CORNERSTONES OF UNIVERSITY CHOICE: CONTEXT, MENTAL MODELS, AND DECISION-MAKING PROCESSES

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SYNOPSIS

Whenever I explained to anyone in academia what my research is about, my interlocutor would smile intently and start to tell me an anecdote about his or her own university choice. These were all interesting, sometimes very straightforward, at other times rather chaotic, but always refreshing stories from people of different ages, gender, nationalities, career paths, subjects and interests. My own entrance into the world of academia certainly did not go off as hoped. With more luck than sense and thanks to the active support of my parents I stumbled into studies. Six years later, after graduation, I was highly motivated to get a better understanding of how others, current freshmen, found their way to university. Certainly based on my own experiences and reinforced by my first job in a university's marketing department, I wanted to comprehend the underlying mechanisms leading to a choice of a university. The anecdotal evidence I heard from all the university graduates as well as my own experiences, however, did not significantly help to shed light on this question because over the last few years German higher education – and with it the admission procedures – has been subject to continuous change (Reihlen & Wenzlaff, 2014). When I applied for a place at university you only had to send one application to the central office for the allocation of places in higher education by selecting up to seven universities in order of preference. That central office then allocated you a university place from all those available in Germany (allstudents.de, 2010). Today, however, students apply directly to their institutions of preference. This means that they have to look in much greater detail into the institutions they want to submit an application to – or at least each university's awarding procedure. At the same time however, they have a more significant influence on the choice of their future place of study as they can only be admitted to those institutions they apply to. Consequently, this should involve an extensive decision-making process with a considerable search for, and evaluation of, information.

The perceived relevance of understanding students' decisions regarding higher education differs significantly depending on the national context and the corresponding higher education policy. In competitive environments like the US where universities have for decades fought for students with sophisticated marketing strategies (Kinzie et al., 2004), the topic is clearly very important for university marketing managers as well as researchers. Internationally, there is therefore a long tradition in university choice research. By contrast, German universities had to struggle with "massification" (Reihlen & Wenzlaff, 2014, p. 117) and had no need to actively attract students because until 2005 students were simply assigned to universities by

the aforementioned central office (Bundesministerium für Bildung und Forschung, 2009). Consequently, only limited research on the institutional choice of prospective students has been conducted in Germany. However, as today the majority of German freshmen need to apply directly to the universities for a place, the higher education institutions need to make sure they are perceived and subsequently chosen by those candidates they would like to attract. Moreover, the number of freshmen is decreasing and is expected to decline further (Kultusministerkonferenz, 2012; Statistisches Bundesamt, 2014). At the same time, the rising international mobility of students increases the competition between universities worldwide (Bruder, Burkhart, Franke, Heublein, & Kercher, 2015; European Students' Union, 2006; Münch, 2011). Therefore, even though interest in this topic has so far only risen gradually, it is becoming more and more important in the German context. However, to simply transfer results and concepts from other countries without checking their applicability is inadvisable as there are still marked differences in the higher education policy, presumably impacting the choices made by prospective students.

Internationally, university choice research is based upon some underlying assumptions like consumerist, rational choice processes (DesJardins & Toutkoushian, 2005; Hossler & Gallagher, 1987; Litten, 1982; Manski & Wise, 1983; Paulsen, 2001), impacts of the students' socio-cultural background on the decisions made (Dika & Singh, 2002; McDonough, 1998; Perna, 2006; Terenzini, Cabrera, & Bernal, 2001), and consistent sense making processes of students from specific demographic groups (Teranishi, Ceja, Antonio, Allen, & McDonough, 2004; Terenzini et al., 2001; Wiese, van Heerden, & Jordaan, 2010). Even though research based on these suppositions has made a considerable contribution to understanding how university applicants choose their institution of preference, it features some fundamental problems. Firstly, some qualitative studies already indicate that the choices made by prospective students differ from the rationality postulates similar to the deviances observed for real-life choices in other contexts (Beach & Lipshitz, 1993; Gigerenzer, 2008; Lipshitz, 1993; Orasanu & Connolly, 1993). The decisions made are characterized by a high degree of uncertainty, limited information levels, and intuition (Allen, 2002; Hachmeister, Harde, & Langer, 2007; McDonough, 1998; Schleef, 2000). Secondly, studies demonstrating a strong impact of the socio-cultural background on students' choices are limited to national contexts known for high educational class differentials (e.g., Kinzie et al., 2004; Micklewright, 1989) whereas in countries with comparably low stratification like Sweden, the Netherlands or Germany (Breen & Goldthorpe, 1997; Müller & Haun, 1994), the influence of the students' background is unlikely to comprehensively explain the choices made. Thirdly, demographic

variables tell us very little about how prospective students make sense of and interpret the marketing messages sent by universities in meaningful ways. Understanding this is key for marketing managers wishing to develop effective communication strategies (Christensen & Olson, 2002; Finne & Grönroos, 2009; Holm, 2006). Fourthly, even though the idea of students as consumers and the corresponding application of consumer choice models of university choice have gained acceptance (Hemsley-Brown & Oplatka, 2006; Saunders, 2015), the impact of personality traits identified as being influential on choices in the general marketing literature (Kassarjian, 1971; Kotler & Bliemel, 2001) has surprisingly been disregarded in higher education research so far. Beyond this, the role of factors like emotions and intuition, likewise shown to be influential in making decisions (Beach & Lipshitz, 1993; Lieberman, 2000; Thompson & Stapleton, 2009; Weick, Sutcliffe, & Obstfeld, 2005), have only been considered to a very limited extent in university choice research (Allen, 2002; Hachmeister et al., 2007; Pampaloni, 2010).

In my dissertation, I take these shortcomings as starting points for gaining a deeper understanding of how students choose their universities. I approach this goal in three stages. First, I provide a review of the theoretical foundations and dominant topics in university choice research, highlighting gaps in the German literature. Second, by using the Zaltman Metaphor Elicitation Technique, my co-author Markus Reihlen and I reveal students' mental models of university choice that help us to gain a more profound understanding of the relevant rational and emotional issues engaged in their sense making processes. Third, on the basis of in-depth interviews, I disclose distinct choice types with their corresponding decision-making strategies and logics that emphasize the limits of sociological and rational choice theory in the context of university choice. In both empirical works, I took students' personality traits into account.

This work contributes to higher education marketing research in several ways. Firstly, it offers a critical analysis of the established theoretical positions university choice research is based upon. As a result, not only are the limits of these frameworks highlighted but options to in fact overcome these restrictions by considering alternative contexts and theories are offered. Secondly, by being the first to use the Zaltman Metaphor Elicitation Technique in research on university choice, completely new insights on the sense making activities of prospective students are gained. In addition to broadening our understanding of the role of emotions in the university choice process, these findings provide valuable implications for the development of universities' segmentation and communication strategies. Thirdly, the explicit consideration of higher education policies reveals significant differences but likewise

similarities between distinct national contexts, thereby illustrating both the scope and limitations of transferring findings. Fourthly, by demonstrating a consistent impact of personality traits on students' mental models as well as choice types, a foundation for a more systematic appraisal of this factor's influence is laid.

Before leading the reader through this work, I would like to delve more deeply into its fundamental theoretical and conceptual basis. For this purpose, I will first introduce some basic ideas and approaches of the general research on decision-making. I will then explain the state of university choice research with its major shortcomings. After giving an overview of the three articles the thesis is composed of, I will provide some concluding remarks about the main contributions of this dissertation.

DECISION-MAKING

Definition

Making decisions is part of everyday life and the attempt to define it seems to be unnecessary at first sight. However, as every person has subjective experiences and ideas about what it means to make a decision, it is all the more important to form a unanimous understanding of what decision-making is meant to be in this thesis.

Generally, a decision is described as the choice of an option from a group of realizable alternatives (Laux, Gillenkirch, & Schenk-Mathes, 2014; Takemura, 2014). More specifically, Thomae (1960) describes a decision as "one of the types, in which a human being reacts to a multivalent situation, meaning that it contains several options and is asking for numerous directions." (p. 18). He points out that choice situations are characterized by multiple alternatives, a future reference and that decision-makers are prompted to act in any way, theoretically even by omission. Beyond this, the situation needs to be of the utmost relevance and greatest personal interest for the decider. In addition, Kahle (1981) points out that the situation at hand needs to be changed through the choice. Thus, he implies that the decision also has to be implemented, not just planned. According to Kirsch (1998), real decisions differ from habitual ones in the way that the former force the decision-maker to solve a problem and search for an appropriate solution instead of falling back on routinized behavior.

To sum up, to be a decision, the following criteria should be met: (1) new problem and attempt to solve it, (2) at least two alternatives to choose from, (3) implementation of decision, (4) relevance for decision-maker, and (5) future reference.

University choices made by prospective bachelor students theoretically meet all of these conditions. (1) The average student-to-be cannot fall back on any experience regarding higher education or complex decision-making in general. A habitual decision can therefore be

excluded as university applicants definitely need to search for new ways of solving the problem of where to study in the future. On the contrary, the choice of the university is even categorized as extensive problem-solving (Hayes, 2009; Laroche, Rosenblatt, & Sinclair, 1984). (2) By holding the highest existing diploma of the German school system, the university entrance qualification, prospective students theoretically have a multitude of options to choose from. However, depending on their final grades, their desired subject, and their preferred universities, applicants might end up with only one or even no offer of a university place. In terms of the definition above, these students would not make a decision. Taking this option into consideration, the empirical studies in this dissertation only included students admitted to at least two universities. Due to this disqualifying factor the need to make a choice was guaranteed. (3) All school leavers necessarily need to change their situation and implement whatever choice they make as they cannot continue going to school. Going to university is only one option for them. Alternatively, they could for instance start vocational training, engage in voluntary service, take a year off, or go abroad. Some of the participants in our studies chose one of these alternatives upfront. However, all of them had decided to go to university and had already implemented their choice at the time of the interview. Although you cannot rule out the possibility of a decision being revised, this does not interfere with the implementation of the initial choice. (4) As the university choice is expected to result in far-reaching consequences on the students' lives – such as the place they live, the future career, or their financial status – a high relevance of the decision can be inferred. (5) Finally, a future reference is given as the decision affects the students' prospective personal and vocational journey through life.

Decision theory

Research on decision-making is basically dominated by two competing approaches.[1] Normative choice theory offers suggestions about how people should behave on the basis of rational thought. By contrast, descriptive choice theory aims to describe actual decision-making behavior of human beings that might dramatically diverge from the rational postulates (Jungermann, Pfister, & Fischer, 2005; Rapoport, 1989). To portray decision theory in all its complexities would fill an entire book. Therefore, only those aspects relevant for this dissertation are introduced on the following pages.

Normative decision theory

Having "predictive power" (Rapoport, 1989, p. viii), normative choice theory is aimed at determining how humans ought to behave when making a decision. Consequently, rules to be

followed are established in order to help the decider to make the 'right', though not necessarily most successful, choice (Eisenführ, Weber, & Langer, 2010; Keeney & Raiffa, 1998; Shrode & Brown, 1970). The more complex a decision situation is, for instance because of competing goals, a multitude of alternatives, or uncertainty about possible outcomes, the more important these rules become (Eisenführ et al., 2010).

Normative decision theory is based on the assumption that people act rationally and always strive to maximize their utility. According to the concept of the homo economicus, decision-makers have clearly-defined, stable preferences, have access to perfect information including all of their options and utilities, and are able to unambiguously rank all possible consequences of their decisions in order to choose the most beneficial alternative for them (Bettman, Luce, & Payne, 1998; Bunge, 1996; Orasanu & Connolly, 1993; Simon, 1955; Zey, 1992). More moderate representatives of the rational choice approach do not insist on these strict requirements. Nonetheless, the idea of a thorough and systematic search for relevant and sufficient information, a careful consideration of preferences and goals, a consistent evaluation of alternatives, and the aim of maximizing utility are maintained (Eisenführ et al., 2010).

As decision-makers frequently have to deal with incomplete information concerning the consequences of their decisions, choices are categorized as being made under certainty, risk, or uncertainty (Kirsch, 1970, 1978).[2] Decisions under certainty are comparably unproblematic as the entire information is available and the optimum solution can be chosen accordingly. In the case of a decision under risk, the decider has no knowledge about the exact outcomes but knows the probabilities of the possible consequences. In decisions under uncertainty, even these probabilities are unknown or inexistent (Kahle, 1981; Peterson, 2009). However, even in these highly uncertain situations, principles like the Savage-Niehans rule or the Hodges-Lehman rule are supposed to help making an optimum choice (Borcherding, 1983; Eiselt & Sandblom, 2004).

The normative principles of rational choice have been proven to be helpful tools in several subject areas such as medicine, military, and public policy (Keefer, Kirkwood, & Corner, 2004). In economics, for instance, they are firmly embedded in the curricula at university and are widely applied in practice (Bell, Raiffa, & Tversky, 1989). However, professional as well as private decisions are often based on intuition instead of a structured, systematic, rational choice process (Beach & Lipshitz, 1993; Eisenführ et al., 2010; Gigerenzer, 2008). In their actual behavior, people deviate from the logic-based rules established by normative choice theory. This aberration is not necessarily intended. Sometimes, people even plan and

articulate to stick to the principles of rational choice but fail to do so in the end (Bunge, 1996; March, 1994).

Descriptive decision theory

The depiction and explanation of how people really think and make their decisions is the aim of descriptive choice theory (Bell et al., 1989; Peterson, 2009). As humans are not "idealized, mythical, de-psychologized automata" (Bell et al., 1989, p. 17), they frequently have severe problems adhering to the principles of rational choice (Bunge, 1996). Contributions to descriptive decision theory are made by researchers with different views on these principles.

Authors like Kahneman, Slovic, and Tversky (2008) and Tversky and Kahneman (1981) have carried out extensive research describing how people deviate from the ideals of rational choice. The vast majority of research from this angle focuses on experimental settings that allow researchers to manipulate stimuli and identify their effects. With their insights into the representativeness, availability as well as anchoring and adjustment heuristics (Tversky & Kahneman, 1974) and their subsequent development of prospect theory (Kahneman & Tversky, 1979), they made significant contributions to the field of behavioral economics (Jungermann et al., 2005). However, since for them rational choice serves as the yardstick for human behavior, they evaluate deviances as being erroneous and, thus, biases.

Other authors strongly disagree with this view and instead criticize the central foundations of rational choice theory as being unattainable or at least unlikely for humans acting in the complexities of real life instead of simplified, controlled laboratory settings. One important concept underlying the criticism is humans' limited information processing capacity. Due to this restriction, they are unable to acquire, process, and retain all available information in order to make a decision (Miller, 1956; Newell & Simon, 1972; Simon, 1957). Particularly when confronted with complex choice problems, they accordingly need to simplify the decision at hand to harmonize it with their intellectual abilities (Kirsch, 1998). Even though in such complex situations humans usually search for information exceeding their experience in order to evaluate possible consequences and reduce ambiguity, they "subsequently ignore the content" (March, 1994, p. 216) when making their decision. By only using limited information and ignoring the rest, they become able to solve these complicated problems (Gigerenzer, 2008). Consequently, decisions are based on a limited amount of information even though significantly more exists (Simon, 1957). In conclusion, this phenomenon leads to humans not optimizing solutions but instead being concerned with finding satisfying solutions (March & Simon, 1993; Simon, 1955). By contrasting this behavior with rational choice

theory, this concept is called bounded rationality (Gigerenzer, 2008; March, 1994; Simon, 1957, 1987).

Departing from the multitude of further points of criticism on the principles of rational choice, it is the role of preferences, emotions, and intuition that are particularly relevant in this dissertation. For instance, instead of stable, constant, and accurate preferences presumed in rational choice theory, in reality these are often rather are ill-defined, volatile, and constructed in the moment of making a choice (Bell et al., 1989; Bettman et al., 1998; Gregory, Lichtenstein, & Slovic, 1993; Orasanu & Connolly, 1993). Again, because of humans' limited information processing capacities, people cannot fall back on fixed preferences but have to deal with "unstable, inconsistent, incompletely evoked, and imprecise" ones (March, 1978, p. 598). Simultaneously, the idea of constructive preferences implies that they do not emanate from the constant and coherent use of algorithms as recommended by normative decision theory (Bettman et al., 1998; Payne, Bettman, Coupey, & Johnson, 1992).

Even though rational choice theory postulates emotions as being harmful when making decisions, research has revealed contrary results (Myeong-Gu & Barrett, 2007). Instead of excluding emotions as sources of irrationality, according to Damasio (1994), they need to be included in decision-making because people are not able to make rational choices without taking their emotions into account. Overall, emotions positively affect decisions by facilitating or even enabling them (Dolan, 2002; Myeong-Gu & Barrett, 2007; Schwarz, 2000).

Likewise, intuitive judgements are evaluated as being irrational and mediocre from a rationalist's point of view (Gigerenzer, 2008). Except for automatized routine problem-solving or experts with substantial experience (Aarts, Verplanken, & van Knippenberg, 1998; Sadler-Smith & Shefy, 2004), people are expected to put considerable systematic thought into their decisions in order to identify their optimal solution. However, comparable to the ratio-emotion-dichotomy, intuition has proven to positively complement deliberative decision-making (Beach & Lipshitz, 1993; Lieberman, 2000).

Another phenomenon deviating even more from the ideas of rational choice is "decision making in organized anarchies" (Cohen, March, & Olsen, 1972, p. 16) like universities. Described by the garbage can model of organizational choice, these choice processes take place in exactly those situations not meeting the principles of rational choice theory (Cohen et al., 1972). However, as the model illustrates collective decision-making processes in organizations, it is unlikely to find application in prospective students' university choices.

Decision-making process

Making a decision is no single, spontaneous incident but composed of several consecutive steps over a longer period of time. One special form of the decision-making process, inspired by more general choice process models, is the consumer decision-making process (Engel, Blackwell, & Miniard, 1990; Howard & Sheth, 1969). It is divided into distinct phases: problem recognition, search for information, alternative evaluation, the actual decision, and outcomes (Blackwell, Miniard, & Engel, 2006; Engel et al., 1990; Kroeber-Riel, Weinberg, & Gröppel-Klein, 2009). However, omitting some phases or stepping backwards during the choice process is considered as being legitimate (Engel et al., 1990; Pfohl & Braun, 1981). The process is assumed to work like a funnel in which the decision-makers gradually reduce their alternatives from a broad awareness set to a consideration and choice set until one option is chosen (Shocker, Ben-Akiva, Boccara, & Nedungadi, 1991). Within the different phases, we see a shift in information needs and, accordingly, search behavior as well as in the relevance of choice criteria. Depending on the choice situation, the significance of the single phases as well as their duration differs considerably (Bruner & Pomazal, 1988; Pfohl & Braun, 1981).

In the problem recognition phase, decision-makers initially become aware of the fact that they are confronted with a choice problem they need to devote themselves to (Thomae, 1960). This is usually the case if they perceive a difference between their actual state and a desired state with regard to their wants and needs (Bruner & Pomazal, 1988). Subsequently, in order to reduce ambiguity and identify their options, they use their experience, and, if necessary, search for further information (Kurtz & Boone, 2006; March, 1994). In case of extensive problem-solving – when the decision-maker is confronted with a completely new and simultaneously complex choice problem that is expected to result in momentous consequences – a comprehensive search for information is expected (Engel et al., 1990; Hayes, 2009). However, according to the concept of humans' limited information processing capacities explained above, decision-makers only process a fragment of the information they are exposed to (Blackwell et al., 2006). Based on this information, a comparison of the alternatives and their expected consequences with the deciders' preferences and goals takes place. In order to evaluate their options, decision-makers use choice criteria reflecting their values and needs (Gutman, 1982; Olson & Reynolds, 2001). In the course of the evaluation, unattractive options are weeded out in order to reduce the alternatives to be considered (Bettman & Park, 1980; Blackwell et al., 2006). As soon as decision-makers have identified their best or most appealing option, they are ready to make their choice (Kurtz & Boone,

2006). In the case of a classical consumer, this choice is normally articulated by a purchase (Blackwell et al., 2006; Engel et al., 1990). Considering university choices, this decision determines where the prospective student is going to study. After making a decision, it needs to be implemented and consequently the process results in some kind of outcome. This, again, is evaluated by the decision-maker, resulting in either satisfaction or dissatisfaction with the choice made (Blackwell et al., 2006). The assessment made at this point in time has a direct impact on future decisions, word of mouth, and complaints (Engel et al., 1990). In case the decider is not completely satisfied or the decision is questioned by a third party, cognitive dissonance might appear. People try to deal with this phenomenon by searching for arguments supporting and justifying their choice while simultaneously ignoring information casting doubt on it (Festinger, 2001).

Over the course of a choice process, decision-makers can fall back on a plethora of choice strategies. Weighted adding, lexicographic strategies, elimination-by-aspects, frequency knowledge, availability, representativeness, and simulation heuristics are just some of the commonly used options (Alba & Marmorstein, 1987; Bettman et al., 1998; Kahneman & Tversky, 1985; Tversky, 1972a, 1972b; Tversky & Kahneman, 1974). In fact, decision-makers often even combine several heuristics aiming to harmonize the urge to minimize their cognitive efforts and negate their negative emotions with the wish to make the best possible decision that can easily be justified (Bettman et al., 1998). Moreover, according to Payne, Bettman, and Johnson (1993), when confronted with little prior knowledge, high complexity, and stress, people tend to use constructive choice processes, meaning that they create new decision-making strategies while in the midst of a choice. As exactly these conditions describe the choice of a university, students are assumed to adapt their decision-making process over time as well (Galotti, 1995).

Context factors

Decision-making processes are influenced by environmental factors as well as individual differences (Blackwell et al., 2006; Kurtz & Boone, 2006). A decision-maker's desires and preferences, for instance, correlate strongly with characteristics such as age, gender, income, or religious denomination (Kotler & Bliemel, 2001). As information about these demographic variables is also comparatively easy to obtain, they frequently form the basis of costumer segmentation (Kurtz & Boone, 2006). Other personal factors involved in the choice process are an individual's resources, for instance regarding information processing capacity, motivation, prior knowledge, and established attitudes (Blackwell et al., 2006). Moreover, the personality affects choices significantly (Kassarjian, 1971; Kotler & Bliemel, 2001). For

instance, extroverts are exceptionally willing to make decisions while conscientious people are very cautious and carefully think about possible consequences before making a choice (Saum-Aldehoff, 2007). Likewise, the need for closure considerably influences the motivation to search for and use information as well as the confidence in the decision made (Klein & Webster, 2000; Kruglanski & Webster, 1996; Vermeir, Van Kenhove, & Hendrickx, 2002).

In addition to these individual factors, the environment people live in affects their decisions. The cultural background forms a frame of reference enabling humans to interpret and make sense of choice situations (Thompson & Troester, 2002). According to Bourdieu (1986), this frame of reference he called "habitus" (p. 245) consists of an internalized system of thoughts, experiences, outlooks, beliefs, and perceptions about the world that a person has acquired from their immediate surroundings, particularly their family (Bourdieu & Passeron, 1990; Lamont & Lareau, 1988; McDonough, 1998; Núñez & Bowers, 2011; Perna, 2006). The habitus shapes an individual's attitudes, ambitions and aspirations and helps to create a common expectation about appropriate decisions held by the members of a group or class (Bourdieu & Wacquant, 1992; McDonough, 1998; Perna, 2006). Thus, the social environment and a person's reference group directly affect decision-making, especially in the case of a choice with high social involvement (Bearden & Etzel, 1982; Witt & Bruce, 1972). Beyond this, choices are influenced by broader context factors such as social, economic, or policy conditions (Micheletti, 2010; Perna, 2006). The extreme consequences of political and economic contexts on human behavior are impressively demonstrated by the current flood of refugees risking their lives to enter the European Union.

Most obviously, this introduction to decision-making only offers a limited overview of the existing choice literature. However, it comprises all major concepts used in research on university choice and consequently treated in this thesis. In the next paragraph, I will give an outline of previous works on the choice of a university and explain the major shortcomings I will address in the dissertation.

UNIVERSITY CHOICE

For the majority of bachelor students, the choice of a university is the first major decision to be made by themselves. Usually, all prior decisions with substantial consequences – like the schools to be visited or the place to live – are made by, or at least in cooperation with, their parents. When choosing a university, prospective students not only decide what kind of institution they are going to receive their academic education at. The decision affects the quality of the education with correspondingly expected consequences regarding their future academic as well as vocational career. It further affects their social life. The location of the

university decides on whether students can stay in their social network, including friends, family, sports clubs, theater groups, the school of music, or the local bar. It also has an effect on their financial status. Currently, as they might need to pay rent or run a car, in addition to their living costs and tuition fees. And prospectively, as the quality and reputation of the university might affect the amount they earn in future (Galotti, 1995). Next to these tremendous consequences concerning students' lives, the choice of a university is comparatively static. Once made, it can only be changed with considerable effort. In addition to the financial, organizational, and physical expenditure of moving, switching universities is often accompanied by problems with the recognition of studies and qualifications. Although the Bologna reform aimed to simplify the process of shifting between universities, it still is fraught with many hurdles and difficulties (Nickel, 2011; Pechar, 2012). The students' possibility of choosing from a multitude of subjects as well as institutions and the fact that the whole choice process is partly controlled by the decisions made by the universities further enhances the complexity and uncertainty facing university applicants (Kotler & Fox, 2002).

From the universities' point of view, the aim of understanding how students choose their institutions of preference is to optimize recruitment efforts (Hemsley-Brown & Oplatka, 2006; Simões & Soares, 2010). In order to attain the best possible fit between the university profile and applicants, differences in the decision-making behavior and in the students' wants and needs should be known and served (Hossler, Braxton, & Coopersmith, 1989; Maringe, 2006). In line with the ideas of costumer segmentation (Kotler & Armstrong, 2008), universities sending targeted messages to their most preferred audiences are more likely to effectively recruit sufficiently matching students than those simply communicating whatever they think is important and appealing about them to anyone out there (Veloutsou, Lewis, & Paton, 2004).

Consequently, research on university choice pursues the goal of explaining how students make their decisions in order to most accurately predict prospective students' choice behavior. Even though some suggestions for improving decision-making, especially concerning the search for information, are made, no study aims to determine how students ought to behave (Moogan & Baron, 2003; Pérez & McDonough, 2008). Despite this clearly descriptive orientation of university choice research, the ideas of rational choice theory are prevalent (DesJardins & Toutkoushian, 2005; Manski & Wise, 1983; Paulsen, 2001). Accordingly, students are expected to act rationally by evaluating all available information according to their preferences (DesJardins & Toutkoushian, 2005). Particularly in contexts with high tuition fees (Johnstone & Marcucci, 2010; Snyder & Dillow, 2015), students are expected to

base their decisions on calculations regarding their expected costs and benefits (Becker, 1993; DesJardins & Toutkoushian, 2005; Gambetta, 2009; Paulsen, 2001). The latter, however, are not limited to financial considerations but embrace social benefits as well (Baum, Ma, & Payea, 2010; Bowen, 1980; Perna, 2006; Terenzini et al., 2001). Even though this rationalistic approach has been criticized for ignoring aspects like individual expectations, experiences and the students' socioeconomic background (DesJardins & Toutkoushian, 2005; Paulsen, 2001), the more general critique of the rational choice idea regarding the role of humans' limited information processing capacity, preferences, intuition, and emotions is disregarded. I will address the impact of emotions on decision-making in the second paper. A critical consideration of the other factors is made in the third paper.

Based on the ideas of Bourdieu (1986), a second approach focuses on the impact of the cultural and social capital as well as the resultant habitus on the decisions made (Dika & Singh, 2002; McDonough, 1998; Perna, 2006; Terenzini et al., 2001). These aspects are usually operationalized by translating them into demographic variables such as race, gender, ability level, educational as well as socioeconomic background (Dunnett, Moorhouse, Walsh, & Barry, 2012; Kim & Gasman, 2011; Teranishi et al., 2004; Wiese et al., 2010). Hence, the implicit assumption of these studies is that students form their generalizable preferences regarding higher education and make sense of universities' marketing messages on the basis of their socio-cultural background that is reflected by their demographics. Conveniently, these variables can easily be used for costumer segmentation. Traditionally, this approach has been criticized for not explaining how students actually make their choices but only giving hints regarding impacts on the decision (Manski, 1993). In this thesis, a more comprehensive criticism is applied. In the second paper, my co-author Markus Reihlen and I argue, that students' sense making processes are insufficiently explained by demographic variables. Instead, we propose a mental models approach in order to explain how students make sense of the university choice situation. In the third paper, I additionally point out that the strong socio-cultural impact on the university choice identified in previous research is most likely due to the highly stratified educational policy context these studies are conducted in. In both empirical works of this thesis, no dominant impact of the students' socio-cultural background on their choices was revealed.

Aiming to reconcile and retain the best elements of these two approaches, some researchers combined them. Only few like Perna (2006) or Cabrera and La Nasa (2000) explicitly refer to the sociological and econometric ideas. Most prefer to integrate them implicitly in terms of the internal and external influences on the consumer buying process that university choice is

compared to. The notion of prospective students as consumers is not undisputed but mostly accepted (Hemsley-Brown & Oplatka, 2006). According to these university choice models, students pass different consecutive phases (Chapman, 1981; Chapman, 1986; Hossler & Gallagher, 1987; Jackson, 1982; Litten, 1982). After developing general aspirations and expectations regarding higher education, students are thought to search for information on university characteristics important to them in order to evaluate their options. Subsequently, they choose where to apply and finally where to enroll. Several factors – such as the students' socioeconomic status, race, and ability, their educational background as well as opinions of persons considered to be significant and credible – have been identified to impact the choice process (Hossler et al., 1989; Hossler & Gallagher, 1987). Thus, the whole decision is thought to proceed on the basis of rational, cognitive considerations, affected by personal and cultural background factors. Despite the attempts to improve the understanding of students' university choices by developing these comprehensive models, they still suffer because they ignore the impact of limited information processing capacities, unknown and unstable preferences, the role of intuition and emotion, students' sense making activities, and international educational policy contexts. Interestingly enough, even though it has been shown to influence consumer choice processes, the role of students' personalities has so far been completely disregarded in university choice research. In order to gain a deeper understanding of how student personality impacts the choice of university, all of these aspects are thoroughly examined throughout this thesis.

PATHS THROUGH THIS WORK

In the first article of my dissertation, *Students' Choice of Universities in Germany: Structure, Factors and Information Sources Used,* I compare existing research on university choice in the American context with German research. I chose American research as a reference framework as the restructuring of the German higher education system was oriented towards the US model (Kühler, 2006; Nickel, 2009), German universities gear towards American in terms of student recruitment and marketing approaches (Bode, Jäger, Koch, Ahrberg, & Müller, 2008; Harpenau, 1992; Hell & Haehnel, 2008; Nickel, 2009), and most research on students' university choices has been conducted in the United States (Moogan & Baron, 2003; Moogan, Baron, & Harris, 1999). In line with its dominance in the literature on university choice, I focus on the topics of (1) choice models explaining prospective students' decision processes (e.g., Chapman, 1981; Litten, 1982; Paulsen, 1990; Perna, 2006), (2) the choice factors used by students to evaluate their options (Galotti & Mark, 1994; Kim & Gasman, 2011; Kotler & Fox, 2002), and (3) information sources they use in order to gain

knowledge about their alternatives (Briggs, 2006; Kinzie et al., 2004). After describing the contributions made by US research to each of the topics, I directly contrast it with the state of German research. Through this comparison, three main research gaps become apparent. Firstly, a German university choice model is missing so far. German research on prospective students' choice processes mainly focuses on the subject instead of the institution. Those studies concentrating on the choice of the university lack an explicit theoretical framework, making it difficult to interpret the results. However, a one-to-one transfer of the US models does not seem to be appropriate as there are some context specific differences that presumably affect the choices made. Furthermore, most of the studies, irrespective of the national context they are conducted in, ignore aspects like emotions that have been proven to be highly influential in those few works considering them (Allen, 2002; Beckmann & Langer, 2009; Hachmeister et al., 2007; Pampaloni, 2010). Accordingly, I recommend the development of a German university choice model (derived from the theoretical framework US models are based upon) which is then supplemented by factors underrepresented in previous research but most likely to impact university choice. Secondly, in line with this recommendation, the increased use of qualitative research methods could help to gain a deeper understanding of the students' choices including unconsidered influencing factors and unconscious or suppressed motives framed by the socio-cultural background of the students. Thirdly, some aspects like the influence of personal relations or the students' academic abilities have been ignored in German research so far but have been proven to influence university choices in the US. Hence, a closer examination of those factors in Germany seems to be rewarding.

In the second article of my dissertation, *Digging Deeper: Exploring Mental Models of University Choice*, my co-author Markus Reihlen and I address some of the criticism and even go beyond it. We argue that the assumption of generalizable preferences – and accordingly consistent sense making processes for specific demographic segments resulting in the identification of ranked lists of choice criteria – only reveal limited information about how students actually choose their university as choice criteria do not tell much about students' sense making activities. However, for universities aiming to effectively communicate with their preferred target audience, it is essential to understand how these students interpret their marketing messages in meaningful ways (Finne & Grönroos, 2009; Holm, 2006). As an alternative, we accordingly suggest exploring students' mental models that represent their sense making activities. The identification of mental models is a useful approach as these help to explain how people transform ambiguous events into something meaningful by serving as filters helping to organize sense making processes (Goffman, 1974; Ringberg & Reihlen,

2008). Additionally, in contrast to previous research, we explicitly take emotions into consideration as they have been proven to influence sense making processes by interacting with cognitive activities (Hodgkinson & Healey, 2011; Thompson & Stapleton, 2009; Weick et al., 2005). We reveal students' mental models on the basis of the Zaltman Metaphor Elicitation Technique, which is an in-depth interview approach explicitly designed to identify people's mental models (Zaltman, 1997, 2003; Zaltman & Coulter, 1995). Our sample consists of 27 German first-year bachelor students at two different state universities who were either enrolled in business administration or teacher training programs. As a result of our analysis, we identified four ideal types of decision-makers with their respective mental models: the relational, the adventurer, the idler, and the utilitarian. These models help us to gain a deeper comprehension of the relevant rational and emotional issues engaged in interpreting marketing signals when choosing a university. The mental models approach further makes it possible to resolve contradictory findings in existing research by offering an alternative explanation. Moreover, based on the mental models, we are able to propose a new type of market segmentation that enables universities to redesign their communication strategies in a way that is more suitable to students' meaning systems than the previous dominant focus on demographic variables.

