What Drives Paid Search Success?

A Systematic Literature Review

Completed Research

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Abstract

Whilst paid search has received much scholarly attention across various research fields, the findings have not yet been synthesized. As user behavior in paid search is influenced by such a wide range of factors, synthesizing the findings would, however, avoid ‘omitted variable biases’. In our systematic literature review we analyzed over 1,000 sources and identified 34 relevant research papers. These are organized around the three main decisions every advertiser faces when approaching paid search: which keywords to use, which ad positions to target, and how to craft ad copies. We then draw out empirical generalizations and outline a research agenda. In particular, we propose a research framework that researchers and practitioners alike can employ to avoid the risk of omitting variables when analyzing the success factors of paid search.

Keywords

Paid search, search engine advertising, search engine marketing, systematic literature review.

Introduction

Paid search – the mechanism of placing online ads in response to user search queries on search engine result pages (SERP) – is considered the main source of Internet advertising revenue and in the first-half of 2017 accounted for 47% of global internet advertising revenue (PWC 2017). The success of paid search advertising is attributed to a number of factors. First, paid search allows advertisers to specifically target their ads to the activity that users are engaged in (Goldfarb 2014) and in this way works as a low-cost substitute for offline advertisements (Goldfarb and Tucker 2011). Second, paid search has a lasting impact on brand perception and awareness (Zenetti et al. 2014). Third, several studies have concluded that paid search can increase online (Lu and Zhao 2014) as well as offline (i.e. local store) sales (Dinner et al. 2014).

As of today, all major search engines display paid search entries along with organic search results. In contrast to organic results, that are determined by the search engine and are based on relevancy criteria, advertisers can purchase paid search entries (Figure 1). Investing in paid search is, however, a complex task (Rutz and Bucklin 2013) for at least three reasons. First, advertisers need to define appropriate keywords for which they want to be listed on a SERP. Second, they have to target ad positions on which they want to appear and, finally, they have to decide upon the appearance and content of the ad copy itself. As can be seen in Figure 1 the design of a SERP might change completely depending on the chosen keyword as well as on the number of competing advertisers who have bought the same keywords. For instance, an ad copy might appear on different ad positions (ad position 1 vs. ad position 3) and the number of ads shown as a paid search entry might vary as well.
A vast body of research on the topic of paid search has emerged over the past years, especially in the fields of Information Systems and Marketing (Rutz and Bucklin 2013). One key focus has been to empirically investigate how advertisers should approach paid search. In a recent literature review by Jafarzadeh et al. (2015), it is argued that current research findings are disconnected from each other and thus future research needs to synthesize the current state of the literature to derive central concepts. In particular, the scholars point out that focusing on studies that analyze how advertisers should approach paid search might be especially beneficial for researchers as well as for practitioners. We agree with this perception as previous findings conclude that user behavior in the context of paid search is influenced by a multitude of factors (Ghose and Yang 2009) and even presumably small changes might have a significant impact on paid search performance, such as changing the wording in an ad copy (Atkinson et al. 2014), relying on different keywords (Rutz and Bucklin 2011) and targeting distinct ad positions (Agarwal et al. 2011). As current research lacks synthesis, and the number of studied effects is multifold (Jafarzadeh et al. 2015), the risk of leaving out important variables ('omitted variable biases') when studying paid search performance is especially high. Hence, we propose the following research question: Which variables influence paid search performance?

To answer this research question we provide a systematic review (Paré et al. 2015) of the current state of the literature based on a three-stage review process (Levy and Ellis 2006). Out of over 1,000 sources we identify a body of literature consisting of 34 journal articles. Based on our review we established an interactive web application (http://go.upb.de/Literature) to allow researchers to interactively explore the current body of knowledge and derive empirical generalizations which informs the research framework we develop. The framework consists of nine distinct concepts which have been reported to have a lasting impact on paid search performance. Scholars as well as practitioners can rely on our framework to reduce the risk of omitted variable biases when studying paid search performance and use it as a guiding framework to advance the research field.

Literature Review

In the empirical stream of paid search literature (Desai et al. 2014) a vast body of research has emerged in various research fields over the past years (Jafarzadeh et al. 2015). Accordingly, one needs to follow a systematic literature search approach to identify all relevant sources (vom Brocke et al. 2015).

