

Consumer Responses to Paid Search – Empirical Evidence from a Bricks-and-Mortar Retailer

Der Fakultät für Wirtschaftswissenschaften der

Universität Paderborn

zur Erlangung des akademischen Grades

Doktor der Wirtschaftswissenschaften

- Doctor rerum politicarum –

vorgelegte Dissertation

von

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geboren am 04.08.1988 in Gütersloh

Februar 2018

Acknowledgements

After an intensive period of three and a half years today is the day: writing this note of thanks is the finishing touch to my dissertation. It has been a period of intense learning for me, not only in the scientific arena, but also on a practical and personal level. Writing this dissertation has had a big impact on me. I would like to acknowledge the people who have supported and helped me so much throughout this period.

First, I would like to thank my partnering firm *finke Das Erlebnis-Einrichten GmbH & Co. KG* and especially Dr. Rudolf Christa who gave me the opportunity and confidence to conduct my research in a field setting. His continuous support and insightful guidance allowed me to comprehend the workings of a firm and successfully complete this collaborative research project.

In addition, I would like to thank my supervisor Prof. Dr. Dennis Kundisch and Prof. Dr. Nancy Wunderlich for their invaluable guidance and insights, and their unfailing support. You definitely provided me with the tools and the necessary encouragement that I needed to choose the right direction and successfully complete my dissertation.

I would also like to thank my wife Sabrina for her wise counsel, sympathetic ear and patience. You are always there for me. Finally, thanks to my family and all my friends and colleagues at Paderborn University who supported me throughout the whole process.

Thank you very much, everyone!

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Synopsis

1. Motivation

Until not so long ago, when a consumer recognized her need for a new product she might have asked friends for information and advice on the best choice of products, and evaluated current offers via the print media. Indeed, before the internet, the amount of product information available to consumers was very limited and product research would invariably have involved visits to local stores to gather additional information before deciding on a purchase. The internet fundamentally transformed not only how we gather product information prior to a purchase, but also where we make the purchase, with online buying increasingly available for a wide range of products.

Due to the widespread adoption of personal computers, tablets and smartphones the majority of today's consumers rely on the internet for product information. In Germany 79% of all consumers aged between 16 and 74 use the internet on a daily basis for information retrieval (Eurostat 2017). The tremendous growth of internet usage has led to a radical change in consumer behavior. Today, when a consumer recognizes her need for a new product it is likely that she will start searching for information on the internet (VuMA 2017). But consumers do not only use the internet for information, they also make all kinds of purchases online. In Germany 81% of all consumers who have access to the internet also buy items online (GlobalWebIndex 2017). Interestingly, though, despite consumer reliance on the internet for information search, in Germany the majority (60%) still prefer to buy products offline – in a local store (bevh and Boniversum 2016) – especially when shopping for food (93%), handyman tools (85%) and furniture items (79%). A recent survey finds that two-thirds of consumers say they research product information online at least occasionally before shopping for them in local stores (Skrovan 2017), and thus the phenomenon of *research shopping* – searching online and buying offline – has become common among consumers (Verhoef et al. 2007).

As of today, search engines such as Google or Bing are considered to be the standard gateway for gathering product information on the internet (EY 2011). In Germany over 23 million consumers use search engines on a daily basis to retrieve information (VuMA 2017). In other words, it is likely that when a consumer in Germany recognizes her need for a new sofa she will use a search engine such as Google – whose current market share in Germany is 87% (StatCounter 2017) – to gather information. When a consumer undertakes a search request she will be exposed to a search engine result page (SERP) on which a variety of retailers and their offers are listed (Figure 1). A SERP consists of paid search results, which can be bought by advertisers, and organic search results, which are determined by the search engine itself.

Figure 1. Screenshot of a Google SERP¹ (Screenshot / © Google)

The screenshot shows a Google search for 'sofa kaufen'. The search bar is at the top with the Google logo. Below the search bar, there are navigation tabs: 'Alle', 'Shopping', 'Bilder', 'Maps', 'News', 'Mehr', 'Einstellungen', and 'Tools'. The search results are displayed below, with a note that approximately 8,600,000 results were found in 0.63 seconds. The results are categorized into 'Paid Search Results' and 'Organic Search Results'.

Paid Search Results:

- Traumhafte Sofas - Versand in die Wohnung: Gratis - home24.de** (Anzeige) www.home24.de/sofas/shop. 4.5 stars rating. Hochwertige Sofas bestellen. Über 1 Million begeisterte Kunden! Marken: Rauch, Tom Tailor, Ars Manufact, Ars Natura, Morteens, Smood, KINX, SKÖP. Esstische ab 69,99 €, Stühle ab 44,99 €, Betten ab 69,99 €.
- Sale bei Möbel-finke - Einzelstücke stark reduziert - finke.de** (Anzeige) www.finke.de/Sale. Die schönsten Möbelstücke zu den besten Preisen. Jetzt Schnäppchen sichern! Optionen: Erfurt/Eisleben, Hamm, Jena-Lobeda, Kassel-Fuldabrück, Münster. Kategorien: Polstermöbel, Günstige Küchen, Möbel, Schlafzimmermöbel, Elektrogeräte. Paderbornerstrasse 97, Paderborn - Heute geöffnet - 10:00-20:00 Uhr.
- Sofa Kaufen - Lieber gleich zum Testsieger - multipolster.de** (Anzeige) www.multipolster.de/Sofa/Multipolster. Hochwertige & Modische Sofas bei Multipolster - Gleich Probestitzen!
- IKEA Sofas - Inspirieren lassen & bestellen - IKEA.com** (Anzeige) www.ikea.com/de/Sofas. Hier findest du alles was du für dein Zuhause brauchst: dein IKEA Online Shop.

Organic Search Results:

- Sofa & Couch günstig online kaufen | Höffner - Möbel Höffner** https://www.hoeffner.de/sofas. Sofas Entspannen, lesen, fernsehen: Auf einem Sofa verbringt man gern Zeit mit der ganzen Familie, es ist oft der zentrale Punkt im Wohnbereich. Deshalb sollte man sich mit seinem Sofa wohlfühlen und das Richtige wählen. Finden Sie Ihr Lieblingsmodell im vielfältigen Sortiment: ob mit pflegeleichten Stoffen, Leder oder ... Smart Big Sofa Tonja Kleines Lounge-Sofa Cher Smart Schwarzes Design-Sofa ...
- Sofas zum halben Preis: Sofas & Couches günstig kaufen** https://www.sofaszumhalbenpreis.de/. Sehr günstige Polstermöbel kaufen >> Sofas & Couches * Wohnlandschaften * Polsterecken * Garnituren * Bigsofas * Große Auswahl an Sofas zum halben Preis. 2er-Sofa - Einzelsofas - 3er-Sofa - Einzelsofas - Deutschlands echter Sofa - Ecksofas

Accordingly, as a retailer being listed on various SERPs in response to different search requests is crucial to reach potential customers during their search phase (Georgallides 2017). Due to the shift in search behavior, consumers might no longer even consider buying at retailers that do not appear on relevant SERPs (Chan et al. 2011). Three distinct types of retailers are likely to appear on SERPs (Table 1).