In the third article of my dissertation, *Non-Expert Real-Life Decision-Making: Different Types of University Choice Processes*, I approach the more general critique upon which those rationalistic and sociological theories previous works on university choice are based. By using a non-directive technique in semi-structured, in-depth interviews with 27 German first-year bachelor students, I examined the applicability of the previous university choice approaches. Based on the analysis of the interviews, I revealed two distinct types of decision-makers with their corresponding choice strategies: the predetermined and the indecisive. The identified types offer us a deeper understanding of the choice logics and decision-making strategies used by prospective students and simultaneously highlight the limits of the sociological and rational choice frameworks. In particular, they highlight how, due to humans' limited information processing capacities, the concept of bounded rationality, rather than rational choice theory, should be applied (Gigerenzer, 2008; March, 1994; Simon, 1957, 1987). Hence, more information does not lead to more rational and better decisions but instead to increased uncertainty and confusion. Beyond this, the assumption of known and stable preferences articulated in previous research on university choice (DesJardins & Toutkoushian, 2005; Kotler & Fox, 2002) is partly refuted. Only the predetermined students complied with this supposition. The indecisive, on the contrary, struggled with unknown and unstable

preferences. Moreover, even though the choice of a university clearly falls into the category of extensive problem-solving (Hayes, 2009; Laroche et al., 1984), no single student relied upon a thorough processing of information in order to make a well-considered choice but instead decided intuitively. Finally, no dominant impact of the students' socio-cultural background on the choices made was revealed. Alongside these theoretical insights on university choices, the results offer important implications for marketing managers and higher education policy makers regarding information supply, guidance counseling, the awarding of university places, recruitment activities, and communication strategies.

Table 1 summarizes the three articles with regard to publication status.

TABLE 1: Article Overview

Article	Title	Co-Author	Journal	Status
1	Students' Choice of Universities in Germany: Structure, Factors and Information Sources Used	n/a	Journal of Marketing for Higher Education	Published
2	Digging Deeper: Exploring Mental Models of University Choice	Markus Reihlen		In preparation for submission
3	Non-Expert Real-Life Decision-Making: Different Types of University Choice Processes	n/a		In preparation for submission

A more detailed overview of the publication status and conference contribution of the articles can be found in the appendix.

CONCLUDING REMARKS

The review of existing research on university choice revealed a number of shortcomings I address in this dissertation. With the first article, I particularly contribute to the higher education marketing research by disclosing research gaps in the German context. However, beyond that, this literature review offers a comprehensive overview of the dominating topics that research on university choice is based upon. The number of international citations of the article as well as the positive feedback I received from researchers from different countries at conferences emphasize that the valuable insights offered are not limited to the German higher education market.

Comparatively speaking, the second article deliberately takes a broad perspective not limited to a specific national context even though it is based on interviews with German students. Nonetheless, the results are transferable to other contexts, as affirmed by feedback we received from international researchers. In this paper, my co-author Markus Reihlen and I not only approach previously identified shortcomings in the university choice literature but also introduce completely new insights into students' mental models based on the Zaltman Metaphor Elicitation Technique. This method has not been used before in research on the university choice process but just in one study aiming to explore students' college experiences (Mulvey & Kavalam, 2010). With the resulting in-depth knowledge on the sense making activities and corresponding choice behavior of university applicants, we make a significant contribution to the comprehensive understanding of university choices. The best paper awards we received for this article acknowledge the relevance of our findings for higher education marketing research.

Finally, in the third paper I extend the existing critique of the theoretical basis of university choice literature by integrating the discussion raised by more general decision-making research and by explicitly pointing out context-specific differences that impact choice behavior. The examination of the applicability of sociological and rational choice theory on the basis of an explorative study accordingly revealed the limitations of concepts dominating university choice research so far. Hence, with this article I contribute to higher education marketing research by broadening the theoretical basis and extending the understanding of university choice strategies.

One aspect identified as impacting consumer choice processes is the decider's personality. Accordingly, some researchers investigating university choices note students' personalities as one possible determinant (Litten, 1982; Maringe, 2006; Plank & Jordan, 2001; Vrontis, Thrassou, & Melanthiou, 2007), but completely disregard this factor in their analyses. The only study I know of considering personality types in detail focuses not on the choice of a university but of a major (Pike, 2006). Even though this aspect has not been the emphasis of this dissertation, we integrated personality items into the analysis of the second and third paper. Indeed, both for the identified mental models and the choice types, consistent personality traits revealed. Their impact seems to be more significant than the students' socio-cultural background that appeared not to have an effect in both the empirical studies integrated into this thesis. Accordingly, the effects of students' personalities on their university choice behavior represent a potentially rich topic for exploration in future research.

Taken together, I hope that all three papers stimulate more research on prospective students' university choices – research that goes beyond the previously dominating topics and theoretical frameworks and that takes differences as well as similarities of national contexts into consideration.

NOTES

1. For a complete presentation of decision theoretical approaches, a third approach, prescriptive decision theory, needs to be enclosed. Prescriptive decision theory, also labeled as "decision analysis" (Eisenführ et al., 2010, p. 1), aims at deriving strategies and methods helping people to make complex decisions by using the models developed in normative decision theory (Bell et al., 1989; Keeney & Raiffa, 1998). In the literature, the approaches usually are either described as a comparison of normative vs. descriptive (e.g., Peterson, 2009; Pfohl & Braun, 1981; Rapoport, 1989; Shrode & Brown, 1970) – as done in this thesis – or prescriptive vs. descriptive (e.g., Eisenführ et al., 2010; Jungermann et al., 2005). Frequently, normative and prescriptive approaches are equated or at least commingled (Borcherding, 1983).
2. A much more detailed categorization of decisions is made by Kahle (1981) who distinguishes between certainty, quasi-certainty, risk, uncertainty, rational indeterminacy, and ignorance.

REFERENCES

Aarts, H., Verplanken, B., & van Knippenberg, A. (1998). Predicting Behavior From Actions in the Past: Repeated Decision Making or a Matter of Habit? *Journal of Applied Social Psychology, 28*(15), 1355-1374.

Alba, J. W., & Marmorstein, H. (1987). The Effects of Frequency Knowledge On Consumer Decision Making. *Journal of Consumer Research, 14*(1), 14-25.

Allen, D. E. (2002). Toward a Theory of Consumer Choice as Sociohistorically Shaped Practical Experience: The Fits-Like-a-Glove (FLAG) Framework. *Journal of Consumer Research, 28*(4), 515-532.

allstudents.de. (2010). *Ortsverteilungsverfahren*. Retrieved August 25, 2015, from http://www.allstudents.de/studium.php/action/static/filename/ortsverfahren.

Baum, S., Ma, J., & Payea, K. (2010). *Education pays 2010: The benefits of higher education for individuals and society*. New York, NY: The College Board.

Beach, L. R., & Lipshitz, R. (1993). Why Classical Decision Theory Is an Inappropriate Standard for Evaluating and Aiding Most Human Decision Making. In G. Klein, J. Orasanu, R. Calderwood & C. E. Zsambok (Eds.), *Decision Making in Action: Models and Methods* (pp. 21-35). Norwood, New Jersey: Ablex Publishing Corporation.

Bearden, W. O., & Etzel, M. J. (1982). Reference Group Influence on Product and Brand Purchase Decisions. *Journal of Consumer Research, 9*(2), 183-194.

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education*.(3rd ed.). Chicago: The University of Chicago Press.

Beckmann, J., & Langer, M. F. (2009). *Studieren in Ostdeutschland?: Eine empirische Untersuchung der Bereitschaft zum Studium in den neuen Ländern*. Gütersloh: CHE Centrum für Hochschulentwicklung.

Bell, D. E., Raiffa, H., & Tversky, A. (1989). Descriptive, Normative, and Prescriptive Interactions in Decision Making. In D. E. Bell, H. Raiffa & A. Tversky (Eds.), *Decision Making: Descriptive, Normative, and Prescriptive Interactions* (pp. 9-30). Cambridge: Cambridge University Press.

Bettman, J. R., Luce, M. F., & Payne, J. W. (1998). Constructive Consumer Choice Processes. *Journal of Consumer Research, 25*(3), 187-217.

Bettman, J. R., & Park, C. W. (1980). Effects of Prior Knowledge and Experience and Phase of the Choice Process on Consumer Decision Processes: A Protocol Analysis. *Journal of Consumer Research, 7*(3), 234-248.

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2006). *Consumer Behavior*.(10th ed.). Mason, Ohio: Thomson South-Western.

Bode, J., Jäger, G. W., Koch, U., Ahrberg, F. S., & Müller, C. (2008). *Instrumente zur Rekrutierung internationaler Studierender: Ein Praxisleitfaden für erfolgreiches Hochschulmarketing*. Bielefeld: W. Bertelsmann Verlag GmbH & Co. KG.

Borcherding, K. (1983). Entscheidungstheorie und Entscheidungshilfeverfahren für komplexe Entscheidungssituationen. In M. Irle (Ed.), *Methoden und Anwendungen in der Marktpsychologie* (pp. 64-173). Göttingen: Hogrefe, Verlag für Psychologie.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–260). New York: Greenwood Press.

Bourdieu, P., & Passeron, J. C. (1990). *Reproduction in Education, Society and Culture*.(Reprinted ed.). London: Sage.

Bourdieu, P., & Wacquant, L. J. D. (1992). *An invitation to reflexive sociology*. Chicago: Univ. of Chicago Press.

Bowen, H. R. (1980). *Investment in Learning: The Individual and Social Value of American Higher Education*.(3rd ed.). San Francisco, California: Jossey-Bass.

Breen, R., & Goldthorpe, J. H. (1997). Explaining educational differentials: Towards a formal rational action theory. *Rationality and Society, 9*(3), 275-305.

Briggs, S. (2006). An exploratory study of the factors influencing undergraduate student choice: the case of higher education in Scotland. *Studies in Higher Education, 31*(6), 705–722.

Bruder, M., Burkhart, S., Franke, B., Heublein, U., & Kercher, J. (2015). *Wissenschaft weltoffen: Facts and Figures in the International Nature of Studies and Research in Germany*. Bielefeld: W. Bertelsmann Verlag.

Bruner, G. C., & Pomazal, R. J. (1988). Problem Recognition: The Crucial First Stage of the Consumer Decision Process. *Journal of Consumer Marketing, 5*(1), 53-63.

Bundesministerium für Bildung und Forschung. (2009). *Die Reform der Hochschulzulassung in bundesweit zulassungsbeschränkten Studiengängen*. Retrieved August 25, 2015, from http://www.bmbf.de/de/2570.php.

Bunge, M. (1996). *Finding Philosophy in Social Science*. New Haven: Yale University Press.

Cabrera, A. F., & La Nasa, S. M. (2000). Understanding the College-Choice Process. *New Directions for Institutional Research, 2000*(107), 5–22.

Chapman, D. W. (1981). A Model of Student College Choice. *The Journal of Higher Education, 52*(5), 490–505.

Chapman, R. G. (1986). Toward a theory of college selection: A model of college search and choice behavior. *Advances in Consumer Research, 13*, 246–250.

Christensen, G. L., & Olson, J. C. (2002). Mapping Consumers' Mental Models with ZMET. *Psychology & Marketing, 19*(6), 477-502.

Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A Garbage Can Model of Organizational Choice. *Administrative Science Quarterly, 17*(1), 1-25.

Damasio, A. R. (1994). *Descartes' Error: Emotion, Reason and the Human Brain*. New York: G.P. Putnam's Son.

DesJardins, S. L., & Toutkoushian, R. K. (2005). Are students really rational? The development of rational thought and its application to student choice. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (Vol. 20, pp. 191–240). Dordrecht: Springer.

Dika, S. L., & Singh, K. (2002). Applications of Social Capital in Educational Literature: A Critical Synthesis. *Review of Educational Research, 72*(1), 31-60.

Dolan, R. J. (2002). Emotion, Cognition, and Behavior. *Science, 298*(5596), 1191-1194.

Dunnett, A., Moorhouse, J., Walsh, C., & Barry, C. (2012). Choosing a University: A conjoint analysis of the impact of higher fees on students applying for university in 2012. *Tertiary Education and Management, 18*(3), 199-220.

Eiselt, H. A., & Sandblom, C.-L. (2004). *Decision Analysis, Location Models, and Scheduling Problems*. Heidelberg: Springer.

Eisenführ, F., Weber, M., & Langer, T. (2010). *Rational Decision Making*. Heidelberg: Springer.

Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1990). *Consumer Behavior*.(Vol. 6). Chicago: The Dryden Press.

European Students' Union. (2006). *The students' opinion on the Lisbon Strategy of the European Union*. Retrieved August 25, 2015, from http://www.esu-online.org/news/article/6064/92/.

Festinger, L. (2001). *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.

Finne, Å., & Grönroos, C. (2009). Rethinking marketing communication: From integrated marketing communication to relationship communication. *Journal of Marketing Communications, 15*(2-3), 179-195.

Galotti, K. M. (1995). A Longitudinal Study of Real-Life Decision Making: Choosing a College. *Applied Cognitive Psychology, 9*(6), 459–484.

Galotti, K. M., & Mark, M. C. (1994). How do High Scchool students structure an important life decision? A short-term longitudinal study of the college decision-making process. *Research in Higher Education, 35*(5), 589–607.

Gambetta, D. (2009). *Were they pushed or did they jump? Individual decision mechanisms in education*. Cambridge: Cambridge University Press.

Gigerenzer, G. (2008). *Rationality for Mortals: How People Cope with Uncertainty*. New York: Oxford University Press.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Cambridge: Harvard University Press.

Gregory, R., Lichtenstein, S., & Slovic, P. (1993). Valuing Environmental Resources: A Constructive Approach. *Journal of Risk and Uncertainty, 7*(2), 177-197.

Gutman, J. (1982). A Means-End Chain Model Based on Consumer Categorization Processes. *Journal of Marketing, 46*(2), 60-72.

Hachmeister, C.-D., Harde, M. E., & Langer, M. F. (2007). *Einflussfaktoren der Studienentscheidung: Eine empirische Studie von CHE und Einstieg*. Gütersloh: CHE Centrum für Hochschulentwicklung.

Harpenau, J. (1992). *Selbstdarstellung als Instrument im Wettbewerb zwischen Hochschulen: Ein Beitrag aus regionalwissenschaftlicher Sicht am Beispiel der Universität Hannover*. Frankfurt am Main: Lang.

Hayes, T. J. (2009). *Marketing colleges and universities: A services approach*. Washington, DC: Council for Advancement and Support of Education.

Hell, B., & Haehnel, C. (2008). Bewerbermarketing im tertiären Bildungsbereich unter Berücksichtigung des Entscheidungsverhaltens Studieninteressierter. *Beiträge zur Hochschulforschung, 30*(2), 8–32.

Hemsley-Brown, J., & Oplatka, I. (2006). Universities in a competitive global marketplace: A systematic review of the literature on higher education marketing. *International Journal of Public Sector Management, 19*(4), 316–338.

Hodgkinson, G. P., & Healey, M. P. (2011). Psychological foundations of dynamic capabilities: Reflexion and reflection in strategic management. *Strategic Management Journal, 32*(13), 1500-1516.

Holm, O. (2006). Integrated marketing communication: from tactics to strategy. *Corporate Communications: An International Journal, 11*(1), 23-33.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding Student College Choice. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Practice* (Vol. 5, pp. 213-288). New York: Agathon Press.

Hossler, D., & Gallagher, K. S. (1987). Studying Student College Choice: A Three-Phase Model and the Implications for Policymakers. *College & University, 62*(3), 207–221.

Howard, J. A., & Sheth, J. N. (1969). *The Theory of Buyer Behavior*. New York: John Whiley & Sons, Inc.

Jackson, G. A. (1982). Public Efficiency and Private Choice in Higher Education. *Educational Evaluation and Policy Analysis, 4*(2), 237–247.

Johnstone, D. B., & Marcucci, P. N. (2010). *Financing Higher Education Worldwide: Who Pays? Who Should Pay?* Baltimore: The Johns Hopkins University Press.

Jungermann, H., Pfister, H.-R., & Fischer, K. (2005). *Die Psychologie der Entscheidung: Eine Einführung*.(2nd ed.). Heidelberg: Elsevier.

Kahle, E. (1981). *Betriebliche Entscheidungen: Lehrbuch zur Einführung in die betriebswirtschaftliche Entscheidungstheorie*. München: Oldenbourg.

Kahneman, D., Slovic, P., & Tversky, A. (2008). *Judgment under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press.

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica, 47*(2), 263-291.

Kahneman, D., & Tversky, A. (1985). The simulation heuristic. In D. Kahneman, P. Slovic & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 201-208). Cambridge: Cambridge University Press.

Kassarjian, H. H. (1971). Personality and Consumer Behavior: A Review. *Journal of Marketing Research, 8*(4), 409-418.

Keefer, D. L., Kirkwood, C. W., & Corner, J. L. (2004). Perspective on Decision Analysis Applications, 1990 - 2001. *Decision Analysis, 1*(1), 4-22.

Keeney, R. L., & Raiffa, H. (1998). *Decisions with Multiple Objectives*. New York: Cambridge University Press.

Kim, J. K., & Gasman, M. (2011). In Search of a "Good College": Decisions and Determinations Behind Asian American Students' College Choice. *Journal of College Student Development, 52*(6), 706–728.

Kinzie, J., Palmer, M., Hayek, J., Hossler, D., Jacob, S. A., & Cummings, H. (2004). *Fifty Years of College Choice: Social, Political and Institutional Influences on the Decision-making Process*. Indianapolis, IN: Lumina Foundation for Education.

Kirsch, W. (1970). *Einführung in die Theorie der Entscheidungsprozesse - Erster Band - Verhaltenswissenschaftliche Ansätze der Entscheidungstheorie*. Wiesbaden: Betriebswirtschaftlicher Verlag Dr. Th. Gabler.

Kirsch, W. (1978). *Die Handhabung von Entscheidungsproblemen*. Planungs- und Organisationswissenschaftliche Schriften. München: Universität München.

Kirsch, W. (1998). *Die Handhabung von Entscheidungsproblemen: Einführung in die Theorie der Entscheidungsprozesse*.(5th ed.). München: Kirsch.

Klein, C. T. F., & Webster, D. M. (2000). Individual Differences in Argument Scrutiny as Motivated by Need for Cognitive Closure. *Basic and Applied Social Psychology, 22*(2), 119-129.

Kotler, P., & Armstrong, G. (2008). *Principles of Marketing*.(Vol. 12). Upper Saddle River, NJ: Pearson Prentice Hall.

Kotler, P., & Bliemel, F. (2001). *Marketing-Management: Analyse, Planung und Verwirklichung*.(10th ed.). Stuttgart: Schäffer-Poeschel.

Kotler, P., & Fox, K. F. A. (2002). *Strategic Marketing for Educational Institutions*. Upper Saddle River, New Jersey: Prentice Hall.

Kroeber-Riel, W., Weinberg, P., & Gröppel-Klein, A. (2009). *Konsumentenverhalten*.(9th ed.). München: Vahlen.

Kruglanski, A. W., & Webster, D. M. (1996). Motivated Closing of the Mind: "Seizing" and "Freezing". *Psychological Review, 103*(2), 263-283.

Kühler, L. (2006). *Hochschulreform in Deutschland nach amerikanischem Vorbild: Chancen, Möglichkeiten und Grenzen*. Saarbrücken: VDM Verlag Dr. Müller.

Kultusministerkonferenz. (2012). *Vorausberechnung der Studienanfängerzahlen 2012-2025: Erläuterung der Datenbasis und des Berechnungsverfahrens*. Berlin: Sekretariat der ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland.

Kurtz, D. L., & Boone, L. E. (2006). *Principles of Marketing*.(Vol. 12). Mason, Ohio: Thomson South-Western.

Lamont, M., & Lareau, A. (1988). Cultural Capital: Allusions, Gaps and Glissandos in Recent Theoretical Developments. *Sociological Theory, 6*(2), 153–168.

Laroche, M., Rosenblatt, J., & Sinclair, I. (1984). Brand Categorization Strategies in an Extensive Problem Solving Situation: A Study of University Choice. *Advances in Consumer Research, 11*(1), 175-179.

Laux, H., Gillenkirch, R. M., & Schenk-Mathes, H. Y. (2014). Probleme und Lösungskonzepte der Entscheidungstheorie: Ein Überblick. In H. Laux, R. M. Gillenkirch & H. Y. Schenk-Mathes (Eds.), *Entscheidungstheorie* (Vol. 9, pp. 3-28). Berlin: Springer Berlin Heidelberg.

Lieberman, M. D. (2000). Intuition: A Social Cognitive Neuroscience Approach. *Psychological Bulletin, 126*(1), 109-137.

Lipshitz, R. (1993). Coverging Themes in the Study of Decision Making in Realistic Settings. In G. Y. Klein, J. Orasanu, R. Calderwood & C. E. Zsambok (Eds.), *Decision making*

in action: Models and methods (pp. 103-137). Norwood, New Jersey: Ablex Publishing Corporation.

Litten, L. H. (1982). Different Strokes in the Applicant Pool: Some Refinements in a Model of Student College Choice. *The Journal of Higher Education, 53*(4), 383–402.

Manski, C. F. (1993). Dynamic choice in social settings: Learning from the experience of others. *Journal of Econometrics, 58*, 121–136.

Manski, C. F., & Wise, D. A. (1983). *College Choice in America*. Cambridge, Massachusetts: Harvard University Press.

March, J. G. (1978). Bounded Rationality, Ambiguity, and the Engineering of Choice. *The Bell Journal of Economics, 9*(2), 587-608.

March, J. G. (1994). *A Primer on Decision Making: How Decisions Happen*. New York: The Free Press.

March, J. G., & Simon, H. A. (1993). *Organizations*.(2nd ed.). Cambridge, Mass.: Blackwell.

Maringe, F. (2006). University and course choice - Implications for positioning, recruitment and marketing. *International Journal of Educational Management, 20*(6), 466–479.

McDonough, P. M. (1998). Structuring College Opportunities: A Cross-Case Analysis of Organizational Cultures, Climates and Habiti. In C. A. Torres & T. R. Mitchell (Eds.), *Sociology of Education: Emerging Perspectives* (pp. 181–210). Albany: State University of New York Press.

Micheletti, M. (2010). *Political Virtue and Shopping: Individuals, Consumerism, and Collective Action*. New York: Palgrave Macmillan.

Micklewright, J. (1989). Choice at Sixteen. *Economica, 56*(221), 25-39.

Miller, G. A. (1956). The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information. *The Psychological Review, 63*(2), 81-97.

Moogan, Y. J., & Baron, S. (2003). An Analysis of Student Characteristics within the Student Decision Making Process. *Journal of Further and Higher Education, 27*(3), 271–287.

Moogan, Y. J., Baron, S., & Harris, K. (1999). Decision-Making Behaviour of Potential Higher Education Students. *Higher Education Quarterly, 53*(3), 211–228.

Müller, W., & Haun, D. (1994). Bildungsungleichheit im sozialen Wandel. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 46*(1), 1-42.

Mulvey, M. S., & Kavalam, B. E. (2010). Mining deeper meaning in consumer decision maps. *Qualitative Market Research: An International Journal, 13*(4), 372-388.

Münch, R. (2011). *Akademischer Kapitalismus: Zur politischen Ökonomie der Hochschulreform*.(1st ed.). Berlin: Suhrkamp.

Myeong-Gu, S., & Barrett, L. F. (2007). Being Emotional During Decision Making - Good or Bad? An Empirical Investigation. *Academy of Management Journal, 50*(4), 923-940.

Newell, A., & Simon, H. A. (1972). *Human Problem Solving*. Englewood Cliffs: Prentice-Hall.

Nickel, S. (2009). *Partizipatives Management von Universitäten: Zielvereinbarungen - Leitungsstrukturen - Staatliche Steuerung*.(2nd ed.). Universität und Gesellschaft. München: Hampp.

Nickel, S. (2011). *Der Bologna-Prozess aus Sicht der Hochschulforschung: Analysen und Impulse für die Praxis*. Gütersloh: CHE.

Núñez, A.-M., & Bowers, A. J. (2011). Exploring What Leads High School Students to Enroll in Hispanic-Serving Institutions: A Multilevel Analysis. *American Educational Research Journal, 48*(6), 1286–1313.

Olson, J. C., & Reynolds, T. J. (2001). The Means-End Approach to Understanding Consumer Decision Making. In T. J. Reynolds & J. C. Olson (Eds.), *Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy* (pp. 3-20). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Orasanu, J., & Connolly, T. (1993). The Reinvention of Deicision Making. In G. Y. Klein, J. Orasanu, R. Calderwood & C. E. Zsambok (Eds.), *Decision Making in Action: Models and Methods* (pp. 3-20). Norwood, New Jersey: Ablex Publishing Corporation.

Pampaloni, A. M. (2010). The influence of organizational image on college selection: what students seek in institutions of higher education. *Journal of Marketing for Higher Education, 20*(1), 19–48.

Paulsen, M. B. (1990). *College choice: Understanding student enrollment behavior*. ASHE-ERIC Higher Education Report No. 6. Washington, D.C.: The George Washington University, School of Education and Human Development.

Paulsen, M. B. (2001). The Economics of Human Capital and Investment in Higher Education. In M. B. Paulsen & J. C. Smart (Eds.), *The Finance of Higher Education* (pp. 55–94). New York: Agathon Press.

Payne, J. W., Bettman, J. R., Coupey, E., & Johnson, E. J. (1992). A constructive process view of decision making: Multiple strategies in judgment and choice. *Acta Psychologica, 80*(1), 107-141.

Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The Adaptive Decision Maker*. Cambridge: Cambridge University Press.

Pechar, H. (2012). The Decline of an Academic Oligarchy. The Bologna Process and `Humboldt's Last Warriors`. In A. Curaj, P. Scott, L. Vlasceanu & L. Wilson (Eds.), *European Higher Education at the Crossroads: Between the Bologna Process and National Reforms Part 1* (pp. 613-630). Dordrecht: Springer.

Pérez, P. A., & McDonough, P. M. (2008). Understanding Latina and Latino College Choice: A Social Capital and Chain Migration Analysis. *Journal of Hispanic Higher Education, 7*(3), 249-265.

Perna, L. W. (2006). Studying College Access and Choice: A Proposed Conceptual Model. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (Vol. 21, pp. 99–157). Dordrecht: Springer.

Peterson, M. (2009). *An Introduction to Decision Theory*. New York: Cambridge University Press.

Pfohl, H.-C., & Braun, G. E. (1981). *Entscheidungstheorie: Normative und deskriptive Grundlagen des Entscheidens*. Landsberg am Lech: Verlag Moderne Industrie.

Pike, G. R. (2006). Students' Personality Types, Intended Majors, and College Expectations: Further Evidence Concerning Psychological and Sociological Interpretations of Holland's Theory. *Research in Higher Education, 47*(7), 801-822.

Plank, S. B., & Jordan, W. J. (2001). Effects of Information, Guidance, and Actions on Postsecondary Destinations: A Study of Talent Loss. *American Educational Research Journal, 38*(4), 947-979.

Rapoport, A. (1989). *Decision theory and decision behaviour: Normative and descriptive approaches*. Dordrecht: Kluwer Academic Publishers.

Reihlen, M., & Wenzlaff, F. (2014). Institutional change in the German Higher Education system: From professional dominance to managed education. In A. Fayolle & D. T. Redford (Eds.), *Handbook on the Entrepreneurial University* (pp. 112-135). Cheltenham: Edward Elgar Publishing.

Ringberg, T., & Reihlen, M. (2008). Communication assumptions in consumer research: An alternative socio-cognitive approach. *Consumption Markets & Culture, 11*(3), 173–189.

Sadler-Smith, E., & Shefy, E. (2004). The intuitive executive: Understanding and applying 'gut feel' in decision-making. *Academy of Management Executive, 18*(4), 76-91.

Saum-Aldehoff. (2007). *Big Five: Sich selbst und andere erkennen*. Düsseldorf: Patmos.

Saunders, D. B. (2015). They do not buy it: exploring the extend to which entering first-year students view themselves as customers. *Journal of Marketing for Higher Education, 25*(1), 5-28.

Schleef, D. (2000). "That's a Good Question!" Exploring Motivations for Law and Business School Choice. *Sociology of Education, 73*(3), 155–174.

Schwarz, N. (2000). Emotion, cognition, and decision making. *Cognition & Emotion, 14*(4), 433-440.

Shocker, A. D., Ben-Akiva, M., Boccara, B., & Nedungadi, P. (1991). Consideration Set Influences on Consumer Decision-Making and Choice: Issues, Models, and Suggestions. *Marketing Letters, 2*(3), 181-197.

Shrode, W. A., & Brown, W. B. (1970). A Study of Optimality in Recurrent Decision-Making of Lower-Level Managers. *Academy of Management Journal, 13*(4), 389-401.

Simões, C., & Soares, A. M. (2010). Applying to higher education: information sources and choice factors. *Studies in Higher Education, 35*(4), 371–389.

Simon, H. A. (1955). A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics, 69*(1), 99-118.

Simon, H. A. (1957). *Models of Man*. New York: John Wiley & Sons, Inc.

Simon, H. A. (1987). Bounded rationality. In J. Eatwell, M. Milgate & P. Newman (Eds.), *The New Palgrave: A Dictionary of Economics* (pp. 266-267). London: The Macmillan Press Limited.

Snyder, T. D., & Dillow, S. A. (2015). *Digest of Education Statistics 2013*. Washington, DC: National Center For Education Statistics.

Statistisches Bundesamt. (2014). *Bildung und Kultur: Nichtmonetäre hochschulstatistische Kennzahlen 1980-2013*. Fachserie 11 Reihe 4.3.1. Wiesbaden: Statistisches Bundesamt.

Takemura, K. (2014). *Behavioral Decision Theory: Psychological and Mathematical Descriptions of Human Choice Behavior*. Tokyo: Springer Japan.

Teranishi, R. T., Ceja, M., Antonio, A. L., Allen, W. R., & McDonough, P. M. (2004). The College-Choice Process for Asian Pacific Americans: Ethnicity and SocioEconomic Class in Context. *The Review of Higher Education, 27*(4), 527-551.

Terenzini, P. T., Cabrera, A. F., & Bernal, E. M. (2001). *Swimming Against the Tide: The Poor in American Higher Education*. New York: College Entrance Examination Board.

Thomae, H. (1960). *Der Mensch in der Entscheidung*. München: Barth.

Thompson, C. J., & Troester, M. (2002). Consumer Value Systems in the Age of Postmodern Fragmentation: The Case of the Natural Health Microculture. *Journal of Consumer Research, 28*(4), 550-571.

Thompson, E., & Stapleton, M. (2009). Making Sense of Sense-Making: Reflections on Enactive and Extended Mind Theories. *Topoi, 28*(1), 23-30.

Tversky, A. (1972a). Choice by Elimination. *Journal of Mathematical Psychology, 9*(4), 341-367.

Tversky, A. (1972b). Elimination by Aspects: A Theory of Choice. *Psychological Review, 79*(4), 281-299.

Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science, 185*, 1124-1131.

Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice. *Science, 211*(4481), 453-458.

Veloutsou, C., Lewis, J. W., & Paton, R. A. (2004). University selection: information requirements and importance. *The International Journal of Educational Management, 18*(3), 160–171.

Vermeir, I., Van Kenhove, P., & Hendrickx, H. (2002). The influence of need for closure on consumer's choice behaviour. *Journal of Economic Psychology, 23*(6), 703-727.

Vrontis, D., Thrassou, A., & Melanthiou, Y. (2007). A contemporary higher education student-choice model for developed countries. *Journal of Business Research, 60*(9), 979–989.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the Process of Sensemaking. *Organization Science, 16*(4), 409-421.

Wiese, M., van Heerden, C. H., & Jordaan, Y. (2010). Ethnic group differences regarding choice factor importance in public higher education institution selection. *African Journal of Business Management, 4*(7), 1289-1298.

Witt, R. E., & Bruce, G. D. (1972). Group Influence and Brand Choice Congruence. *Journal of Marketing Research, 9*(4), 440-443.

Zaltman, G. (1997). Rethinking Market Research: Putting People Back In. *Journal of Marketing Research, 34*(4), 424-437.

Zaltman, G. (2003). *How Customers Think: Essential Insights into the Mind of the Market*. Boston, Massachusetts: Harvard Business School Publishing.

Zaltman, G., & Coulter, R. H. (1995). Seeing the voice of the customer: Metaphor-based advertising research. *Journal of Advertising Research, 35*(4), 35-51.

Zey, M. (1992). Criticism of rational choice models. In M. Zey (Ed.), *Decision Making: Alternatives to Rational Choice Models* (pp. 9-31). Newbury Park: Sage.

This synopsis continues with an appendix.

APPENDIX

TABLE A1: Author Contributions, Publication Status, and Conference Presentations

#	Title	Author Contributions	Publication Status	Conference Presentations
1	**Students' Choice of Universities in Germany: Structure, Factors and Information Sources Used**	KO (1.0) – single author	Published in *Journal of Marketing for Higher Education* Number of Citations* according to Google Scholar: 15 Taylor & Francis: 5 Scopus: 3	AM 2012
2	**Digging Deeper: Exploring Mental Models of University Choice**	KO (2/3): conceptual development, data collection, coding, data analysis, data interpretation, writing of introduction, writing of theoretical framing, writing of methods section, writing of findings, writing of discussion MR (1/3): conceptual development, data interpretation, writing of introduction, writing of theoretical framing, writing of methods section, writing of discussion	In preparation for submission	WK HM 2013 BMBF 2013 WK HM 2014 / Winner of Best Paper in Conference Award AM 2015 / Winner of Best Paper in Track Marketing of Higher Education Award
3	**Non-Expert Real-Life Decision-Making: Different Types of University Choice Processes**	KO (1.0) – single author	In preparation for submission	

**Retrieved January 25, 2016*

Explanations Table A1

Authors

KO = Katrin Obermeit
MR = Prof. Dr. Markus Reihlen

Conferences

AM 2012	"Students' Choice of Universities in Germany: Structure, Factors and Information Sources Used", paper presentation at the 7th International Conference on Higher Education Marketing in Nicosia, Cyprus. 28.-30.03.2012.
WK HM 2013	"Emotion trifft Ratio", paper presentation at the 15th Workshop of the Academic Management Committee within the German Academic Association for Business Research, Universität Duisburg-Essen, Duisburg, Germany. 22.-23.02.2013.
BMBF 2013	"Digging Deeper: Exploring Mental Models of University Choice", paper presentation at the BMBF Workshop "Strategic Change and Organizational Transformation of Higher Education Institutions", Leuphana University of Lüneburg, Lüneburg, Germany. 21.-22.11.2013.
WK HM 2014	"Mentale Modelle der Hochschulwahl", paper presentation at the 16th Workshop of the Academic Management Committee within the German Academic Association for Business Research, Hochschule für Künste Bremen, Bremen, Germany. 21.-22.02.2014. Winner of Best Paper in Conference Award.
AM 2015	"Digging Deeper: Exploring Mental Models of University Choice", paper presentation at the Academy of Marketing Conference 2015: "The Magic in Marketing", University of Limerick, Limerick, Ireland. 07.-09.07.2015. Winner of Best Paper in Track Marketing of Higher Education Award.