Review Focus

All major search engines (such as Google, Bing, Yahoo) currently rely on a modified second price auction and display paid search entries in a comparable fashion. Independently of the search engine, from an advertiser’s perspective, crafting a paid search campaign is a complex task (Rutz and Bucklin 2013) for mainly three reasons (see Figure 1). First, advertisers need to define appropriate keywords for which they want to be listed on a SERP. Second, they need to target specific ad positions for their ad. Third, they have to decide upon the appearance and content of the ad copy. Accordingly, we use these three paid search-specific decisions every advertiser faces when conducting a paid search campaign to identify papers of interest and group them by their research focus (Table 1).
What Drives Paid Search Success

Research Focus | Definition
---|---
Keywords | Papers that analyze the impact of different keywords in a paid search campaign.
Ad Position | Papers that analyze the impact of different ad positions in a paid search campaign.
Ad Copy | Papers that analyze the appearance and content of ad copies in a search campaign.

Table 1. Research Focus

Paid search performance is commonly measured in terms of click-through rate (CTR) and conversion rate (CVR). CTR captures the likelihood of a user to interact with the paid search entry and CVR measures their likelihood to engage in a desired action such as buying a product (Ghose and Yang 2009; Rutz and Bucklin 2011). Accordingly, we analyze the three distinct advertiser decisions in the light of CTR and CVR (Table 2).

Analysis Focus | Definition
---|---
CTR | Percentage of users clicking on a paid search entry.
CVR | Percentage of users who perform a desired action after clicking on a paid search entry.

Table 2. Analysis Focus

Review Strategy

As paid search has attracted a high level of scholarly interest in various research fields (Jafarzadeh et al. 2015) our literature search evaluated all articles published in journals listed in the 60th Harzing Journal Quality List. To minimize the risk of leaving out important contributions, we considered all articles published in English since 2007 (until 08/2017), the year that marks the starting point of paid search research that relies on the modified second-price auction to sell paid search entries (Edelman et al. 2007).

To establish the current body of research we followed Levy and Ellis’ (2006) suggestion and conducted a three-stage literature search via Google Scholar. First, we performed a keyword search. We therefore used various search phrases under which scholars usually refer to paid search and collected all Google Scholar result sets. After removing duplicates and non-English publications, the keyword search yielded 821 publications. Secondly, we conducted a forward search (Webster and Watson 2002) using the ‘cited by’ field for all previously identified articles. We considered all journal publications which cited the 821 sources identified in the keyword search. Third, we conduct a backward search by evaluating all sources which were cited by the previously identified papers.

Figure 2 depicts our review strategy. Research papers that were found via the keyword, forward, or backward search, and that were published in a journal, were analyzed regarding their Research Focus (Table 1). All papers that focused either on keywords, ad positions or ad copies were analyzed further in regard to their particular Analysis Focus (Table 2). All papers that passed the research and analysis focus evaluation were analyzed in detail (Figure 2, (3)) and included in the body of the literature.

1 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”
Body of Literature

We identified 34 journal articles published in 20 different journals. To organize the literature, we adopted the concept matrix approach recommended by Webster and Watson (2002), combining the Research Focus (Table 1) and Analysis Focus (Table 2) with the results of our In-depth Analysis. Table 3 depicts all the sources classified in this way.

<table>
<thead>
<tr>
<th>Research Focus</th>
<th>Theoretical Background</th>
<th>Methodology</th>
<th>Search Engine Examined</th>
<th>Year of Data Collection</th>
<th>Type of Study</th>
<th>Source</th>
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</thead>
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<td>T</td>
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<td>2017</td>
<td></td>
<td>Rutz et al. (2018)</td>
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</table>

Table 3. Body of literature
Keywords

In the context of paid search, advertisers have to define keywords for which they want to be listed on a SERP. Whenever a user enters a search term into a search engine it will be linked to contextually matching keywords and display the ads for which advertisers have bought the keywords. Current research suggests that keyword characteristics widely influence user behavior in terms of CTR (Li et al. 2010), as well as CVR (Rutz and Bucklin 2011). An evaluation of the current body of literature on keywords reveals four distinct concepts, as presented in Table 4.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Source</th>
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<tr>
<td>Match Types</td>
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<td>Length</td>
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<tr>
<td>Popularity</td>
<td>T T&amp;V T&amp;V</td>
</tr>
</tbody>
</table>

