you like the most about this shoe/shirt?

If 'no': Why you did not like shoes you investigated?

General preferences

How would you describe the perfect running or training shoe/shirt for you?

Probe: Design important? Fashionability? Reflecting parts for night runs?

Probe: You need specific shoe/shirt properties? Cushioning? Upper material? Breathability? Light weight? ...

Did you ever find that perfect running shoes/shirt?

If 'yes': Still using them – why not? As satisfied as you thought at time of purchase - why?

If 'no': What reason for not finding? Most common problem when checking shoes/shirts?

General behavior | Background information

You usually require professional feedback from store employee?

- If 'yes':** Feedback regarding what topics is important for you?
- If 'no':** Why not - you can check fit, size, etc.? Choice is more based visually or on fashionability?

Do you sometimes lose interest in shoes/shirts after trying them on?

- If 'yes':** You think happens often? What might be the dominant reasons?
- If 'no':** You think the appearance is more important to you than fit, comfort - why?

You sometimes purchase shoes/shirts online?

- If 'yes':** What criteria used for selection? You keep shoes/shirts even if they do not fit perfectly?
- If 'no':** Why not? Seeing shoes/shirts in online store is not sufficient to make choice?

Have you ever bought shoes/shirts, you did not often use after the purchase?

- If 'yes':** Why you bought the shoes/shirts – why not used them often?
- If 'no':** It seems you carefully chose your shoes/shirts – would you say that is true?

Most important aspects for purchase?

- Probe:** Visual-, material-, physical-, fit-, performance-related?

Quantitative data

How many running shoes/shirts do you have at home?

- Probe:** Why so many?
- Probe:** What are their differences? Which do you like the most – why?

How often do you buy running shoes/shirts?

- Probe:** Why so often / seldom?

How would you categorize your running level?

- Probe:** Beginner, Moderate, Heavy Runner?

How often you intend to use bought shoes/shirts?

- Probe:** Not regularly, 1-2 times a week, 3-4 times a week, more?

Age range?

- Probe:** Under 18, 18-25, 26-35, 36-40, 40+?

K - Informed consent to be signed by interviewing subjects



Participation agreement for a study and consent to audio recording

The adidas AG is delighted that You have agreed to participate in a study regarding product preferences, and therefor to provide us with feedback on Your experiences.

The study serves to investigate consumer behavior, specifically in the context of product preference building in-store. It is aimed to identify product characteristics and attributes, which play an important or subordinate role for the final purchase decision.

Your participation in the study is voluntary.

To enable an analysis of Your statements and experiences regarding conventional market research standards, the performed interview will be audio recorded. The stored audio data will be used only in the study context as mentioned above and will not be handed over to a third party. All collected information is treated strictly confidential, and gets integrated anonymously within the study. After the analysis of the audio recording, it will be deleted. You can withdraw your consent and demand an earlier deletion.

You have no right for compensation in any form for the participation in this study.

I agree to participate in the study, with the conditions mentioned above.










I confirm to be at least 16 years old and agree with my signature, that an audio recording can be made from my statements during the interview.










Given and family name in printed characters

Location, date

Signature

L - Selected products involved in the laboratory experiment

			
Design	Material	Cut / Shape	
	89% Cotton 11% PES	175g	slack
	100% (recycled) PES	84g	slack
	61% recycled PES 38% Nylon 1% Elastan PRIMEKNIT	115g	tight
	52% Cotton 48% Nylon	172g	slack
	Front/Sleeves: 83% recycled PES 17% Elastan Back: 78% PES 22% Elastan (Mesh)	145g	tight
	MATERIAL NOT YET ON THE MARKET (involved in study to check proband's feedback on properties)	109g	slack

 Design	 Material	 Cut / Shape
	<p>Primeknit</p> <p>304g</p>	<p>Laceless / Sock</p>
	<p>Microfit</p> <p>192g</p>	<p>Classic</p>
	<p>Primeknit / Plastic</p> <p>260g</p>	<p>Speedfactory Patches</p>
	<p>Mesh & Techfit with Stretch Elements</p> <p>318g</p>	<p>Classic</p>
	<p>Primeknit</p> <p>128g</p>	<p>Sock & Laces</p>
	<p>Breathable Mesh</p> <p>312g</p>	<p>Classic</p>