Table 1. Retailer Types

Retailer Type	Purchase Channel	
	Online (i.e., Webshop)	Offline (i.e., Local Store)
Online-Only	✓	Not available
Multi-Channel	✓	✓
Bricks-and-Mortar	Not Available	✓

¹ To account for our German research environment all screenshots display search requests in the German language.

Analyzing a variety of search requests on SERPs has revealed that especially bricks-and-mortar retailers face one major problem when trying to reach consumers via a search engine. As can be seen in Table 2, when consumers in Germany type in a product-specific search request such as “buying a sofa” the search engine will primarily list online-only and multi-channel retailers in the organic search results. In this example, only one out of 50 organic search results lists a bricks-and-mortar retailer.

Table 2. Organic Search Results for Different Search Requests²

Search Request	buying a sofa	buying an armchair	buying an upholstered furniture	buying furniture	buying bath furniture
	(German Search Request: sofa kaufen)	(German Search Request: sessel kaufen)	(German Search Request: polstermöbel kaufen)	(German Search Request: möbel kaufen)	(German Search Request: badmöbel kaufen)
Organic Results					
1	hoeffner	otto	moebel	poco	badshop
2	Sofas zum halben preis	hoeffner	roller	xxxlshop	reuter
3	otto	roller	otto	moebel	obi
4	home24	baur	poco	baur	megabad
5	roller	ikea	home24	otto	moebel
6	poco	moebel.ladenzeile	baur	otto	otto
7	quelle	ebay	online-moebel-kaufen	quelle	otto
8	moebel	amazon	multipolster	home24	baur
9	xxxlshop	real	ikea	depot-online	hornbach
10	ebay-kleinanzeigen	poco	moebel boss	ebay-kleinanzeigen	hoeffner

Notes: Indicate Bricks-and-Mortar Retailer; Search Requests were performed 01/2018, in Paderborn, Using Google Chrome

The reason why bricks-and-mortar retailers are less likely to be listed for various search requests (Table 2) is that the search engines’ relevancy algorithm determines that retailers who sell their products online provide better informational value compared to traditional bricks-and-mortar retailers (Google 2018). For the latter the challenge is to surpass online retailers by offering better informational value via their websites, but this might be difficult as companies who sell online are likely to provide a richer online

² The depicted search requests are a subset of all performed requests. Other search requests yielded comparable results.

experience with detailed product information, product images and additional features to enable consumers to inspect distinct product features. Alternatively, bricks-and-mortar retailers could secure a listing on a SERP by investing in paid search (Figure 1, Paid Search Results) to reach potential customers.

As of today, paid search is one of the most popular online advertising instruments (Abou Nabout et al. 2014) accounting for about 43% (US\$ 88 bn) of global internet advertising revenue in 2017 (Zenith 2017). As such, paid search has received a high degree of scholarly interest (Jafarzadeh et al. 2015) especially in the fields of Information Systems and Marketing (Rutz and Bucklin 2013). However, despite this high level of scholarly attention, the current body of literature primarily analyses the impact of paid search on purchases made via the online channel (Schlangenotto et al. 2018a). Surprisingly, the current literature lacks any research on bricks-and-mortar retailers who sell their products solely via their local stores and invest in paid search to reach consumers during their search phase (see Chapter 3. Status Quo of Paid Search Research for further information). Considering that bricks-and-mortar retailers still represent one third of all retailers (e.g., bitkom 2017; sdworx 2017), this represents a blatant gap in the literature. Furthermore, recent findings suggest that consumer behavior differs substantially depending on the purchase channels offered (Ayanso and Mokaya 2013), which makes it doubtful whether current findings in paid search research – derived entirely from studies involving online-only and multi-channel retailers – are at all applicable to bricks-and-mortar retailers.

Accordingly, the main goal of this dissertation is to enhance understanding of how bricks-and-mortar retailers should approach paid search. In order to extend the current scope of the literature, I teamed up with *finke Das Erlebnis-Einrichten GmbH & Co. KG* (in the following referred to as *finke*), a German bricks-and-mortar furniture retail chain. My partnering firm can be considered a stereotypical bricks-and-mortar retailer intent on adapting to the changes in consumer behavior and therefore relying on paid search to reach consumers during their online search phase and guide them to a purchase in a local store.

This dissertation comprises six research papers. First, I assess the current state of the literature in a systematic literature review in regard to paid search, from which I derive empirical generalizations to outline a future research agenda (Schlangenotto et al. 2018a). Based on this review, the subsequent five empirical papers focus on the main decisions that every bricks-and-mortar retailer faces when approaching paid search. Each paper explores one of the core questions, respectively, whether bricks-and-mortar retailers should invest in paid search (Schlangenotto et al. 2018b; Schlangenotto 2018), which search requests they should buy (Schlangenotto and Kundisch 2017), where they should place their ads on a SERP (Schlangenotto et al. 2017) and how they should phrase their ads (Schlangenotto and Kundisch 2016).

The synopsis of this dissertation is structured as follows: The next section (Section 2) provides an overview of paid search and its specific elements. Section 3 reviews the current state of the literature and presents the current gap in the literature. Section 4 introduces the research environment. Building on this, an overview of the six papers of this dissertation is given in Section 5, including summary tables with detailed information regarding the contributions of co-authors and the scientific dissemination in the form of presentations and publications. Finally, Section 6 draws out the implications based on the submitted papers, explains their limitations, and outlines avenues for future research.