*Analysis Focus: T (CTR) & V (CVR)*

Table 4. Body of literature – Research Focus: Keywords

The first and most commonly evaluated concept used in scholarly research to evaluate the impact of keywords on paid search performance is semantics, i.e., the meaning underpinning the keywords. For instance, Rutz and Bucklin (2011) analyze spillover-effects from generic search terms (e.g., "sofa") to more specifically branded terms (e.g., "sofa of retailer X"). All studies agree upon the fact that users show distinctive behavior patterns based upon the semantic characteristics of their keywords. For instance, if a user incorporates the brand name of the company in their search, it is obvious that they are already familiar with the brand and may have formed specific associations towards it and/or its products. Another concept used in various studies to distinguish keywords further is that of match types. Search engines offer advertisers different criteria under which a keyword is matched to a user search query. For instance, the exact match option ensures that a search request is only linked to a keyword when a user explicitly types in this keyword. The broad match option instead makes sure that a keyword (e.g., sofa) is matched to a contextually matching search request (e.g., the search request "buy furniture" would be matched to the keyword "sofa"). Du et al. (2017) argue that it is not sufficient to solely rely on semantics as the match types also widely influence paid search performance in terms of both CTR and CVR. Moreover, Bulut (2015) argues that negative match types (keywords for which a retailer will not be listed on a SERP) further influence paid search performance. All studies agree upon the fact that one needs to account for potential match type effects as this option can exert a lasting influence on paid search performance. Third, numerous studies argue that paid search performance can also be assessed based on keyword length. Some studies use the number of characters (Jerath et al. 2014) while others rely on the number of words (Skiera et al. 2010) of a bought keyword (bearing in mind that a keyword can incorporate multiple words) to determine the impact of keyword length. However, even when keyword length has been found to explain paid search performance to a certain degree, its predictive power might be rather low (Skiera et al. 2010) in comparison to semantics and match types. Fourth, certain studies use the popularity of a keyword as a proxy to determine its impact on paid search performance. Popularity is commonly measured on the basis of how often a keyword is associated with a search request (Jerath et al. 2014) or how frequently it appears in the respective language (Klapdor et al. 2014). Jerath et al. (2014) and Skiera et al. (2010) argue that keyword popularity is well-suited to predicting paid search performance in terms of CTR and CVR.
Ad Position

Whenever a user enters a keyword into a search engine a multitude of ads might be presented on a SERP. The number of ads shown depends on how many advertisers have bought keywords matching the search query. Current research suggests that ad position impacts on CTR (Chan and Park 2015) and on CVR (Agarwal et al. 2011). As can be seen in Table 5, when evaluating the current body of literature three distinct concepts can be distinguished.

Table 5. Body of literature – Research Focus: Ad Position

First, all studies investigate the visual placement of a paid search entry on a SERP and its impact on CTR and CVR. Current research agrees upon the fact that CTR values decrease for less visual positions. Yet, scholarly results differ widely in regard to the impact of less visual positions on CVR, ranging from a negative (Ghose and Yang 2009) to a mostly unrelated (Narayanan and Kalyanam 2015) and even to a positive effect (Agarwal et al. 2011). Second, various studies consider the impact of competition on CTR. For instance, Agarwal and Mukhopadhyay (2016) argue that advertisers not only need consider the visual placement of their own ad, but they also need to account for competing ads placed on the same SERP (see Figure 1). In addition, Animesh et al. (2011) emphasize that advertisers need to consider competing ads and their position, and should seek ways to differentiate themselves from others. Third, a number of research papers studies the impact of brand awareness in relation to the visual placement of paid search entries. For instance, Jerath et al. (2011) as well as Jeziorski and Moorthy (2017) report that lesser known firms can benefit from targeting ad positions above those of firms with a higher reputation. In line with these findings Narayanan and Kalyanam (2015) indicate that ad position effects on CTR are weaker for smaller (and therefore presumably less-well known) firms.

Ad Copy

Advertisers need to craft ad copies which will be displayed on a certain ad position in response to an entered keyword. Current research suggests that the ad copy has at least a lasting impact on CTR (Atkinson et al. 2014) and might also influence CVR (Haans et al. 2013). As can be seen in Table 6, when evaluating the current body of literature two distinct concepts can be distinguished.

Table 6. Body of literature – Research Focus: Ad Copy
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First, one set of researchers focuses on the impact of the wording of the ad copy on CTR. For instance, Atkinson et al. (2014) examined various wording aspects such as using uppercase letter, including product brand names and their impact on CTR. All scholars agree upon the fact that using different wordings influences paid search performance in terms of CTR. Second, certain studies examine the use of different phrasing schemes and their impact on CTR and CVR, respectively. For instance, Jansen et al. (2011) empirically show that advertisers should craft brand-focused ad copies, and Animesh et al. (2011) investigate the impact of quality-focused ad copies in comparison to price-focused ad copies on paid search performance.