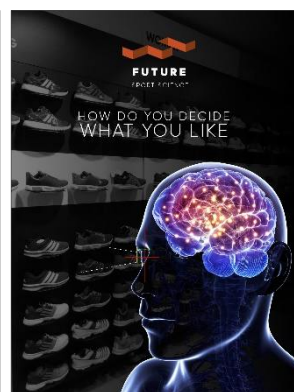
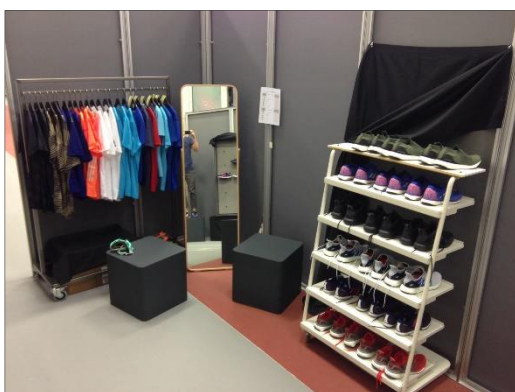
M - Set-up of the laboratory experiment



Laboratory experiment set-up in separated area of a big research hall. Original store footwear wall segment and mannequins used for product presentation of shoes and shirts. Marker on the floor indicate the position where probands got placed to visually inspect the shoes (big yellow marker) and the shirts (little white marker).



Shirt presentation on mannequins, seen from the position the probands got placed for the first stage of investigating the products only visually. The picture on the right shows how the mannequins were curtained until the probands closed their eyes, so that the shirts could then get unveiled.



Shirts and shoes in different sizes were available for the third experiment stage, when probands had to try-on the products. These try-on products also got curtained at the beginning, to avoid probands already getting unwished information.

Shoe presentation seen from the position the probands got placed for the first stage. In this case, the footwear wall is still curtained.

Poster-image used for the acquisition of probands via email and company internal media network. Additional information was provided.