2. Concept of Paid Search

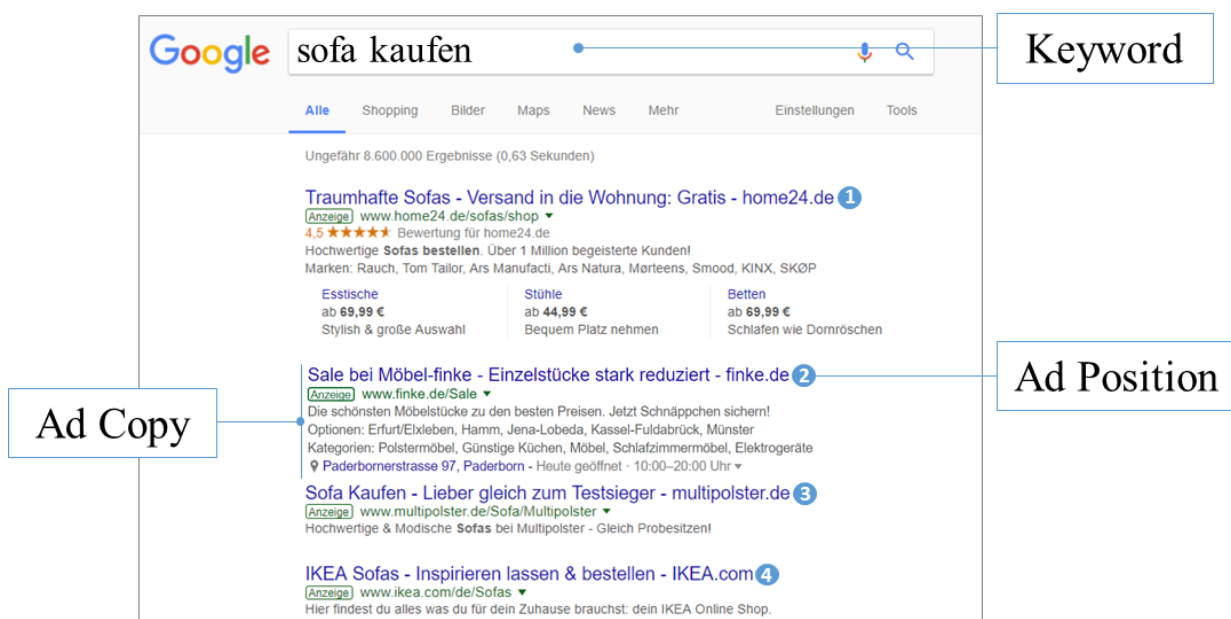
Paid search allows advertisers to place contextually matching ads in response to consumer search requests on a SERP. A paid ad is defined as a rather short textual *ad copy* (Figure 2). Consumers who click on a paid ad will be taken to the website of the focal advertiser. Advertisers can place bids for specific search requests, also coined as *keywords* (e.g., “buying a sofa”) for which they want to be displayed on a SERP. When a consumer enters a keyword for which bids are placed, the search engine determines the individual *ad position* based on a modified second-price auction. In paid search, the auctioning mechanism assigns ad positions based on each advertiser’s willingness to pay, combined with a relevancy factor which grades the quality of the website and the paid ad for a given keyword. In other words, the number of advertisers who placed bids for a keyword, their willingness to pay, as well as their individual relevancy factors, determine the total number of paid ads as well as their individual ad position. In paid search, a pay-per-click billing mechanism is used. Therefore, advertisers will only pay the auctioned price when a consumer clicks on one of their ads. Today, all major search engines rely on a modified second-price auction and display paid ads in a comparable fashion.

Figure 2. Ad Copy in Paid Search (Screenshot / © Google)



By way of illustration (Figure 3), based on the example of my partnering bricks-and-mortar retailer *finke*, the firm placed a bid for the keyword “buying a sofa” and their ad copy was displayed on ad position 2. Every time a consumer clicked on their ad the retailer would pay approximately between 0.7 € - 1.5 € (depending on the competition) to the search engine.

Figure 3. Ad Copies Placed on a SERP (Screenshot / © Google)



3. Status Quo of Paid Search Research

The unique features of paid search, such as selling ads via modified second-price auctions and its targeting options, have become the object of investigation for several avenues for research (Dhar and Ghose 2010). The current body of the literature can be divided into analytical work, which analyses the paid search auctioning mechanism, and empirical research, which focuses on the question of how advertisers should approach paid search (Desai et al. 2014).

In the analytical stream of the literature scholars have focused on the impact of the auctioning mechanism on market outcome (Chen et al. 2009; Varian 2007), on strategic auctioning behavior of advertisers (Edelman and Ostrovsky 2007; Katona and Sárváry 2010), and on the effect of changes in the auctioning mechanism of a search engine (Amaldoss et al. 2015; Dellarocas 2012).

In the empirical stream, which is the one we are concerned with here, the current body of knowledge can be classified along the four main decisions that advertisers face in the context of paid search. The first relates to the decision an advertiser has to make, that is, whether they want to invest at all in paid search (Dinner et al. 2014; Wiesel et al. 2011). When investing in paid search, advertisers need to decide upon a number of questions, including how to phrase their ad copy (Animesh et al. 2011; Yang et al. 2017), which keywords to buy (Lu and Zhao 2014; Rutz and Bucklin 2011) and which ad position to target (Ghose and Yang 2009; Narayanan and Kalyanam 2015). It is worth noting that advertisers might need to consider additional context-specific questions. However, in order to execute a paid search campaign, a retailer needs to answer at least the four core questions cited above. It is also known that consumer purchasing behavior in the context of paid search is influenced by the purchase channels a retailer offers (Ayanso and Mokaya 2013). Accordingly, one needs to evaluate findings in the light of the different retailer types shown in Table 1.

3.1 Review Strategy

To evaluate the current body of empirical research, I adopted a systematic review strategy (vom Brocke et al. 2015; Webster and Watson 2002). In particular, following Levy and Ellis's (2006) suggestion, I conducted my literature search in three stages. The first step involved a keyword search via Google Scholar using a variety of terms most commonly used by scholars to refer to paid search.³ This allowed me to identify articles using the term I adopt in this dissertation (i.e., paid search) as well as the most popular alternative terms such as "search engine advertising" (Ghose and Yang 2009) and "sponsored search" (Edelman et al. 2007) in prior research. In the second step, I conducted a forward search on Google Scholar using the 'cited by' field for all articles identified in the first stage. Third, for all the

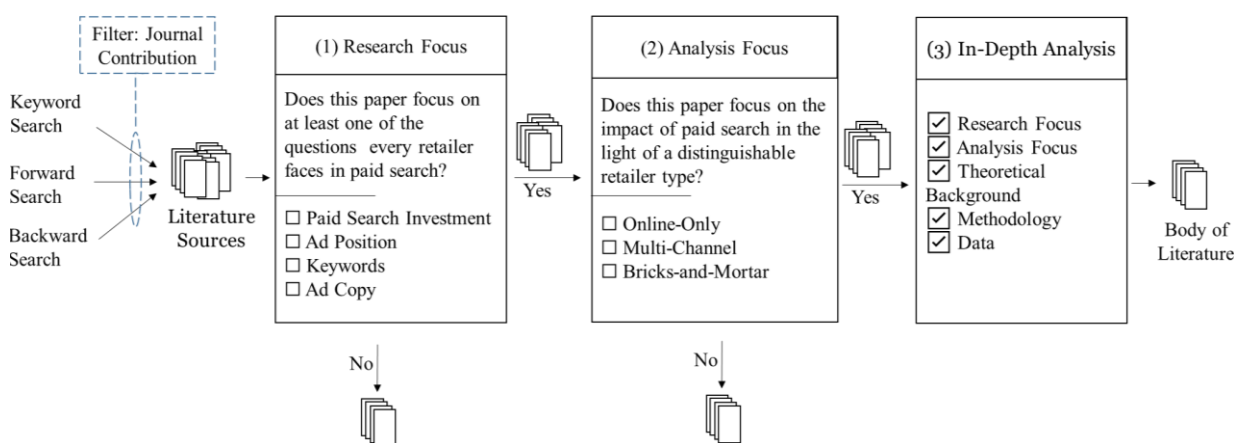
³ Complete search string: "paid search" OR "paid search advertising" OR "paid search marketing" OR "search engine advertising" OR "search engine marketing" OR "sponsored search advertising" OR "sponsored search marketing"

publications identified in the previous stages, I performed a backward search by evaluating all the sources that were cited within these papers.