Empirical Generalizations

The analysis of the current body of literature reveals that nine concepts can be distinguished when studying the effects of keywords, ad positions and ad copies on paid search performance. The current state of the literature suggests that concepts should not be viewed in isolation as they tend to interrelate. For instance, it is likely that keywords as well as the wording and length of the ad copy itself might interact (e.g., Jansen et al. 2011) or that the ad position interrelates to the ad copy (e.g., Rutz and Trusov 2011). Therefore, one needs to consider different paid search aspects jointly when conducting and analyzing paid search campaigns. In current research, a number of papers already consider a multitude of potentially influencing factors (Klapdor et al. 2014) while others lacks such a holistic approach.

Beyond that, the impact of paid search-specific elements might differ depending on whether it is measured in terms of CTR or CVR. For instance, a more prominently positioned paid search entry might positively impact CTR but could negatively impact CVR (e.g., Agarwal et al. 2011). Therefore, one cannot infer from observed effects on one paid search performance metric (e.g., CTR) that they apply to another metric (e.g., CVR). In other words, it is of crucial importance to define key metrics precisely and to measure them individually.

Based on our analysis we propose the following research framework (Figure 4) that scholars and practitioners can rely upon to prevent omitted variables biases when empirically studying the drivers of paid search success. The framework suggests to consider all nine identified concepts and to account for potential interaction effects. For instance, scholars who focus on investigating the impact of specific keywords on CTR should also consider semantics, match types, length and popularity attributes, as well as account for potential influences on paid search performance of ad position and ad copy effects.

Figure 4. Research Framework

As our results show that even presumably small changes (e.g., the wording of an ad copy) might have a significant impact on user behavior and that all three advertiser decisions interact with each other considering all potential driving forces in an empirical analysis is of crucial importance. Otherwise, one runs the risk of misinterpreting the results. It is worth noting that the proposed research framework is based on a thorough literature review and integrates all known and empirically evaluated research concepts. However, as we rely on past research findings, no claims can be made in regard to completeness.
Implications, Limitations and Future Research

The current state of the literature is not short of advice on how practitioners should design effective paid search campaigns and provides insights into user responses to paid search. Our classification (Table 3) allows researchers to explore the current state of the literature and to identify previous work on the basis of which they can design their own research projects. In order to facilitate the exploration of the current body of literature we provide an interactive web application (http://go.upb.de/Literature) that allows its users to filter studies based on certain attributes (e.g., methodology used, research and analysis focus) and to explore all core results of every research paper that is included within the current body of literature.

As the current body of literature suggests that paid search concepts tend to be interrelated, and that even small changes might have a significant impact on paid search performance, one ought to account for all established influential factors when analyzing paid search performance. The proposed research framework (Figure 4) allows researchers as well as practitioners to include in their analysis all previously established concepts that might influence behavior. Future research might add to the framework by identifying additional concepts that need to be considered when studying paid search performance. As the number of options which advertisers need to consider in paid search constantly increases, the proposed framework should be viewed as a starting point. It is worth noticing that this literature review only considers journal articles written in English. Hence, recent conference articles that for example reveal that the impact of ad positioning on paid search performance might vary with the device type (Liu et al. 2016) as well as the retailer type (Schlangenotto et al. 2017) were not considered.

Our literature review reveals that even amongst a vast body of literature (in our case, 34 research papers were found) current research findings often neglect potential influential factors which might bias results. For instance, when evaluating the impact of different keyword semantics on paid search performance results might be skewed by the match type used. However, a majority of studies neglect this potential influential factor. In our view, future research should draw on the proposed research framework to evaluate which established concepts need to be considered as key drivers of paid search performance. As current findings are disjointed and often neglect certain concepts, one cannot infer which drivers are more important than others in influencing paid search performance. Identifying the most important drivers would be highly beneficial for practitioners and researchers alike. For practitioners, it would allow them to design better performing paid search campaigns and to focus on monitoring the most important aspects that drive paid search performance. From a researcher’s perspective, identifying core drivers of user behavior might be especially useful to derive a comprehensive theory of user behavior in the realm of paid search. Indeed, judging from the number of studies that do not provide a theoretical basis for their findings (59%, or 20 studies, see Table 3), theory building in the context of paid search might prove to be a worthwhile endeavor in order to provide explanations for the empirically observed effects (Jafarzadeh et al., 2015).

Finally, it is worth noting that all studies that analyze the impact of paid search on CVR do so only in the context of the online environment. In other words, no research exists which focuses on the question whether paid search impacts the conversion behavior of users in the offline environment. This centering towards the online environment might be especially problematic as current research suggests that paid search also influences user behavior in the offline environment (Dinner et al. 2014; Schlangenotto et al. 2018). As previous research emphasizes that one cannot rely on one paid search performance metric to predict the outcome of another (Agarwal et al. 2011), one should consider extending the current scope of the literature by studying paid search performance in terms of CVR which occur in the offline environment.

References