N - Applied product presentation randomization for experiment



Shoe presentation – proband group 1



Shirt presentation – proband group 1



Shoe presentation – proband group 2



Shirt presentation – proband group 2

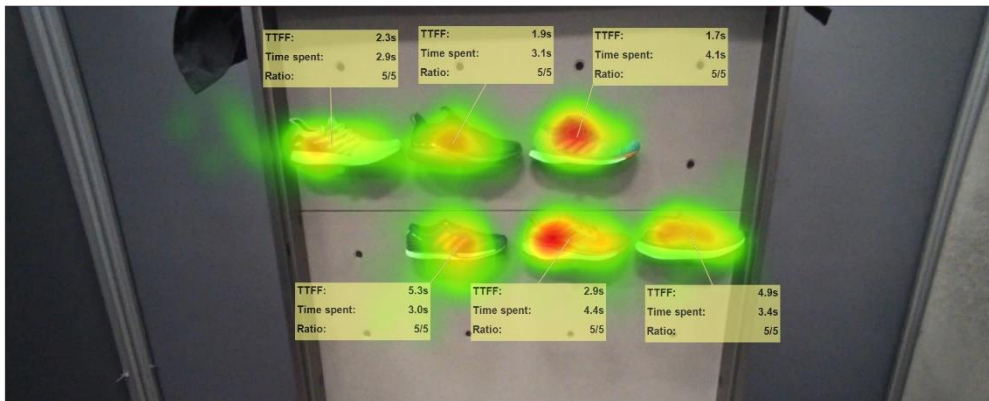


Shoe presentation – proband group 3

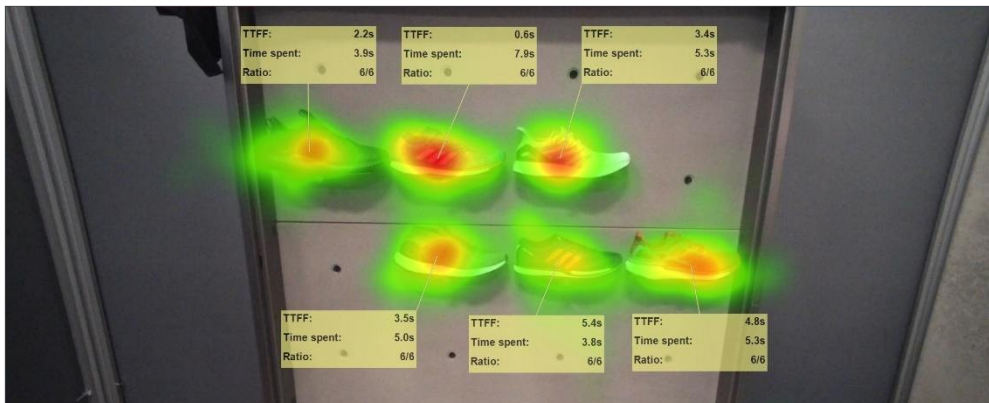


Shirt presentation – proband group 3

O - Experiment: Allocated shoe presentation attention heatmaps



Allocated shoe presentation attention heatmap – proband group 1



Allocated shoe presentation attention heatmap – proband group 2



Allocated shoe presentation attention heatmap – proband group 3



P - Experiment: Allocated shirt presentation attention heatmaps

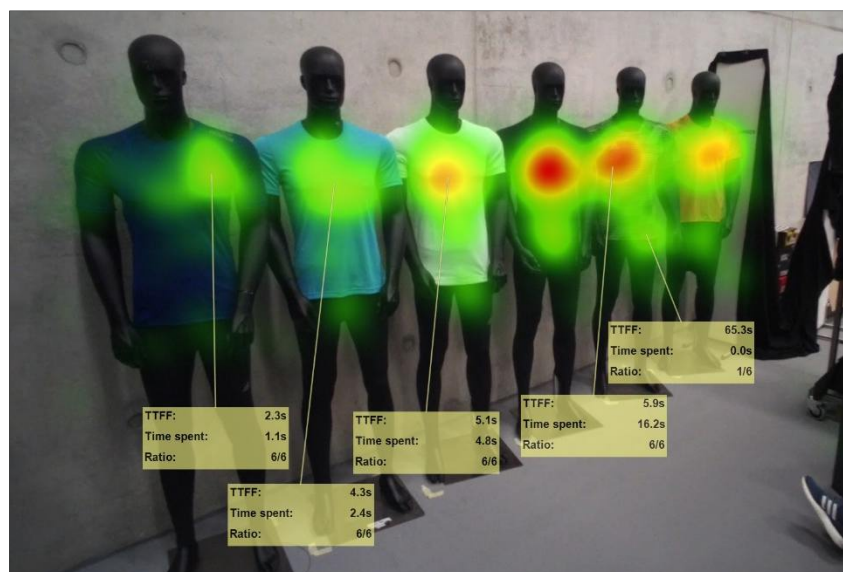
Allocated shirt presentation attention heatmap – proband group 1



Allocated shirt presentation attention heatmap – proband group 2



Allocated shirt presentation attention heatmap – proband group 3



Attention Intensity Low High

Q - Experiment testing agreement & questionnaire survey

testing agreement

This Testing Agreement is entered between the adidas AG [hereinafter "adidas"], Adi-Dassler-Str. 1, 91074 Herzogenaurach and You [hereinafter "You"].

adidas is delighted that You have agreed to test our products and provide us with feedback on Your experience. In order to protect our ideas and innovations, we constantly endeavor to register patents and other trade mark rights. In doing so, we have to take measures which ensure the secrecy of these ideas and concepts. We must also take the necessary precautions during field tests in order to prevent these ideas being made known to the public. As You will be testing products whose design and/or features have not yet been communicated to the public, and which You cannot buy or acquire elsewhere, we ask You to adhere to the following rules.

1. The testing of products must take place at [a] location/locations which will not attract attention from people involved with the production, sale or promotion of shoes, sports apparel or similar products. You are therefore requested not to test our products at the following places or on the following occasions:

- (a) Shoe fairs, fashion fairs or other sporting goods industry fairs
- (b) Sporting events or competitions, especially if these are promoted or advertised to the public, or if attention could be drawn either to You or the product.
- (c) Social Media, especially if they are available to neither third parties, as for example social networks (Facebook, Twitter, etc.), nor public networks, such as Blogs and communities.

2. All test products and any related information are company secrets. You are therefore not permitted to do the following:

- (a) Under no circumstances are You allowed to test any shoes or apparel for any other sport shoes or sports apparel company.
- (b) You are not allowed to invite or permit anyone who is not an adidas employee to hold, wear, photograph, dismantle or closely examine an adidas test product.
- (c) You are not permitted to tell anybody (with the exception of adidas employees) about the test product, nor to use it for Your own commercial purposes or to circulate any information You have obtained through its use.

3. All test products are intended only for use during the testing period and remain property of adidas. They are not to be lent, sold, or given to third parties. After the testing period, or whenever adidas requests their return, the products must be returned to adidas immediately. You are obliged to give detailed information on the test product when requested by adidas at any time.

4. As discussed with You, we expect the following from You within the scope of Your product test:

- (a) reliable testing in a previously arranged period of time
- (b) punctual return of the test products
- (c) informative feedback via questionnaires and where necessary personal interviews
- (d) information about any changes to Your sports activities and Your contact details.