As paid search has received a high degree of scholarly interest (Jafarzadeh et al. 2015) across various research fields (Rutz and Bucklin 2013), I did not restrict my literature search to certain outlets and instead considered all articles published in the journals listed in the Harzing Journal Quality List⁴. Furthermore, to minimize the risk of leaving out any important contributions, I considered all articles published since 2007 (until 08/2017), as this year marks the beginning of research into paid search which relies on the modified second-price auction to sell paid ads (Edelman et al. 2007).

Figure 4 depicts my review strategy. Research papers that were either found via the keyword, forward or backward search were analyzed regarding their research focus. All papers that had focused on the question of how retailers should approach paid search were analyzed in regard to the analysis focus. All the papers within that research focus and which were relevant due to its analysis focus were evaluated in detail and included in the body of literature.

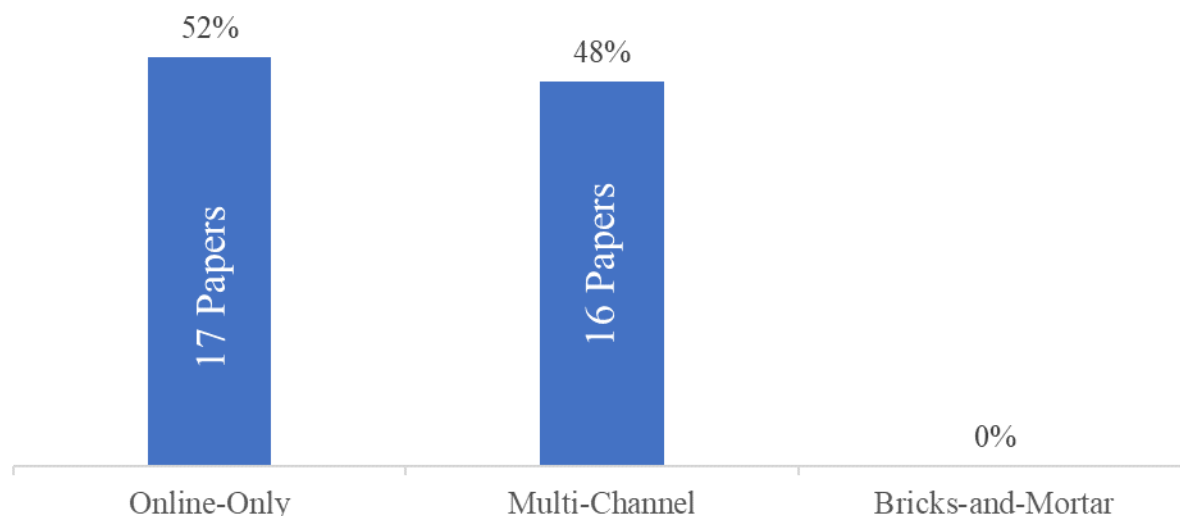
Figure 4. Review Strategy



3.2 Body of Literature

The literature review identified 33 journal articles (Table 3). As can be seen in Figure 5, when distinguishing research papers by their respective research context, the current body of literature solely investigates online-only and multi-channel retailers and entirely lacks research on the question of how paid search should be approached by bricks-and-mortar retailers.

⁴ I relied on the sixtieth edition of the Harzing Journal Quality List (https://harzing.com/download/jql60_title.pdf).

Figure 5. Current State of the Literature, Grouped by Purchase Channels

This gap in the literature could be considered especially problematic in the light of the contradictory findings in the current state of the literature. For example, both Wiesel et al. (2011) and Dinner et al. (2014) report that multi-channel retailers can by and large benefit from an investment in paid search, whereas Blake et al. (2015) report that for an online-only retailer an investment in paid search fails to increase sales. Analyzing the impact of different ad positions, Ghose and Yang (2009) as well as Rutz et al. (2012) report that highly visible ad positions are favorable for multi-channel retailers. By contrast, Agarwal et al. (2011) conclude that less visible ad positions might be better suited for online-only retailers.

It is also important to note that the majority of empirical research papers (74%) rely on observational datasets (Table 3). The problem with this, as Blake et al. (2015) reason, is that current correlational analyses do not sufficiently account for a specific endogeneity concern that arises from the pay-per-click billing mechanism in paid search where the retailer will be charged for every direct consumer click made in response to their ad. Therefore, the amount spent on paid search is a function determined by the number of responses to the ad. However, the scholars argue that a click on a paid ad is not necessarily a response to the advertisement presented to the consumer. For example, a consumer might use a paid ad just as a navigational shortcut to reach websites which they would have visited anyway during their search phase. Accordingly, scholars need to be aware of the fact that a correlational analysis might systematically overestimate the impact of paid search campaigns.

In summary, the current state of the literature suffers from an over-reliance on correlational analyses while altogether lacking research on bricks-and-mortar retailers. Furthermore, divergent findings in the current body of the literature underpin the need to expand the current scope to offer empirical guidance on how bricks-and-mortar retailers should approach paid search.