STUDENTS' CHOICE OF UNIVERSITIES IN GERMANY: STRUCTURE, FACTORS AND INFORMATION SOURCES USED

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ABSTRACT

Student recruitment is an increasingly important topic for universities worldwide. But in order to develop sophisticated recruitment strategies, recruitment officers need to have a clear understanding of how and why students choose colleges. This review compares the German and US research concerning university choice models, choice criteria, and information sources prospective students use when exploring their options after school. The paper emphasizes the complexity of the decision-making processes of freshmen and reveals three gaps in the German student recruitment research literature. The development of a German university choice model, an increased application of explorative research methodologies, and the consideration of additional aspects possibly impacting the college choice could help to refine German research approaches.

Keywords: university choice; college choice; student decision-making; higher education; literature review

INTRODUCTION

Higher education institutions around the world face the necessity to position themselves in the increasingly competitive market and to recruit not only enough, but especially eligible students (Hemsley-Brown & Oplatka, 2006). To be able to optimize their activities, they need to understand the students' needs and the ways which help them to decide where to attend university (Maringe, 2006). While American higher education institutions started to professionalize their student recruitment efforts decades ago (Kinzie et al., 2004), German institutions did not think about actively recruiting students for a long period of time for mainly two reasons.

First, the number of German first-year students between 1980 and 2009 more than doubled (Statistisches Bundesamt, 2011a), resulting in capacity rather than demand problems (Küpper, 2002). In this context, the central office for the allocation of places in higher education became increasingly important. This institution was responsible for a standardized allocation of university places, mainly based on the grade point average. The central office was authorized to assign most of the university places to the students; the universities themselves rarely had a say (Hochschulrahmengesetz, 1976). Additionally, the universities were legally obligated to admit as many students as possible (Hochschulrahmengesetz, 1976). Hence, the state dictated to the universities how many students they needed to admit (Kluth, 2001), and basically even whom to admit.

Second, the funding of German higher education institutions did not depend on tuition. Universities were, and predominantly still are, mainly financed by the state (Kühler, 2006; Leszczensky & Orr, 2003). Therefore, they did not need to attract students in order to ensure sufficient funds.

In recent years, the German higher education market has changed considerably. Although the number of freshmen has continued to rise (Statistisches Bundesamt, 2011b) and is expected to further grow until 2013, the numbers of first-year students are expected to decline subsequently (Autorengruppe Bildungsberichterstattung, 2010; Dohmen, 2010; Gabriel & von Stuckrad, 2007; Kultusministerkonferenz, 2005, 2009). This effect will not concern all universities equally as the decrease will particularly occur in East Germany (Dohmen, 2010; Gabriel & von Stuckrad, 2007). Moreover, the rates of eligible students deciding to go to university are receding as well. In 2005 only 71% of the authorized students actually went to university; in 1980 this figure was 87% (Statistisches Bundesamt, 2011a). Therefore, it is expected that the total number of students going to university will decrease in the near future, presumably leading to a demand problem.

Moreover, the central allocation of university places has been disestablished for most fields of study, restoring the universities' right to select students autonomously. This right includes the definition of admission restrictions (Willich, Buck, Heine, & Sommer, 2011). Accordingly, some universities still predominantly use the grade point average, while others use complementing criteria like extra-curricular accomplishments, interviews or admissions tests. The disestablishment of the central office implies that students now send their applications directly to the universities (Stiftung für Hochschulzulassung, 2011). Thus, the institutions need to make sure they are in the awareness and subsequently choice set (Hoyt & Brown, 2003; Kotler & Fox, 2002; Tierney, 1983) of the adolescents. Simultaneously, the options for students have broadened as with the Bologna reform, a European higher education market with rising competition between universities has evolved (Becker & Primova, 2009; European Students' Union, 2006; Münch, 2011; Wefers, 2007). As the number of freshmen is expected to decline and the universities are now responsible for attracting their students themselves, while competing not only nationally but internationally, German universities are starting to actively recruit students (Bode, Jäger, Koch, Ahrberg, & Müller, 2008; Nickel, 2009).

As student recruitment has not been a topic for German universities until recently, the institutional choice of German students is comparatively unexplored. Thus, the aim of the paper is to reveal gaps in the German literature concerning university choices and to generate possible avenues for future research. In order to assess the state of research and to gain inspiration for potentially fruitful aspects not considered in Germany so far, we review the existing body of literature by comparing American and a few British[1] versus German studies on the choice of universities. Based on the review, we identify three main topics that dominate the literature: (a) university choice models, (b) choice factors, and (c) information sources used by prospective students. We use these three aspects as a framework to critically apply the insights from the US to Germany. Based on this critical examination, we reveal three main gaps that could be approached by future research in Germany. The development of a German university choice model, an increased application of explorative research methodologies, and the consideration of additional aspects possibly impacting university choice could help to refine German research approaches.

REFERENCE FRAMEWORK

For the review, we use US research on college choice as a fundament that is to be compared to findings about German students' choices of universities. Three reasons justify the selection of American research as a reference framework. First of all, the German higher

education system has been restructured with a clear orientation towards the American model (Kühler, 2006; Nickel, 2009). Thus, some analogies in the higher education systems can be assumed. Nevertheless, differences possibly influencing the choice process will be explained in the subsequent sections. Second, the student recruitment and marketing approaches of German universities are also geared to those of American institutions (Bode et al., 2008; Harpenau, 1992; Hell & Haehnel, 2008; Nickel, 2009), as the latter are more conversant with higher education marketing. Third, most research on the college choice process of potential students has been conducted in the United States (Moogan & Baron, 2003; Moogan, Baron, & Harris, 1999).[2]

Three topics dominate the literature on prospective students' choices of universities: (a) choice models, (b) choice factors, and (c) information sources young people use to explore their options after school.

Models of university choice are supposed to explain "the influences affecting prospective students' choice of which college to attend" (Chapman, 1981, p. 490). Depending on the complexity and aim of the models, they not only illustrate choice criteria and information sources, but also "environmental, institutional, and student characteristics" (Paulsen, 1990, p. 8), background factors, and the process of decision-making (e.g., Chapman, 1981; Litten, 1982; Paulsen, 1990; Perna, 2006). According to the background of the researchers, the university choice models are based on different assumptions. Two perspectives have been discussed as being particularly convenient to explain university choice: economic and sociological approaches (Paulsen, 1990; Perna, 2006). A third perspective combines and enhances these two approaches (Cabrera & La Nasa, 2000; Hossler & Gallagher, 1987; Perna, 2006).

Choice factors stand for those criteria the deciding student uses to rate the available options (Galotti & Mark, 1994; Kim & Gasman, 2011; Kotler & Fox, 2002). In this review, only those factors identified by multiple authors as being important for students and therefore influential in their choice process are presented.

Prospective students are assumed to search for information during their decision-making process to be able to make an informed choice (Briggs, 2006; Kinzie et al., 2004). In order to develop an efficient recruitment strategy, it is important for universities to know which information sources their potential students use (Veloutsou, Paton, & Lewis, 2005). Again, in this review, only those information sources identified as being used and rated important by students are presented.

UNIVERSITY CHOICE MODELS

The process of university choice has been segmented into three (DesJardins, Dundar, & Hendel, 1999; Hachmeister, Harde, & Langer, 2007; Hossler, Braxton, & Coopersmith, 1989; Hossler & Gallagher, 1987; Terenzini, Cabrera, & Bernal, 2001; Tierney, 1983), five (Brown, Varley, & Pal, 2009; Chapman, 1986; Herrmann & Winter, 2009; Maringe, 2006; Moogan et al., 1999; Tutt, 1997a, 1997b), or up to nine stages (Kotler, 1976). However, most researchers agreed upon the fact that every student who wants to go to university needs to pass through some stages, taking into account that the sequence may differ individually (Chapman, 1986; Moogan et al., 1999; Perna, 2006). In the United States, research often either focuses on the influences on the enrollment decision, which stands for one of the many phases in the process only (e.g., Chapman, 1981; DesJardins & Toutkoushian, 2005; Perna, 2006), or tries to keep the whole process in view (Galotti & Mark, 1994; Litten, 1982).

US models

In order to explain the many influences on the decision, models of college choice have been developed. The approaches can be divided into three perspectives: (a) rational, economic models, (b) sociological models, and (c) an extended combination of both (Kim & Gasman, 2011; Kinzie et al., 2004; Perna, 2006).

Economic models of college choice are based on the assumption that students act rationally by evaluating all the information available to them according to their preferences at the time of the decision (DesJardins & Toutkoushian, 2005). They focus especially on the financial constraints associated with higher education, as American students need to pay tremendous tuition fees. The average tuition fee in the year 2009-10 at not-for-profit private institutions was $25,413, at public institutions it was still $4751 (Snyder & Dillow, 2011). From the fall semester 2012-13 on, German students in only two states are obliged to pay tuition fees of up to €1000 per year (Deutsches Studentenwerk e.V., 2012), which is marginal compared to other countries. According to the approach of human capital investment (e.g., Becker, 1993; Manski & Wise, 1983; Paulsen, 2001), students figure out their possible choices and evaluate them by assessing "whether or not a college education is worthwhile by comparing the expected benefits with the expected costs associated with an investment in a college education" (Paulsen, 2001, pp. 56-57). Hence, students are supposed to choose the college with "the highest utility of net expected benefits" (DesJardins & Toutkoushian, 2005, p. 193). The considered costs are direct costs (e.g., tuition, books, living expenses) as well as foregone earnings. The benefits are particularly higher salaries for university graduates compared to

high school graduates (DesJardins & Toutkoushian, 2005; Gambetta, 2009; Paulsen, 2001). Additionally, nonmonetary benefits like more satisfying tasks in future jobs, a lower likelihood of becoming unemployed and better health are supposed to be taken into consideration (Baum, Ma, & Payea, 2010; Becker, 1993; Bowen, 1980; Perna, 2006; Terenzini et al., 2001). Hence, not only economic but also social benefits are taken into account (Manski & Wise, 1983). This implies that while financial aspects are of high importance, the main statement is the rationality of the choice. Although several studies support the assumptions of the economic models (e.g., Avery & Hoxby, 2004; Heller, 1997; Maringe, 2006), already proponents of these positions acknowledge that factors like expectations and the socioeconomic background impact the college choice as well (DesJardins & Toutkoushian, 2005; Paulsen, 2001).

Sociological approaches focus on the influence of the cultural and social capital, such as the socioeconomic background, prospects, and the academic achievements of students, when choosing a college (McDonough, 1998; Perna, 2006; Terenzini et al., 2001). The terms "cultural capital" and "social capital" derive from the ideas of Bourdieu (1986). Cultural capital can be described as the knowledge, attitudes and manners a person has acquired through parental inheritance or learning, which lead to class-specific characteristics and the development of a habitus (Bourdieu, 1986; Lamont & Lareau, 1988). Habitus, in turn, refers to a system of thoughts, experiences, beliefs, and perceptions a person has internalized that shapes the individual expectations and ambitions, especially influenced by the family (Bourdieu & Passeron, 1990; McDonough, 1998; Núñez & Bowers, 2011; Perna, 2006). Other authors classify attitudes, motivations, and beliefs as an individual's psychological characteristics that influence personal expectations (e.g., Brennan, 2001; Hayes, 2009; Kotler & Armstrong, 2010). Social capital depends on the membership of a group and the social networks of an individual. These networks can affect one's access to resources, information and family support (Perna, 2006; Portes, 1998; Salisbury, Umbach, Paulsen, & Pascarella, 2009). On that account, an individual's decision is not labeled rational, but reasonable or appropriate with regard to the personal aspirations as well as to the perception of the social network in reference to adequate options (Bourdieu & Passeron, 1990; McDonough, 1998; Paulsen & St. John, 2002). The sociological models assume that the individual's cultural and social capital as well as the personal and organizational habitus of the high school, influence, for example, the knowledge about higher education options, the appraisal of the differentiating factors, and even the consideration of possibly influencing factors, in other words the complete college choice process (Bourdieu & Passeron, 2004; Kim & Gasman,

2011; McDonough, 1998; Núñez & Bowers, 2011; Schleef, 2000). Again, although several studies support the statements of the sociological models (e.g., Brooks, 2002; Núñez & Bowers, 2011; Reay, 1998), they are criticized for insufficiently explaining how students use the information available to them to make the ultimate college choice (Manski, 1993).

As obviously both attempts complement each other, it is expedient to combine and enhance them. Perna (2006) focused on the decision of which college to choose and specifically included sociological as well as economic approaches. She based her model upon the ideas of the economic approaches, assuming that students assess their expected monetary and non-monetary benefits versus their expected direct and indirect costs of higher education. This evaluation is to be influenced by the academic preparation and achievement of the student as well as the availability of financial resources by the family or aid programs. Additionally, she asserts that "calculations of expected costs and earnings are nested within several layers of context" (Perna, 2006, p. 116) which shape the college choice. These layers consist of: (a) the individual habitus (e.g., demographic characteristics, cultural, and social capital), (b) the organizational habitus (e.g., the support of college counselors and teachers), (c) the higher education context (e.g., information provided by colleges and college characteristics), and (d) the comprehensive social, economic, and policy context (e.g., demographic changes, unemployment rates, changes in grant programs).

Other authors rather applied a marketing approach, not necessarily directly referring to sociological and econometric ideas. Nonetheless, these approaches are incorporated in the consumer choice models in terms of internal (cultural, social, personal, psychological characteristics) as well as external (e.g., social, cultural, product and price stimuli) influences, supplemented by communication efforts of the provider (e.g., Kotler & Armstrong, 2010). The university choice is compared to a buying process with subsequent stages (e.g., Blackwell, Miniard, & Engel, 2006; Kotler & Armstrong, 2010) that is assumed to work like a funnel in which students start with a comparably extensive awareness set of higher education institutions that is successively narrowed down to a consideration and choice set (e.g., Blackwell et al., 2006; Dawes & Brown, 2005; Kotler & Fox, 2002; Shocker, Ben-Akiva, Boccara, & Nedungadi, 1991). The choice of a university is characterized as a "high stakes high involvement buying process" (Chapman, 1986, p. 250), highlighting that for most students the decision-making equals an extensive problem-solving process, as they are facing an unknown degree of complexity and uncertainty, risking to make mistakes with long-term consequences (Brown et al., 2009; Hayes, 2009; Moogan et al., 1999). The notion of prospective students as consumers is not undisputed (Hemsley-Brown & Oplatka, 2006), but

the development and application of consumer behavior models of university choice has gained acceptance. Hossler and Gallagher (1987) incorporated the ideas of previous works (e.g., Chapman, 1981; Chapman, 1986; Jackson, 1982; Litten, 1982) to develop a comprehensive three-stage choice model. In the predisposition phase, students develop college aspirations and expectations regarding higher education. During the search phase, they try to determine the institutional attributes important to them and search for information. In the choice stage, they decide where to apply and subsequently where to enroll. A multitude of factors influence the decision-making process. Amongst them are student characteristics such as their socioeconomic status, their ability, their attitudes and expectations, their race and ethnicity. External factors such as high school background, the encouragement and support of significant persons, attributes of the higher education institutions and their communication activities impact the process as well (Hossler et al., 1989; Hossler & Gallagher, 1987). Thus, next to sociological and economic factors, the impact of actions taken by universities (e.g., recruitment activities, financial aid offers) on the students' decisions are deliberately included in this approach (Bergerson, 2009; Hossler et al., 1989).

More recent studies refined these models of university choice by focusing on separate target groups, such as students from different racial and ethnic groups (e.g., Hurtado, Inkelas, Briggs, & Rhee, 1997; Kim & Gasman, 2011; Teranishi, Ceja, Antonio, Allen, & McDonough, 2004), or on separate stages of the process (e.g., Hamrick & Stage, 2004; Hossler & Stage, 1992; Pitre, 2006). Others further developed the comprehensive models. Cabrera and La Nasa (2000), for example, illustrated the interrelationship of the influencing factors, while Vrontis, Thrassou & Melanthiou (2007) as well as Zeidner (2006) expanded the existing models by further factors. Both research directions are founded on the college choice models presented in this section and can be found within as well as outside the USA.

German models

University choice models compared to those of Hossler and Gallagher (1987), Cabrera and La Nasa (2000) or Perna (2006) have not been developed or applied by German researchers so far, although Trogele has already considered some of their aspects such as influencing persons, and factors such as the central office for the allocation of places in higher education or occupational perspectives, as well as a few university characteristics affecting the choice of an institution (Trogele, 1995). Tutt (1997a) converges to the consumer choice models by assigning influencing factors to the different stages of the choice process. With media, influencing persons as well as recruitment activities of the universities, he has already mentioned many of the factors approached in the US models of college choice. He even

names the attitude of the student, unfortunately only as influential for the general decision to study, but does not explain how it develops or how it affects the decision. Moreover, he simultaneously examines the process of choosing a subject and choosing a university, although according to him, these processes run in sequence. Hence, the assignment of the influencing factors remains vague, as they could be influential for either one of the choices or both (Tutt, 1997a). The ideas of Tutt have been further developed to a general model of choice of study with two types of influencing factors: those who affect the decision process (e.g., social background, personality) and those who directly influence the choice of the field of study (e.g., interests, skills) (Hachmeister et al., 2007). The missing element is the university choice. The same goes for a model of the choice of engineering as field of study that emphasizes the application of heuristics and the influence of emotions that complement or even distort rational considerations (Enke, Schöpe, Geigenmüller, & Biermann, 2007). For a plausible reason, German choice models mainly focus on the subject. Admission restrictions do not apply for the whole institution, but for the different fields of study. Therefore, the grade point average particularly affects the choice of possible subjects rather than institutions. Additionally, unlike the American system, German students need to decide on their major prior to enrollment. The whole curriculum, already on the undergraduate level, is more specialized. Hence, the sequence of the decision-making process is assumed to be different. While in the US the emphasis is on the choice of an institution with a subsequent choice of a subject, the key aspect in Germany is the field of study with a subsequent choice of an institution (Hachmeister et al., 2007).

Most German studies on university choice are designed as a purely statistical inquiry without any reference to theoretical assumptions or choice models. The Higher Education Information System (HIS) offers the main sources of information about the choices and information processes of potential students. This institution has surveyed freshmen every two years since 1983. The results are solely descriptive statistics. The reasons offered for choosing an institution can be assigned to four main topics: institutional characteristics (e.g., the reputation of the university), location (e.g., distance from home), financial aspects (e.g., low cost of living), and restrictions (e.g., restrictions on admission) (Willich et al., 2011). A similar classification can be identified for the survey of Hachmeister et al. (2007), which is based on the HIS questionnaire. Although they used qualitative workshops with students to amend the items of previous research, at this point they did not extend, but rather reduced the possible answers for the students. This is especially deplorable as the students in the workshops indicated the influence of persons such as parents and their feelings on the

university choice (Hachmeister et al., 2007). Other scientists also used a slightly adapted set of items from the HIS for their surveys (e.g., Bartl, 2009).

Although implicitly an assignment to combined approaches can be interpreted, most criteria tested and rated as important in German studies so far can be characterized as reasonable and comprehensible. However, when a thorough look is taken at the results, some doubts about the rationality of the students' decisions emerge. The denoted reasons for the evaluation of universities might not always be purely rational, but emotionally affected, as can be demonstrated by an examination of the willingness to study in Eastern Germany. Students who think about studying at Eastern institutions positively rate the universities' facilities comparably highly. In contrast, the neutral ones and those who do not want to study in the New Laender, rate this factor respectively worse. In the corresponding survey, this criterion is reputed to be the most important for all respondents (Beckmann & Langer, 2009). This example shows that the assessment of universities is not necessarily only conducted on the basis of objective criteria. Instead, students might try to post-hoc rationalize an emotionally driven decision by stating comprehensible and reasonable explanations. As an explicit reference to models of university choice and explorative research methodologies helping to generate such a model are missing, the degree of rational versus emotional reasons for the choice of a university remains hypothetical.

CHOICE FACTORS

In order to optimize their recruitment strategies, universities need to know which factors influence the decision to enroll at an institution (DesJardins et al., 1999; Litten, 1982; Maringe, 2006). Research by Galotti and Mark (1994) suggests that American "students structure the decision in remarkably similar ways throughout the period of time studied, considering an average of about eight to eleven criteria and four or five schools at any given time" (p. 603). Those factors identified as important for the choice of a university by multiple researchers are presented in the subsequent sections.

The (academic) reputation of the institution is one of the factors ranked high in US surveys (e.g., Kim & Gasman, 2011; Maringe, 2006; Pampaloni, 2010; Teranishi et al., 2004; Tierney, 1983), with the exception of the study of Hoyt and Brown (2003). Other quality aspects such as a good faculty and the quality of the program in the intended major are important as well (Clinton, 1990; Hoyt & Brown, 2003; Maringe, 2006; Richards & Holland, 1965). There is evidence that students with high abilities attach greater importance to the quality aspects (Tierney, 1983). In Germany, the reputation of the institution is a critical factor for choosing the right university as well (Bartl, 2009; Hachmeister et al., 2007; Willich et al., 2011). The

same goes for the quality and diversity of teaching (Hell & Haehnel, 2008). Also service aspects like the support for students are taken into account (Hachmeister et al., 2007; Hell & Haehnel, 2008).

Financial considerations such as the cost of tuition, scholarships, loans or grants and the ability to work in addition to studying are of high importance for American students (e.g., Clinton, 1990; Galotti & Mark, 1994; Hoyt & Brown, 2003; Pampaloni, 2010; Rowan-Kenyon, Bell, & Perna, 2008; Tierney, 1983). Although financial considerations do not seem to have such a big influence on the choice of a university in Germany, they obviously influence the decision not to go to university at all (Heine, Quast, & Beusse, 2010). Furthermore, for some students the choice of an institution is constrained by financial aspects, especially the cost of living on-site at the university (Hachmeister et al., 2007; Willich et al., 2011). For students from East Germany and at Eastern universities, besides living expenses, tuition was really important (Bartl, 2009; Heine, Willich, & Schneider, 2009; Herrmann & Winter, 2009; Krawietz & Heine, 2007). Additionally, when asked for the determining reasons for choosing an institution, the fact that no tuition had to be paid ranked relatively high (Heine, Willich, Schneider, & Sommer, 2008; Willich et al., 2011). As tuition fees have mostly been disestablished, this factor should be less important today. While American institutions try to attract students with tuition discounts and merit-based financial aid (Kinzie et al., 2004), German universities only rarely award scholarships to undergraduate students. German students can apply for need-based financial aid provided by the state (Bundesministerium für Bildung und Forschung, 2010). In 2010, some 27% of German students received an average of 436 Euros per month financial aid provided by the state (Statistisches Bundesamt, 2011b, 2011c).

The distance from home is important for both American and German students (Bartl, 2009; Briggs, 2006; Harpenau, 1992; Kim & Gasman, 2011; Tierney, 1983; Willich et al., 2011), although Hachmeister et al. (2007) cannot support this view. The location of the institution is another relevant variable in the United States (Galotti & Mark, 1994; Kim & Gasman, 2011; Maringe, 2006; Moogan et al., 1999; Pampaloni, 2010). In Germany, the atmosphere of the city, too, is important (Bartl, 2009; Hachmeister et al., 2007; Willich et al., 2011), though not necessarily personally experienced during a visit prior to the decision (Herrmann & Winter, 2009).

The curriculum offered, especially the intended major or the availability of programs, for instance for students who need to work (Hoyt & Brown, 2003), is crucial as well (e.g., Clinton, 1990; Galotti & Mark, 1994; Kim & Gasman, 2011; Maringe, 2006; Moogan et al.,

1999; Pampaloni, 2010). In Germany, the courses offered have constantly been the most important factor mentioned (Bartl, 2009; Herrmann & Winter, 2009; Krawietz & Heine, 2007; Willich et al., 2011). Many students rated the fact that their chosen subject can only be studied at one institution in Germany as important for going there (Bartl, 2009; Krawietz & Heine, 2007; Willich et al., 2011). Considering the fact that even students from economics and political science justify their institutional choice with this criterion (Bartl, 2009; Willich et al., 2011), the validity of the statement needs to be challenged.

The type of institution is another identified variable influencing the choice (Galotti & Mark, 1994). In America, the college preparation at high school obviously impacts the type of university chosen (McDonough, 1998). Many students want to go to a college that is attended by people like themselves in terms of ethnicity, religious affiliation or academic ability (Reay, 1998; Whitehead, Raffan, & Deaney, 2006). The choice of public versus private institutions is mostly influenced by the financial and (accordingly) high school background (Manski & Wise, 1983; McDonough, 1998; Rowan-Kenyon et al., 2008). In Germany, the choice of the type of institution, at least for students of business administration, is constrained by the (self-assessed) academic ability, age, gender and the academic background of the parents (Purr, 2010).[3]

Besides these more or less pragmatic aspects, the advice of others, namely parents, siblings, friends, teachers, high school and college counselors, also profoundly impacts the decision of US students concerning which college to attend (Clinton, 1990; Kim & Gasman, 2011; Moogan et al., 1999; Rowan-Kenyon et al., 2008). At this point, background seems to restrict the decisions of the students in particular. There is evidence that parents who went to college themselves, especially in the United States, are of greater help than parents who do not have this treasure trove of experience (Galotti & Mark, 1994; Kim & Gasman, 2011; Manski & Wise, 1983; Rowan-Kenyon et al., 2008). Furthermore, the high school attended, thus the school context, which is at least partially affected by the family background, influences the degree of help the students and their parents obtain in the whole university choice and application process (Brooks, 2002; Rowan-Kenyon et al., 2008). Counselors in public schools need to care for too many students to help each one extensively, while those in private schools can really assist and support their candidates (Kim & Gasman, 2011; McDonough, 1998; Reay, 1998). Even within schools, students appear to be treated differently according to their background and academic ability (Chapman, 1981; Reay, 1998).

While many of the factors mentioned for German students coincide with the findings for Americans, influences of other persons have mostly been ignored in Germany. This is

surprising as they have been identified as an important source of information (see below). The influence of counselors on the subject choice has been examined, but classified as non-relevant (Bartl, 2009; Willich et al., 2011). The information provided by the Student Advisory Service is also not reputed to be important for the choice of a university (Willich et al., 2011). The impact of the parents is, if at all, shortened to a possible orientation of the student on the parents' profession. Their suggestions on expedient subjects or universities are usually not queried at all (Hachmeister et al., 2007; Hell & Haehnel, 2008; Willich et al., 2011).

No significant gender differences were identified in Germany (Willich et al., 2011). Academic ability and schools attended have not usually been considered in German surveys. Social background, however, obviously constrains the educational ambitions of German students. Research shows that children from a lower socioeconomic background already have a smaller chance to gain the general qualification for university entrance (Albert, Hurrelmann, & Quenzel, 2011; Isserstedt, Middendorff, & Kandulla, 2010; Seifert, 2005; Solga & Dombrowski, 2009), but even amongst those who are eligible, students from a high socioeconomic background choose to study more often than those from a low background (Bargel, Ramm, & Multrus, 2008; Heine et al., 2010; Isserstedt et al., 2010; Seifert, 2005; Willich et al., 2011). The expectations on the benefits of going to university, on the other hand, are not constrained by family background. Most students particularly expect an intellectual gain (Multrus, 2007).

Although the factors mentioned above have all been identified as influential in the university choice process by several researchers, the picture is not clear at all. The ranking of the variables differs significantly and there are other aspects not listed here as they have only been mentioned rarely. An explanation for these differing results could be the research methodology. Most studies monitored for this review used quantitative surveys with predefined answers deducted from previous research (e.g., Bartl, 2009; Briggs, 2006; Clinton, 1990; Hachmeister et al., 2007; Hell & Haehnel, 2008; Hoyt & Brown, 2003; Maringe, 2006; Whitehead et al., 2006). As these only offered a limited number of response options, important factors could have been missed, as the students were not able to name them. Additionally, some criteria could have been overrated as the respondents have implicitly been made to believe that the given answers should be the reasons for their choice (Lamnek, 2005). The qualitative approaches are problematic as well. They are limited in their explanatory power because of their small sample sizes (e.g., Brown et al., 2009: 22 students; Herrmann & Winter, 2009: seven students; Kim & Gasman, 2011: 14 students; Moogan et al., 1999: 19

students; Reay, 1998: 10 students). Therefore, their results reflect discrete cases rather than general conditions (Perna, 2006; Willig, 2001).

Another critical aspect is the timing of the inquiry. Some students have been surveyed in high school (e.g., Galotti & Mark, 1994; Hachmeister et al., 2007; Hell & Haehnel, 2008; Moogan et al., 1999; Whitehead et al., 2006), others have already been at the university (e.g., Heine et al., 2008; Hoyt & Brown, 2003; Kim & Gasman, 2011; Willich et al., 2011), some have even been there for more than one year (Bartl, 2009). Those yet in school might still be in the middle of their decision process and might not even have determined whether they will go on to university or start working instead (Moogan et al., 1999). Therefore, they are not (finally) able to assess which factors are crucial for the decision on which higher education institution to attend. On the other hand, it is critical to survey students at universities as well. Although they are supposed to be able to conclude which factors really influenced their decision, there is a rising danger that memory effects distort and diminish the true reasons for their decision. On top of that, the offering of reasonable answers enables and promotes a post-hoc rationalization (Bernard, Killworth, Kronenfeld, & Sailer, 1984).

INFORMATION SOURCES USED

For universities, it is essential to know what messages they should spread through which media at what time to which target group, to increase the chance of being noticed by the students and convince them to apply and enroll. Most students try to gain information either by actively seeking it or by using the information offered by universities, schools, counselors etc. However, the kind of information they are searching for and are receptive to varies during the decision process (Cabrera & La Nasa, 2000; Galotti & Mark, 1994; Hossler et al., 1989). US researchers continuously highlight the importance of segmenting the student population into different target groups in order to communicate with them according to their interests and needs (Kotler & Fox, 2002; Litten, 1982; Paulsen, 1990). Given that American universities have the opportunity to buy data of prospective students and their parents from the SAT or ACT agencies (Hoyt & Brown, 2003), these colleges have optimal requirements to target their communication efforts and to directly contact the students and their families. German universities do not have this possibility, as data on students are strictly protected and cannot be bought.

An overview of those information sources identified as being used by prospective students in America and Germany is given in the next sections. The internet is definitely the main source of information nowadays. US research especially emphasizes websites (Bell, Rowan-Kenyon, & Perna, 2009; Brown et al., 2009; Hoyt & Brown, 2003; Kim & Gasman, 2011;

Kinzie et al., 2004; Pampaloni, 2010); in Germany, the internet in general is stated as being most important (Hachmeister et al., 2007; Hartmann, Blume, & Sjut, 2005; Heine et al., 2008; Herrmann & Winter, 2009; Willich et al., 2011).

Publications from and about universities have been the most used and best rated source before and they still are very important (e.g., Briggs, 2006; Galotti & Mark, 1994; Heine et al., 2008; Hoyt & Brown, 2003; Kinzie et al., 2004; Moogan & Baron, 2003; Veloutsou et al., 2005; Willich et al., 2011). The quality of the information provided in these publications, however, has been criticized as being incomplete, not detailed enough, and difficult to understand (Armstrong & Lumsden, 2000; Briggs, 2006; Chapman, 1981; Lenning & Cooper, 1978; Moogan & Baron, 2003; Moogan et al., 1999).

The students' social networks have always been a very valuable source of information (e.g., Bell et al., 2009; Galotti & Mark, 1994; Hachmeister et al., 2007; Hartmann et al., 2005; Kim & Gasman, 2011; Kinzie et al., 2004; Pampaloni, 2010; Willich et al., 2011). Almost all students talk with their parents about their plans after school (e.g., Hachmeister et al., 2007; Heine et al., 2008; Kim & Gasman, 2011; McDonough, 1998; Rowan-Kenyon et al., 2008; Willich et al., 2011). American universities identified the important role of parents and included them in their marketing efforts (Hoyt & Brown, 2003; Moogan et al., 1999; Rowan-Kenyon et al., 2008; Terenzini et al., 2001). Although counselors support students in both countries, they have different jobs. While guidance counselors in America are present at high school and are at least supposed to accompany the students over a longer period of time, there is no such person in Germany. In the absence of counselors at German schools, many students try to gain information from teachers, but they are not rated as being helpful (Hachmeister et al., 2007; Heine et al., 2008; Willich et al., 2011). The Student Advisory Service offered by universities and the Federal Employment Agency (Bundesagentur für Arbeit, 2011) is only used rarely by German students (Hachmeister et al., 2007; Heine et al., 2008; Willich et al., 2011).

According to US research, particularly students from a less educated and affluent background rely on the information provided by guidance counselors (Litten, 1982; Terenzini et al., 2001), while students from private preparatory schools obtain the best support, as these counselors try to escort their students through the process, giving them as much helpful information as possible (Kim & Gasman, 2011; Kinzie et al., 2004; McDonough, 1998). Nonetheless, these already well supervised students often get additional support through private counselors engaged by their parents (Kinzie et al., 2004; McDonough, 1998; Rowan-Kenyon et al., 2008; Terenzini et al., 2001). Recently, private counselors have been offering

customized consultancy for German students as well (e.g., planZ Studienberatung, 2012; Profiling Institut, n.d.).

Students from both countries visit the campuses they are considering (e.g., Heine et al., 2008; Hoyt & Brown, 2003; Kim & Gasman, 2011; Kinzie et al., 2004; Pampaloni, 2010; Veloutsou et al., 2005; Willich et al., 2011), but only half of German students attend open days, although in retrospect they assess them as very helpful and recommend visiting them (Hachmeister et al., 2007; Heine et al., 2008; Willich et al., 2011).

Rankings are used to refine which universities to consider and which to disregard (Brown et al., 2009; Kim & Gasman, 2011; Kinzie et al., 2004; Pampaloni, 2010). German students consult them quite often but the information provided only satisfies half of the students, and considerably fewer would recommend using them (Hachmeister et al., 2007; Heine et al., 2008; Willich et al., 2011).

Media such as television, newspapers and magazines are used by universities to place advertisements (Kinzie et al., 2004). Additionally, students can find comparatively neutral articles and reports on different institutions in the media, as they are written or produced by reporters, not the universities themselves. Students in America as well as in Germany use media to inform themselves, but German students only rate this source of information as average (Heine et al., 2008; Kim & Gasman, 2011; Willich et al., 2011).