5. You agree that adidas shall be free to use, disclose, reproduce, license or otherwise distribute and exploit all results of the Testing, Your feedback and suggestions.

6. You accept that You will not be paid by adidas. Your participation in this Experience Testing is carried out voluntarily and at Your own risk.

7. If You are visiting us at adidas Headquarters, we kindly ask You not to wear any competitor products [e.g. Nike, Puma, Asics, Converse, Under Armour, The North Face, Jack Wolfskin].

8. Disclaimer: Any use of the adidas equipment or testing material in non-compliance to adidas instructions is at Your own risk. It is Your own responsibility to use common sense during the Testing and to stop training if You experience any pain, feel weak, dizzy or exhausted or become short of breath. adidas is not assuming responsibility for general training risks, including but not limited to overworking, biomechanical stress or athletic injuries.

9. Termination: This Experience Testing Agreement can be terminated at any time. Please contact us via E-Mail and You will be removed from the Testing Pool. The provisions of 2 and 5 shall survive the termination of this Testing Agreement.

10. Data Protection Agreement regarding the German Federal Data Protection Act §§ 4 and 4a:

adidas asks You to provide the information requested in this form in order to carry out the product test and to create a tester profile. During the product tests we may also collect health data about You, such as height and weight, 3D Body scans or information about injuries. All of Your personal data, or those of Your child, will be kept secret or in a secured network and only made accessible to a limited number of people with special access rights and who are under obligation to keep this data confidential. The data will not be passed on to third parties unless You have consented to this. The data will only be compiled and processed for the purposes outlined above and shall be deleted after an appropriate period following the end of our cooperation.

We may contact You from time to time and send You surveys for market and opinion research.

As the party in question, You have a right to information under the German Federal Data Protection Act, as well as, under certain circumstances, a right to the amendment, blocking or deletion of Your data saved in a file. For any further information and explanation possibly required, please consult Your contact in the Athlete Services department.

- I have read the data protection agreement and accept that my data will be compiled, processed and used as a tester profile for the purpose of carrying out the product test.
- I agree that any health data - e.g. information regarding injuries during training - will be compiled, processed and used within the scope of the product test.
- I agree that in certain cases photos, 3D foot and body scan and video recordings will be made of me during the product test, and that these will be processed and used by adidas.
- I have read the test agreement and agree to the terms and conditions therein.

Please sign below

SIGN HERE

clear

Testing agreement to be signed before experiment and questionnaire participation

How would you describe your running level?

Beginner Runner
 Moderate Runner
 Advanced Runner

How many hours per week do you run in average?

h/week:

Which age range do you belong to?

<18yrs
 18 to 25yrs
 26 to 35yrs
 36 to 40yrs
 >40yrs

First part: proband categorization questions

Whats important for you when it comes to **RUNNING SHOES**? Please rank the following items regarding how you personally weight their importance. The most important starting from the top.

- 1 Color (predominant color of the product)
- 2 Repairability (possibility to repair broken parts)
- 3 Hand feel (how the material feels when touching)
- 4 Environmental friendly
- 5 Easy to step in and step out
- 6 Wear comfort during activity
- 7 General quality of the product
- 8 Cushioning (how the out sole absorbs high force peaks during activity)
- 9 Light weight
- 10 Fashionability (how the product reflects current fashion trends)
- 11 Durability (how long it lasts)
- 12 Versatility (possibility to wear it for different activities)
- 13 Grip (how much traction provides the out sole)
- 14 General Aesthetics (how appealing the product looks)
- 15 Easy of care
- 16 General fit
- 17 Breathability (ability to regulate temperature)
- 18 Stability (ability to feel stable during activity)
- 19 Design & Pattern
- 20 Odor prevention (how it prevents unpleasant smell)

Second part: order product attributes (per drag & drop) according to personal importance

Whats important for you when it comes to a **RUNNING SHIRT**? Please rank the following items regarding how you personally weight their importance. The most important starting from the top.