Table 3. Current State of the Literature

Retailer Type	Research Focus				Theoretical Background	Methodology	Data			Source	
	Paid Search Investment	Ad Position	Keywords	Ad Copy			Observational	Field Experiment	Lab Experiment		
Online-Only	✓		✓		Shopping Goals Theory	Logit Regression	✓			Lu and Zhao (2014)	
	✓				None	Bayesian Modeling		✓		Agarwal et al. (2015)	
	✓				None	Markov Model	✓			Anderl et al. (2016)	
	✓				None	Differences-in-Differences		✓		Blake et al. (2015)	
	✓				None	SVAR Model	✓			Haan et al. (2016)	
	✓				None	Reinforcement Learning	✓			Zhang et al. (2014)	
			✓		✓	Consumer Search Theory	Linear Regression		✓		Animesh et al. (2011)
			✓			None	Regression	✓			Narayanan and Kalyanam (2015)
			✓		✓	None	Bayesian Modeling	✓			Rutz and Trusov (2011)
			✓			Serial Position Effect	ANOVA	✓			Jansen et al. (2013)
			✓			None	Bayesian Modeling		✓		Agarwal et al. (2011)
						None	Poisson Regression	✓			Li et al. (2010)
						None	Logit Regression	✓			Bulut (2015)
						Search Depth,Search Breadth	Linear Regression	✓			Im et al. (2016)
						None	Bayesian Modeling	✓			Du et al. (2017)
				✓	Consumer Search Theory, Goal Subordination Theory	Linear regression		✓		Yang et al. (2017)	
				✓	Persuasion Theory	Logit Regression		✓		Haans et al. (2013)	
Multi-Channel	✓				None	Linear Regression	✓			Dinner et al. (2014)	
	✓				None	Persistence Modeling	✓			Kireyev et al. (2016)	
	✓				None	Bayesian Modeling	✓	✓		Li and Kannan (2014)	
	✓				None	Vector Autoregressive Model	✓			Pauwels et al. (2016)	
	✓				None	Differences-in-Differences		✓		Wiesel et al. (2011)	
	✓				None	Bayesian Modeling	✓			Chan et al. (2011)	
					✓	Ad Clutter Theory	Linear Regression	✓		✓	Chiou and Tucker (2012)
			✓			None	Bayesian Modeling	✓			Ghose and Yang (2009)
			✓			None	Bayesian Modeling	✓			Rutz et al. (2012)
					✓	Information Processing Theory	ANOVA	✓			Jansen and Schuster (2011)
					✓	None	Linear Regression	✓			Skiera et al. (2010)
					✓	None	ANOVA	✓			Mukherjee and Jansen (2014)
					✓	None	Bayesian Elastic Net	✓			Rutz et al. (2011)
					✓	None	Bayesian Modeling	✓			Rutz and Bucklin (2011)
					✓	✓	Signaling Theory, Information Foraging	ANOVA	✓		Jansen et al. (2011)
				✓	None	Cross-Tabulation	✓			Atkinson et al. (2014)	
Bricks-and-Mortar										<i>No Research Conducted</i>	

4. Research Environment

To extend the current scope of the literature I teamed up with *finke*, a bricks-and-mortar business-to-consumer (b2c) furniture retailer in Germany. The retailer offers a wide selection of furniture items and furniture-related accessories via their local stores.

At the time of writing, the retailer's website is primarily used to advertise products sold in its local stores, with online purchases not available. Altogether, the stores attract over two million visitors annually and employ more than 1,500 people. In terms of revenue, the chain is listed as one of the top 20 b2c furniture retail chains in Germany. The retailer invests significantly in print, billboard and radio advertising. Polls conducted by the firm show that the brand is well-known and regarded in its respective advertising regions. This retailer can be seen as a stereotypical bricks-and-mortar retailer with a long-standing experience in selling products via their local stores, and seeking ways to adapt to changing consumer behavior.

The retailer's six stores span from the West of Germany to the East (Figure 6), each serving a regional market. Additionally, stores can be grouped - e.g. by store size - to ensure a comparable advertising reach and by revenue per customer (e.g., Schlangenotto et al. 2018b). Accordingly, the research environment allows for experimental design settings and, due to the market share of the retailer, a generalizability of obtained findings might be possible.

Figure 6. Store Locations (Screenshot / © finke)



5. Overview and Contribution

This thesis comprises six research papers. Table 4 interrelates the submitted studies to the classification of the current state of the literature (Table 3). The first paper, Schlangenotto et al. (2018a), provides an in-depth review of the current state of the empirical literature. Building on this literature, the four central questions that a bricks-and-mortar retailer needs to consider when approaching paid search are addressed in the subsequent five research papers. The questions that each paper explores empirically, one by one, are: Should bricks-and-mortar retailers invest in paid search (Schlangenotto et al. 2018b; Schlangenotto 2018), for which keywords should they place bids (Schlangenotto and Kundisch 2017), which ad positions should they target (Schlangenotto et al. 2017) and how should they phrase their ad copies (Schlangenotto and Kundisch 2016)?

Table 4. Own Contribution – Overview

Retailer Type	Research Focus				Theoretical Background	Methodology	Data			Source
	Paid Search Investment	Keywords	Ad Position	Ad Copy			Observational	Field Experiment	Lab Experiment	
Online-Only / Multi-Channel / Bricks-and-Mortar	✓	✓	✓	✓	Not Applicable	Systematic Literature Review				Schlangenotto et al. (2018a)
	✓				Consumer Decision Process	Differences-in-Differences		✓		Schlangenotto et al. (2018b)
	✓				Competition for Attention	Linear Regression		✓		Schlangenotto (2018)
Bricks-and-Mortar		✓			Information Cues	Logit Regression		✓		Schlangenotto and Kundisch (2017)
			✓		Sequential Scanning, Search Intensity	Differences-in-Differences		✓		Schlangenotto et al. (2017)
				✓	Attention-Interest-Desire-Action Framework	Logit Regression		✓		Schlangenotto and Kundisch (2016)

For each of the studies included in this dissertation the following sub-sections provide a brief summary and details of the scientific contributions made by the respective authors, and of the dissemination of research findings in the form of presentations and publications.

5.1 Schlangenotto et al. (2018a)

In this paper we provide a literature review on the empirical stream of paid search research. We follow a systematic review process (vom Brocke et al. 2015) to identify the central concepts (Webster and Watson 2002) that need to be considered in order to provide successful paid search campaigns. The literature review is based on a keyword search in which 821 sources were evaluated, combined with a forward as well as a backward search for all articles classified as relevant. With our study we provide guidance for both researchers and practitioners by identifying central concepts as well as interdependencies between ad copies, keywords and ad positions which affect consumer behavior. By identifying these concepts, our work offers valuable insights into the factors that researchers need to consider when empirically studying paid search impact in their respective research context. We then draw empirical generalizations and propose a future research agenda to advance the research field further.

Table 5. Schlangenotto et al. (2018a) – Joint Work, Presentations, Dissemination

	Co-authorship with D. Kundisch and M. Poniowski (60% D. Schlangenotto, 25% M. Poniowski, 15% D. Kundisch)
Joint Work	<ul style="list-style-type: none">▪ Literature review jointly with M. Poniowski▪ Positioning of the paper jointly with D. Kundisch▪ Write-up of the paper by D. Schlangenotto▪ Feedback, comments, and corrections by D. Kundisch
Presentations	The paper has not been presented at any conference or workshop
Scientific Dissemination	<ul style="list-style-type: none">▪ The work on this paper started in January 2015▪ Current Version: February 2018▪ We submitted a shortened version to Americas Conference on Information Systems (AMCIS), 2018▪ We plan to submit an extended version of this paper to the Journal of the Association for Information Systems

5.2 Schlangenotto et al. (2018b)

In Schlangenotto et al. (2018b) we investigate the question whether an investment in paid search is able to increase local store purchases for bricks-and-mortar retailers. In particular, we draw on the consumer decision process towards a purchase to predict consumer behavior in the online as well as the offline environment. To find out whether paid search affects local store sales, we conduct a field experiment in combination with an end-to-end tracking mechanism to allow for causal claims in regard to consumer behavior in the online and the offline context. Our empirical results suggest that, whilst paid search increases the number of potential customers through enhancing the reach of marketing initiatives, store sales are not increased. In our empirical study, customers who perform research shopping primarily use paid search as a navigational shortcut to the retailer’s website.