According to US studies, students with a higher socioeconomic background and better academic abilities apparently have access to and use more sources of information (Litten, 1982; Terenzini et al., 2001; Veloutsou et al., 2005). Moreover, students with comparably lower academic abilities rely more on information sources than their higher ability schoolmates (Galotti & Mark, 1994). Additionally, the interpretation of information is affected by social and cultural background as well as academic ability, leading to different choices (Brooks, 2002; McDonough, 1998). The matter of borrowing money to finance college education, for example, is constrained by the financial background of the students, with those from low socioeconomic backgrounds having trouble using loans (Bell et al., 2009; Hesketh, 1999).

For Germany, the influence of gender, the academic family and high school background as well as regional provenance have been examined, but no significant impacts were identified (Heine, Spangenberg, & Willich, 2007; Heine et al., 2008; Willich et al., 2011). It might be fruitful to test a possible correlation between grades as well as the financial background and the utilization of information sources for German school graduates.

No clear statement can be made about when prospective students start searching for information about their options after school. According to the consumer choice models, students actively look for information during the search phase in particular. However, already in the predisposition phase, information is captured implicitly and the search goes on during the choice phase (Cabrera & La Nasa, 2000; Chapman, 1986; Hossler et al., 1989). In America, the predisposition phase is assumed to be completed by the ninth grade (Cabrera & La Nasa, 2000); however, the range is from the end of elementary school to the first semester of the high school senior year (Hossler et al., 1989; Kim & Gasman, 2011). Most students actively search for information at least one year prior to enrollment (Bradshaw, Espinoza, & Hausman, 2001; Cabrera & La Nasa, 2000; Hossler et al., 1989; Kinzie et al., 2004; McDonough, 1998; Pampaloni, 2010). In Germany, about half of the students start actively searching for information about their options after school at least two years prior to graduation; the other half follow during the final year or even later (Hachmeister et al., 2007; Lörz, Quast, & Woisch, 2011). Of course this does not say anything about the concrete search for information on universities. On the contrary, there is evidence that this search, at least in Germany, is limited to finding institutions offering the intended subject (Herrmann & Winter, 2009). Many respondents noted a lack of information, even those that started the search early (Lörz et al., 2011; Willich et al., 2011).

FUTURE RESEARCH

American as well as German research has made substantial contributions toward an understanding of the complex university choice process, the factors influencing this choice and the information sources students use to learn about their options. However, the review also displays that previous studies, particularly in Germany, seek to apply a solid theoretical framework, explorative methodologies and ignore possibly influencing aspects. Those gaps and options for addressing them are discussed in more detail in the following sections.

University choice model for Germany

Since for German students the choice of the field of study is supposed to be the main decision when leaving school (Hachmeister et al., 2007; Herrmann & Winter, 2009), the choice of a proper university is underrepresented in German studies so far. No German choice model focuses on the selection of a university and the multiplicity of aspects influencing the decision of where to study. The one-to-one transfer of US models, on the other hand, does not seem to be appropriate as long as factors such as academic ability or the impact of recommendations from the students' social networks remain uninvestigated. Additionally,

they miss the crucial issue of choice of subject. Nevertheless, those models could be used as a basis to test whether or not these elements apply for Germany as well. Thereby, the US models could be adapted to German specifications by keeping in mind the differences between the countries already addressed in the previous sections. Financial considerations might not be as important for German students as they are for Americans, guidance counselors compared to the ones in the US do not exist in Germany, and the chosen subject is supposed to have already limited the number of universities the students will consider.

Having a university choice model for Germany would be useful, as German studies, especially those of the HIS, so far lack an explicit theoretical reference. Therefore, the items investigated in these surveys can only be interpreted implicitly and might not reflect the whole range of possibly influencing factors. The impact of emotions on the decision, for example, might be greater than assumed so far, as the example of the rating of facilities at Eastern universities shows (Beckmann & Langer, 2009). Hence, the development of a German university choice model would make an important contribution to the research on German students' choices of universities. Narrative methods could be helpful for developing a model, as they do not set the students any limits for their answers (Lamnek, 2005; Nohl, 2009).

Research methodology

While in America quantitative and qualitative approaches coexist (e.g., Clinton, 1990; Hoyt & Brown, 2003; Kim & Gasman, 2011), in Germany only one qualitative study, interviewing seven students at Eastern universities, is known (Herrmann & Winter, 2009). Hachmeister et al. (2007) used explorative workshops prior to their quantitative survey, but they resulted in a shortage of the item set testing the university choice. A limited number of given response options in quantitative questionnaires constrains the chance for students to illustrate all important aspects and their corresponding ratings (Lamnek, 2005). In order to explore all influencing factors on university choice, a shift to qualitative methods in Germany could be fruitful. They could not only help to detect unconsidered factors (Creswell, 2009; Lamnek, 2005), they could also reveal implicit, unconscious and suppressed motives framed by the cultural and social world of the students (Lamnek, 2005; Miller & Glassner, 2011).

In order to deduce conclusions from qualitative interviews that can be generalized to a certain extent, the sample must be chosen carefully (Lamnek, 2005; Payne, 2003). Talking to students at different universities, studying different subjects, with different academic abilities – expressed, for example, in the grade point average – and different social and cultural backgrounds would be preferable (Flick, von Kardorff, & Steinke, 2007). Other criteria might

emerge to be important as well, but these have already been identified as being influential on the university choice process in previous studies (e.g., Hoyt & Brown, 2003; Purr, 2010; Rowan-Kenyon et al., 2008). If the course of the decision-making process is to be analyzed, longitudinal studies might be effective (Kim & Gasman, 2011; Payne, 2003). If the focus is on the final selection of the university, the students should be interviewed as soon as possible after they made the decision (Kim & Gasman, 2011).

Factors to be explored

When comparing German findings about criteria and background factors influencing the choice of a university and the information sources used by prospective students with results from US studies, some aspects have been discounted in Germany.

The influence of personal relations, particularly recommendations of confidants, is one of these aspects. Obviously, students in Germany talk with their parents, friends and others about their options after school just as American students do. Hints in the studies of Harpenau (1992) and Hachmeister et al. (2007) already indicate the impact of the students' social networks on their university related decisions. Therefore, there is no reason to disregard the influence of these conversations in Germany. To complement the regularly distributed quantitative questionnaires by items like "Recommendation of my parents" could be one step to evaluating the impact of different persons on the decision. But also in qualitative approaches this factor should not be ignored.

According to US studies, the academic abilities of the students do not only affect their access to and utilization of information sources, but also their appraisal of choice factors such as quality aspects, scholarships, and the type of institution (e.g., Galotti & Mark, 1994; Hoyt & Brown, 2003; Tierney, 1983). In German studies, the academic background of the parents has been considered, but rarely the academic abilities of their children (e.g., Bargel et al., 2008; Heine et al., 2010). As Purr (2010) noticed an impact of the students' self-assessed academic abilities, the grade point average, and the type of high school certificate on the choice of type of institution for students of business administration, a closer examination of the academic abilities could be rewarding.

CONCLUSION

Authors like Perna (2006), Cabrera and La Nasa (2000), Hamrick and Stage (2004), and Steele (2008) have accentuated the high complexity of the choice of a university, also reflected in this review. By focusing on those choice criteria (e.g., reputation, financial considerations, location, curriculum, and advice of others) and information sources (e.g.,

internet, publications, social networks, campus visits, and rankings) identified as relevant by multiple researchers, we have reduced this complexity to some extent. Simultaneously, we have identified research gaps in the German literature by comparing the German state of research with the American one. We recommend the development of a German university choice model, a more extensive use of explorative research methodologies and an enhancement of choice criteria and background factors possibly influencing the university choice of prospective German students.

NOTES

1. Some British studies are included to support the American findings. As the focus is on US research, in the text, British results are not mentioned explicitly.
2. A search for TOPIC=(student AND "decision making" AND "higher education" OR "college choice" OR "university choice") generated 55.411% of records from the United States in the Web of Knowledge.
3. In Germany, the distinction usually is not public vs. private, but university vs. university of applied sciences or university of cooperative education respectively.

REFERENCES

Albert, M., Hurrelmann, K., & Quenzel, G. (2011). *Jugend 2010: Eine pragmatische Generation behauptet sich* [Youth 2010: A pragmatic generation asserts itself]. (2nd ed.). Frankfurt am Main: Fischer Taschenbuch Verlag.

Armstrong, J. J., & Lumsden, D. B. (2000). Impact of universities' promotional materials on college choice. *Journal of Marketing for Higher Education*, *9*(2), 83–91.

Autorengruppe Bildungsberichterstattung. (2010). *Bildung in Deutschland 2010: Ein indikatorengestützter Bericht mit einer Analyse zu Perspektiven des Bildungswesens im demografischen Wandel* [Education in Germany 2010: An indicator-based report with an analysis of perspectives in the education system considering demographic change]. (1st ed.). Bielefeld: W. Bertelsmann Verlag GmbH & Co. KG.

Avery, C., & Hoxby, C. M. (2004). Do and should financial aid packages affect students' college choices? In C. M. Hoxby (Ed.), *College choices: The economics of where to go, when to go, and how to pay for it* (pp. 239–302). Chicago, Illinois: University of Chicago Press.

Bargel, T., Ramm, M., & Multrus, F. (2008). *Studiensituation und studentische Orientierungen: 10. Studierendensurvey an Universitäten und Fachhochschulen* [Situation of studies and students' orientation: 10th survey of students at universities and universities of applied science]. Berlin: Bundesministerium für Bildung und Forschung.

Bartl, W. (2009). *Ost-West-Unterschiede bei der Studien- und Hochschulwahl: Ergebnisse der Studienanfängerbefragung an der Martin-Luther-Universität Halle-Wittenberg (MLU) im Wintersemester 2008/09* [Differences in the choice of the field of study and the university between East and West Germany: Results of a survey of freshmen at the Martin Luther University in Halle-Wittenberg in the fall term 2008/09]. Halle (Saale): Martin-Luther-Universität Halle-Wittenberg.

Baum, S., Ma, J., & Payea, K. (2010). *Education pays 2010: The benefits of higher education for individuals and society*. New York, NY: The College Board.

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). Chicago: The University of Chicago Press.

Becker, P., & Primova, R. (2009). *Die Europäische Union und die Bildungspolitik* [The European Union and educational policy]. Berlin: Stiftung Wissenschaft und Politik. Retrieved July 30, 2012, from http://www.hrk-bologna.de/bologna/de/download/dateien/bologna_document.pdf.

Beckmann, J., & Langer, M. F. (2009*). Studieren in Ostdeutschland?: Eine empirische Untersuchung der Bereitschaft zum Studium in den neuen Ländern* [Study in East Germany?: An empirical examination of the willingness to study in the New Laender]. Gütersloh: CHE Centrum für Hochschulentwicklung.

Bell, A. D., Rowan-Kenyon, H. T., & Perna, L. W. (2009). College knowledge of 9th and 11th grade students: Variation by school and state context. *The Journal of Higher Education*, *80*(6), 663–685.

Bergerson, A. A. (2009). College choice and access to college: Moving policy, research and practice to the 21st century. *ASHE Higher Education Report*, *35*(4), 1–141.

Bernard, H. R., Killworth, P., Kronenfeld, D., & Sailer, L. (1984). The problem of informant accuracy: The validity of retrospective data. *Annual Review of Anthropology*, *13*, 495–517.

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2006). *Consumer behavior* (10th ed.). Mason, Ohio: Thomson South-Western.

Bode, J., Jäger, G. W., Koch, U., Ahrberg, F. S., & Müller, C. (2008). *Instrumente zur Rekrutierung internationaler Studierender: Ein Praxisleitfaden für erfolgreiches Hochschulmarketing* [Instruments to recruit international students: A practice guide for successful higher education marketing]. Bielefeld: W. Bertelsmann Verlag GmbH & Co. KG.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–260). New York: Greenwood Press.

Bourdieu, P., & Passeron, J. C. (1990). *Reproduction in education, society and culture* (Reprinted). London: Sage.

Bourdieu, P., & Passeron, J. C. (2004). Bildungsprivileg und Bildungschancen an der Hochschule [Educational privilege and opportunities at university]. In F. Baumgart (Ed.), *Theorien der Sozialisation. Erläuterungen, Texte, Arbeitsaufgaben* (3rd ed., pp. 232–244). Bad Heilbrunn: Klinkhardt.

Bowen, H. R. (1980). *Investment in learning: The individual and social value of American higher education* (3rd ed.). San Francisco, California: Jossey-Bass.

Bradshaw, G., Espinoza, S., & Hausman, C. (2001). The college decision-making of high achieving students. *College & University*, *77*(2), 15–22.

Brennan, L. (2001). *How prospective students choose universities. A buyer behaviour perspective*, (Doctoral dissertation). Melbourne: University of Melbourne. Retrieved July 30, 2012, from http://dtl.unimelb.edu.au/view/action/singleViewer.do?dvs=1343641872526~389&locale=de_DE&VIEWER_URL=/view/action/singleViewer.do?&DELIVERY_RULE_ID=7&search_terms=SYS%20=%20000038347&adjacency=N&application=DIGITOOL-3&frameId=1&usePid1=true&usePid2=true.

Briggs, S. (2006). An exploratory study of the factors influencing undergraduate student choice: The case of higher education in Scotland. *Studies in Higher Education*, *31*(6), 705–722.

Brooks, R. (2002). 'Edinburgh, Exeter, East London - or employment?' A review of research on young people's higher education choices. *Educational Research*, *44*(2), 217–227.

Brown, C., Varley, P., & Pal, J. (2009). University course selection and services marketing. *Marketing Intelligence & Planning*, *27*(3), 310–325.

Bundesagentur für Arbeit. (2011). *Hochschulteams* [University teams]. Retrieved July 30, 2012, from http://www.arbeitsagentur.de/nn_26342/zentraler-Content/A03-Berufsberatung/A032-Akademiker/Allgemein/Hochschulteams.html.

Bundesministerium für Bildung und Forschung. (2010). *Das neue BAföG: Informationen zur Ausbildungsförderung* [The new BAföG: Information about grants]. Retrieved July 30, 2012, from http://www.bmbf.de/pub/bafoeg_flyer.pdf.

Cabrera, A. F., & La Nasa, S. M. (2000). Understanding the college-choice process. *New Directions for Institutional Research*, *2000*(107), 5–22.

Chapman, D. W. (1981). A model of student college choice. *The Journal of Higher Education*, *52*(5), 490–505.

Chapman, R. G. (1986). Toward a theory of college selection: A model of college search and choice behavior. *Advances in Consumer Research*, *13*, 246–250.

Clinton, R. J. (1990). Factors that influence the college prospect's choice of schools. *Journal of Marketing for Higher Education*, *2*(2), 31–45.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles: Sage.

Dawes, P. L., & Brown, J. (2005). The composition of consideration and choice sets in undergraduate university choice: An exploratory study. *Journal of Marketing for Higher Education*, *14*(2), 37–59.

DesJardins, S. L., Dundar, H., & Hendel, D. D. (1999). Modeling the college application decision process in a land-grant university. *Economics of Education Review*, *18*(1), 117–132.

DesJardins, S. L., & Toutkoushian, R. K. (2005). Are students really rational? The development of rational thought and its application to student choice. In J. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 20, pp. 191–240). Dordrecht: Springer.

Deutsches Studentenwerk e.V. (2012). *Welche Gebühren fallen pro Semester in einzelnen Bundesländern an?* [Which fees are incurred per semester in individual federal states?]. Retrieved July 30, 2012, from http://www.internationale-studierende.de/fragen_zur_vorbereitung/finanzierung/studiengebuehren/.

Dohmen, D. (2010). *FiBS-Studienanfängerprognose 2010 bis 2020: Bundesländer und Hochschulpakt im Fokus* [FiBS forecast of first-year students 2010 to 2020: Federal states and Higher Education Pact focused]. Berlin: Forschungsinstitut für Bildungs- und Sozialökonomie.

Enke, M., Schöpe, T., Geigenmüller, A., & Biermann, H. (2007). *Entwicklung eines Phasenmodells zur Strukturierung der Studienwahlentscheidung für ingenieurwissenschaftliche Studiengänge* [Development of a phase model to structure the subject choice for engineering programs]. Retrieved July 30, 2012, from http://www.institut-wv.de/index.php/5248/.

European Students' Union. (2006). *The students' opinion on the Lisbon Strategy of the European Union*. Retrieved July 30, 2012, from http://www.esu-online.org/news/article/6064/92/.

Flick, U., von Kardorff, E., & Steinke, I. (2007). *Qualitative Forschung: Ein Handbuch* [Qualitative research: A handbook]. (5th ed.). Reinbek bei Hamburg: Rowohlt-Taschenbuch-Verlag.

Gabriel, G., & von Stuckrad, T. (2007). *Die Zukunft vor den Toren: Aktualisierte Berechnungen zur Entwicklung der Studienanfängerzahlen bis 2020* [The future at the gates: Updated calculations on the development of the numbers of first-year students up to 2020]. Gütersloh: CHE Centrum für Hochschulentwicklung.

Galotti, K. M., & Mark, M. C. (1994). How do High School students structure an important life decision? A short-term longitudinal study of the college decision-making process. *Research in Higher Education*, *35*(5), 589–607.

Gambetta, D. (2009). *Were they pushed or did they jump? Individual decision mechanisms in education* (Digitally printed version). Cambridge: Cambridge University Press.

Hachmeister, C.-D., Harde, M. E., & Langer, M. F. (2007). *Einflussfaktoren der Studienentscheidung: Eine empirische Studie von CHE und Einstieg* [Factors influencing study choice: An empirical study of CHE and Einstieg]. Gütersloh: CHE Centrum für Hochschulentwicklung.

Hamrick, F. A., & Stage, F. K. (2004). College predisposition at high-minority enrollment, low-income schools. *The Review of Higher Education*, *27*(2), 151–168.

Harpenau, J. (1992). *Selbstdarstellung als Instrument im Wettbewerb zwischen Hochschulen: Ein Beitrag aus regionalwissenschaftlicher Sicht am Beispiel der Universität Hannover* [Profiling as an instrument of competition between universities: A contribution from a regional perspective using the example of the University of Hannover]. Frankfurt am Main: Lang.

Hartmann, T., Blume, J., & Sjut, B. (2005). "Hauptsache irgendetwas mit Medien": Eine Analyse des Informationsverhaltens von Studieninteressierten ["Essentially something with media": An analysis of the information seeking behavior of prospective students]. *Die Hochschule*, *14*(1), 197–207.

Hayes, T. J. (2009). *Marketing colleges and universities: A services approach*. Washington, DC: Council for Advancement and Support of Education.

Heine, C., Quast, H., & Beusse, M. (2010). *Studienberechtigte 2008 ein halbes Jahr nach Schulabschluss: Übergang in Studium, Beruf und Ausbildung* [Potential students in 2008 six months after graduation from school: Transfer to study, career and vocational training]. Hannover: HIS Hochschul-Informations-System GmbH.

Heine, C., Spangenberg, H., & Willich, J. (2007). *Informationsbedarf, Informationsangebote und Schwierigkeiten bei der Studien- und Berufswahl: Studienberechtigte 2006 ein halbes Jahr vor dem Erwerb der Hochschulreife* [Information needs, offers of information and difficulties with the choice of field of study and profession: Potential students 2006 six months before they achieve the general qualification for university entrance]. Hannover: HIS Hochschul-Informations-System GmbH.

Heine, C., Willich, J., & Schneider, H. (2009). *Informationsverhalten und Hochschulwahl von Studienanfängern in West- und Ostdeutschland: Eine Sekundäranalyse der HIS Studienanfängerbefragung des Wintersemesters 2007/08* [Information seeking behavior and university choice of first-year students in West and East Germany: A secondary data analysis of the HIS survey of freshmen in the winter semester 2007/08]. Hannover: HIS Hochschul-Informations-System GmbH.

Heine, C., Willich, J., Schneider, H., & Sommer, D. (2008). *Studienanfänger im Wintersemester 2007/08: Wege zum Studium, Studien- und Hochschulwahl, Situation bei Studienbeginn* [First-year students in the winter semester 2007/08: Avenues to study, choice of field of study and university, situation when starting to study]. Hannover: HIS Hochschul-Informations-System GmbH.

Hell, B., & Haehnel, C. (2008). Bewerbermarketing im tertiären Bildungsbereich unter Berücksichtigung des Entscheidungsverhaltens Studieninteressierter [Recruiting in tertiary education considering the decision behavior of potential students]. *Beiträge zur Hochschulforschung*, *30*(2), 8–32.

Heller, D. E. (1997). Student price response in higher education: An update to Leslie and Brinkman. *The Journal of Higher Education*, *68*(6), 624–659.

Hemsley-Brown, J., & Oplatka, I. (2006). Universities in a competitive global marketplace: A systematic review of the literature on higher education marketing. *International Journal of Public Sector Management*, *19*(4), 316–338.

Herrmann, V., & Winter, M. (2009). *Studienwahl Ost: Befragung von westdeutschen Studierenden an ostdeutschen Hochschulen* [Choice to study in the East: Survey of West German students at East German universities]. *HoF-Arbeitsberichte: Vol. 2009,2*. Lutherstadt Wittenberg, Halle, Saale: Institut für Hochschulforschung an der Martin-Luther-Universität Halle-Wittenberg.

Hesketh, A. J. (1999). Towards an economic sociology of the student financial experience of higher education. *Journal of Education Policy*, *14*(4), 385–410.

Hochschulrahmengesetz (1976). [Framework Act for Higher Education], Deutscher Bundestag. §29, 31.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding student college choice. In J. Smart (Ed.), *Higher Education. Handbook of Theory and Research* (Vol. 5, pp. 213–288). New York: Agathon Press.

Hossler, D., & Gallagher, K. S. (1987). Studying student college choice: A three-phase model and the implications for policymakers. *College & University*, *62*(3), 207–221.

Hossler, D., & Stage, F. K. (1992). Family and high school experience influences on the postsecondary educational plans of ninth-grade students. *American Educational Research Journal*, *29*(2), 425–451.

Hoyt, J. E., & Brown, A. B. (2003). *Marketing UVSC: How prospective students view the college*. Retrieved July 30, 2012, from http://webprod1.uvu.edu/iri/pdfs/research/marketinguvscspring2003/collegechoice5.pdf.

Hurtado, S., Inkelas, K. K., Briggs, C., & Rhee, B.-S. (1997). Differences in college access and choice among racial/ethnic groups: Identifying continuing barriers. *Research in Higher Education*, *38*(1), 43–75.

Isserstedt, W., Middendorff, E., & Kandulla, M. (2010). *Die wirtschaftliche und soziale Lage der Studierenden in der Bundesrepublik Deutschland 2009* [The economic and social state of students in the Federal Republic of Germany 2009]. Bonn: Bundesministerium für Bildung und Forschung.

Jackson, G. A. (1982). Public efficiency and private choice in higher education. *Educational Evaluation and Policy Analysis*, *4*(2), 237–247.

Kim, J. K., & Gasman, M. (2011). In search of a "good college": Decisions and determinations behind Asian American students' college choice. *Journal of College Student Development*, *52*(6), 706–728.

Kinzie, J., Palmer, M., Hayek, J., Hossler, D., Jacob, S. A., & Cummings, H. (2004). *Fifty years of college choice: Social, political and institutional influences on the decision-making process*. Indianapolis, IN: Lumina Foundation for Education.

Kluth, W. (2001). *Nachfrageorientierte Steuerung der Studienangebote: Rechtsgutachten* [Demand-driven controlling of course offers: Legal opinion]. Gütersloh: CHE Centrum für Hochschulentwicklung.

Kotler, P. (1976). Applying marketing theory to college admissions. In College Entrance Examination Board (Ed.), *A role for marketing in college admissions* (pp. 54–72). New York: College Entrance Examination Board.

Kotler, P., & Armstrong, G. (2010). *Principles of marketing* (13th ed.). Upper Saddle River, New Jersey: Prentice Hall.

Kotler, P., & Fox, K. F. A. (2002). *Strategic marketing for educational institutions* (2nd ed.). Upper Saddle River, New Jersey: Prentice Hall.

Krawietz, M., & Heine, C. (2007). *Wahlmotive und Bewertungen des Studienortes bei Studienanfängern im Vergleich der neuen und der alten Länder: Ergebnisse aus der Befragung der Studienanfänger des Wintersemesters 2006/07* [First-year students' reasons for choice and assessments of the location of the university comparing the New and Old Laender: Results of a survey of first-year students in the winter semester 2006/07]. *HISBUS-Kurzinformation Nr. 18*. Hannover: HIS Hochschul-Informations-System GmbH.

Kühler, L. (2006). *Hochschulreform in Deutschland nach amerikanischem Vorbild: Chancen, Möglichkeiten und Grenzen* [Reform of the German higher education system according to the American role model: Opportunities, possibilities and limitations]. Saarbrücken: VDM Verlag Dr. Müller.

Kultusministerkonferenz. (2005). *Prognose der Studienanfänger, Studierenden und Hochschulabsolventen bis 2020* [Forecast of first-year students, students and university graduates until 2020]. Retrieved July 30, 2012, from http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2005/2005_10_01-Studienanfaenger-Absolventen-2020.pdf.

Kultusministerkonferenz. (2009). *Vorausberechnung der Studienanfängerzahlen 2009-2020: Zwischenstand* [Forecast of first-year students 2009-2020: Preliminary results]. Retrieved July 30, 2012, from http://www.kmk.org/fileadmin/pdf/Statistik/Zwischenstand_Vorausberechnung_Studienanfaengerzahlen_2009_2020.pdf.

Küpper, H.-U. (2002). Hochschulfinanzierung als Steuerungselement [University funding as a controlling instrument]. *Beiträge zur Hochschulforschung*, *24*(2), 18–43.

Lamnek, S. (2005). *Qualitative Sozialforschung* [Qualitative social research]. (4th ed.). Weinheim: Beltz Verlag.

Lamont, M., & Lareau, A. (1988). Cultural Capital: Allusions, gaps and glissandos in recent theoretical developments. *Sociological Theory*, *6*(2), 153–168.

Lenning, O. T., & Cooper, E. M. (1978). *Guidebook for colleges and universities: Presenting information to prospective students*. Boulder, Colorado: National Center for Higher Education Management Systems.

Leszczensky, M., & Orr, D. (2003). *Paradigmenwechsel in der Hochschulfinanzierung: Verfahren der Forschungsbewertung im Kontext neuer Steuerungsverfahren im Hochschulwesen: Analyse von vier Verfahren aus Niedersachsen, Großbritannien, den Niederlanden und Irland* [Paradigm shift in university funding: Method of evaluating research in the context of new controlling practices in higher education: Analysis of four methods from Lower Saxony, Great Britain, the Netherlands and Ireland]. Hannover: HIS Hochschul-Informations-System GmbH.

Litten, L. H. (1982). Different strokes in the applicant pool: Some refinements in a model of student college choice. *The Journal of Higher Education*, *53*(4), 383–402.

Lörz, M., Quast, H., & Woisch, A. (2011). *Bildungsintentionen und Entscheidungsprozesse: Studienberechtigte 2010 ein halbes Jahr vor Schulabgang* [Educational intentions and decision processes: Potential students 2010 six months prior to graduation from school]. *Forum Hochschule: Vol. 2011,14*. Hannover: HIS Hochschul-Informations-System GmbH.

Manski, C. F. (1993). Dynamic choice in social settings: Learning from the experience of others. *Journal of Econometrics*, *58*, 121–136.

Manski, C. F., & Wise, D. A. (1983). *College choice in America*. Cambridge, Massachusetts: Harvard University Press.

Maringe, F. (2006). University and course choice - Implications for positioning, recruitment and marketing. *International Journal of Educational Management*, *20*(6), 466–479.

McDonough, P. M. (1998). Structuring college opportunities: A cross-case analysis of organizational cultures, climates and habiti. In C. A. Torres & T. R. Mitchell (Eds.), *Sociology of education: Emerging perspectives* (pp. 181–210). Albany: State University of New York Press.

Miller, J., & Glassner, B. (2011). The "Inside" and the "Outside": Finding realities in interviews. In D. Silverman (Ed.), *Qualitative research. Issues of theory, method and practice* (3rd ed., pp. 131–148). Los Angeles: Sage.

Moogan, Y. J., & Baron, S. (2003). An analysis of student characteristics within the student decision making process. *Journal of Further and Higher Education*, *27*(3), 271–287.

Moogan, Y. J., Baron, S., & Harris, K. (1999). Decision-making behaviour of potential higher education students. *Higher Education Quarterly*, *53*(3), 211–228.

Multrus, F. (2007). *Fachtradition und Bildungsherkunft: Einfluss der elterlichen Ausbildung auf Studierende und Studium* [Subject tradition and education background: Influence of parents' training on students and studies]. *Hefte zur Bildungs- und Hochschulforschung: Vol. 48*. Konstanz: Arbeitsgruppe Hochschulforschung, Universität Konstanz.

Münch, R. (2011). *Akademischer Kapitalismus: Zur politischen Ökonomie der Hochschulreform* [Academic capitalism: The political economics of the higher education reform]. (1st ed.). Berlin: Suhrkamp.

Nickel, S. (2009). *Partizipatives Management von Universitäten: Zielvereinbarungen - Leitungsstrukturen - Staatliche Steuerung* [Participative management of universities: Agreement on objectives - management structures - state control]. (2nd ed.). *Universität und Gesellschaft: Vol. 5*. München: Hampp.

Nohl, A.-M. (2009). *Interview und dokumentarische Methode: Anleitungen für die Forschungspraxis* [Interview and documentary methods: Instructions for research practice]. (3rd ed.). Wiesbaden: VS Verlag für Sozialwissenschaften.

Núñez, A.-M., & Bowers, A. J. (2011). Exploring what leads high school students to enroll in Hispanic-serving institutions: A multilevel analysis. *American Educational Research Journal*, *48*(6), 1286–1313.

Pampaloni, A. M. (2010). The influence of organizational image on college selection: What students seek in institutions of higher education. *Journal of Marketing for Higher Education*, *20*(1), 19–48.

Paulsen, M. B. (1990). *College choice: Understanding student enrollment behavior*. ASHE-ERIC Higher Education Report No. 6. Washington, D.C.: The George Washington University, School of Education and Human Development.

Paulsen, M. B. (2001). The economics of human capital and investment in higher education. In M. B. Paulsen & J. C. Smart (Eds.), *The Finance of Higher Education. Theory, Research, Policy, and Practice* (pp. 55–94). New York: Agathon Press.

Paulsen, M. B., & St. John, E. P. (2002). Social class and college costs: Examining the financial nexus between college choice and persistence. *The Journal of Higher Education*, *73*(2), 189–236.

Payne, J. (2003). *Choice at the end of compulsory schooling: A research review*. Nottingham: Department for Education and Skills Publications.

Perna, L. W. (2006). Studying college access and choice: A proposed conceptual model. In J. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 21, pp. 99–157). Dordrecht: Springer.

Pitre, P. E. (2006). College choice: A study of African American and White student aspirations and perceptions related to college attendance. *College Student Journal*, *40*(3), 562–574.

planZ Studienberatung. (2012). *Studienberatung Bachelor* [Student Advisory Service for Bachelor]. Retrieved July 30, 2012, from http://www.planz-studienberatung.de/studienberatung-bachelor.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, *24*, 1–24.

Profiling Institut. (n.d.). *Private Studienberatung* [Private Student Advisory Service]. Retrieved July 30, 2012, from http://www.profiling-institut.de/studienberatung.html.

Purr, M. (2010). *Hochschulwahl bei Wirtschaftswissenschaftlern: Warum BWL-Studenten eine bestimmte Hochschule wählen* [University choice of economics students: Why students of business administration choose a specific university]. *Reihe Sozialwissenschaften: Vol. 36*. Marburg: Tectum Verlag.

Reay, D. (1998). 'Always knowing' and 'never being sure': Familial and institutional habituses and higher education choice. *Journal of Education Policy*, *13*(4), 519–529.

Richards, J. M., & Holland, J. L. (1965). *A factor analysis of student "explanations" of their choice of a college*. Iowa City, Iowa: American College Testing Program.

Rowan-Kenyon, H. T., Bell, A. D., & Perna, L. W. (2008). Contextual influences on parental involvement in college going: Variations by socioeconomic class. *The Journal of Higher Education*, *79*(5), 564–586.

Salisbury, M. H., Umbach, P. D., Paulsen, M. B., & Pascarella, E. T. (2009). Going global: Understanding the choice process of the intent to study abroad. *Research in Higher Education*, *50*, 119–143.

Schleef, D. (2000). "That's a good question!" Exploring motivations for law and business school choice. *Sociology of Education*, *73*(3), 155–174.

Seifert, W. (2005). Bildungsmobilität: Wie weit fällt der Apfel vom Stamm? [Educational mobility: How far does the apple fall from the tree?]. *Statistische Analysen und Studien NRW*, *24*, 3–11.

Shocker, A. D., Ben-Akiva, M., Boccara, B., & Nedungadi, P. (1991). Consideration set influences on consumer decision-making and choice: Issues, models, and suggestions. *Marketing Letters*, *2*(3), 181–197.

Snyder, T. D., & Dillow, S. A. (2011). *Digest of Education Statistics 2010*. Washington, DC.

Solga, H., & Dombrowski, R. (2009). *Soziale Ungleichheiten in schulischer und außerschulischer Bildung: Stand der Forschung und Forschungsbedarf* [Social inequalities of education in school and out of school: State of research and research gaps]. *Arbeitspapier / Hans-Böckler-Stiftung: Vol. 171*. Düsseldorf: Hans-Böckler-Stiftung.

Statistisches Bundesamt. (2011a). *Bildung und Kultur: Nichtmonetäre hochschulstatistische Kennzahlen 1980-2009*. Fachserie 11 Reihe 4.3.1 [Education and culture: Nonmonetary figures of higher education statistics 1980-2009]. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2011b). *Bildung und Kultur: Studierende an Hochschulen*. Fachserie 11 Reihe 4.1 [Education and culture: Students at universities]. Wiesbaden: Statistisches Bundesamt. Retrieved July 30, 2012, from https://www.destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/Hochschulen/StudierendeHochschulenEndg2110410117004.pdf?__blob=publicationFile.

Statistisches Bundesamt. (2011c). *Bildung und Kultur: Ausbildungsförderung nach dem Bundesausbildungsförderungsgesetz (BAföG)*. Fachserie 11 Reihe 7 [Education and culture: Grants according to the Federal Training Assistance Act]. Wiesbaden: Statistisches Bundesamt. Retrieved July 30, 2012, from https://www.destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/Ausbildungsfoerderung/Bundesausbildungsfoerderung2110700107004.pdf?__blob=publicationFile.

Steele, S. L. (2008). *Examining the inclination of students to apply to a postsecondary institution in their senior year of High School*, (Doctoral dissertation). Vanderbilt University, Nashville, Tennessee. Retrieved July 30, 2012, from http://etd.library.vanderbilt.edu/available/etd-09052008-200210/unrestricted/Steele.pdf.