- 1 Light weight
- 2 General quality of the product
- 3 Easy of care
- 4 Breathability (ability to regulate temperature)
- 5 General fit
- 6 Fashionability (how the product reflects current fashion trends)
- 7 Prevention of electro static charging
- 8 Wear comfort during activity
- 9 Easy to put on and take off
- 10 Odor prevention (how it prevents unpleasant smell)
- 11 Moisture management (how it handles sweat)
- 12 Design & Pattern
- 13 Hand/Skin feel (how the fabric feels when touching)
- 14 Repairability (possibility to repair broken parts)
- 15 Environmental friendly
- 16 Durability (how long it lasts)
- 17 Posture support (how the product improves your body's posture during activity)
- 18 General Aesthetics (how appealing the product looks)
- 19 Versatility (possibility to wear it for different activities)
- 20 Color (predominant color of the product)

Second part: order product attributes (per drag & drop) according to personal importance

R - General questionnaire results (shoes vs. shirts)

Attributes (categorized according to belonging information level)	Unity (%)	Running shoes																				Total no. subjects	Running shirts																				Unity (%)	Attributes (categorized according to belonging information level)	
		Rank allocated by respective no. of respondent(s)																					Rank allocated by respective no. of respondent(s)																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
visual	Color	63,1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	56,3	Color				
	Design & Pattern	55,0	1	1	1	2	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	3	2	1	1	1	1	1	1	1	1	1	1	50,0	Design & Pattern				
	Fashionability	51,0	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	66,8	Fashionability				
	General Aesthetics	58,0	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	69,2	General Aesthetics				
% - proportion of total info level		58,8	21%																				100%	21%																				60,6	% - proportion of total info level
performance & fit	Breathability	70,3	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	79,6	Breathability					
	Cushioning *	72,9	4	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	3	1	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	68,8	Moisture management *					
	Grip *	67,8	1	1	2	2	3	1	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	77,4	Prevention of electro static charging *				
	General fit	74,3	1	3	3	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	70,6	General fit				
	Wear comfort during activity	84,5	4	4	2	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	80,2	Wear comfort during activity				
	Stability	72,1	1	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	3	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	69,5	Posture support				
	Odor prevention	80,9	1	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	62,5	Odor prevention				
	Easy to step in and step out	54,0	3	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	2	1	1	1	1	1	1	1	1	69,3	Easy to put on and take off				
	Versatility	75,0	1	1	1	1	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	3	1	2	1	3	2	2	1	1	1	1	1	1	1	1	1	1	1	64,3	Easy to put on and take off				
	% - proportion of total info level		72,4	37%																				100%	22%																				71,4
others	Environmental friendly	77,2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	68,4	Environmental friendly					
	Ease of care	75,8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	73,8	Ease of care					
	General quality of the product	80,5	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	3	1	1	1	1	1	1	1	1	1	1	65,9	General quality of the product					
	Durability	71,2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	3	1	2	1	1	1	1	1	1	1	1	1	1	60,0	Durability				
% - proportion of total info level		90,8	12%																				100%	40%																				93,4	Repairability
haptic	Hand feel	72,5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	71,1	Hand/Skin feel					
	Light weight	85,7	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	64,1	Light weight					
% - proportion of total info level		79,1	15%																				100%	9%																				67,6	% - proportion of total info level

* Confronted attributes are different for shoes and shirts -no comparability given for those

S - Categorized questionnaire results (shoes vs. shirts)

		Running shoes (subjects running 1-4h per week)																				Running shirts (subjects running 1-4h per week)																					
Attributes (categorized according to belonging information level)		Unity (%)	Rank allocated by respective no. of respondent(s)																				Unity (%)	Rank allocated by respective no. of respondent(s)																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Visual	Color	72,5	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Design & Pattern	75,0	1	1	2	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Fashionability	73,4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
performance & fit	General Aesthetics	75,6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1				
	%-proportion of total info level	74,1	33%																				30%																				
	Breathability	76,6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1				
others	Cushioning*	85,4	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1				
	Grip*	78,4	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	General fit	84,6	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
haptic	Wear comfort during activity	87,8	1	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Stability	83,8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Odor prevention	90,3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
performance & fit	Easy to step in and step out	67,0	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Versatility	87,5	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1				
	%-proportion of total info level	82,4	31%																				26%																				
others	Environmental friendly	90,1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Ease of care	84,8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	General quality of the product	84,8	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1			
haptic	Durability	79,3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Repairability	91,8	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	%-proportion of total info level	86,1	10%																				46%																				
haptic	Hand feel	86,3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Light weight	83,0	2	2	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	%-proportion of total info level	84,6	20%																				15%																				
haptic	Hand/Skin feel	82,4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Light weight	77,1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
haptic	Hand/Skin feel	82,4	25%																				20%																				
	Light weight	79,8	25%																				15%																				
Total no. subjects		100%	100%																																								

*Confronted attributes are different for shoes and shirts - no comparability given for those