Table 6. Schlangenotto et al. (2018b) – Joint Work, Presentations, Dissemination

	Co-authorship with N. Wunderlich and D. Kundisch (50% D. Schlangenotto, 30% D. Kundisch, 20% N. Wunderlich)
Joint Work	<ul style="list-style-type: none"> ▪ Concretization of the research question joint with D. Kundisch ▪ Literature review jointly with N. Wunderlich ▪ Positioning of the paper jointly with N. Wunderlich and D. Kundisch ▪ Hypotheses development jointly with N. Wunderlich and D. Kundisch ▪ Field experiment planned and conducted by D. Schlangenotto ▪ Statistical analysis performed by D. Schlangenotto ▪ Write-up of paper jointly with N. Wunderlich and D. Kundisch ▪ Write-up of the responses to the EM-Journal reviewers and revision of the paper by D. Schlangenotto (Two review rounds) ▪ Feedback, comments and corrections by D. Kundisch and N. Wunderlich
Presentations	<ul style="list-style-type: none"> ▪ 02/2015: Doctorial Seminar “Field Experiments” ▪ 02/2017: Tagung Wirtschaftsinformatik (WI), St. Gallen, Swiss ▪ 01/2018: Marketing MTP Seminar, Paderborn, Germany
Scientific Dissemination	<ul style="list-style-type: none"> ▪ The work on this paper started in October 2014 ▪ An extended abstract of the paper is published in the proceedings of the Tagung Wirtschaftsinformatik (WI), 2017 (VHB Jourqual 3 ranking: C) ▪ An earlier version of the full paper was awarded with the best paper award of the Tagung Wirtschaftsinformatik (WI), 2017 (VHB Jourqual 3 ranking: C) ▪ The full paper is accepted for publication in Electronic Markets (VHB Jourqual 3 ranking: B)

5.3 Schlangenotto (2018)

In Schlangenotto (2018) I focus on the question whether bricks-and-mortar retailers should solely invest in paid ads for a major search engine (i.e., Google) or whether they should include websites of so-called search partners (e.g., T-Online.de). In particular, I draw on the competition-for-attention framework to predict consumer behavior. The results of the performed field experiment suggest that consumers are less likely to click on a paid ad when searching on search partner websites. However, after clicking on a paid ad, subsequent behavior remains unaffected regardless of whether the ad was shown on a partner's or on a search engine's website. Due to the pay-per-click billing this combination allows marketers to increase campaign reach at no additional costs. Our findings suggest that bricks-and-mortar retailers could largely benefit from advertising on search partner websites.

Table 7. Schlangenotto (2018) – Joint Work, Presentations, Dissemination

	Single authored paper
Joint Work	
Presentations	<ul style="list-style-type: none">▪ 09/2017: Department of Business Information Systems Research Seminar (Paderborn University), Lippstadt, Germany▪ 03/2018: Tagung Multikonferenz Wirtschaftsinformatik (MKWI), Lüneburg, Germany (Accepted for Presentation)
Scientific Dissemination	<ul style="list-style-type: none">▪ The work on this paper started in February 2017▪ The paper is accepted for publication in the proceedings of the Tagung Multikonferenz Wirtschaftsinformatik (MKWI), Lüneburg, Germany, 2018 (VHB Jourqual 3 ranking: D)

5.4 Schlangenotto and Kundisch (2017)

Schlangenotto and Kundisch (2017) analyze the interrelation between different keywords and ad copies. In particular, we make use of information cues to craft various ad copies. The results of our field experiment suggest that reducing the number of words in an ad is not always beneficial. Consumers act quite differently in response to an information cue depending on which keywords they have used. At least in our case, bricks-and-mortar retailers could leverage the observed moderating effect of an information cue in relation to different keywords to enhance paid search efficiency.

Table 7. Schlangenotto and Kundisch (2017) – Joint Work, Presentations, Dissemination

	Co-authorship with D. Kundisch (65% D. Schlangenotto, 35% D. Kundisch)
Joint Work	<ul style="list-style-type: none">▪ Literature review by D. Schlangenotto▪ Concretization of the research question jointly with D. Kundisch▪ Positioning of the paper jointly with D. Kundisch▪ Hypotheses development jointly with D. Kundisch▪ Field experiment planned and conducted by D. Schlangenotto▪ Statistical analysis performed by D. Schlangenotto▪ Write-up of paper by D. Schlangenotto. Feedback, comments and corrections by D. Kundisch▪ Write-up of the response to the HICSS reviewers and revision of the paper by D. Schlangenotto▪ Feedback, comments and corrections by D. Kundisch
Presentations	<ul style="list-style-type: none">▪ 01/2017: 50th Hawaii International Conference on System Sciences (HICSS), Hawaii, USA
Scientific Dissemination	<ul style="list-style-type: none">▪ The work on this paper started in May 2016▪ The paper is published in the proceedings of the Hawaii International Conference on System Sciences (HICSS), Hawaii, USA, 2017 (VHB Jourqual 3 ranking: C)

5.5 Schlangenotto et al. (2017)

In Schlangenotto et al. (2017) we investigate the question whether bricks-and-mortar retailers could allocate marketing budgets more efficiently by targeting less prominent ad positions. To do this, we draw on the concept of sequential scanning and search intensity to predict consumer behavior in both the online and the offline environment. The results from our field experiment suggest that targeting less prominent ad positions might be highly beneficial for bricks-and-mortar retailers. At least in our case, bricks-and-mortar retailers can reduce advertising costs while simultaneously enhancing advertising benefits when targeting less prominent ad positions.