Stiftung für Hochschulzulassung. (2011). *Das Dialogorientierte Serviceverfahren* [The conversational service procedure]. Retrieved July 30, 2012, from http://hochschulstart.de/index.php?id=3115.

Teranishi, R. T., Ceja, M., Antonio, A. L., Allen, W. R., & McDonough, P. M. (2004). The college-choice process for Asian Pacific Americans: Ethnicity and socioeconomic class in context. *The Review of Higher Education*, *27*(4), 527–551.

Terenzini, P. T., Cabrera, A. F., & Bernal, E. M. (2001). *Swimming against the tide: The poor in American Higher Education*. New York: College Entrance Examination Board.

Tierney, M. L. (1983). Student college choice sets: Toward an empirical characterization. *Research in Higher Education*, *18*(3), 271–284.

Trogele, U. (1995). *Strategisches Marketing für deutsche Universitäten: Die Anwendung von Marketing-Konzepten amerikanischer Hochschulen in deutschen Universitäten* [Strategic marketing for German universities: The application of marketing concepts of American universities to German universities]. Frankfurt am Main: Lang.

Tutt, L. (1997a). *Der Studienentscheidungsprozeß: Informationsquellen, Informationswünsche und Auswahlkriterien bei der Hochschulwahl* [The decision-making process to study: Information sources, information needs and choice criteria for the university choice]. Duisburg: Gerhard Mercator Universität Gesamthochschule Duisburg.

Tutt, L. (1997b). *Marketing-Kommunikation für Hochschulen* [Marketing communications for universities]. Duisburg: Gerhard Mercator Universität Gesamthochschule Duisburg.

Veloutsou, C., Paton, R. A., & Lewis, J. (2005). Consultation and reliability of information sources pertaining to university selection: Some questions answered? *International Journal of Educational Management*, *19*(4), 279–291.

Vrontis, D., Thrassou, A., & Melanthiou, Y. (2007). A contemporary higher education student-choice model for developed countries. *Journal of Business Research*, *60*(9), 979–989.

Wefers, U. (2007). *Hochschulmarketing in Deutschland: Chancen und Herausforderungen* [Higher education marketing in Germany: Opportunities and challenges]. Saarbrücken: VDM Verlag Dr. Müller.

Whitehead, J. M., Raffan, J., & Deaney, R. (2006). University choice: What influences the decisions of academically successful post-16 students? *Higher Education Quarterly*, *60*(1), 4–26.

Willich, J., Buck, D., Heine, C., & Sommer, D. (2011). *Studienanfänger im Wintersemester 2009/10: Wege zum Studium, Studien- und Hochschulwahl, Situation bei Studienbeginn* [First-year students in the winter semester 2009/10: Avenues to study, choice of field of study and university, situation when starting to study]. Hannover: HIS Hochschul-Informations-System GmbH.

Willig, C. (2001). *Introducing qualitative research in psychology: Adventures in theory and method* (1st ed.). Buckingham: Open University Press.

Zeidner, T. L. (2006). *Information and access: Modeling the impact of information on a student's probability of attending college*, (Doctoral dissertation). Vanderbilt University, Nashville, Tennessee. Retrieved July 30, 2012, from http://etd.library.vanderbilt.edu/available/etd-11092006-225240/unrestricted/Dissertation.Tim_Zeidner.pdf.

DIGGING DEEPER: EXPLORING MENTAL MODELS OF UNIVERSITY CHOICE

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ABSTRACT

Universities should understand students' decision-making processes so they can attract the right pool of applicants and select those that best fit their strategies. Previous research focused on identifying and ranking choice criteria used by students. However, these criteria tell us little about how students actually make sense in complex decision-making processes. To have an impact on student choices, students must perceive university marketing communication as being meaningful. Unlike previous research, we present an alternative approach to understanding the choice of prospective students based on exploring their mental models that serve as representations of their sense making activities. By employing the Zaltman Metaphor Elicitation Technique in in-depth-interviews with 27 first-year bachelor students in Germany, we identified four ideal types of decision-makers with their respective mental models: the relational, the adventurer, the idler, and the utilitarian. The mental models provide a more profound understanding of the relevant rational and emotional issues engaged in the sense making process of marketing signals when choosing a university. A mental models approach has further implications for reassessing previous research and suggesting a new type of market segmentation.

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Keywords: university choice; mental models; qualitative research; Zaltman Metaphor Elicitation Technique (ZMET)

INTRODUCTION

Research on college choice suggests that universities should understand students' decision-making processes so they can attract the right pool of applicants and select those that best fit the profile of existing study programs (Hossler, Braxton, & Coopersmith, 1989; Simões & Soares, 2010; Veloutsou, Lewis, & Paton, 2004). Universities that better understand students' underlying decision-making processes can develop more effective marketing communication and recruitment strategies.

Previous research focuses on the choice process (Chapman, 1986; Hossler & Gallagher, 1987; Kotler, 1976), information sources (Galotti & Mark, 1994; Pampaloni, 2010; Veloutsou, Paton, & Lewis, 2005), and choice criteria prospective students use in their decision-making process (Briggs, 2006; Galotti, 1995; Pampaloni, 2010). The latter studies, in particular, were aimed at identifying students' reasons for choosing one university over another. The underlying assumption of the majority of these studies is that students have generalizable preferences, often reflected by differences in demographics such as race (e.g., Teranishi, Ceja, Antonio, Allen, & McDonough, 2004; Wiese, van Heerden, & Jordaan, 2010), socioeconomic background (e.g., Teranishi et al., 2004; Terenzini, Cabrera, & Bernal, 2001), or gender (e.g., Dunnett, Moorhouse, Walsh, & Barry, 2012; Galotti, 1995).

In practice, preference lists of choice criteria serve as the basis for developing communication strategies. It is implicitly assumed that students, for instance of a specific race or family background, would follow a consistent sense making process and can therefore be approached accordingly. However, demographic attributes tell us very little about how students actually make sense of marketing messages. Furthermore, most studies on choice factors focus solely on cognitive rational criteria like the subjects offered, the institutions' reputation, or the distance to home (Briggs, 2006; Kim & Gasman, 2011; Maringe, 2006). Only a few researchers emphasized the decisive role of emotions in university choice (Allen, 2002; Hachmeister, Harde, & Langer, 2007; Pampaloni, 2010). Yet, sense making processes have cognitive as well as emotional roots that can mutually support each other (Hodgkinson & Healey, 2011; Thompson & Stapleton, 2009; Weick, Sutcliffe, & Obstfeld, 2005). If marketing communication is all about the act of transferring meaning (Ringberg & Reihlen, 2008a), then we know too little about how students' university choice is mediated by their underlying sense making processes.

By addressing these shortcomings, this paper presents an alternative approach to understanding the choice of prospective students based on a mental models approach. Mental models basically serve as filters helping to organize people's sense making processes

(Ringberg & Reihlen, 2008a). As such, they guide a person's thoughts, feelings, and behavior (Christensen & Olson, 2002). By using the Zaltman Metaphor Elicitation Technique in interviews with 27 first-year students at two German universities, we identified four ideal types of decision-makers with their respective mental models: the relational, the adventurer, the idler, and the utilitarian. The identified mental models provide us with a deeper comprehension of the relevant rational and emotional issues engaged in interpreting marketing signals when choosing a university. In addition, they help to resolve inconsistencies in existing studies on university choice. Moreover, by identifying shared mental models we suggest a new approach to segmenting higher education markets.

In the following section, we briefly review existing research on university choice, specifically on choice criteria. This is followed by an introduction to the mental models approach that enables us to gain a deeper understanding of the university choice process. After describing the method used to elicit mental models, we present the identified models students apply when choosing their university. We end by discussing how these findings help to address existing shortcomings and serve as the basis for a different market segmentation approach.

UNDERSTANDING UNIVERSITY CHOICE

Previous research

The university choice of students has been of interest for higher education marketing researchers for decades. To understand how and why students choose their preferred university, researchers investigated different aspects like the structure of the choice process (Chapman, 1986; Hossler & Gallagher, 1987; Kotler, 1976), choice criteria (Briggs, 2006; Galotti, 1995; Maringe, 2006; Pampaloni, 2010), or information sources used (Galotti & Mark, 1994; Moogan & Baron, 2003; Pampaloni, 2010; Veloutsou et al., 2005). Though not undisputed, higher education marketing research frequently builds upon student consumerism (Hemsley-Brown & Oplatka, 2006). That is, students are increasingly articulating their needs and demanding that universities respond to their quality expectations. Accordingly, business sector marketing concepts have largely been applied as the theoretical foundation for higher education marketing (Brown, Varley, & Pal, 2009; Helgesen, 2008; Maringe, 2006; Moogan, Baron, & Harris, 1999; Vrontis, Thrassou, & Melanthiou, 2007).

To understand the underlying reasons why students choose a certain university, research has focused on exploring choice criteria. The aim of these studies is to identify those factors most relevant to prospective students and to apply this knowledge for customer-centric

recruitment, including different practices of student persuasion (Briggs, 2006; DesJardins, Dundar, & Hendel, 1999; Maringe, 2006; Pampaloni, 2010). In this research, the implicit assumption is that students follow a consistent sense making process reflected by their espoused choice criteria.

Previous research has shown that university reputation, location, tuition and scholarships as well as the subjects offered are the most prominent general choice criteria (Briggs, 2006; Galotti & Mark, 1994; Maringe, 2006; Pampaloni, 2010; Schleef, 2000). However, these have a different value rating in distinct socio-demographic groups. Depending on aspects like race (Kim & Gasman, 2011; Litten, 1982; Teranishi et al., 2004; Wiese et al., 2010), ability level (Hoyt & Brown, 2002; Purr, 2010; Tierney, 1983), gender (Briggs, 2006; Dunnett et al., 2012; Galotti, 1995; Moogan & Baron, 2003; Scheller, Isleib, & Sommer, 2013), or socioeconomic background (Chapman, 1981; Teranishi et al., 2004; Terenzini et al., 2001), the evaluation of these criteria differs. For instance, the quality of teaching and the location of the institution are rated more importantly by White students than by Afro-American students (Wiese et al., 2010). Students with low abilities attach greater importance to the cost of tuition than higher-level students (Hoyt & Brown, 2002). The latter are more interested in attractive scholarship opportunities (Bradshaw, Espinoza, & Hausman, 2001; Hoyt & Brown, 2002). Furthermore, high-achieving students are more interested in reputable, high-ranking universities (Bradshaw et al., 2001). Students with a high socioeconomic status (SES), on the other hand, rate a high academic reputation of the institution as more relevant than their low-SES peers (Teranishi et al., 2004). Equally, the university's reputation is more important to males than females (Dunnett et al., 2012; Galotti, 1995; Scheller et al., 2013). While young women rate the course offering, location of the university, campus appearance, and type of university more highly (Dunnett et al., 2012; Galotti, 1995; Moogan & Baron, 2003; Scheller et al., 2013), for young men reputation is of the essence (Moogan & Baron, 2003).

Despite these advances in understanding factors influencing students' university choices, there is little understanding of how students actually make sense of different marketing messages. To be effective, marketing communication must be based on a solid understanding how the addressees interpret marketing messages in meaningful ways (Finne & Grönroos, 2009; Holm, 2006). Yet, identifying choice criteria tells us little about how students use their cognitive resources to make sense of the information they actively search for as well as implicitly take in during their choice process. Put differently, decision criteria do not determine the interpretative strategy of the student and therefore only represent one side of the sense making coin. In addition, even though cognition as well as emotion have been shown to

influence sense making processes (Thompson & Stapleton, 2009), the decisive role of feelings is still underexplored in research on university choice (Allen, 2002; Hachmeister et al., 2007; Pampaloni, 2010).

From a methodological perspective, previous research is dominated by questionnaires with an explicit standardized set of response options. However, if the aim of our research is to understand people's sense making, researchers must become sensitive to individual life biographies and need to explore the background, thoughts, and feelings of those they are studying. Survey research clearly reaches its limits when investigating creative interpretative strategies of students faced with complex decisions (Lamnek, 2005; Obermeit, 2012). In this case there is a broader variety of differing methods, including qualitative methods like in-depth interviews and projective techniques, that have become useful approaches in sense making research (Carson, Gilmore, Perry, & Gronhaug, 2001; Mulvey & Kavalam, 2010; Nuttall, Shankar, & Beverland, 2011; Rook, 2006; Zaltman & Coulter, 1995).

Mental models approach

Recent work on mental models proposes a useful approach to explaining how people make sense of the world around them. Mental models are mental representations of our knowledge, thoughts, feelings, goals, attitudes, and anticipations (Christensen & Olson, 2002; Holland & Skinner, 1989; Zaltman & Coulter, 1995). Such mental representations help to transform ambiguous events into something more meaningful by a framing of experience (Goffman, 1974). Mental models are based on rational and emotional factors as well as their interaction (Zaltman & Coulter, 1995). They enable individuals to select information, understand events, reflect upon their causes, and make choices. The rationale of a mental models approach is to gain a deeper appreciation of how people interpret phenomena and how and why decisions are made. In other words, the aim is to identify cognitive structures with their respective content that influence sense making and decision-making (Christensen & Olson, 2002; Eden, 1992; Johnson-Laird, 1995; Vosniadou, 1994).

While mental models are variously classified, an analytically useful distinction is the difference between cultural and private models. Cultural models are socially shared knowledge structures that transcend "the cognitive facilities of individuals" (Klimoski & Mohammed, 1994, p. 406) and are acquired in social interaction. Even though individuals may share comparable schemas, "cultural models will not produce total cognitive homogeneity among individuals within a community" (Shore, 1998, p. 48) as they are entangled with private models (D'Andrade, 1995; Denzau & North, 1994; Ringberg & Reihlen, 2008b). By contrast, private models reflect a person's idiosyncratic life experience

and unique cognitive/emotional dispositions (Ringberg & Reihlen, 2008a, 2008b; Shore, 1998). Both types of mental models organize people's sense making processes (Denzau & North, 1994; Hundeide, 1989; Quinn & Holland, 1989; Ringberg & Reihlen, 2008a, 2008b; Shore, 1998).

Understanding how consumers transform marketing stimuli into relevant, meaningful themes is fundamental to marketing managers when developing communication strategies (Christensen & Olson, 2002; Kotler & Armstrong, 2008; Ringberg & Reihlen, 2008a). Having this knowledge allows marketers to address their customers' most relevant expectations, values, and needs. Moreover, mental models are a useful foundation for segmenting customers into different meaning communities, thought worlds (Dougherty, 1992), or thought collectives (Fleck, 1979). A meaning community is a group of persons who share a certain activity such as making a university choice and the same mental model with respect to that activity. As such, customer segmentation based on shared mental models implies that they "not only know different things, but also know things differently. That is, each [community] would have a different system of meaning through which its members interpret" (Dougherty, 1992, p. 187) college choice issues. To understand these systems of thoughts and their underlying mental models of prospective students, qualitative research design is the next aspect requiring explanation.

METHOD

Due to the nature of our question, we employed the Zaltman Metaphor Elicitation Technique (ZMET). ZMET is an in-depth interview approach explicitly designed to uncover "the mental models that drive consumer thinking and behavior" (Zaltman & Coulter, 1995, p. 36) on a conscious as well as unconscious level (Zaltman, 1997, 2003). ZMET is based on important premises such as the idea that mental models guide the selection and processing of stimuli. Since mental models represent a person's cognitive structure as well as the content of this structure, they serve as filters unconsciously organizing the stimuli to respond to and assimilate (Zaltman, 1997). Thus, ZMET can elicit the mental models influencing the students' choice processes. A further supposition is that emotion and reason are equally important and blend in decision-making (Damasio, 1994; DeSousa, 1997; Zaltman, 1997; Zaltman & Coulter, 1995). Instead of considering them in conflict, the ZMET approach deliberately addresses both as well as their hybridization (Zaltman, 1997). Another basic idea of the method is that thought is image-based, not word-based. People's deeply held thoughts are primarily visual, and language is used to express them. Pictures can help participants

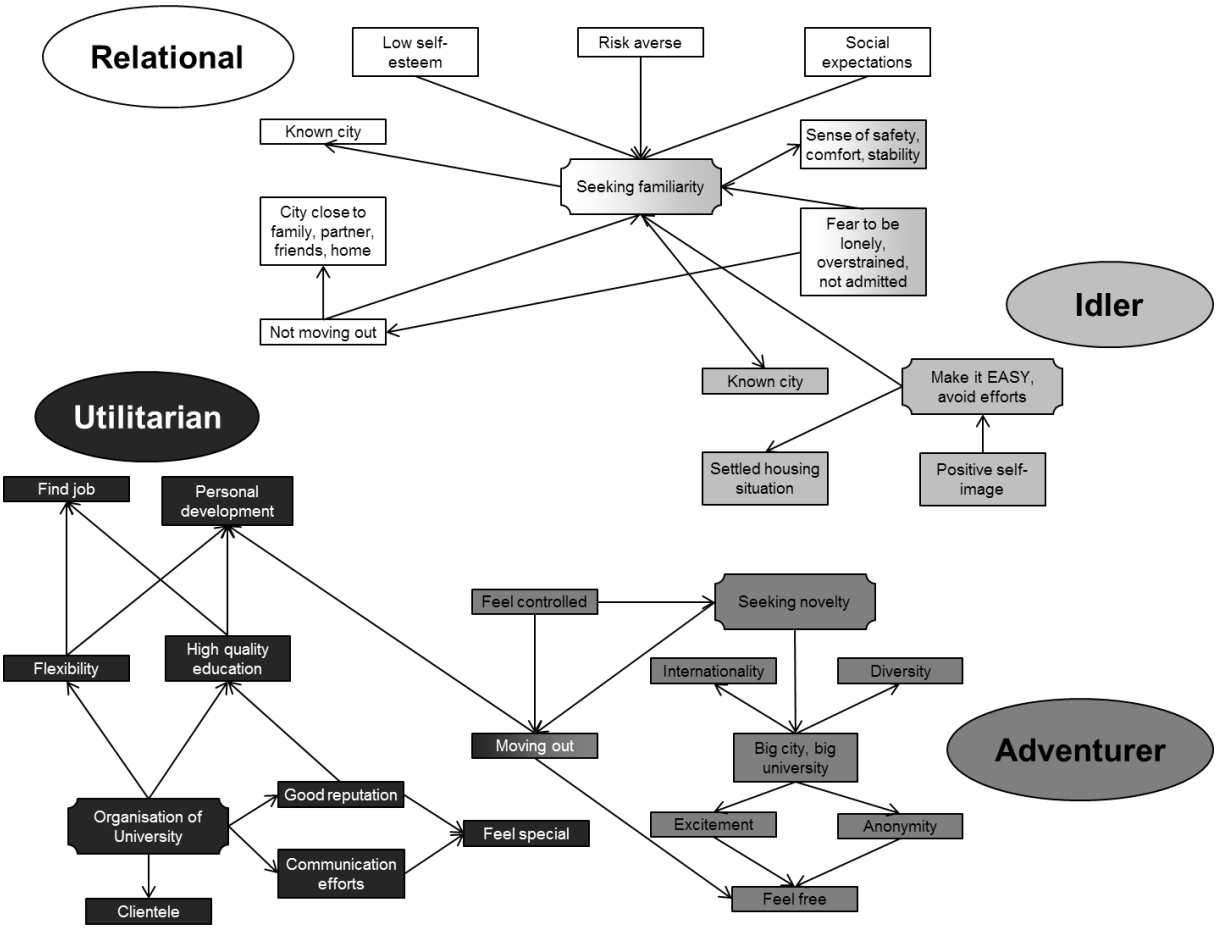
express their thoughts and feelings as well as their composition (Christensen & Olson, 2002; Coulter, Zaltman, & Coulter, 2001; Zaltman, 1997; Zaltman & Coulter, 1995). Accordingly, the participants were asked at least one week prior to the interview to bring pictures representing their thoughts and feelings about selecting "their" university. They were encouraged to bring pictures from any conceivable source like photos, pictures from magazines, from the web, or pictures they drew themselves.

The sample consists of 27 first-year bachelor students at two very different German state universities who were either enrolled on business administration or teacher training programs. While the University of Hamburg represents one of Germany's largest universities located in a metropolis, Leuphana University constitutes a focused university in the medieval city of Lüneburg. Business administration and teacher training programs are offered at a comparable level at both universities and at numerous institutions throughout Germany. Thus, students interested in these subjects have plenty of options to choose from. Every participant we interviewed was admitted to at least two institutions ensuring they definitely had to make a choice. The interviews took place between October and December 2012 to stay as close to the time of decision-making as possible. Each interviewee received € 10 for participation; and they were recruited via leaflets added to their admission documents and handed out during their orientation week at the participating universities. On average, the interviews lasted two hours.

The interviews basically followed the steps of the ZMET method, as described by Zaltman and Coulter (1995) and Zaltman (1997). First, the participants were asked to tell the stories conjured up in their minds by each of the pictures they brought to the interview. The interviewer listened carefully and occasionally encouraged the participants to open up further by means of probing and questioning. Afterwards, the interviewees were asked to describe any issues or images for which they could not find a picture. Next, they were asked to sort all pictures into meaningful piles and to provide a title for each group. This sorting helped to identify major themes and constructs of high relevance to the participants. As the fourth step, a modified version of the Kelly Repertory Grid and the laddering technique (Gengler & Reynolds, 1995; Kelly, 1991) were used to further elicit constructs and causal patterns among them. Subsequently, single pictures were selected by the interviewer and the interviewees were asked to imagine expanding the frame of each in any direction and to describe the extended image. Following this, participants identified the picture best representing their thoughts and feelings. Finally, the interviewees were asked to create a collage of the pictures and to tell the corresponding stories they had in mind, now imagining they were talking to a

person not previously present (Christensen & Olson, 2002; Mulvey & Kavalam, 2010; Zaltman, 1997, 2003; Zaltman & Coulter, 1995).

FIGURE 1: Aggregate Map of Mental Models



All interviews were conducted and transcribed in German, we only translated the excerpts for this paper. To grant anonymity, the participants' real names were replaced by pseudonyms. All 874 single-spaced pages of transcripts were imported into Atlas.ti 7.0, a software program specifically designed for qualitative data analysis. We analyzed the data following the grounded theory approach of open, axial, and selective coding (Strauss & Corbin, 1998). First, we identified the thoughts and feelings outlined in each interview and labeled these with corresponding codes. During the process of analysis, we further elaborated and modified the code list by merging, renaming, and complementing codes. Moreover, we linked those codes the interviewees noted as interrelated. Additionally, we generated mental maps for each narrative (Christensen & Olson, 2002). These proved to be very useful, helping participants identify relevant themes and their interrelations and discern coherence between them. Consequently, these mental maps are not produced "without an uncodifiable creative

leap" (Langley, 1999, p. 691; see also Suddaby, 2006). At the end, we identified four major mental models with their categories and subcategories (Figure 1).

FINDINGS

Our analysis revealed four major mental models that each dominated a group of narratives and thus defined a type of decision-maker: the relational, the adventurer, the idler, and the utilitarian. Each model will be presented in detail below and will be further substantiated by recent youth studies.

Relational mental model

Students applying a relational mental model are firmly embedded in their social surroundings with strong emotional ties to their family and friends. For relationals it is imperative to maintain these relationships and stay within an established social environment. These students strive for feelings of safety, comfort, and stability and fear being challenged by the life changes they associate with going to university. Overall, the relational students expressed low self-esteem and had little confidence in themselves and their capabilities. Therefore, they do their best to avoid risks, uncertainty, and novelty.

Relational students specifically stand out due to their anxious, insecure, and self-conscious personality, showing a comparatively high degree of neuroticism (Aiken, 2000; Barrick & Mount, 1991; John, Naumann, & Soto, 2008; McCrae & John, 1992). In contrast to students displaying the adventurer mental model, their bent for adventurousness and their openness to experience is low (Mõttus, Pullmann, & Allik, 2006; Roccas, Sagiv, Schwartz, & Knafo, 2002; Saum-Aldehoff, 2007). Altogether, they appear to be rather introverted (De Fruyt, Van De Wiele, & Van Heeringen, 2000; Saum-Aldehoff, 2007). To draw a parallel with socio-cultural groupings, relational students resemble conservative-bourgeois youths who express an urge for safety and security, fear change, and stick to habits, structures, and established environments (Calmbach, Thomas, Borchard, & Flaig, 2011).

The university choice process of relational students is strongly affected by their anxiety. Some are afraid of being overstrained by the new situation and the great demands studying will make on them. This anxiety might be caused by the great pressure they already perceived in school (Albert, Hurrelmann, & Quenzel, 2011; Calmbach et al., 2011). The relationals are frightened by the university's expectations, as the next step on the education ladder. Others, on the other hand, worry about feeling lonely. Leaving their family and friends as well as the idea of the first day at university without knowing anyone frightens them inordinately.

TABLE 1: Overview of Mental Models

Students' Mental Models	**Relational**	**Adventurer**	**Idle**	**Utilitarian**
Students applying this mental model…	*have strong emotional ties to their social network they want to maintain.*	*want to enjoy their newly gained independence.*	*want to take the path of least effort.*	*are searching for an organization that matches their personality.*
Students are searching for	- Connection to family and friends - Institution near home - Familiarity (location, people, institution) - Security - Stability - Coziness - Soothing - Sense of belonging	- Novelty - Independence - Freedom - Autonomy - Own life to reach maturity - Excitement - Distraction - Anonymity - Big city - Big university - Diversity - Internationality	- Settled housing situation - Family connection - Familiar environment - Average admission requirements	- Reputation - High quality teaching - Support (personal development, job preparation) - Flexible subject choice options - Comparable clientele - Wooing marketing activities
Students try to avoid	- Loneliness - Novelty - Uncertainty - Being overtaxed - Moving	- Being controlled - Boredom - Monotony - Family connection - Familiarity	- Effort - Loneliness - Too much novelty	- Mediocrity - No support and appreciation - Arrogant clientele - Limited flexibility
Relevance of university profile	Low	Low	Low	High
Personality traits*	- Neuroticism (++) - Openness to experience (--) - Extraversion (-)	- Openness to experience (++) - Extraversion (+)	- Conscientiousness (--) - Neuroticism (++) - Extraversion (-) - Agreeableness (-)	- Conscientiousness (+)
Comparable socio-cultural group	Conservative-bourgeois	Explorative	Ambiguous, tendency towards experimentalist-hedonistic	Adaptive-pragmatic

* ++ = very high; + = high; - = low; -- = very low

According to several studies, a close relationship to family and peers is a moral concept held by the majority of youth today. For them, the family is more important than for almost any previous generation. The family is a source of strength and emotional support and this is something they do not want to miss (Albert et al., 2011; Ecarius, Eulenbach, Fuchs, & Walgenbach, 2011; Stein & Stummbaum, 2011). Simultaneously, peers are important attachment figures comparable to parents and siblings (Albert et al., 2011; Ecarius et al., 2011). When faced with serious problems young people predominantly seek advice from their friends and their parents (Albert et al., 2011). Thus, they primarily seek institutions as near as possible to their hometown. To study nearby enables them to keep up the personal contacts important to them.

> I was afraid to go far away from my family, far away from my friends, worried I wouldn't make friends there, like on a desert island and that was a bit like, I was afraid of that… (Ashley)

> I didn't want the pressure of settling in a new town, socializing and getting used to living alone, *on top of* the new course, everything I need to achieve there, the new university and everything combined, that would have been too much for me, I guess. (Amy)

Another positive effect of staying at home is the familiarity of the environment. Knowing the city with its appearance, infrastructure, lifestyle, and ideally even knowing the university itself generates feelings of security, stability, and coziness. The pursuit of security is one of the most highly rated aspects for adolescents and it is far more important to young people today than it was to preceding generations (Stein & Stummbaum, 2011). Not having that pressure to adapt their whole lives has a very soothing effect on relational students. They are reassured in the knowledge that they can handle everyday life and can therefore face the new, unpredictable, and extraordinary aspects of university life more easily. In particular, it is the implicit emotional support they receive from family and friends that helps them to handle the overwhelming situation of university choice and to take the plunge into academic life. They may even overlook below-average reputation and study conditions at their chosen university if they can maintain their existing life and social relations.

> Yes, being close by is ideal because it means I can go home easily but also because, well, everything is familiar. I came to Hamburg several times before I started studying, I already knew the city, it's something familiar, which again is an oasis of tranquility, when I come here, everything is new, with the university and you simply know: oh, thank goodness, but you know where you need to go for shopping, to the authorities to register your change of address, then you already have seen it from the outside, that's just something familiar, however simultaneously I still have the chance to get back to the well-known, meaning to home… (Florence)

> I chose the location of Lüneburg (…) just because I feel safe there. That's because I know Lüneburg, or the old town and I know Lüneburg itself, the city and because it's within striking distance of my

> hometown Uelzen. This means I can slowly develop my life here little by little, but whenever problems occur, I can still easily go home and get help or advice, not just by phone, but in person. (John)

The comparative low self-confidence revealed by relational students means they do not dare embark on a completely new and independent life. The idea of living on their own is beyond their imagination because they do not believe themselves capable of doing so. Therefore, they try to avoid moving out or plan to move in with their partner. Both alternatives equate living with others, implicitly offering practical as well as emotional support. This explanation differs from the common reasons for staying at 'Hotel Mum'. Usually, financial constraints or the comfort of all parties are stated as justification for not moving out yet (Albert et al., 2011). Interestingly, relational students mentioned that during the decision-making process, they perceived the social expectations of cutting the cord with their parents and moving out to reach adulthood and independence. Even though they first tried to meet these expectations by expanding their search for alternatives, in the end they reconsidered their own personal values and needs and ignored this external interference.

> Because I've never really been away from home, except for holidays, but otherwise I've really never been away and so in the end I didn't dare to do it. (Barbara)

> I always thought I need to do that because that's the way to do it. Because that's just as it should be, that's what society wants, it's predetermined. So, many of my friends thought like that, although they didn't go in the end either, but many of them thought: yes, you leave home, move out to live somewhere far away, in a cool city. I guess that's what swayed me the whole time but to be honest, I don't need that yet, I don't feel prepared for it… (Ashley)

All in all, the group of relational students matches the description of male youths in a German study about adolescents (Wippermann & Wipperman, 2007). By contrast, females in this study are described as being optimistic, self-confident and motivated to start their own, independent life. These attributes rather correspond to the adventurer mental model. In our study, these differences are not gender specific as both sexes expressed relational and adventurer mental models respectively. The urge for security and belonging expressed intensely by the relational students is a general social trend (Calmbach et al., 2011). Hence, it is not surprising that this mental model was the most distinctive in our study.

Adventurer mental model

Adventurer students can be considered as the counterpart to relational ones. For them, it is essential to discover something new, to cut the cord and gain freedom and independence. They urgently want to leave their known environment and start a new chapter in their lives. Staying at home with their parents is inconceivable for these students. They are planning to start their own lives on the path to maturity. However, keeping a considerable distance

between the university location and home would not suffice to satisfy adventurer students. The place they are searching for needs to be a big city offering substantial leisure time activities and cultural diversity as well as a large university. Their goal is to live and study in an environment offering adequate distraction from the exhausting learning activities ahead.

In contrast to relational ones, students revealing an adventurer mental model can be characterized as having a strong sense of adventure, great curiosity and, thus, an openness to new experiences (Barrick & Mount, 1991; McCrae & John, 1992; Mõttus et al., 2006; Saum-Aldehoff, 2007). They are rather extroverted as they seek both excitement and novelty and are highly sociable even though they enjoy being alone from time to time (De Fruyt et al., 2000; John, Robins, & Pervin, 2008; McCrae & John, 1992; Roccas et al., 2002; Saum-Aldehoff, 2007). The urge for freedom and independence, the desire to leave the parental home and the wish to broaden their own horizon are all in line with an exploratory socio-cultural group. Likewise, young people in this group appreciate the cultural options and vast opportunities they associate with metropolises (Calmbach et al., 2011).

As observed with relational students, young people perceive there to be a social expectation on them to take the plunge into a self-determined, independent life when starting to study. This notion is sometimes reinforced by parents who recommend their children use this point in time to start their own lives. While relational students do not dare to do so, adventurer students impatiently look forward to it. While their parents' generation grew up with the ideas of 1968, namely conflictual, early separation from the family, today escaping the parental house rather is an exception. In this respect and contrary to perceived social expectations, adventurer students do not represent the "normal attitudes" of young people in their age group but are, in fact, in a minority (Albert et al., 2011). They have a strong desire to move away in order to escape from the control of their family and want to learn to stand on their own two feet. They no longer want to be dependent on their parents, not just in financial terms. For them, it is important to have their own space and learn how to handle everyday life independently. Making decisions on their own without the need to justify or discuss them with their parents is another relevant aspect for these students. This aspiration is in line with a generally noticed tendency of increasing independence amongst adolescents (Ecarius et al., 2011; Stein & Stummbaum, 2011). Although the separation process is sometimes accompanied by conflict because of financial strains or because the parents struggle to let go, in the end all students can count on their parents' assistance and rely on them for key support.

> So it was important for me to live alone, settle my own affairs independently and start to stand on my own two feet. And simply to fly the nest. (Iris)

> …and I wanted to move out, away from my parents and that wouldn't have been possible in Berlin, I mean I could have rented an apartment somewhere but I would never have gotten out completely. (Vera)

Besides this wish to detach from their parents, adventurer students want to leave the monotony and boredom of their former lives. Regardless of whether they were living in a village, town, or metropolis until that point, they strive for a new environment they can discover and create for themselves. However, this new place needs to meet one key condition: it needs to be big. Adventurer students associate large cities with large public universities. Private institutions and universities of applied science are not considered serious options for them. They value both aspects, the large city and the university, for their high degree of excitement, internationality, and diversity. Another relevant factor is the anonymity they attach to this environment. Unlike relational students, adventurers do not strive for a cozy atmosphere where they can meet each other every now and again. They occasionally enjoy being lost in the masses and that sense of freedom where no one is watching you. Again, this assessment is in line with explorative youths who appreciate being on their own from time to time (Calmbach et al., 2011).

> And I definitely wanted to go to a place I'd never seen before. After doing my civilian service in Stuttgart I didn't want to go back there again because I'd been there before. I just wanted something completely new. (Scott)

> Yes, well, my concern was I had grown up in a town of 100,000 inhabitants. That was all very nice, but somehow I was bored there and for me it was always clear I wanted to study in a big city because I think if you want to experience this city life, which I find quite fascinating, and want to live in such a big city, you really have to do it when you're a student because later on, you know, you might have family and so on. Then it won't be the same, which is why I thought I somehow definitely need to go to a big city like this because I'm just thrilled by it. (Iris)

> Being in a big city is very important for me and I quite like that anonymity of big cities, which many people see as negative, somehow I'm just used to it and I don't find it too bad sometimes, just being part of the crowd, I don't need to stand out. (Vera)

As all students revealing the adventurer mental model have a German grade point average between 1.7 and 1.9[1], they would have had realistic chances of being admitted to one of the big and popular universities with a correspondingly high numerus clausus[2]. However, reports in the media as well as suggestions from their friends regarding rising numbers of applicants made them feel uncertain. Nonetheless, the institutions they applied for were predominantly located in big, subjectively interesting cities. Alternative applications always only served as stopgaps. Accordingly, all students in this group are studying in Hamburg.