Table 8. Schlangenotto et al. (2017) – Joint Work, Presentations, Dissemination

	Co-authorship with D. Kundisch and D. Gutt (70% D. Schlangenotto, 15% D. Kundisch, 15% D. Gutt)
Joint Work	<ul style="list-style-type: none"> ▪ Literature review by D. Schlangenotto ▪ Concretization of the research question by D. Schlangenotto ▪ Positioning of the paper jointly with D. Kundisch ▪ Hypotheses development by D. Schlangenotto ▪ Field experiment planned and conducted by D. Schlangenotto ▪ Statistical analysis jointly with D. Gutt ▪ Write-up of paper by D. Schlangenotto. Feedback, comments and corrections by D. Kundisch ▪ Write-up of the response to the ICIS reviewers and revision of the paper by D. Schlangenotto ▪ Feedback, comments and corrections by D. Kundisch and D. Gutt
Presentations	<ul style="list-style-type: none"> ▪ 11/2016: Doctoral Workshop, Paderborn University ▪ 06/2017: European Conference on Information Systems (ECIS), Guimarães, Portugal ▪ 12/2017: International Conference on Information Systems (ICIS), Seoul, South Korea
Scientific Dissemination	<ul style="list-style-type: none"> ▪ The work on this paper started in September 2016. ▪ A research-in-progress version of the paper is published in the proceedings of the European Conference on Information Systems (ECIS), 2017 (VHB Jourqual 3 ranking: B) ▪ The full paper is published in the proceedings of the International Conference on Information Systems (ICIS), 2017 (VHB Jourqual 3 ranking: A)

5.6 Schlangenotto and Kundisch (2016)

In the last paper, Schlangenotto and Kundisch (2016), we investigate the question whether bricks-and-mortar retailers should use an explicit call-to-action in their ad copies to increase marketing efficiency. In particular, we employ the Attention-Interest-Desire-Action framework to predict consumer behavior. The results obtained from our field experiment reveal that contrary to prevalent advice, a call-to-action does not necessarily enhance paid search efficiency. In our study we are able to identify a phrasing scheme which allows bricks-and-mortar retailers to enhance paid search efficiency.

Table 9. Schlangenotto and Kundisch (2016) – Joint Work, Presentations, Dissemination

Co-authorship with D. Kundisch (60% D. Schlangenotto, 40% Kundisch)	
Joint Work	<ul style="list-style-type: none">▪ Literature review by D. Schlangenotto▪ Concretization of the research question jointly with D. Kundisch▪ Positioning of the paper jointly with D. Kundisch▪ Hypotheses development jointly with D. Kundisch▪ Field experiment planned and conducted by D. Schlangenotto▪ Statistical analysis performed by D. Schlangenotto▪ Write-up of paper by D. Schlangenotto▪ Write-up of the response to the ECIS reviewers and revision of the paper by D. Schlangenotto▪ Feedback, comments and corrections by D. Kundisch
Presentations	<ul style="list-style-type: none">▪ 01/2016: Marketing MTP Seminar, Paderborn, Germany▪ 06/2016: Twenty-Fourth European Conference on Information Systems (ECIS), Istanbul, Turkey
Joint Work	<ul style="list-style-type: none">▪ The work on this paper started in June 2015▪ The paper is published in the proceedings of the European Conference of Information Systems (ECIS), 2016 (VHB Jourqual 3 ranking: B)

6. Conclusion

The research papers provided in this dissertation conclude that consumers perform research shopping and that bricks-and-mortar retailers can successfully rely on paid search to reach consumers during their search phase (Schlangenotto et al. 2018b). Our results suggest that bricks-and-mortar retailers can further increase paid search efficiency by making use of ad copy phrasing schemes (Schlangenotto and Kundisch 2016), buying specific keywords (Schlangenotto and Kundisch 2017), and targeting specific ad positions (Schlangenotto et al. 2017). The studies presented here reveal that leveraging those distinct features allows bricks-and-mortar retailers to reach consumers who are more likely to perform a desired action. In addition, advertisers need to consider distinct targeting options offered by a search engine. For example, including so-called search partners allows bricks-and-mortar retailer to increase paid search efficiency even further (Schlangenotto 2018).

6.1 Implications

Our results indicate that bricks-and-mortar retailers can reliably use paid search to reach additional consumers during their search phase and entice them to perform desired actions such as downloading a coupon (Schlangenotto et al. 2017) or participating in a lottery (Schlangenotto and Kundisch 2017) on the retailer's website. However, my research findings also show that the impact of paid search might be limited to the online environment as it entirely fails to translate into an increase in purchases made in local stores (Schlangenotto et al. 2018b). From a bricks-and-mortar retailer perspective, the realization that the impact of paid search might be limited to marketing initiatives which only affect consumer's online actions, but fail to translate into offline sales (the only ones available to these types of retailers), is of course highly problematic. In other words, one of the main advantages of paid search – its ability to increase sales (Wiesel et al. 2011) – seems not to be applicable to bricks-and-mortar retailers. Bricks-and-mortar retailers should therefore approach paid search with caution and primarily use it to reach additional consumers during their search phase, guide them to their website and elicit actions which can be performed online (e.g., participation in a lottery). From a researcher's perspective, my findings highlight the necessity for empirical research to extend the measurement of marketing impacts of paid search from the online to the offline environment, and to study customer behavior occurring in, and interacting between, the two environments. As the results indicate, consumers behave differently in an online-only shopping environment compared to using the internet for research shopping for products that can only be purchased offline (or for which there is a lingering preference for offline shopping). This means that one cannot reliably infer that consumer behavior in the online environment (e.g., downloading a coupon) translates into shopping behavior in the offline environment. Accordingly, researchers need to design empirical studies appropriately and employ suitable measurement techniques to test whether claims made for one environment apply to the other as well.

Obtained results also reveal that bricks-and-mortar retailers need to consider consumers' brand awareness when crafting paid search campaigns. For example, in Schlangenotto et al. (2017) we empirically show that targeting a less prominent ad position allows a well-known bricks-and-mortar retailer to leverage their brand awareness and in turn increase paid search efficiency. In other words, bricks-and-mortar retailers need to factor in the brand awareness of consumers towards their brand as it is likely that brand perception might have a lasting influence on the effectiveness of chosen keywords, crafted ad copies as well as targeted ad positions. From a researcher's perspective our findings emphasize that paid search analyses need to be performed in the light of consumers' brand perception of a retailer. Accounting for potential brand awareness effects could advance the research field further as our findings indicate that this aspect should be considered. Indeed, as has been highlighted (Schlangenotto et al. 2018a), this aspect has been much neglected in current research .

Beyond that, the submitted studies further emphasize the need to rely on experimental methods to investigate consumer behavior in the context of paid search. Various submitted research papers highlight the fact that that presumably small changes (Schlangenotto and Kundisch 2016) might translate into differing and even counterintuitive behavior patterns (Schlangenotto and Kundisch 2017) and that practitioners as well as researchers are likely to misinterpret the impact of paid search when not relying on an experimental design setting (Schlangenotto 2018). Due to the over-reliance on correlational studies in paid search research (Table 3) and the apparent problems with correlational analyses (Blake et al. 2015; Schlangenotto et al. 2018b) researchers should consider relying more often on experiments or combining their observational analyses with field experiments (Li and Kannan 2014) to enhance the credibility of their findings.

6.2 Limitations

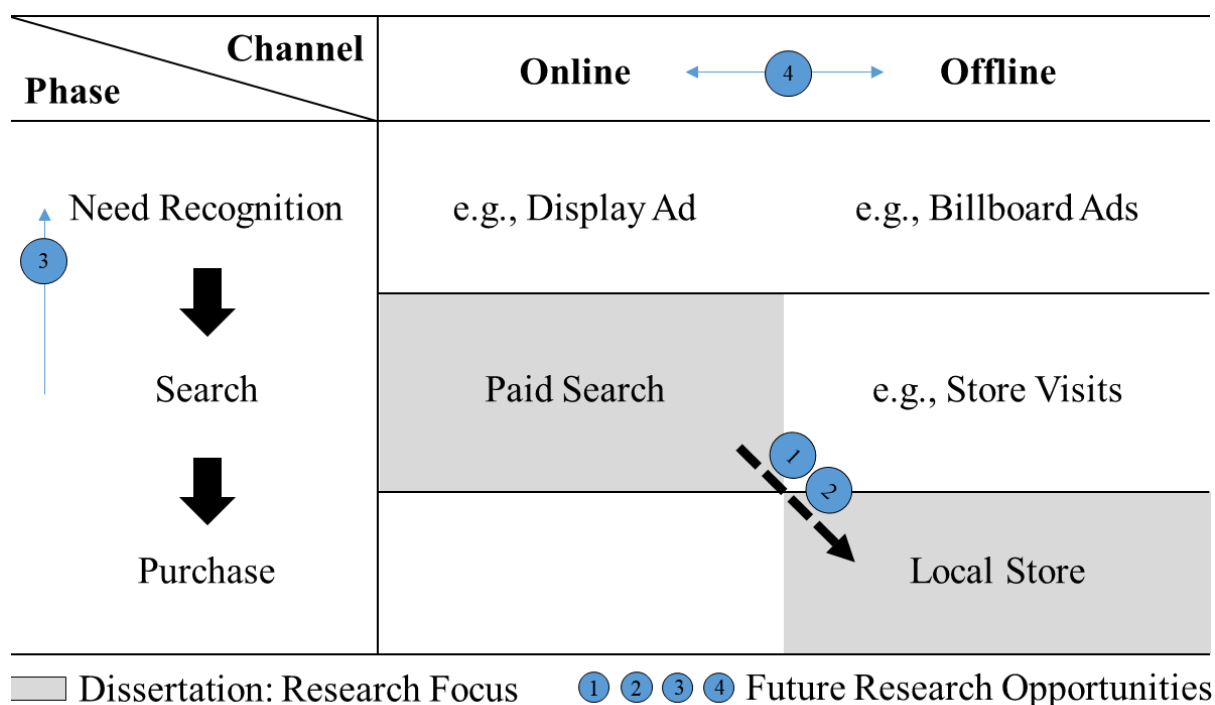
Our results emphasize that consumers often do not act as predicted (Schlangenotto and Kundisch 2017) and show distinctive behavior patterns in response to paid search. As this dissertation draws on findings from anonymous field experiments I am unable to provide rich detail regarding which factors determine the observed and distinct behavior patterns of consumers. Accordingly, this dissertation adds to the current body of literature by discovering empirical phenomena which should be viewed as a starting point to guide theory development (Ågerfalk 2014).

As all empirical papers rely on field experiments the internal validity of the obtained findings can be considered high (Bandiera et al. 2011), but external validity might be limited to the specific research context (furniture retail) and dependent on the different marketing initiatives which were used to measure the impact of paid search.

6.3 Future Research

This dissertation focuses on the search and purchase phase of the consumer purchase process (Lilien et al. 1992) from a bricks-and-mortar perspective. As depicted in Figure 7, the empirical research papers focus on the question of how bricks-and-mortar retailers should approach paid search to reach consumers during their online search phase and guide them to a purchase in a local store (offline channel). Based on the consumer purchase process, this opens up four potentially valuable avenues for future research (indicated by blue circles in Figure 7):

Figure 7. Research Opportunities investigating the Consumer Purchase Process



(1) Replication Studies: As all our results originate from one bricks-and-mortar retailer, future research might try to replicate our results to enhance the generalizability of our findings and provide boundaries for our research. Replication studies should rely on datasets which include additional information in regard to the observed consumers thus allowing researchers to derive further insights in regard to observed behavior patterns. In my view, it would be especially fruitful to replicate our study, with its focus on the question of whether paid search is able to enhance offline channel sales, in a variety of settings or types of products (Schlangenotto et al. 2018b). As the purpose of paid search is primarily to increase sales, replicating our study and providing further insights on this central question would be highly beneficial to advance the research field further.

(2) Theory Building: As this dissertation draws on findings from anonymous field experiments, future research could determine consumer characteristics and true intentions to provide a theoretical foundation for the differences in the observed behavior patterns in response to paid search. For example,

it might be valuable to follow a mixed method approach (Creswell 2014) combining quantitative analyses (as suggested: experiments and observational datasets) with qualitative approaches such as surveys to discover consumers' true intentions. Discovering consumer intentions might be especially fruitful as current research suffers from a lack of theoretical grounding (Schlangenotto et al. 2018a) and theory building could in turn advance the research field.

(3) Phase Integration: As solely investing in paid search fails to elicit offline purchases (Schlangenotto et al. 2018b) it might be worthwhile to extend the scope of investigations. For example, bricks-and-mortar retailers might seek ways to systematically foster need recognition (e.g., investing in display ads) and combining those with paid search investments. A marketing campaign which covers the need recognition phase as well as the search phase might be more effective in eliciting offline purchases. Current research indicates that at least multi-channel retailers can benefit from investments in both phases (Dinner et al. 2014). Accordingly, future research could explore strategies which would help bricks-and-mortar firms to integrate their diverse marketing investments, often targeted at distinct phases of the purchase process, to achieve the overarching aim of eliciting more offline channel purchases.

(4) Channel Synergies: Current research suggests that retailers who draw on multi-channel management strategies by integrating online and offline marketing investments could enhance overall marketing efficiency (Pauwels et al. 2016). Seeking ways to efficiently integrate online and offline marketing investments might be especially beneficial for bricks-and-mortar retailers as very often they already invest significantly in offline marketing - whilst not necessarily applying a holistic approach to their offline and online marketing investments. Accordingly, future research could explore the potential benefits of combining online and offline marketing investments for bricks-and-mortar retailers. Investigating potential synergy effects between the different channels would be fruitful for practitioners and researchers alike. Researchers could not only derive further insights into how consumer behavior is influenced by various marketing investments throughout the different phases of the purchase process, but might also provide guidance for bricks-and-mortar retailers on how to efficiently integrate their marketing activities.

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