Idle mental model

The decision-making process of students revealing an idle mental model is strongly dominated by the desire to choose the easy option. These students are not very conscientious as they do not strive for achievement and show a low degree of diligence, initiative, and ambition (Barrick & Mount, 1991; De Fruyt et al., 2000; Digman, 1990; Saum-Aldehoff, 2007). Furthermore, they tend towards neuroticism and introversion as they express fears of loneliness and losing links with their social network (Barrick & Mount, 1991; Saum-Aldehoff, 2007). Thus, their thoughts and feelings resemble those of relational students to some degree. However unlike relational ones, they show a higher degree of self-assurance. They are confident of being able to handle new situations while not aiming for these. Their expressed self-image is very positive and slightly disparaging remarks about loathed persons, things, or tasks sometimes even create an impression of arrogance. Accordingly, these students are the least agreeable of the whole sample (Barrick & Mount, 1991).

Attempts by idle students to avoid effort are expressed in different ways and are not only limited to their choice of institution. Avoidance of effort also appeared manifest in their choice of subject. One way to satisfy this need to minimize effort is to search for a settled housing situation in a familiar city. Apart from the most obvious option of staying at home, they would also be satisfied with staying with relatives or in an apartment owned by the family. The prospect of having a place to live without the need to fight for it with hundreds of other freshmen, combined with ties to the (extended) family satisfies their most important needs: best possible avoidance of effort plus maintenance of social relationships. Familiarity with the city from a previous occasion is rated positively since there is no need to adapt to a new environment.

> L: I don't know, somehow the discussion about whether I'm moving out hasn't really come up, so I just thought: go for the easy option.
>
> I: But in Marburg you would have had to move out as well.
>
> L: Sure, but I could have the attic apartment at my grandmother's place that's been empty for some time, I could have easily moved in there. (Lennox)

> I: When you say: "Who would want to go to the 'Ruhrpott' (Ruhr Area)?" what do you mean by this?
>
> C: First of all it's so much more work. As I said, here I have a place. I can live here fine without any problems. And there I know it will be hard to find an apartment right before the start of the semester. (Connor)

Although the idle students did not have the worst grades of the whole sample, none in this group were high-performing pupils. Obviously, their attitude of just working enough to get by was already evident in school. Accordingly, they look for institutions with average admission

requirements, automatically limiting their options. Interestingly, however, universities with very low or no numerus clausus are rated too negatively to be considered seriously. On the other hand, having the option of going to a prestigious institution is appealing to them as it supports their sense of self-worth.

> They had a low NC [numerus clausus]. 2.3 or the like. So, not so weak that I immediately thought: okay, this is a dumping ground… (Connor)

> I thought if there are only 10, 12, or 13 elite universities in Germany and Bremen is one of them and I will go there, that wouldn't be bad. (Leilah)

The scope of information the idle students took into consideration corresponded with their general attitude. They spent a limited amount of time and effort on their search for information, started late, and worked with unchecked assumptions leading to misjudgments. Encountering this kind of attitude came as a surprise as youth studies find adolescents in their age group and with their level of education to be very diligent and ambitious (Albert et al., 2011; Calmbach et al., 2011). In line with their socio-cultural classification, all the other groups identified specifically set themselves apart from less performance-oriented, lazy adolescents (Calmbach et al., 2011). Accordingly, only a few participants in our sample displayed this kind of mental model.

Utilitarian mental model

Students with a utilitarian mental model are highly interested in finding a university profile matching their personality. They expect the university to foster their personal development and prepare them for their future career. In contrast to the other groups, utilitarian students focus on the institution itself, the city it is located in is of less significance for them. They are attracted by reputable universities and flexible choice options. The target group or clientele attracted by the institution is of importance to them as well.

Utilitarian students are more future-oriented than the other types. Accordingly, they can be described as more conscientious as they act in a more mapped-out, organized manner (Barrick & Mount, 1991; McCrae & John, 1992; Roccas et al., 2002). Altogether, they bear some resemblance to a socio-cultural group of adaptive-pragmatic youth. These adolescents are characterized as having foresight and determination. They feel studying alongside students from a similar target group is important for their learning environment and are guided by a utility calculation regarding their plans for the future (Calmbach et al., 2011).

With regard to the reputation of the university, utilitarian students primarily focus on a good reputation in teaching and student support. The quality of research is rated as being unimportant for them. However, a generally high reputation of the institution is equated with

better job prospects. To assess the reputation, several information sources are used. Besides rankings, they particularly rely on statements made by friends. Utilitarian students expect the university of their choice to foster their own personal development and to prepare them for their future career. Personal development rates highly among young people at university entry age (Stein & Stummbaum, 2011). In line with their vocational focus, utilitarian students submitted considerably more applications to universities of applied science than students in the other groups.

> For me it's important the university offers a high standard, of teaching I mean (…) a level to meet my needs, especially because I didn't have this before, and this will help me to go my own way later on. (Travis)

> I found the Leuphana and I had some friends studying here, who recommended it to me. And that was a direct hit, so to speak, I mean exactly what I was looking for. (Lance)

Since utilitarian students seek an institution suited to their personality, they expect to find comparable clientele there. Even though they seek an extraordinary environment, the impression of arrogant fellow students aiming for elite status and behaving as if they are superior acts as a deterrent. Instead, utilitarian students are interested in finding a high degree of flexibility, specifically concerning subject choice options. This makes them feel able to match the course of study to their personal interests and needs. Accordingly, they expect to find fellow students with similar interests and personalities.

> …and within the university itself General Studies is an established subject. Of course, I can also study this at a normal university but here it's a part of the university's mission statement. Which is why I think people wanting this focus also come here. And that's also why I think this is a suitable environment for me. (Travis)

Students with the utilitarian mental model like to be wooed by the university and enjoy feeling wanted and special. They were the only ones to admit their decision was considerably affected by the advertising material of their chosen university. The perceived lack of interest in them conveyed by institutions limiting their communication efforts to a standard formula or not even that, clearly played into the hands of the more responsive universities.

> …when I got accepted they sent a big admissions pack. This really made me feel welcome. Like a big door opening saying: "Come in please!" (…) And it was designed really nicely too, I mean, I liked everything about it. While with [University of] Göttingen it was just a letter, I didn't hear anything else from them. Basically, it was really just a letter. (Jessica)

In the utilitarian segment, only students of business administration were found. This might be due to the fact that the grouping was based on choice of university. Students choosing teacher training programs also used utility considerations, specifically concerning job preparation and security, on the level of subject choice. Even though they rated the quality of

support regarding job preparation differently for the various institutions, this factor was no longer the decisive one when it came to actual choice of university.

Each identified group displayed a cross-section of socio-demographic characteristics such as gender, age, and educational background (see Table 2). In each segment, a number of parents held university degrees while at least one per group held a doctorate or even professorship. Student ability level, rated on the basis of the grade point average, was also evenly distributed across all groups. Even though all adventurer students had grades above 2.0, better grades were displayed in both the relational and the utilitarian group. With the exception of the utilitarian segment, both subjects (i.e. business administration and teacher training) examined were represented in all groups.

DISCUSSION

This study shows that in contrast to prevailing literature on university choice that emphasizes a choice process guided by generalized preferences and prominent selection criteria, our findings of a qualitative in-depth study based on the Zaltman Metaphor Elicitation Technique (ZMET) reveals a very different picture. By extracting and identifying shared mental models that reflect students' sense making processes, we offer an alternative explanation of student's university choice. This alternative explanation regards understanding the meaningful aspects influencing the choice of a university as imperative. The four underlying mental models – the relational, the adventurer, the idler, and the utilitarian – help us to achieve a more holistic understanding of the students' system of meaning used for interpreting marketing signals. Our study extends previous research in this field in a number of ways. Firstly, since ZMET makes it possible to identify rational and emotional aspects as well as their interrelations we achieve a more accurate understanding of how prospective students make sense and choose their institution of preference. Specifically, we suggest that a mental models approach can help to resolve some contradictory findings in existing studies by offering an alternative explanation. Secondly, the mental models approach proposes a new type of market segmentation that enables universities to design their communication strategies in a way that is more suitable to students' system of meaning.

TABLE 2: Participants' Demographics and Mental Models

Mental Model	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Applications	Parental Educational Qualifications
Relational	Amy	Female 20	Hamburg	Teacher Training	1.9	*Universities*: Bremen, Hamburg, Lüneburg	*Mother*: Vocational Training *Father*: Dual Course of Study
	Ashley	Female 19	Lüneburg	Teacher Training	2.3	*Universities*: Bamberg, Cologne, Hamburg, Leipzig, Lüneburg, Munich (LMU)	*Mother*: Vocational Training *Father*: University Diploma, First State Examination
	Aaron	Male 21	Lüneburg	Teacher Training	3.0	*Universities*: Bremen, Hamburg (HCU, UHH, TUHH), Kiel, Lüneburg, Wismar *Polytechnic*: Bremen, Hamburg (HAW), Kiel, Lübeck	*Mother*: None *Father*: Vocational Training
	Barbara	Female 18	Hamburg	Teacher Training	2.1	*Universities*: Bremen, Düsseldorf, Flensburg, Hamburg, Lüneburg, Rostock	*Mother & Father*: None
	Florence	Female 20	Hamburg	Teacher Training	1.6	*Universities*: Flensburg, Hamburg, Lüneburg, Rostock	*Mother*: Vocational Training *Father*: Dual Course of Study
	Julian	Male 20	Lüneburg	Business Administration	2.8	*Universities*: Frankfurt/Oder, Göttingen, Kassel, Klagenfurt, Lüneburg, Marburg, Münster, Vienna *Polytechnic*: Heidenheim, Münster	*Mother*: Vocational Training *Father*: State Examination
	John	Male 20	Lüneburg	Business Administration	1.7	*Universities*: Bremen, Hamburg, Hannover, Kiel, Lüneburg *Polytechnic*: Wernigerode	*Mother*: Vocational Training *Father*: University Diploma
	Maria	Female 30	Hamburg	Teacher Training	3.1	*Universities*: Hamburg, Lüneburg	*Mother*: Vocational Training *Father*: Professor

TABLE 2: Continued

Mental Model	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Applications	Parental Educational Qualifications
Relational	Megan	Female 23	Lüneburg	Teacher Training	1.9	*Universities*: Flensburg, Lüneburg	*Mother*: Vocational Training *Father*: University Diploma
	Naomi	Female 21	Hamburg	Business Administration	1.6	Universities: Cologne, Düsseldorf, Freiburg, Hamburg, Münster *Polytechnic:* Hamburg (HAW)	*Mother*: University Diploma *Father*: Bachelor's or Master's Degree
	Sabrina	Female 21	Lüneburg	Teacher Training	3.3	*Universities*: Braunschweig, Hildesheim, Lüneburg, Münster, Oldenburg, Wuppertal	*Mother & Father*: Vocational Training
	Simon	Male 21	Lüneburg	Business Administration	1.8	*Universities*: Hamburg, Lüneburg	*Mother & Father*: Vocational Training
	Vicky	Female 18	Lüneburg	Teacher Training	2.3	*Universities*: Braunschweig, Bremen, Erfurt, Halle/Saale, Hannover, Hildesheim, Lüneburg, Münster, Oldenburg, Rostock, Vechta	*Mother & Father*: Vocational Training
	Violet	Female 20	Lüneburg	Teacher Training	2.5	*Universities*: Flensburg, Hamburg, Lüneburg	*Mother*: Vocational Training *Father*: University Diploma
Idler	Connor	Male 19	Hamburg	Business Administration	2.1	*Universities*: Bayreuth, Göttingen, Hamburg, Siegen	*Mother & Father*: Doctorate
	Leilah	Female 21	Lüneburg	Teacher Training	3.0	*Universities*: all in all approx. 20-25 universities; *Serious applications*: Bremen, Groningen, Hamburg, Lüneburg	*Mother*: University Diploma *Father*: Vocational Training
	Lennox	Male 22	Lüneburg	Business Administration	2.9	*Universities*: Hamburg, Lüneburg, Marburg	*Mother & Father*: Vocational Training

TABLE 2: Continued

Mental Model	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Applications	Parental Educational Qualifications
Adventurer	Iris	Female 19	Hamburg	Business Administration	1.9	*Universities*: Cologne, Hamburg, Münster, Munich, Regensburg, Saarbrücken, Trier	*Mother*: University Diploma *Father*: Doctorate
	Nora	Female 21	Hamburg	Teacher Training	1.7	*Universities*: Berlin (FU, HU), Bremen, Greifswald, Hamburg, Lüneburg	*Mother & Father*: Vocational Training
	Scott	Male 21	Hamburg	Business Administration	1.9	*Universities*: Bremen, Berlin, Cologne, Düsseldorf, Duisburg-Essen, Hamburg, Kiel, Trier, Halle/Saale, Jena *Polytechnic*: St. Augustin	*Mother & Father*: Vocational Training
	Vera	Female 18	Hamburg	Teacher Training	1.8	*Universities*: Berlin (FU, HU), Bielefeld, Bonn, Dortmund, Duisburg-Essen, Erlangen-Nürnberg, Frankfurt/Oder, Hamburg, Munich (LMU), Passau, Potsdam, Rostock	*Mother*: Vocational Training *Father*: University Diploma
Utilitarian	Jessica	Female 22	Lüneburg	Business Administration	2.0	*Universities*: Cologne, Göttingen, Hamburg, Hannover, Lüneburg, Marburg *Polytechnic*: Heidelberg	*Mother*: Doctorate *Father*: Vocational Training
	Kimberly	Female 19	Lüneburg	Business Administration	1.9	*Universities*: Bielefeld, Bochum, Bremen, Cologne, Düsseldorf, Frankfurt/Main, Frankfurt/Oder, Göttingen, Hamburg, Hannover, Leipzig, Lüneburg, Magdeburg, Munich (LMU), Münster *Polytechnic*: Bielefeld, Reutlingen	*Mother*: Vocational Training *Father*: University Diploma

TABLE 2: Continued

Mental Model	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Applications	Parental Educational Qualifications
Utilitarian	Kelly	Female 20	Hamburg	Business Administration	2.2	*Universities*: Hamburg *Polytechnic*: Dresden, Flensburg, Hannover, Münster, Heide	*Mother & Father*: Vocational Training
	Lacey	Female 20	Lüneburg	Business Administration	1.6	*Universities*: Osnabrück, Lüneburg, Mannheim, Münster *Polytechnic*: Osnabrück	*Mother & Father*: University Diploma
	Lance	Male 20	Lüneburg	Business Administration	2.3	*Universities*: Göttingen, Hamburg, Lüneburg	*Mother*: University Diploma *Father*: Vocational Training (Master)
	Travis	Male 21	Lüneburg	Business Administration	1.3	*Universities*: Bochum, Cologne, Göttingen, Lüneburg, Münster	*Mother & Father*: Vocational Training

Resolving inconsistent findings in previous studies

We believe the mental models presented in this paper are more generally applicable beyond our sample of interviewees. To underpin our conclusion, these four mental models help to clarify open issues and contradictions in existing university choice research, as discussed below. While previous studies on choice criteria contributed to our understanding of university choice, their findings are in part somewhat contradictory and ambiguous. Although some factors like the institutions' reputation, the location, financial considerations and the subjects offered by the university seem to be the most prominent criteria, a clear order of priority cannot be compiled because the ranking of the variables differs significantly in existing studies (Obermeit, 2012). For instance, many studies generally rate the importance of a good academic reputation as being high (Kim & Gasman, 2011; Maringe, 2006; Pampaloni, 2010; Teranishi et al., 2004). In contrast, (Hoyt & Brown, 2002) did not find supporting evidence. Similarly, and in contrast to a number of studies (Briggs, 2006; Kim & Gasman, 2011; Scheller et al., 2013; Tierney, 1983), Hachmeister et al. (2007) found that distance to home is not rated as one of the top decision criteria.

Beyond this, contradictory results emerged. While Cosser and du Toit (2002) reported that sports programs have a greater impact on the university choice of African-American students over other ethnic groups, Wiese et al. (2010) found the opposite. Furthermore, while the latter study found no significant racial distinction in terms of financial aid, other research shows that African-American students are more affected by this than their White counterparts (Hoyt & Brown, 2002; Litten, 1982; St. John & Noell, 1989).

Our mental models approach suggests that these inconsistencies are no surprise. Mental models mediate more general choice criteria. For instance, the distance from home as one of the most crucial factors identified in existing research (Briggs, 2006; Kim & Gasman, 2011; Tierney, 1983) is of capital importance for the relational and the adventurer. However, the rating of this factor differs significantly. While for the relational student the goal is to keep the distance as small as possible in order to reach a maximum of familiarity and avoid feelings of loneliness and overstraining, adventurers pursue the opposite. As they are searching for freedom and independence, they seek distance allowing them to move out and escape from the control of their parents. Kim and Gasman (2011) identified the same characteristics in their study of Asian-American students' college choices. In the articles of Briggs (2006) and Scheller et al. (2013), students from distinct subjects rated the distance from home very differently. This was not the case in our study. In the work of Hachmeister et al. (2007), proximity to home was rated as being less important than in other studies. It is likely that their

interviewed sample predominantly consisted of adventurer students. Since previous studies do not take students' mental models into consideration, we can only assume that participants with differing mental models were unevenly distributed.

Segmenting markets based on mental models

Segmenting higher education markets is a frequent topic for university marketers and the ability to do so is attributed to improved marketing strategies and student recruitment success. Segmentation aims at matching costumer preferences and needs with marketing strategies (Kotler & Armstrong, 2008). This match, however, is often difficult and research on university choice has developed tools of limited value. Those studies aimed at gaining insights into the institutional choice of specific target groups rely on a socio-demographic segmentation approach. Socio-demographic data is comparatively easy to access and differing insights for specific groups are a useful basis for deriving political implications such as gender diversity.

In terms of marketing communication, however, this kind of segmentation is rather problematic (Christensen, Cook, & Hall, 2005; McDonald & Dunbar, 2010) because making sense of communicative action does not depend on socio-demographics (Puntoni, Schroeder, & Ritson, 2010), but, as our study suggests, on mental models. For instance, in the study of Teranishi et al. (2004) affluent students rate the relevance of the institutions' academic reputation higher than their low-SES peers. By contrast, in our study, a good reputation is only a decisive factor for students with a utilitarian mental model, which cuts across different SES groups. For them, the prestige of the institution is synonymous with commensurate support in personal development and career preparation. At the same time, a good reputation evokes pride and the feeling of being special. Hence, universities communicating their outstanding reputation and "excellence" only deliver a meaningful message for one group. For the others, this information is either noise that is ignored when making their choice or, in the worst case scenario, it actually prevents candidates from applying. From a mental models perspective, marketing communication has to manage meaning in such a way that prospective students are attracted by the university's recruitment efforts. Yet, our findings suggest that student meaning systems vary significantly across the relational, the adventurer, the idle, and the utilitarian type. Each type represents a different meaning community – a group of people sharing the task of choosing a university and sharing the same mental model with respect to that activity.

Consequently, we believe that a mental models approach is a useful foundation for market segmentation. By revealing the shared meaning of one group that differs from the others, a

meaningful, consumer-centric segmentation strategy can be developed (Christensen & Olson, 2002; Ringberg, Odekerken-Schroeder, & Christensen, 2007). A university interested in communicating meaningful messages to their audience should therefore alter their segmentation to mental models.

We hope that this paper stimulates more research in this direction and helps practitioners better understand and create meaningful communication strategies.

NOTES

1. German grading system: 1.0 = excellent; 6.0 = unsatisfactory.
2. The numerus clausus is a restrictive admission requirement independently set by each university. Popular subjects and universities have a high numerus clausus, meaning students need very good grades to be admitted.

REFERENCES

Aiken, L. R. (2000). *Personality: Theories, Assessment, Research, and Applications*. Springfield: Charles C Thomas.

Albert, M., Hurrelmann, K., & Quenzel, G. (2011). *Jugend 2010: Eine pragmatische Generation behauptet sich*.(2 ed.). Frankfurt am Main: Fischer Taschenbuch Verlag.

Allen, D. E. (2002). Toward a Theory of Consumer Choice as Sociohistorically Shaped Practical Experience: The Fits-Like-a-Glove (FLAG) Framework. *Journal of Consumer Research, 28*(4), 515-532.

Barrick, M. R., & Mount, M. K. (1991). The Big Five Personality Dimensions and Job Performance: A Meta-Analysis. *Personnel Psychology, 44*(1), 1-26.

Bradshaw, G., Espinoza, S., & Hausman, C. (2001). The College Decision-Making of High Achieving Students. *College & University, 77*(2), 15–22.

Briggs, S. (2006). An exploratory study of the factors influencing undergraduate student choice: the case of higher education in Scotland. *Studies in Higher Education, 31*(6), 705–722.

Brown, C., Varley, P., & Pal, J. (2009). University course selection and services marketing. *Marketing Intelligence & Planning, 27*(3), 310–325.

Calmbach, M., Thomas, P. M., Borchard, I., & Flaig, B. (2011). *Wie ticken Jugendliche? Lebenswelten von Jugendlichen im Alter von 14 bis 17 Jahren in Deutschland*. Düsseldorf: Verlag Haus Altenberg GmbH.

Carson, D., Gilmore, A., Perry, C., & Gronhaug, K. (2001). *Qualitative Marketing Research*. London: Sage.

Chapman, D. W. (1981). A Model of Student College Choice. *The Journal of Higher Education, 52*(5), 490–505.

Chapman, R. G. (1986). Toward a theory of college selection: A model of college search and choice behavior. *Advances in Consumer Research, 13*, 246–250.

Christensen, C. M., Cook, S., & Hall, T. (2005). Marketing malpractice: The cause and the cure. *Harvard Business Review, 83*(12), 74-83.

Christensen, G. L., & Olson, J. C. (2002). Mapping Consumers' Mental Models with ZMET. *Psychology & Marketing, 19*(6), 477-502.

Cosser, M., & du Toit, J. (2002). *From School to Higher Education? Factors affecting the choices of Grade 12 learners*. Cape Town: HSRC Publishers.

Coulter, R. A., Zaltman, G., & Coulter, K. S. (2001). Interpreting Consumer Perceptions of Advertising: An Application of the Zaltman Metaphor Elicitation Technique. *Journal of Advertising, 30*(4), 1-21.

D'Andrade, R. (1995). Schemas and motivation. In R. D'Andrade & C. Strauss (Eds.), *Human motives and cultural models* (pp. 23-44). Cambridge: Cambridge University Press.

Damasio, A. R. (1994). *Descartes' Error: Emotion, Reason and the Human Brain*. New York: G.P. Putnam's Son.

De Fruyt, F., Van De Wiele, L., & Van Heeringen, C. (2000). Cloninger's Psychobiological Model of Temperament and Character and the Five-Factor Model of Personality. *Personality and Individual Differences, 29*(3), 441-452.

Denzau, A. T., & North, D. C. (1994). Shared Mental Models: Ideologies and Institutions. *Kyklos, 47*(1), 3-31.

DesJardins, S. L., Dundar, H., & Hendel, D. D. (1999). Modeling the College Application Decision Process in a Land-Grant University. *Economics of Education Review, 18*(1), 117–132.

DeSousa, R. (1997). *The rationality of emotion*. Cambridge: MIT Press.

Digman, J. M. (1990). Personality Structure: Emergence of the Five-Factor Model. *Annual Review of Psychology, 41*, 417-440.

Dougherty, D. (1992). Interpretive barriers to successful product innovation in large firms. *Organization Science, 3*(2), 179-202.

Dunnett, A., Moorhouse, J., Walsh, C., & Barry, C. (2012). Choosing a University: A conjoint analysis of the impact of higher fees on students applying for university in 2012. *Tertiary Education and Management, 18*(3), 199-220.

Ecarius, J., Eulenbach, M., Fuchs, T., & Walgenbach, K. (2011). *Jugend und Sozialisation*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Eden, C. (1992). On the nature of cognitive maps. *Journal of Management Studies, 29*(3), 261-265.

Finne, Å., & Grönroos, C. (2009). Rethinking marketing communication: From integrated marketing communication to relationship communication. *Journal of Marketing Communications, 15*(2-3), 179-195.

Fleck, L. (1979). *Genesis and development of a scientific fact*. Chicago: The University of Chicago Press.

Galotti, K. M. (1995). A Longitudinal Study of Real-Life Decision Making: Choosing a College. *Applied Cognitive Psychology, 9*(6), 459–484.

Galotti, K. M., & Mark, M. C. (1994). How do High Scchool students structure an important life decision? A short-term longitudinal study of the college decision-making process. *Research in Higher Education, 35*(5), 589–607.

Gengler, C. E., & Reynolds, T. J. (1995). Consumer Understanding and Advertising Strategy: Analysis and Strategic Translation of Laddering Data. *Journal of Advertising Research, 35*(4), 19-33.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Cambridge: Harvard University Press.

Hachmeister, C.-D., Harde, M. E., & Langer, M. F. (2007). *Einflussfaktoren der Studienentscheidung: Eine empirische Studie von CHE und Einstieg*. Gütersloh: CHE Centrum für Hochschulentwicklung.

Helgesen, Ø. (2008). Marketing for Higher Education: A Relationship Marketing Approach. *Journal of Marketing for Higher Education, 18*(1), 50-78.

Hemsley-Brown, J., & Oplatka, I. (2006). Universities in a competitive global marketplace: A systematic review of the literature on higher education marketing. *International Journal of Public Sector Management, 19*(4), 316–338.

Hodgkinson, G. P., & Healey, M. P. (2011). Psychological foundations of dynamic capabilities: Reflexion and reflection in strategic management. *Strategic Management Journal, 32*(13), 1500-1516.

Holland, D., & Skinner, D. (1989). Prestige and intimacy: The cultural models behind Americans' talk about gender types. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought* (pp. 78-111). Cambridge: Cambridge University Press.

Holm, O. (2006). Integrated marketing communication: from tactics to strategy. *Corporate Communications: An International Journal, 11*(1), 23-33.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding Student College Choice. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Practice* (Vol. 5, pp. 213-288). New York: Agathon Press.

Hossler, D., & Gallagher, K. S. (1987). Studying Student College Choice: A Three-Phase Model and the Implications for Policymakers. *College & University, 62*(3), 207–221.

Hoyt, J. E., & Brown, A. B. (2002). *Marketing UVSC: How Prospective Students View the College*. Retrieved August 25, 2015, from https://www.uvu.edu/iri/documents/surveys_and_studies/collegechoice5.pdf.

Hundeide, K. (1989). The tacit background of children's judgments. In J. V. Wertsch (Ed.), *Culture, communication, and cognition: Vygotskian perspectives* (pp. 306-322). Cambridge: Cambridge University Press.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm Shift to the Integrative Big Five Trait Taxonomy. In O. P. John, R. W. Robins & L. A. Pervin (Eds.), *Handbook of Personality: Theory and Research* (pp. 114-158). New York: Guilford Press.

John, O. P., Robins, R. W., & Pervin, L. A. (2008). *Handbook of Personality: Theory and Research*.(3. ed.). New York: Guiltford Press.

Johnson-Laird, P. N. (1995). *Mental models: Towards a cognitive science of language, inference, and consciousness*. Cambridge, Massachusetts: Harvard University Press.

Kelly, G. A. (1991). *A Theory of Personality: The Psychology of Personal Constructs*. London: Routledge.

Kim, J. K., & Gasman, M. (2011). In Search of a "Good College": Decisions and Determinations Behind Asian American Students' College Choice. *Journal of College Student Development, 52*(6), 706–728.

Klimoski, R., & Mohammed, S. (1994). Team Mental Model: Construct or Metaphor? *Journal of Management, 20*(2), 403-437.

Kotler, P. (1976). Applying Marketing Theory to College Admissions. In C. E. E. Board (Ed.), *A Role for Marketing in College Admissions* (pp. 54–72). New York: College Entrance Examination Board.

Kotler, P., & Armstrong, G. (2008). *Principles of Marketing*.(Vol. 12). Upper Saddle River, NJ: Pearson Prentice Hall.

Lamnek, S. (2005). *Qualitative Sozialforschung: Lehrbuch*.(4th ed.). Weinheim: Beltz Verlag.

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review, 24*(4), 691-710.

Litten, L. H. (1982). Different Strokes in the Applicant Pool: Some Refinements in a Model of Student College Choice. *The Journal of Higher Education, 53*(4), 383–402.

Maringe, F. (2006). University and course choice - Implications for positioning, recruitment and marketing. *International Journal of Educational Management, 20*(6), 466–479.

McCrae, R. R., & John, O. P. (1992). An Introduction to the Five-Factor Model and Its Applications. *Journal of Personality, 60*(2), 175-215.

McDonald, M., & Dunbar, I. (2010). *Market Segmentation: How to do it, how to profit from it*.(4th ed.). Oxford: Goodfellow Publishers.

Moogan, Y. J., & Baron, S. (2003). An Analysis of Student Characteristics within the Student Decision Making Process. *Journal of Further and Higher Education, 27*(3), 271–287.

Moogan, Y. J., Baron, S., & Harris, K. (1999). Decision-Making Behaviour of Potential Higher Education Students. *Higher Education Quarterly, 53*(3), 211–228.

Mõttus, R., Pullmann, H., & Allik, J. (2006). Toward More Readable Big Five Personality Inventories. *European Journal of Psychological Assessment, 22*(3), 149-157.

Mulvey, M. S., & Kavalam, B. E. (2010). Mining deeper meaning in consumer decision maps. *Qualitative Market Research: An International Journal, 13*(4), 372-388.

Nuttall, P., Shankar, A., & Beverland, M. B. (2011). Mapping the Unarticulated Potential of Qualitative Research. *Journal of Advertising Research, 51*(1), 153-163.

Obermeit, K. (2012). Student's choice of universities in Germany: structure, factors and information sources used. *Journal of Marketing for Higher Education, 22*(2), 206-230.

Pampaloni, A. M. (2010). The influence of organizational image on college selection: what students seek in institutions of higher education. *Journal of Marketing for Higher Education, 20*(1), 19–48.

Puntoni, S., Schroeder, J. E., & Ritson, M. (2010). Meaning matters. *Journal of Advertising, 39*(2), 51-64.

Purr, M. (2010). *Hochschulwahl bei Wirtschaftswissenschaftlern: Warum BWL-Studenten eine bestimmte Hochschule wählen*. Reihe Sozialwissenschaften. Marburg: Tectum Verlag.

Quinn, N., & Holland, D. (1989). Culture and cognition. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought* (pp. 3-40). Cambridge: Cambridge University Press.

Ringberg, T., Odekerken-Schroeder, G., & Christensen, G. L. (2007). A cultural models approach to service recovery. *Journal of Marketing, 71*(3), 194–214.

Ringberg, T., & Reihlen, M. (2008a). Communication assumptions in consumer research: An alternative socio-cognitive approach. *Consumption Markets & Culture, 11*(3), 173–189.

Ringberg, T., & Reihlen, M. (2008b). Towards a Socio-Cognitive Approach to Knowledge Transfer. *Journal of Management Studies, 45*(5), 912-935.

Roccas, S., Sagiv, L., Schwartz, S. H., & Knafo, A. (2002). The Big Five Personality Factors and Personal Values. *Personality and Social Psychology Bulletin, 28*(6), 789-801.

Rook, D. W. (2006). Let's pretend: projective methods reconsidered. In R. W. Belk (Ed.), *Handbook of Qualitative Research Methods in Marketing* (pp. 143-155). Cheltenham: Edward Elgar Publishing Limited.

Saum-Aldehoff, T. (2007). *Big Five: Sich selbst und andere erkennen*. Düsseldorf: Patmos.

Scheller, P., Isleib, S., & Sommer, D. (2013). *Studienanfängerinnen und Studienanfänger im Wintersemester 2011/12*. Hannover: HIS Hochschul-Informations-System GmbH.

Schleef, D. (2000). "That's a Good Question!" Exploring Motivations for Law and Business School Choice. *Sociology of Education, 73*(3), 155–174.

Shore, B. (1998). *Culture in Mind: Cognition, Culture, and the Problem of Meaning*. New York: Oxford University Press.

Simões, C., & Soares, A. M. (2010). Applying to higher education: information sources and choice factors. *Studies in Higher Education, 35*(4), 371–389.

St. John, E. P., & Noell, J. (1989). The Effects of Student Financial Aid on Access to Higher Education: An Analysis of Progress with Special Consideration of Minority Enrollment. *Research in Higher Education, 30*(6), 563-581.

Stein, M., & Stummbaum, M. (2011). *Kindheit und Jugend im Fokus aktueller Studien*. Bad Heilbrunn: Verlag Julius Klinkhardt.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*.(2nd ed.). Thousand Oaks, California: Sage Publications.

Suddaby, R. (2006). What grounded theory is not. *Academy of Management Journal, 49*(4), 633-642.

Teranishi, R. T., Ceja, M., Antonio, A. L., Allen, W. R., & McDonough, P. M. (2004). The College-Choice Process for Asian Pacific Americans: Ethnicity and SocioEconomic Class in Context. *The Review of Higher Education, 27*(4), 527-551.

Terenzini, P. T., Cabrera, A. F., & Bernal, E. M. (2001). *Swimming Against the Tide: The Poor in American Higher Education*. New York: College Entrance Examination Board.

Thompson, E., & Stapleton, M. (2009). Making Sense of Sense-Making: Reflections on Enactive and Extended Mind Theories. *Topoi, 28*(1), 23-30.

Tierney, M. L. (1983). Student College Choice Sets: Toward an Empirical Characterization. *Research in Higher Education, 18*(3), 271–284.

Veloutsou, C., Lewis, J. W., & Paton, R. A. (2004). University selection: information requirements and importance. *The International Journal of Educational Management, 18*(3), 160–171.

Veloutsou, C., Paton, R. A., & Lewis, J. (2005). Consultation and reliability of information sources pertaining to university selection: Some questions answered? *International Journal of Educational Management, 19*(4), 279–291.

Vosniadou, S. (1994). Universal and culture-specific properties of children's mental models of the earth. In L. A. Hirschfeld & S. A. Gelman (Eds.), *Mapping the mind: Domain specificity in cognition and culture* (pp. 412-430). Cambridge, New York: Cambridge University Press.

Vrontis, D., Thrassou, A., & Melanthiou, Y. (2007). A contemporary higher education student-choice model for developed countries. *Journal of Business Research, 60*(9), 979–989.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the Process of Sensemaking. *Organization Science, 16*(4), 409-421.

Wiese, M., van Heerden, C. H., & Jordaan, Y. (2010). Ethnic group differences regarding choice factor importance in public higher education institution selection. *African Journal of Business Management, 4*(7), 1289-1298.

Wippermann, K., & Wipperman, C. (2007). *20-jährige Frauen und Männer heute: Lebensentwürfe, Rollenbilder, Einstellungen zur Gleichstellung*. Heidelberg: Bundesministerium für Familie, Senioren, Frauen und Jugend.

Zaltman, G. (1997). Rethinking Market Research: Putting People Back In. *Journal of Marketing Research, 34*(4), 424-437.

Zaltman, G. (2003). *How Customers Think: Essential Insights into the Mind of the Market*. Boston, Massachusetts: Harvard Business School Publishing.

Zaltman, G., & Coulter, R. H. (1995). Seeing the voice of the customer: Metaphor-based advertising research. *Journal of Advertising Research, 35*(4), 35-51.

NON-EXPERT REAL-LIFE DECISION-MAKING: DIFFERENT TYPES OF UNIVERSITY CHOICE PROCESSES

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ABSTRACT

A thorough understanding of students' university choice processes is essential for optimizing the recruitment strategies of higher education institutions. Previous research was frequently based on premises in accordance with sociological and rational choice theory. While the students' socio-cultural background has a strong impact on their choices in countries with high educational class differentials, it should only have marginal effects in less stratified contexts. Likewise, the idea of students that make well-informed choices in line with their clearly defined, stable preferences aiming to maximize their utility contradicts insights on real-life decision-making. Challenging previous research, we present empirically grounded alternative descriptions of university choice processes. By using in-depth-interviews with 27 first-year bachelor students in Germany, we revealed two distinct types of decision-makers with their corresponding choice strategies: the predetermined and the indecisive. The identified choice types provide us with detailed insights into the underlying decision-making logics and challenge the basic theoretical assumptions of previous research. Furthermore, they offer meaningful implications for marketing managers and higher education policy.

Keywords: university choice; choice process; decision-making; qualitative research

INTRODUCTION

Due to increasing competition on the higher education market, universities are encouraged to obtain a deeper comprehension of students' choice processes in order to gain competitive advantage in recruiting the best and most suitable students for their institution (Brown, Varley, & Pal, 2009; Maringe, 2006; Veloutsou, Lewis, & Paton, 2004). A better understanding of how applicants choose their universities is thought to help university marketers more accurately communicate with and attract their desired candidates.

In previous research, three approaches were adopted to understand university choice processes. The first takes the view that student's social and cultural capital predetermines the decision-making process (McDonough, 1998; Perna, 2006; Terenzini, Cabrera, & Bernal, 2001). According to the second, applicants make rational choices based on thoughtful considerations according to their clearly defined preferences taking into account all accessible information (DesJardins & Toutkoushian, 2005; Manski & Wise, 1983; Paulsen, 2001). A third approach combines these two perspectives by assuming that students' choices are principally driven by rational considerations but are affected by their socio-cultural background (Cabrera & La Nasa, 2000; Hossler, Braxton, & Coopersmith, 1989; Perna, 2006).

While the idea of well-informed students that make choices on the basis of a thorough consideration of arguments aiming to maximize their utility is appealing, it does not reflect reality. In contrast, real-life choices are characterized by incomplete information, indistinct and volatile preferences and intuitive judgements (Gigerenzer, 2008; Orasanu & Connolly, 1993). Simultaneously, the socio-cultural capital explains impacts on decisions but fails to give insights into the concrete choice strategies students use in order to take a decision. Moreover, while the students' background in countries with strong educational stratification indisputably frames their attitudes towards higher education and consequently their choices, it is unlikely to entirely explain the decisions made in contexts with low educational class differentials.

Aiming to address these shortcomings, this paper offers detailed, context considering descriptions of how students choose their university that deviate from previous studies. By interviewing 27 first-year students at two German universities in a non-directive, in-depth approach, we identified two types of decision-makers: the predetermined and the indecisive. Through these types, we gain a deeper understanding of the choice logics and concrete decision-making strategies used by university applicants. Additionally, they highlight the limits of sociological and rational university choice models as well as combinations based on

both approaches. In detail, we show that decisions are not made on the basis of a thorough evaluation of alternatives in accordance with preferences but instead intuitively. The postulations of a comprehensive consideration of all available information as well as the knowledge and stability of preferences do not find application by students choosing their university. Simultaneously, no dominant impact of the students' socio-cultural background on the choices made is revealed.

The paper is structured as follows: first we briefly review existing research on university choice processes. This is followed by a description of the method used. We then present the identified decision-making approaches students employ to choose their university. At the end, we discuss how these findings help to challenge the view of prospective students as socio-culturally predestined, rational decision-makers and give managerial implications for university marketers as well as higher education policy.

PREVIOUS RESEARCH

Considering the choices upon which the majority of literature on decision-making is based, the university choice is an extraordinary situation. Prospective students are non-experts as they usually cannot fall back upon experience with higher education and comparably complex decisions resulting in (expected) far-reaching consequences for their lives. The university choice determines whether they need to move out, leave their circle of friends or their sports club. It may influence their academic as well as vocational career and definitely affects their current financial status (Galotti, 1995). The choice of a university can be compared to dealing with 'wicked problems' (Rittel, 1972), as making a wrong decision is associated with considerable effort for correcting the error, if it can be rectified at all. Hence, a trial and error approach usually is no option for this kind of choice. In contrast to controlled laboratory choice situations, for the choice of a university no single correct result exists. Accordingly, assessing the quality of the decision-making process as well as the outcome is difficult. The multitude of options students can choose from – both in terms of subjects as well as institutions – extends the complexity they need to deal with. The attempt to reduce ambiguity by searching for information could achieve the exact opposite effect as the flood of information available is overstraining (Eppler & Mengis, 2004; O'Reilly, 1980). Moreover, the choices are not only affected by the desires and actions taken by the prospective students but also by the decisions made by the universities themselves (Kotler & Fox, 2002).

Research on university choice processes is split up into three camps (for a detailed review, see Obermeit, 2012). The first follows a sociological approach based on the ideas of Bourdieu (1986). Accordingly, the choice of a university is strongly influenced by the students' cultural

and social capital, such as the socioeconomic background, gender, and academic achievements (Dika & Singh, 2002; McDonough, 1998; Perna, 2006; Terenzini et al., 2001). From this point of view, a students' path to higher education is already predetermined. Hence, the choice of a university is predominantly controlled externally instead of by the student's will. This approach is criticized for not explaining how students use their information at hand in order to make a decision (Manski, 1993). Thus, it explains how general expectations towards higher education and even specific universities are formed but fails to clarify the specific choice strategies employed by the students.

The second camp basically follows the ideas of rational choice theory (Eisenführ, Weber, & Langer, 2010; von Neumann & Morgenstern, 1990). According to these economic university choice models, students make a rational choice based on the evaluation of all available information according to their preferences (DesJardins & Toutkoushian, 2005; Manski & Wise, 1983; Paulsen, 2001). Hence, they "calculate the expected costs and benefits from each institution under consideration and then choose to enroll in the institution with the highest utility of net expected benefits" (DesJardins & Toutkoushian, 2005, p. 193). Kotler and Fox (2002) compare the choice of a university with a consumer buying process based on deliberate considerations of alternatives with regard to expected values. These concepts imply a thoughtful evaluation of attributes for all alternatives and the use of utility functions as well as importance weighting. They also assume the full use of information as well as known and stable preferences. These models are criticized for ignoring the impact of aspects like the socioeconomic background, experiences, or expectations on the university choice (DesJardins & Toutkoushian, 2005; Paulsen, 2001).

The third camp integrates these two perspectives and enhances them by taking diverse context factors into account. Amongst them are actions taken by the universities like financial aid offers and recruitment activities; preparation and support by the secondary school; and the general social, economic, and political environment (Cabrera & La Nasa, 2000; Hossler et al., 1989; Perna, 2006). Nevertheless, the choice process is assumed to be primarily based on the socio-cultural background of the students who are thought to make an accordingly biased, rational choice. Even though this embracing approach tries to disperse the above-mentioned critiques of the sociological and economic models by merging them, more severe, fundamental problems remain disregarded.

For instance, the social and cultural background of the students is unlikely to be the main driver of decision-making, irrespective of the educational policy context. Studies demonstrating a strong impact of the socio-cultural background on students' choices are

limited to national contexts known for high educational class differentials (e.g., Kinzie et al., 2004; Micklewright, 1989) whereas in countries with comparably low stratification like Sweden, the Netherlands or Germany (Breen & Goldthorpe, 1997; Müller & Haun, 1994), the influence of the students' background is unlikely to comprehensively explain the choices made. Even though the social background constrains the general postsecondary educational ambitions of German students (Bargel, Ramm, & Multrus, 2008; Heine, Quast, & Beusse, 2010; Seifert, 2005), only marginal effects on the exploitation and evaluation of information sources in the course of the specific choice of university are evident (Heine, Spangenberg, & Willich, 2007). The students' gender neither has a clear impact on the use of information nor university choice motives (Heine, Willich, Schneider, & Sommer, 2008; Willich, Buck, Heine, & Sommer, 2011). A possible impact of academic ability has not yet been examined in the German context (Obermeit, 2012).

National conditions could have comparable effects on the economic appraisal of options as the costs of attending university differ significantly between countries (European Commission, 2015; Johnstone & Marcucci, 2010; Marcucci & Johnstone, 2007; OECD, 2011). However, the economic university choice models are particularly problematic because of their adherence to the principles of rational choice theory that are unattainable for human beings and deviate significantly from reality (Bunge, 1996). The fact that humans do not act according to the premises of rational choice theory is extensively discussed in literature. For instance, Kahneman, Slovic, and Tversky (2008) and Tversky and Kahneman (1974) demonstrated how people diverge from the principles of rational choice. Yet, as they advocate the basic assumptions of the theory, they assess these variances as being biases. Other authors forego this negative evaluation by granting that humans do not act as if they were homines oeconomici (e.g., Beach & Lipshitz, 1993; Gigerenzer, 2008; Kirsch, 1998; March & Simon, 1993). They acknowledge that in real life, humans have to deal with ill-structured problems, incomplete, ambiguous, and altering information, ill-defined, unstable, and rivaling preferences, severe time pressure, and high stakes (Orasanu & Connolly, 1993). Furthermore, they highlight the role of intuition in human choice behavior (Beach & Lipshitz, 1993; Gigerenzer, 2008; Lipshitz, 1993). Like us, these authors aim to gain a deeper understanding of how humans arrive at their decisions when confronted with these fuzzy kinds of situation. However, the corresponding concepts accentuate the relevance of expertise in decision-making (Lipshitz, 1993; Orasanu & Connolly, 1993; Salas & Klein, 2001). As prospective students are non-experts concerning the choice of a university but are nonetheless confronted

with a comparably complex and problematic situation, those choice models do not appropriately describe university choice processes either.

Correspondingly, the aim of our study is to examine the applicability of the previous university choice approaches on the basis of an explorative study. By identifying the decision-making strategies that German students use to choose a university, we examine what kind of choice logic they adhere to and which choice approaches they apply. Moreover, the students' search for information is analyzed, as is their evaluation of this information. In addition, we explore the utilization and stability of students' preferences. Finally, we check whether the students' socio-cultural background impacts their choices.

METHOD

Research design and data collection

In order to address the research question, we applied a qualitative in-depth interview approach. The sample consists of 27 first-year bachelor students at two very different German state universities who were either enrolled on business administration or teacher training programs. While the University of Hamburg represents one of Germany's largest universities located in a metropolis, Leuphana University constitutes a focused university in the medieval city of Lüneburg. Business administration and teacher training programs are offered at a comparable level at both universities and at numerous institutions throughout Germany. Thus, students interested in these subjects have plenty of options to choose from. Every participant we interviewed was admitted to at least two institutions ensuring they definitely had to make a choice. Each interviewee received € 10 for participation; and they were recruited via leaflets added to their admission documents and handed out during their orientation week at the participating universities. On average, the interviews lasted two hours.

Aiming to moderate the threat of memory biases, the interviews took place between October and December 2012 to stay as close to the time of decision-making as possible. To further reduce other sources of bias, like social desirability effects, we explained that the study is made independently in the course of a doctoral dissertation, not on behalf of one of the universities or a research institute at the beginning of each interview. We further assured the students that the goal of the research project was to gain an understanding of the choices made, not to make judgements about the quality of decision-making. Moreover, we encouraged the participants to answer honestly and as spontaneously as possible. Fortunately, as far as we can assess, the students took these introductory remarks to heart. They told stories that were clearly social undesirable, sometimes even emphasizing that they were aware of deviating from what is expected from university applicants.

By using a non-directive technique in semi-structured, in-depth interviews, we tried to control the course of the narrative as little as possible (Corbetta, 2003; Kvale & Brinkmann, 2009; Salcher, 1995; Schub von Bossiazky, 1992; Wengraf, 2006). At first, we let the students tell their own stories by only giving them an initial question. In case the interviewees faltered, we motivated them to go on with their story by posing questions as openly as possible like "What happened then?". Where possible, breaks in the conversation were tolerated. Otherwise the last statement was paraphrased. When the participants only gave superficial statements or (presumably) skipped aspects, we asked them to go more into detail. By using this type of interview technique, we basically pursued two main goals. Firstly, to gain a comprehensive understanding of how students structured their choice process as well as to learn which information sources, and choice criteria they used and when. Secondly, to not only scratch the surface but also gain insights into pre- and unconscious aspects the students could not have related to us using another form of examination (Salcher, 1995; Schorr, 2001). Indeed, during the interviews they frequently acknowledged having insights they have not been aware of in advance.

Data analysis

All interviews were conducted and transcribed in German, only the excerpts in this paper have been translated. To grant anonymity, the real names of the participants have been replaced by pseudonyms. All 874 single-spaced pages of transcripts were imported into Atlas.ti 7.0, a software program specifically designed for qualitative data analysis. For the analysis, we followed an iterative, explorative approach deliberately combining insights from the data as well as existing theoretical frameworks (Alvesson & Kärreman, 2011; Orton, 1997). We gradually abstracted from raw data by coding, classifying, and linking categories to emerging themes and iteratively reflected them with existing literature.

We first reviewed the literature on university choice as well as decision-making in general. Subsequently, we applied the grounded theory approach using open, axial, and selective coding (Strauss & Corbin, 1998). We started by identifying relevant aspects outlined in each interview and labeled these with corresponding codes. We focused on facets like the information sources and choice criteria the students used during their entire choice process, including the general decision to go to university and the choice of a subject. We compiled information on the timeline of the choice process including descriptions of how decisions were made, universities or cities the students considered and people they talked to. During the process of analysis, we further elaborated and modified the code list by merging, renaming and complementing codes. We focused on three main aspects: information, preferences, and

choices. Regarding information, we were particularly interested in the time, scope, and purpose of the information search as well as the evaluation of gained insights. Concerning preferences, we retraced their evolution throughout the decision-making process and their interplay with the evaluation and use of choice criteria. The aspect of choice comprised the sequence of the decision-making process, choice strategies, critical incidents like recommendations or the timing of responses from universities, and peculiarities like the sudden abandonment of considerations, inconsistencies in the assessment and selection of options as well as seemingly arbitrary decisions.

We constantly engaged in numerous discussions with colleagues at different colloquia and compared intermediate results with literature on decision-making as well as psychological and philosophical works. Specifically, this background literature helped us in forming more abstract ideas of the concepts and processes observed in the data. At the end, by comparing the main resemblances and differences between the choices made with the literature, we identified two major types of decision-making processes that challenge prevailing models of university choice.

FINDINGS

As a result of our analysis, we found two distinct types of decision-makers: the predetermined and the indecisive. While predetermined students intuitively know where they want to go before they even consciously deal with their options, the indecisive stand out due to their desire to avoid risk and uncertainty by making no choice at all. Each group will be presented in detail below.

The predetermined

Students performing a predetermined choice intuitively have made their decision before starting the actual choice process. On the basis of preconceived beliefs and preferences, they commit themselves to a certain university or location before giving one conscious thought to their options. Without realizing that the choice is already made, they subsequently incorporate alternatives into their considerations that they run down afterwards. Accordingly, their decision-making process predominantly consists of an ex post rationalization. Though they try to critically reflect upon their alternatives, in fact they only confirm their preexisting opinion. Consequently, they interpret the limited amount of available as well as actively searched for information in a way that the chosen option becomes the obvious best solution.

Making short and sweet decisions and sticking to their choice made, predetermined students appear to be extremely decisive and steadfast. As they are able to ignore irrelevant

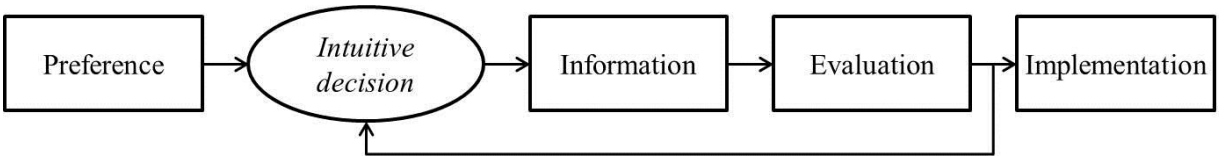
TABLE 1: Overview of Choice Types

Choice Types	**Predetermined**	**Indecisive**
Students using this choice strategy…	*intuitively make their decision before thinking about it.*	*are incapable of making a decision and reducing their uncertainty.*
Characteristics of choice	Early, unconscious intuitive choice	Late, conscious intuitive choice
	Based on preconceived beliefs and stereotypes	Extensive search for information, information overload
	Ease of making a decision	Inability of making a decision
	Short and sweet decision	Complicated, chaotic, stressful, delayed decision
	Consistent commitment to one university, alternatives only stopgaps	Attempt to keep all options open
	Confidence in own decision	High degree of uncertainty
Search for information	Limited; Predominantly after determination of promising alternative	Extensive; Throughout choice process
Purpose of information search and evaluation	Ex-post rationalization and justification of decision	Reduction of uncertainty (unattained, instead exact opposite effect)
Role of preferences	One clear, early defined preference	Unclear and unstable preferences
Personality traits	Decisive, steadfast	Indecisive, fickle
	Action-oriented	State-oriented
	Low need for closure	High need for closure
Average number of applications	3.9 (lucky); 9.4 (unlucky)	9.9
Mean Grade Point Average*	2.0 (lucky); 2.4 (unlucky)	2.2

**German grading system: 1.0 = excellent; 6.0 = unsatisfactory*

distractions, do not hesitate to initiate goal-directed actions, and stay focused until they have made their decision, these students can be described as being clearly action-oriented (Diefendorff, Hall, Lord, & Strean, 2000; Kuhl, 1994a, 1994b). Their high need for closure is expressed in the "seizing and freezing" (Kruglanski & Webster, 1996, p. 265) of early information, leading to a limited use of information, the reliance on stereotypes, a dogmatic belief system, and decisiveness (Kruglanski & Webster, 1996; Webster & Kruglanski, 1994).

FIGURE 1: Choice Process of the Predetermined



Having made a preliminary decision before dealing with their options in detail, the predetermined dramatically diverge from the idea of an informed student carefully weighing up all available options. Instead, they first make their choice and then think about it. Over the recent years, these students subconsciously developed a certain imagination about the environment they want to study in and now they intuitively choose the university best matching these ideas.

> Since ninth grade or something alike I said that I want to go to Hamburg in the future. (Kelly)

Since the students are not aware of the fact that their decision is already made, they do not finish their choice process at this point in time. Instead, they belief they are just starting the process in the first place. Accordingly, they search for alternatives and integrate them into their considerations. These alternatives, however, primarily serve to rationalize and reinforce the decision taken. Because of a confirmation bias (Nickerson, 1998), all available information is interpreted in a way that supports the chosen institution and diminishes all other options. Frequently, to reinforce this effect, even new information and choice criteria are introduced. These, however, did not contribute to the choice of the promising university but are added afterwards in order to support it. Hence, in line with cognitive dissonance theory (Festinger, 2001; Kirsch, 1998), the students search for arguments and choice criteria justifying their already made choice. The incorporated alternatives are actively disparaged.

> Talked out of it, yes. At the beginning I didn't think it [the alternative university] was that dreadful but later on… (Florence)

As the predetermined students intuitively know from the beginning where they want to go to university they are extremely committed to this institution. By searching for arguments

supporting their choice and moderating all other options, they accustom themselves more and more to the idea of studying at this one, special location. Even though all students elaborate an emergency plan by applying to several universities, they do not necessarily plan to stick to it. Some students are determined to such an extent that they consider forfeiting other admissions and beginning their studies one year later.

> I just applied but I knew I'd stay in Hamburg. Even if I wasn't accepted in Hamburg, I guess in that case I simply wanted to wait here. (…) Yes, it needs to be the University of Hamburg otherwise my plan is in a mess. (Naomi)

> I wanted to go to Berlin anyway. So really in my head all these other applications have rather been knick-knacks. (Nora)

The amount of information searched for by the predetermined is limited and predominantly executed after the favored university has been selected. As the choice of the promising alternative is made intuitively, it is based on existing ideas and stereotypes concerning the university and its location. Recommendations made by related persons like friends or relatives reinforce their attitude while negative aspects are mostly ignored or at least played down. The search for and evaluation of information consequently remains limited and is clearly aimed at backing up the already taken decision. Some students even willfully avoid searching for detailed information prior to their applications.

> I didn't deal with the universities at all, so in my case it was really like, to be honest, apply first and then, when I get an admission, then I thought, well at that time I thought it was more logical to only then deal with the universities in more detail and to look which one really scores better. (Barbara)

The choices made by most of these students are nevertheless not uninformed. They only stopped searching for further information as soon as they formed their opinion about the options. Indicating that this choice style does not generally reflect their personality, frequently the students already went through an exhaustive and extensive choice process concerning the subject or the general decision to study at all. Consequently, they then lacked the time, energy, and motivation to put similar effort in the choice of the university as well. Another reason for not looking into the universities in more detail is the fact that all options, except for the promising alternative, are stopgaps the students only applied for to be ready for all eventualities. Accordingly, while they went into some detail for their preferred university, the examination of the alternatives turned out to be of limited interest.

Due to their decisive nature, the predetermined students make their choices comparably quickly. They remain focused on the task of choosing a university until their decision is made and have an according desire to finish as fast as possible. As they do not want to be distracted by other problems, they only deal with this choice at a late stage – around or even after

finishing school – and they do so swiftly. In the period between sending out applications and waiting for responses, focus on the decision is basically suspended. Other plans, like going on holiday, are carried out during this phase. Once acceptance letters arrive, the choice is then made and implemented directly. A critical reflection or challenge does not take place.

> On September 10th I returned from Barcelona and on the 17th, the preparatory course in math started and I simply joined it and then I've already been in this whole system. (Nora)

The group of predetermined students needs to be subdivided. Some of them were lucky being admitted to their favored alternative. These were obviously quite optimistic about being accepted at their preferred university as on average they only applied to three other institutions while the mean number of applications of the whole sample was about seven. Moreover, they evaluated other options as being worthless and forfeited admissions without knowing whether they will be accepted at their favorite university. Consequently, as soon as the admission letter from the desired university arrived, these students enrolled and finished their choice process with satisfaction.

The other subgroup was less fortunate since they were not admitted to their preferred alternative. Accordingly, they reorganized their choice process by eliminating or disparaging the once favored option and chose the next best alternative in the same way they decided before. All of the unlucky students necessarily started to change their argumentation while making their second choice. In order to reduce their cognitive dissonance, they spontaneously needed to search for arguments supporting their new favorite. As they previously rather tried to talk down this option in order to emphasize the superiority of the initially preferred university, this was a challenging task. Nonetheless, instead of searching for completely new information, the students predominantly fell back upon existing knowledge and simply reinterpreted the arguments. Accordingly, as a whole, the choice process seems to be inconsistent. In consideration of the externally generated disruption, however, this is not the case as sticking to the initial argumentation was impossible.

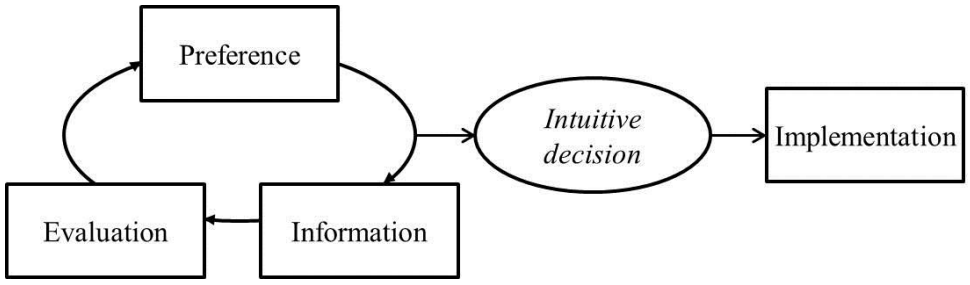
Interestingly, the students in this subgroup seemed to have a presentiment of the need to seriously consider a fallback option. Even though not all of them had comparably worse grade point averages than the lucky ones, with 6 to 13 alternatives they applied to substantially more universities. They justified this high amount of applications with their perceived risk and fear of not being admitted or the need to reassure the parents. Ironically, they got admitted to most options but not to the preferred one.

The indecisive

In contrast to the predetermined group, indecisive students struggle hard with decision-making. Their choice process is dominated by uncertainty that they try to reduce by searching for information. The more information they use, however, the more insecure they feel and the longer they stall their decision. Their urge to avoid making a wrong decision leads to an inability to make any decision at all. As these students are not completely sure about their goals and preferences, these occasionally change throughout the choice process. Even though the students try hard to advance arguments supporting their choices, in the end they describe them as being made intuitively.

By means of their long, chaotic, and volatile choice processes, indecisive students appear rather fickle. They are unable to only focus on the most relevant aspects of their choice at hand but instead try to consider all possible factors including the opinions of others. They have problems finishing their choice process and to finally act in terms of realizing their decision. Their inability to stay focused on this choice task, manifested in their relentless shift to alternative thoughts and ideas, further enhances the impression of state-oriented personalities (Diefendorff et al., 2000; Kuhl, 1994a, 1994b). Their comparably low need for closure is expressed in their eponymous indecisiveness, their openness toward new information, and their willingness to adjust their opinion on the basis of further details (Kruglanski & Webster, 1996; Webster & Kruglanski, 1994).

FIGURE 2: Choice Process of the Indecisive



Indecisive students really suffer when deciding which university to choose. They have to cut their personal Gordian knot by making a decision without knowing exactly what they are aiming for. Their choice process is characterized by the parallel attempts of avoiding the risk of making a wrong decision and simultaneously developing a clear idea of their goals. These irreconcilable activities necessarily result in an inability to make any choice. These students continuously fail to commit to one clear priority as they fear regretting their decision afterwards. Instead, they try to balance multiple options but are hopelessly overtaxed by this

endeavor. For some, this indecisiveness seems to be a kind of lifestyle choice. They report being incapable of making choices all their lives, dealing with this by avoiding decisions and waiting for options to disappear by themselves. Others have a clear idea of their goals at the beginning of the choice process but gradually become unsure and end up with a few equally attractive options, none clearly outperforming the others.

> And then, I'm always like, I cannot make decisions, for me it's very, very difficult to make a decision. I always take things as they come and eventually a decision is made. I mean I don't loiter uselessly not doing anything but instead I prefer to do everything and then watch which options fall off the edge and which remain. That always works. (Jessica)

If no option dominates the others but instead several alternatives are comparable in terms of advantages as well as disadvantages, people tend to defer their decision and search for further information (Tversky & Shafir, 1992). Consequently, the indecisive students try to handle their uncertainty by extending their information search. This endeavor, however, results in a counterproductive information overload. One of the students' attempts to reduce the ambiguity at hand is to ask for advice from a multitude of people. Friends and parents are the usual persons to go to first but the indecisive students are not selective. At every available occasion, anyone willing to voice the own opinion is listened to. Thus, recommendations made by distant acquaintances and relatives, students, neighbors, parents' friends as well as statements made by unknown persons repeated by one of the aforementioned persons are taken into consideration. Predominantly, though, instead of helping to clarify the situation, the multitude of opinions just intensifies the feelings of uncertainty and stress. Consequently, the choice process is complicated and protracted. In retrospect, the students realize by themselves that the critical information they wished for – namely which university is the right one for them – cannot be given to them by anyone else.

> …so many questions nobody is really able to answer, well, as far as information is concerned, sure, but nobody can make the choice for you, the decision, and you never know what is right now, what am I supposed to do. (Kimberly)

> Everything was far too much for me somehow, such chaos, what to, I mean where am I going to study now and somehow there were so many options but everything was so confusing (…). Everything was so, yes, being forced into a corner and, especially the process Lüneburg or Leipzig, some say this, the others say that and it was, yes exactly, very chaotic. (Ashley)

The closer the dreaded moment of inevitably needing to make a choice, the more feverish the indecisive students strive to identify their optimal solution. In order to choose their ideal place to go to, they try to weigh up the pros and cons of their options. But in line with their choice style, they are incapable of making a decision as their overall evaluation means at least two alternatives continue to be fully comparable with each other. Although they differ on

single aspects, the disadvantages of one option cannot be rated worse than the disadvantages of the alternative and vice versa. Accordingly, even though they juggle with arguments and consider their options from all angles, in the end, they describe their choices as being made spontaneously and on the basis of intuition.

> I wasn't able to make a decision and then my parents said: "Yes, then you award points now." But that, well, it didn't work that way then. In the end it was really gut instinct. So I really had some sleepless nights. (Lacey)

In the course of the last choice step, after receiving the response letters from the universities, some students changed their preferences. At first sight this might seem to be illogical as the impression is these students are not able to commit to anything. Yet, this is not true. They have trouble tying themselves down to only one option. Nonetheless, they do have some, obviously not too stable, preferences regarding the universities they applied to. The reasons for the reconsideration expressed by the students were diverse. Some lost courage while others were so relieved to have a safe place that the once favored alternatives suddenly became trivial. Sometimes, the students did not expect to be accepted by a certain university and changed their minds when they were because they were so surprised and flattered. Alternatively, practical considerations like the possibility to search for an apartment instead of waiting for the 'better' admission were declared.

> I've been accepted in Leipzig as well as in Lüneburg and then, until then I always thought Leipzig, imagined it to be head-spinning, but then, when I had both letters in my hands, I somehow thought: Oh my god, moving so far away, you cannot go to Hamburg quickly and what if I don't like it there or I don't find friends there and I really thought about it for a long time but I always imagined it to be very easy before but then, suddenly, I got a bit afraid and then I thought: No, I'd prefer to do my bachelor's in Lüneburg first. (Ashley)

This indecisive approach of keeping all options open consequently results in a high number of applications, both in terms of subjects and institutions. Indecisive students on average applied to ten universities compared to about seven for the whole sample. By using this strategy, they try to postpone the decision and simultaneously reduce their fear of not being admitted at any university. Moreover, waiting for the response letters is thought to reduce part of the uncertainty the students need to handle. In their imagination, as soon as they know which university they actually are allowed to go to, they can deal with real, tangible options instead of theoretical possibilities. This strategy, however, did not work out for all students as some received an overwhelming number of admissions. Some students hoped that the universities would make the decision for them and thus struggled when they received several good offers. Instead of shifting the choice on to the universities, it was given back to them. Now they needed to decide completely on their own and under increased time pressure.

> And I had hoped that somehow with the applications, there were more results, I mean that some things would automatically be eliminated. (Jessica)

> Yes, I mean I really wished to only get one admission. (…) I mean, I have given good consideration to all of them, why I applied there. That's why I would've taken anything. And I think that would've been fine, maybe I would've been miffed that I didn't get an admission from the others but that would've been the way things are and I could've accepted it easily. But not this way, that I get an admission from all of them… (Laura)

Comparable to the predetermined students, the indecisive ones justify their decision ex post by searching for arguments to support it. In the event of a preference change, the initially favored alternatives were regularly toned down in retrospect. Hence, in line with cognitive dissonance theory (Festinger, 2001), the available information is reinterpreted in order to make the chosen university dominant. Interestingly enough, this group of students presented arguments supporting their type of decision-making. They chose the university that enabled them to keep more options open, for instance in terms of determining their career path or the course contents.

Both identified types displayed a cross-section of socio-cultural characteristics such as gender, ability, and parental educational background (see Table 2). In each group, a number of parents held university degrees while at least one per group held a doctorate or even professorship. Student ability level, rated on the basis of the grade point average, was also evenly distributed across both types. The same applies to gender.

DISCUSSION

This study challenges basic assumptions made by existing research on university choice processes. Through the use of in-depth interviews with German freshmen, we show that decisions can neither be fully explained by sociological nor rational models of university choice. By identifying two distinct choice types – the predetermined and the indecisive – we propose an alternative description of students' university choice processes. This empirically based alternative explanation helps us achieve a better understanding of how university choices are made. Our results have a number of implications for research on university choice. Firstly, the amount of information used varies wildly with more information leading to increasing problems of making a choice. Secondly, preferences only unfold late and change throughout the decision-making process. Thirdly, the decisions are based on tacit instead of explicit processing, resulting in intuitive choices. Fourthly, the students' socio-cultural background does not offer a consistent explanation of the decisions made.

TABLE 2: Participants' Choice Types and Demographics

Choice type	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Parental Educational Qualifications
Predetermined, lucky	Amy	Female 20	Hamburg	Teacher Training	1.9	*Mother*: Vocational Training *Father*: Dual Course of Study
	Barbara	Female 18	Hamburg	Teacher Training	2.1	*Mother & Father*: None
	Connor	Male 19	Hamburg	Business Administration	2.1	*Mother & Father*: Doctorate
	Florence	Female 20	Hamburg	Teacher Training	1.6	*Mother*: Vocational Training *Father*: Dual Course of Study
	Kelly	Female 20	Hamburg	Business Administration	2.2	*Mother & Father*: Vocational Training
	Lance	Male 20	Lüneburg	Business Administration	2.3	*Mother*: University Diploma *Father*: Vocational Training (Master)
	Lennox	Male 22	Lüneburg	Business Administration	2.9	*Mother & Father*: Vocational Training
	Megan	Female 23	Lüneburg	Teacher Training	1.9	*Mother*: Vocational Training *Father*: University Diploma
	Naomi	Female 21	Hamburg	Business Administration	1.6	*Mother*: University Diploma *Father*: Bachelor's or Master's Degree
	Simon	Male 21	Lüneburg	Business Administration	1.8	*Mother & Father*: Vocational Training
	Travis	Male 21	Lüneburg	Business Administration	1.3	*Mother & Father*: Vocational Training
	Violet	Female 20	Lüneburg	Teacher Training	2.5	*Mother*: Vocational Training *Father*: University Diploma

TABLE 2: Continued

Choice type	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Parental Educational Qualifications
Predetermined, unlucky	Aaron	Male 21	Lüneburg	Teacher Training	3.0	*Mother*: None *Father*: Vocational Training
	Nora	Female 21	Hamburg	Teacher Training	1.7	*Mother & Father:* Vocational Training
	Sabrina	Female 21	Lüneburg	Teacher Training	3.3	*Mother & Father:* Vocational Training
	Vera	Female 18	Hamburg	Teacher Training	1.8	*Mother*: Vocational Training *Father*: University Diploma
	Vicky	Female 18	Lüneburg	Teacher Training	2.3	*Mother & Father:* Vocational Training
Indecisive	Ashley	Female 19	Lüneburg	Teacher Training	2.3	*Mother*: Vocational Training *Father*: University Diploma, First State Examination
	Iris	Female 19	Hamburg	Business Administration	1.9	*Mother*: University Diploma *Father*: Doctorate
	Jessica	Female 22	Lüneburg	Business Administration	2.0	*Mother*: Doctorate *Father*: Vocational Training
	John	Male 20	Lüneburg	Business Administration	1.7	*Mother*: Vocational Training *Father*: University Diploma
	Julian	Male 20	Lüneburg	Business Administration	2.8	*Mother*: Vocational Training *Father*: State Examination
	Kimberly	Female 19	Lüneburg	Business Administration	1.9	*Mother*: Vocational Training *Father*: University Diploma
	Lacey	Female 20	Lüneburg	Business Administration	1.6	*Mother & Father*: University Diploma
	Leilah	Female 21	Lüneburg	Teacher Training	3.0	*Mother*: University Diploma *Father*: Vocational Training

TABLE 2: Continued

Choice type	Pseudonym	Sex, Age	University	Subject	Grade Point Average	Parental Educational Qualifications
Indecisive	Maria	Female 30	Hamburg	Teacher Training	3.1	*Mother*: Vocational Training *Father*: Professor
	Scott	Male 21	Hamburg	Business Administration	1.9	*Mother & Father*: Vocational Training

These divergences from the theoretical assumptions research on university choice processes is based upon require us to consider alternative contexts and theories enlightening human behavior. As discussed briefly below, each deviation can be explained by allowing psychological insights not insisting on the principles of rational choice as well as national differences in educational policy.

The use of information

Considering the characteristics of the university choice, students ought to be highly motivated to invest substantial time and energy in finding an optimal solution (Blackwell, Miniard, & Engel, 2006; Hayes, 2009; Laroche, Rosenblatt, & Sinclair, 1984). The good news is, most of them, at least subjectively, are. The bad news is, it does not always help them much to make a decision. Several studies showed that even of those students who started to search for information early and who are generally more satisfied with their information level than those who started late, over 20% are still dissatisfied with their level of knowledge (Heine et al., 2007; Heine, Willich, & Schneider, 2010; Lörz, Quast, & Woisch, 2011). Thus, obviously the quality of information available is not sufficient to reduce ambiguity or, even worse, the inexhaustible quantity of information increases uncertainty. According to rational choice theory, decision-makers base their choices on all available information. Though this assumption is less prevalent today, the idea of more information leading to more rational and therefore better decisions is maintained (Gigerenzer, 2008; Sadler-Smith & Shefy, 2004). However, there is evidence that, at some point, the multitude of information results in an overload leading to a decreased quality of decisions, feelings of stress and confusion, and even precluding a thorough evaluation of alternatives. (Eppler & Mengis, 2004; O'Reilly, 1980; Sadler-Smith & Shefy, 2004).

In our interviews, exactly this phenomenon became apparent. The indecisive students, in particular, struggled hard with the amount of information they initially searched for in order to reduce their uncertainty. The information they gained, however, did not seem to help them make a decision. Instead, their insecurity increased. This effect can be explained from two perspectives.

On the one hand, because of humans' limited information processing capacity, the students were not able to handle the amount of information anymore. In contrast to rational choice theory, the concept of bounded rationality should be applied (Gigerenzer, 2008; March, 1994; Simon, 1957, 1987). Accordingly, instead of considering all available information, they deliberately should have reduced the amount of information in order to simplify the choice problem. While the predetermined group applied this approach, the indecisive students

obviously missed that point in time when adding new information no longer aids decision-making anymore but instead hinders it (Eppler & Mengis, 2004).

On the other hand, the information at hand needs to be evaluated critically. Several studies provide evidence that more relevant information improves choices while a large amount of irrelevant information keeps the decision-maker from identifying the significant information and consequently leads to worse decisions (e.g., O'Reilly, 1980; Payne, Bettman, & Johnson, 1993). Therefore, it is crucial to help students optimize their information search behavior by increasing the amount of pertinent information and simultaneously reducing irrelevant data. Accordingly, the demand of better informed students articulated in the literature (Kotler & Fox, 2002; Moogan & Baron, 2003; Pérez & McDonough, 2008) should not be confused with the need to simply confront them with more information.

Unknown and unstable preferences

In previous research on university choice, preferences are assumed to be known and stable (DesJardins & Toutkoushian, 2005; Kotler & Fox, 2002). While the predetermined students comply with this assumption, the indecisive do not. Their preferences frequently changed all of a sudden and unexpectedly. Interestingly, this phenomenon always occurred at one point in time; when the admission letters arrived. Either the first satisfactory alternative that arrived was chosen or the students lost confidence when confronted with real rather than theoretical options.

The first effect can be explained by the Rubicon model of action phases (Achtziger & Gollwitzer, 2010; Gollwitzer, 1990; Heckhausen, 1987). As long as the students were waiting for responses from the universities, studying at any of them was only a wish. Once they hold the acceptance letter from a satisfactory alternative in their hands, this wish transforms into an intention. By intensively imagining to study at this university, maybe even starting to realize the wish by searching for an apartment, the metaphorical Rubicon is crossed. This effect meant the students were committed to registering at the university sending the first appealing offer. Admissions arriving later, even those from initially favored institutions, were still considered but in the end were not selected.

Where a subordinate option was chosen even though the once preferred university sent an offer first, students had experienced “cold feet” (Gilovich, Kerr, & Medvec, 1993, p. 552). Once confronted with the final, tangible options they needed to decide on, the students lost confidence in being able to handle the situation of studying and living at a specific place. In line with temporal construal theory (Liberman & Trope, 1998; Trope & Liberman, 2003), when the final choice was still distant and the universities under consideration were

considered as being more theoretical possibilities than concrete options, the abstract idea of living in a specific city and studying at a certain university seemed to be very appealing. As soon as the students needed to deal with the concrete consequences of, for instance, moving to that place or commuting to the university, however, the negative associations with the once favored option grew and the positive value of alternatives rose. However, these effects only emerged in the case of satisfactory options. Universities not crossing the threshold of being assessed as attractive enough cannot rely on this first mover advantage.

As a large part of literature on university choice processes implies decisions made on the basis of the consistent evaluation of alternatives in line with students' preferences, the resulting choice models need to be revised (Hossler et al., 1989; Jackson, 1982; Litten, 1982). One new facet that particularly needs to be incorporated into future research is the fact that preferences changed late – after the application process had been completed – instead of being established early on in the process or even ahead of the specific university choice and translating as an evaluation of options later on.

Intuitive decision-making

Given the fact that the average prospective student lacks any experience with higher education and comparatively complex decision-making in general, the choice of a university is categorized as extensive problem-solving (Hayes, 2009; Laroche et al., 1984). Accordingly, students should be highly motivated to search for and subsequently thoroughly process information regarding their options in order to make a well-considered decision (Blackwell et al., 2006). By contrast, our participants all decided intuitively. The predetermined students basically relied on their preconceived, stereotyped attitude towards a university and its location. Even though the indecisive students juggled with arguments and considered their options from all angles, in the end, they described their choices as being made spontaneously and intuitively as well. In the words of Petty and Cacioppo (1986a, 1986b), even though they should have been motivated and able to process information on the central route, they switched to the peripheral route in order to form their attitudes towards the considered universities. Accordingly, they frequently took their decisions based on statements made by persons considered to be credible instead of critically verifying arguments themselves.

Intuitive decision-making is known to work for experts who can rely on substantial experiences (Gigerenzer, 2008; Sadler-Smith & Shefy, 2004) or for routine problems that can automatically be executed (Aarts, Verplanken, & van Knippenberg, 1998; Blackwell et al., 2006). For novices in complex, high-risk decision-making and in the field of higher education, however, choice literature in fact advises against choosing this way (Schneider &

Shiffrin, 1977). Nonetheless, several researchers doubt that unconscious, automatic processing is limited to habitual behavior (e.g., Bargh, 2002; Damasio, 1994; Hogarth, 2001; Simon, 1955). The choice of the right marriage partner is a comparably new and complex decision for most people, nonetheless it is usually made on the basis of intuition (Gigerenzer, 2007). Evaluations and judgments made preconsciously – like the ones the predetermined students base their decisions upon – are even assessed as being particularly trustworthy and accurate (Bargh, 1989). The unconscious processes leading to a decision do not exclude any deliberate consideration (Lieberman, 2000). Likewise, all of our participants engaged in conscious cognitive processing. The indecisive students did so quite extensively but did not come to a solution that way and switched to their gut instinct out of necessity in the end. The predetermined students, on the other hand, first made their intuitive decision and then fell back upon deliberate reflection in order to justify their choice. Nonetheless, no single participant deliberately calculated the costs and benefits from any institution under consideration to find the optimal match and none used utility functions or importance weighting.

Socio-cultural background

In our study, executed in the national context of Germany, the students' socio-cultural background did not prove to have an impact on the choice strategies used. Despite conflicting evidence in the literature, in Germany the "class differentials in educational attainment" (Breen & Goldthorpe, 1997, p. 276) seem to have declined over recent decades (Jonsson, Mills, & Müller, 1996; Müller & Haun, 1994). Studies conducted in countries with stronger educational stratification produced contrary results.

In the latter contexts, the effects of the students' socioeconomic status (SES), ability levels as well as gender on the choices made were highlighted. For instance, students with a low socioeconomic status and below-average academic abilities are thought to have access to and use less sources of information, relying merely on information provided by guidance counselors. By contrast, their peers with higher SES and better academic abilities fall back upon a variety of more sophisticated sources resulting in a higher level of information (Bradshaw, Espinoza, & Hausman, 2001; Litten, 1982; Terenzini et al., 2001; Veloutsou, Paton, & Lewis, 2005). Parents play a major role as their level of education significantly impacts not only the socioeconomic status but also their expertise regarding higher education and their according support in the choice processes of their children (Galotti & Mark, 1994; Rowan-Kenyon, Bell, & Perna, 2008; Tierney, 1983). Moreover, students with higher academic abilities have been shown to make more complex and complicated choices

compared to their fellow students with lower abilities (Galotti, 1995; Galotti & Mark, 1994; Litten, 1982). While females apply to fewer universities, males evaluate decision-making as being more difficult (Hurtado, Inkelas, Briggs, & Rhee, 1997; Moogan & Baron, 2003).

In our study, none of these effects emerged. Both identified types displayed a cross-section of socio-cultural characteristics such as parental educational background, ability, and gender (see Table 2). In the group of indecisive students – those performing an extensive search for information and a highly complex, wearing choice process – no dominance of high ability, male students or better educated parents is apparent. Conversely, the group of predetermined students – who search for significantly less information, undergo a comparatively short and easy decision-making process and apply to fewer universities – does not predominantly consist of female, low ability students with worse educated parents. Accordingly, contrary to the sociological camp in university choice literature (McDonough, 1998; Perna, 2006; Terenzini et al., 2001), our study suggests that in the German context not only is the decision not predetermined by the students' social and cultural capital, it is not even affected by it either. The discriminating effects of educational policy contexts impacting students' choice behavior therefore represent a potentially rich topic for exploration in future research.

MANAGERIAL IMPLICATIONS

As research on university choice processes is highly motivated by the goal of improving communication and recruiting activities of higher education institutions, we explicitly point to important insights for marketing managers, supplemented by implications for higher education policy-makers.

First of all, the information given to prospective students needs to be improved by diminishing the number of insignificant and concurrently increasing the amount of relevant data. For instance, the information given by universities frequently goes into unnecessary detail (Moogan, Baron, & Harris, 1999). On the other hand, students rely heavily on unskilled sources like parents or friends even though they are aware of their limited meaningfulness. There is plenty of (easily) accessible information students are not aware of, which sometimes leads to unfortunate surprises. Several studies complain about the inadequate information level of students when choosing their university (Chapman, 1981; Kotler & Fox, 2002; Pérez & McDonough, 2008; Smith, 1994). Unfortunately, some of our participants also suffered from a paucity of information.

One way to improve this situation would be to employ personalized professional consulting akin to guidance counselors in the US school system. The majority of students in our sample were sent to a consultation with the employment office two to three years before

leaving school. Due to their own lack of ideas concerning their future plans as well as the impersonal and superficial consulting, these appointments were predominantly assessed as being of no help. Guidance given by teachers was, with few exceptions, very limited to non-existent. Contact with counseling services at the universities or professors was very rare. As the students primarily rely on statements made by persons they know and that know them, the best support they could get to structure and improve their search for information would be given by a liaison teacher trained in higher education counseling.

An important discovery for university marketers as well as higher education policy is the effect of changing preferences at the time of admissions. In rational choice theory, preferences are expected to be consistent (Bunge, 1996; March, 1994; Shafir, 1993; Simon, 1955). The system of awarding university places by hochschulstart.de, a trust under public law aiming to centrally allocate places of study (Stiftung für Hochschulzulassung, 2012-2015a), is based on exactly this assumption. Students need to rank their applications in an order of preference. Based on this categorization, admissions are automatically accepted for highly preferred institutions and applications are automatically deleted for low ranked ones (Stiftung für Hochschulzulassung, 2012-2015b). While for the predetermined students this procedure accommodates their choice style, indecisive students would most likely struggle with it. Even though their wish to outsource the need to make a decision to someone else would be granted, they might not be completely satisfied with the result as they already realized themselves that nobody else knows what is right for them. Consequently, when planning to expand this allocation system, higher education policy should take into account that especially those students having unknown or unstable preferences would be forced into a style of decision-making that does not suit them.

On the other hand, because today universities award their places independently, marketing managers can take advantage of this phenomenon and several already do. By sending very quick admissions to the most attractive candidates, they try to lead the students away from a state of wishing to one of determination. Universities could even reinforce this effect positively by simultaneously giving the applicants incentives to explore the institution and the city in greater depth and start implementing their wish to go there. Advice on how to find a place to live, information on sports courses or initiatives at the university as well as in town, details about the introduction week and counseling services for freshmen could all help to already tie the candidates to the university's own institution and reduce the risk of losing them to the competition. Hence, instead of only sending a letter, the most attractive and early

admitted candidates, at the least, should receive a stimulating package full of valuable information.

Finally, from the universities' perspective, the inconsistent, improvised, and intuitive choice processes applied by the students are unfortunate. Without knowing what type of chooser they are communicating with, the chance of addressing the students at the right time with the right content is low. The predetermined students, for instance, should subliminally be persuaded of a university before they actively search for options to make sure they have the critical preconceptions about it at hand when they determine their favorite. During the choice process, they need to be reassured of the dominance of this option. The indecisive students, on the other hand, would benefit from well-chosen personalized communication in the early stages of the process. In the end, simultaneously with a very quick admission, they also need concrete positive arguments accentuating flexibility.

CONCLUSION

This paper contributes to a better understanding of students' choices of universities while questioning the theoretical basis of previous research. By identifying empirically grounded types of university choice, we are able to explain the choice logics of prospective students, including their decision-making strategies, information handling, and preference formation. Our study suggests that the predominant assumption of socio-culturally predestined, rational decision-makers in research on university choice is inappropriate and needs to be complemented by findings from psychological literature as well as distinct educational policy contexts. We hope that the insights of this paper have an encouraging effect on other researchers in this field and that, simultaneously, university marketing managers and higher education policy-makers can benefit from the implications we have concluded.

REFERENCES

Aarts, H., Verplanken, B., & van Knippenberg, A. (1998). Predicting Behavior From Actions in the Past: Repeated Decision Making or a Matter of Habit? *Journal of Applied Social Psychology, 28*(15), 1355-1374.

Achtziger, A., & Gollwitzer, P. M. (2010). Motivation und Volition im Handlungsverlauf. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation und Handeln* (Vol. 4, pp. 309-335). Berlin Heidelberg: Springer-Verlag Berlin Heidelberg.

Alvesson, M., & Kärreman, D. (2011). *Qualitative Research and Theory Development: Mystery as Method*. London: SAGE Publications Ltd.

Bargel, T., Ramm, M., & Multrus, F. (2008). *Studiensituation und studentische Orientierungen: 10. Studierendensurvey an Universitäten und Fachhochschulen*. Berlin: Bundesministerium für Bildung und Forschung.

Bargh, J. A. (1989). Conditional Automaticity: Varieties of Automatic Influence in Social Perception and Cognition. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended Thought* (pp. 3-51). New York: The Guilford Press.

Bargh, J. A. (2002). Losing Consciousness: Automatic Influences on Consumer Judgment, Behavior, and Motivation. *Journal of Consumer Research, 29*, 280-285.

Beach, L. R., & Lipshitz, R. (1993). Why Classical Decision Theory Is an Inappropriate Standard for Evaluating and Aiding Most Human Decision Making. In G. Klein, J. Orasanu, R. Calderwood & C. E. Zsambok (Eds.), *Decision Making in Action: Models and Methods* (pp. 21-35). Norwood, New Jersey: Ablex Publishing Corporation.

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2006). *Consumer Behavior*.(10th ed.). Mason, Ohio: Thomson South-Western.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–260). New York: Greenwood Press.

Bradshaw, G., Espinoza, S., & Hausman, C. (2001). The College Decision-Making of High Achieving Students. *College & University, 77*(2), 15–22.

Breen, R., & Goldthorpe, J. H. (1997). Explaining educational differentials: Towards a formal rational action theory. *Rationality and Society, 9*(3), 275-305.

Brown, C., Varley, P., & Pal, J. (2009). University course selection and services marketing. *Marketing Intelligence & Planning, 27*(3), 310–325.

Bunge, M. (1996). *Finding Philosophy in Social Science*. New Haven: Yale University Press.

Cabrera, A. F., & La Nasa, S. M. (2000). Understanding the College-Choice Process. *New Directions for Institutional Research, 2000*(107), 5–22.

Chapman, D. W. (1981). A Model of Student College Choice. *The Journal of Higher Education, 52*(5), 490–505.

Corbetta, P. (2003). *Social Research: Theory, Methods and Techniques*. London: Sage.

Damasio, A. R. (1994). *Descartes' Error: Emotion, Reason and the Human Brain*. New York: G.P. Putnam's Son.

DesJardins, S. L., & Toutkoushian, R. K. (2005). Are students really rational? The development of rational thought and its application to student choice. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (Vol. 20, pp. 191–240). Dordrecht: Springer.

Diefendorff, J. M., Hall, R. J., Lord, R. G., & Strean, M. L. (2000). Action-State Orientation: Construct Validity of a Revised Measure and Its Relationship to Work-Related Variables. *Journal of Applied Psychology, 85*(2), 250-263.

Dika, S. L., & Singh, K. (2002). Applications of Social Capital in Educational Literature: A Critical Synthesis. *Review of Educational Research, 72*(1), 31-60.

Eisenführ, F., Weber, M., & Langer, T. (2010). *Rational Decision Making*. Heidelberg: Springer.

Eppler, M. J., & Mengis, J. (2004). The Concept of Information Overload: A Review of Literature from Organization Science, Accounting, Marketing, MIS, and Related Disciplines. *The Information Society, 20*(5), 325-344.

European Commission. (2015). *National Student Fee and Support Systems in European Higher Education 2014/15*. Retrieved August 25, 2015, from http://eacea.ec.europa.eu/education/Eurydice/documents/facts_and_figures/fees_support.pdf.

Festinger, L. (2001). *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.

Galotti, K. M. (1995). A Longitudinal Study of Real-Life Decision Making: Choosing a College. *Applied Cognitive Psychology, 9*(6), 459–484.

Galotti, K. M., & Mark, M. C. (1994). How do High Scchool students structure an important life decision? A short-term longitudinal study of the college decision-making process. *Research in Higher Education, 35*(5), 589–607.

Gigerenzer, G. (2007). *Bauchentscheidungen: Die Intelligenz des Unbewussten und die Macht der Intuition*.(Vol. 1). München: C. Bertelsmann Verlag.

Gigerenzer, G. (2008). *Rationality for Mortals: How People Cope with Uncertainty*. New York: Oxford University Press.

Gilovich, T., Kerr, M., & Medvec, V. H. (1993). Effect of Temporal Perspective on Subjective Confidence. *Journal of Personality and Social Psychology, 64*(4), 552-560.

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of Motivation and Cognition: Foundations of Social Behavior* (Vol. 2, pp. 53-92). New York: The Guilford Press.

Hayes, T. J. (2009). *Marketing colleges and universities: A services approach*. Washington, DC: Council for Advancement and Support of Education.

Heckhausen, H. (1987). Wünschen-Wählen-Wollen. In H. Heckhausen, P. M. Gollwitzer & F. E. Weinert (Eds.), *Jenseits des Rubikon: Der Wille in den Humanwissenschaften* (pp. 3-9). Berlin: Springer.

Heine, C., Quast, H., & Beusse, M. (2010). *Studienberechtigte 2008 ein halbes Jahr nach Schulabschluss: Übergang in Studium, Beruf und Ausbildung*. Hannover: HIS Hochschul-Informations-System GmbH.

Heine, C., Spangenberg, H., & Willich, J. (2007). *Informationsbedarf, Informationsangebote und Schwierigkeiten bei der Studien- und Berufswahl: Studienberechtigte 2006 ein halbes Jahr vor dem Erwerb der Hochschulreife*. Hannover: HIS Hochschul-Informations-System GmbH.

Heine, C., Willich, J., & Schneider, H. (2010). *Informationsverhalten und Entscheidungsfindung bei der Studien- und Berufswahl: Studienberechtigte 2008 ein halbes Jahr vor dem Erwerb der Hochschulreife*. Hannover: HIS Hochschul-Informations-System GmbH.

Heine, C., Willich, J., Schneider, H., & Sommer, D. (2008). *Studienanfänger im Wintersemester 2007/08: Wege zum Studium, Studien- und Hochschulwahl, Situation bei Studienbeginn*. Hannover: HIS Hochschul-Informations-System GmbH.

Hogarth, R. M. (2001). *Educating intuition*. Chicago: University of Chicago Press.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding Student College Choice. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Practice* (Vol. 5, pp. 213-288). New York: Agathon Press.

Hurtado, S., Inkelas, K. K., Briggs, C., & Rhee, B.-S. (1997). Differences in College Access and Choice Among Racial/Ethnic Groups: Identifying Continuing Barriers. *Research in Higher Education, 38*(1), 43-75.

Jackson, G. A. (1982). Public Efficiency and Private Choice in Higher Education. *Educational Evaluation and Policy Analysis, 4*(2), 237–247.

Johnstone, D. B., & Marcucci, P. N. (2010). *Financing Higher Education Worldwide: Who Pays? Who Should Pay?* Baltimore: The Johns Hopkins University Press.

Jonsson, J. O., Mills, C., & Müller, W. (1996). A Half Century of Increasing Educational Openness? Social Class, Gender and Educational Attainment in Sweden, Germany and Britain. In R. Erikson & J. O. Jonsson (Eds.), *Can Education be Equalized? The Swedish Case in Comparative Perspective* (pp. 183-206). Boulder: Westview Press.

Kahneman, D., Slovic, P., & Tversky, A. (2008). *Judgment under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press.

Kinzie, J., Palmer, M., Hayek, J., Hossler, D., Jacob, S. A., & Cummings, H. (2004). *Fifty Years of College Choice: Social, Political and Institutional Influences on the Decision-making Process*. Indianapolis, IN: Lumina Foundation for Education.

Kirsch, W. (1998). *Die Handhabung von Entscheidungsproblemen: Einführung in die Theorie der Entscheidungsprozesse*.(5th ed.). München: Kirsch.

Kotler, P., & Fox, K. F. A. (2002). *Strategic Marketing for Educational Institutions*. Upper Saddle River, New Jersey: Prentice Hall.

Kruglanski, A. W., & Webster, D. M. (1996). Motivated Closing of the Mind: "Seizing" and "Freezing". *Psychological Review, 103*(2), 263-283.

Kuhl, J. (1994a). Action versus state orientation: Psychometric properties of the Action Control Scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and Personality: Action Versus State Orientation* (pp. 47-59). Göttingen: Hogrefe & Huber Publishers.

Kuhl, J. (1994b). A theory of action and state orientations. In J. Kuhl & J. Beckmann (Eds.), *Volition and Personality: Action Versus State Orientation* (pp. 9-46). Göttingen: Hogrefe & Huber Publishers.

Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the Craft of Qualitative Research Interviewing*. Los Angeles: Sage.

Laroche, M., Rosenblatt, J., & Sinclair, I. (1984). Brand Categorization Strategies in an Extensive Problem Solving Situation: A Study of University Choice. *Advances in Consumer Research, 11*(1), 175-179.

Liberman, N., & Trope, Y. (1998). The Role of Feasibility and Desirability Considerations in Near and Distant Future Decisions: A Test of Temporal Construal Theory. *Journal of Personality and Social Psychology, 75*(1), 5-18.

Lieberman, M. D. (2000). Intuition: A Social Cognitive Neuroscience Approach. *Psychological Bulletin, 126*(1), 109-137.

Lipshitz, R. (1993). Coverging Themes in the Study of Decision Making in Realistic Settings. In G. Y. Klein, J. Orasanu, R. Calderwood & C. E. Zsambok (Eds.), *Decision making in action: Models and methods* (pp. 103-137). Norwood, New Jersey: Ablex Publishing Corporation.

Litten, L. H. (1982). Different Strokes in the Applicant Pool: Some Refinements in a Model of Student College Choice. *The Journal of Higher Education, 53*(4), 383–402.

Lörz, M., Quast, H., & Woisch, A. (2011). *Bildungsintentionen und Entscheidungsprozesse: Studienberechtigte 2010 ein halbes Jahr vor Schulabgang*. Forum Hochschule. Hannover: HIS Hochschul-Informations-System GmbH.

Manski, C. F. (1993). Dynamic choice in social settings: Learning from the experience of others. *Journal of Econometrics, 58*, 121–136.

Manski, C. F., & Wise, D. A. (1983). *College Choice in America*. Cambridge, Massachusetts: Harvard University Press.

March, J. G. (1994). *A Primer on Decision Making: How Decisions Happen*. New York: The Free Press.

March, J. G., & Simon, H. A. (1993). *Organizations*.(2nd ed.). Cambridge, Mass.: Blackwell.

Marcucci, P. N., & Johnstone, D. B. (2007). Tuition fee policies in a comparative perspective: Theoretical and political rationales. *Journal of Higher Education Policy and Management, 29*(1), 25-40.

Maringe, F. (2006). University and course choice - Implications for positioning, recruitment and marketing. *International Journal of Educational Management, 20*(6), 466–479.

McDonough, P. M. (1998). Structuring College Opportunities: A Cross-Case Analysis of Organizational Cultures, Climates and Habiti. In C. A. Torres & T. R. Mitchell (Eds.), *Sociology of Education: Emerging Perspectives* (pp. 181–210). Albany: State University of New York Press.

Micklewright, J. (1989). Choice at Sixteen. *Economica, 56*(221), 25-39.

Moogan, Y. J., & Baron, S. (2003). An Analysis of Student Characteristics within the Student Decision Making Process. *Journal of Further and Higher Education, 27*(3), 271–287.

Moogan, Y. J., Baron, S., & Harris, K. (1999). Decision-Making Behaviour of Potential Higher Education Students. *Higher Education Quarterly, 53*(3), 211–228.

Müller, W., & Haun, D. (1994). Bildungsungleichheit im sozialen Wandel. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 46*(1), 1-42.

Nickerson, R. S. (1998). Confirmation Bias: A Ubiquitous Phenomenon in Many Guises. *Review of General Psychology, 2*(2), 175-220.

O'Reilly, C. A. (1980). Individuals and Information Overload in Organizations: Is More Necessarily Better? *Academy of Management Journal, 23*(4), 684-696.

Obermeit, K. (2012). Student's choice of universities in Germany: structure, factors and information sources used. *Journal of Marketing for Higher Education, 22*(2), 206-230.

OECD. (2011). *Education at a Glance 2011: OECD Indicators*. OECD Publishing.

Orasanu, J., & Connolly, T. (1993). The Reinvention of Deicision Making. In G. Y. Klein, J. Orasanu, R. Calderwood & C. E. Zsambok (Eds.), *Decision Making in Action: Models and Methods* (pp. 3-20). Norwood, New Jersey: Ablex Publishing Corporation.

Orton, J. D. (1997). From inductive to iterative grounded theory: Zipping the gap between process theory and process data. *Scandinavian Journal of Management, 13*(4), 419-438.

Paulsen, M. B. (2001). The Economics of Human Capital and Investment in Higher Education. In M. B. Paulsen & J. C. Smart (Eds.), *The Finance of Higher Education* (pp. 55–94). New York: Agathon Press.

Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The Adaptive Decision Maker*. Cambridge: Cambridge University Press.

Pérez, P. A., & McDonough, P. M. (2008). Understanding Latina and Latino College Choice: A Social Capital and Chain Migration Analysis. *Journal of Hispanic Higher Education, 7*(3), 249-265.

Perna, L. W. (2006). Studying College Access and Choice: A Proposed Conceptual Model. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (Vol. 21, pp. 99–157). Dordrecht: Springer.

Petty, R. E., & Cacioppo, J. T. (1986a). *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York: Springer.

Petty, R. E., & Cacioppo, J. T. (1986b). The Elaboration Likelihood Model of Persuation. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 19, pp. 123-205). Orlando, Florida: Academic Press.

Rittel, H. (1972). On the Planning Crisis: Systems Analysis of the 'First and Second Generations'. *Bedriftsøkonomen, 8*, 390-396.

Rowan-Kenyon, H. T., Bell, A. D., & Perna, L. W. (2008). Contextual Influences on Parental Involvement in College Going: Variations by Socioeconomic Class. *The Journal of Higher Education, 79*(5), 564–586.

Sadler-Smith, E., & Shefy, E. (2004). The intuitive executive: Understanding and applying 'gut feel' in decision-making. *Academy of Management Executive, 18*(4), 76-91.

Salas, E., & Klein, G. A. (2001). *Linking Expertise and Naturalistic Decision Making*. Mahwah, NJ: Lawrence Erlbaum Associates.

Salcher, E. F. (1995). *Psychologische Marktforschung*.(Vol. 2). Berlin: de Gruyter.

Schneider, W., & Shiffrin, R. M. (1977). Controlled and Automatic Human Information Processing: I. Detection, Search, and Attention. *Psychological Review, 84*(1), 1-66.

Schorr, A. (2001). Subjective Measurement in Appraisal Research: Present State and Future Perspectives. In K. R. Scherer, A. Schorr & T. Johnstone (Eds.), *Appraisal Processes in Emotion: Theory, Methods, Research* (pp. 331-349). Oxford: Oxford University Press.

Schub von Bossiazky, G. (1992). *Psychologische Marketingforschung: Qualitative Methoden und ihre Anwendung in der Markt-, Produkt- und Kommunikationsforschung*. München: Vahlen.

Seifert, W. (2005). Bildungsmobilität: Wie weit fällt der Apfel vom Stamm? *Statistische Analysen und Studien NRW, 24*, 3–11.

Shafir, E. (1993). Choosing versus rejecting: Why some options are both better and worse than others. *Memory & Cognition, 21*(4), 546-556.

Simon, H. A. (1955). A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics, 69*(1), 99-118.

Simon, H. A. (1957). *Models of Man*. New York: John Wiley & Sons, Inc.

Simon, H. A. (1987). Bounded rationality. In J. Eatwell, M. Milgate & P. Newman (Eds.), *The New Palgrave: A Dictionary of Economics* (pp. 266-267). London: The Macmillan Press Limited.

Smith, K. (1994). Cognitive Heuristics in Students' College Decisions. In L. Heath, R. S. Tindale, J. Edwards, E. J. Posavac, F. B. Bryant, H.-K. Eaaron, Y. Suarez-Balcazar & J. Myers (Eds.), *Applications of Heuristics and Biases to Social Issues* (pp. 287-301). New York: Plenum Press.

Stiftung für Hochschulzulassung. (2012-2015a). *About us*. Retrieved August 25, 2015, from http://www.hochschulstart.de/index.php?id=3856&L=1.

Stiftung für Hochschulzulassung. (2012-2015b). *Phases and dates*. Retrieved August 25, 2015, from http://www.hochschulstart.de/index.php?id=3338&L=1.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*.(2nd ed.). Thousand Oaks, California: Sage Publications.

Terenzini, P. T., Cabrera, A. F., & Bernal, E. M. (2001). *Swimming Against the Tide: The Poor in American Higher Education*. New York: College Entrance Examination Board.

Tierney, M. L. (1983). Student College Choice Sets: Toward an Empirical Characterization. *Research in Higher Education, 18*(3), 271–284.

Trope, Y., & Liberman, N. (2003). Temporal Construal. *Psychological Review, 110*(3), 403-421.

Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science, 185*, 1124-1131.

Tversky, A., & Shafir, E. (1992). Choice Under Conflict: The Dynamics of Deferred Decision. *Psychological Science, 3*(6), 358-361.

Veloutsou, C., Lewis, J. W., & Paton, R. A. (2004). University selection: information requirements and importance. *The International Journal of Educational Management, 18*(3), 160–171.

Veloutsou, C., Paton, R. A., & Lewis, J. (2005). Consultation and reliability of information sources pertaining to university selection: Some questions answered? *International Journal of Educational Management, 19*(4), 279–291.

von Neumann, J., & Morgenstern, O. (1990). *Theory of Games and Economic Behavior*. Princeton: Princeton University Press.

Webster, D. M., & Kruglanski, A. W. (1994). Individual Differences in Need for Cognitive Closure. *Journal of Personality and Social Psychology, 67*(6), 1049-1062.

Wengraf, T. (2006). *Qualitative Research Interviewing: Biographic Narrative and Semi-Structured Methods*. London: Sage.

Willich, J., Buck, D., Heine, C., & Sommer, D. (2011). *Studienanfänger im Wintersemester 2009/10: Wege zum Studium, Studien- und Hochschulwahl, Situation bei Studienbeginn*. Hannover: HIS Hochschul-Informations-System GmbH.