Department of Behavioral Science Publications and Research

School of Health Sciences

2016

Translating the Research: Keyword Advertising for Lean Start-Ups

Arthur P. Sullivan
Touro College, asullivan75004@gmail.com

Gregory W. Sullivan

John A. Sullivan
New York Medical College

Recommended Citation

Translating the Research: Keyword Advertising for Lean Start-ups

Arthur P. Sullivan, Ph.D.
TouroCollege and University System
65 Broadway, New York, NY10006
USA

Gregory W. Sullivan, B.S.
Brooklyn, NY
2261 Ocean Ave Apt 5A,
Brooklyn NY11229
USA

John A. Sullivan, M.D., Ph.D.
New York Medical College
40 Sunshine Cottage Rd.
Valhalla, NY10595
USA

Abstract

This paper extracts and translates for application findings emerging from the research on keyword advertising. Five conclusions emerge. First, developing a comprehensive collection of keywords for a new product or service is useful for all businesses, whether or not keyword ads will ultimately be bought. Second, analyzing keyword searches identifies the existence and trend of demand from user search frequency for all businesses. Third, keyword advertising is too expensive for many products and some services, and most lean start-ups. Fourth, there are effective alternates to keyword advertising. Fifth, the skills for keyword advertising are readily learnable: an advertising firm may not be needed.

Keywords: keyword advertising, lean start-up, PPC advertising, ad rank, second price auction, startup advertising, PPC ads, clicks

1. Introduction

The logic is compelling: any business will more likely be profitable if demand is established and customers found before new products or services are designed, developed, acquired or offered.Having a queue of buyers waiting reduces risk significantly. Keyword selection and analysis locates the demand, quantifies the interest, and displays the trend from the stored searches of the general public. Analyzing these data is cost-free and obviously essential for any business. The authors regard this analysis as a dominant strategy for all products and services. Any decision to purchase paid keyword advertising is entirely independent, and useful for only a subset of businesses and products. All new products can benefit from keyword analysis, but only some products and some businesses should acquire sales leads through paid keyword advertising, and then only after certain criteria are met, as described below.

The usefulness of keyword analysis for establishing and locating demand at the step one level of business planning follows from the internet's having become the main information source for all (e.g. Rangaswamy et. al., 2009). That a subset of internet searchers might be interested in purchasing products and services related to their search is an easy and attractive inference. If this is so, then search behavior can effectively guide business advertising and sales behavior: from the frequency of searches on the selected keywords the business estimates the size of the demand; from the locations where these searches originated the business learns the location of the demand; and from the upward or downward trend of the searches the business estimates potential growth in the

market demand. Moving this analysis to step one allows search behavior to guide business development and production decisions as well, establishing demand and trend, thus potentially saving the losses resulting from developing and producing products that do not sell. The internet has created an environment in which starting a new business is easy. Almost no capital is required, and the process of bringing a product or service to market has been detailed for the general public in motivational words (e.g. Ferriss, 2007). Universal use of keyword analysis combined with judicious use of keyword advertising will improve the rate of success.

2. Keyword analysis

2.1. Finding keywords.

A staff of a university based in a large city analyzed the keywords describing its graduate study programs in education as step one in the hope of finding additional students for the programs. The process began at the university with listing phrase-length descriptors of the graduate programs. These initial keywords were lengthy but accurate phrases, called "long tails" (Anderson, 2006). Keyword finding tools, available on the internet without charge, found shorter phrases and single words related to the long tails from data bases and keywords used by other websites offering similar programs. A master list of several hundred keywords was rapidly assembled.

2.2 Checking the search trends.

The staff, again using tools available on the internet without charge, such as google.com/trends, examined the browser search trends. The keywords on the master list were checked, beginning with the long tails and followed by those considered the best descriptors of the programs. Many of the long tails and some of the shorter keywords did not display because not many searchers used those exact words when they searched. For most of the keywords, the tool provided a line graph which displayed the relative frequency of the keyword's use, whether the overall trend was upward, downward, or level, and graphics illustrating the geographic sources of the searches. After the 30-50 best keywords were checked, the first decision point had been reached.

2.3 First decision point.

Largely upward trends indicate that demand is present and increasing. Downward trends indicate that sustained or growing demand is not present. Mixed trends merit a further step: the keywords with low or down-trending search frequency are dropped. The balance of the keywords on the master list is checked to find additional up-trending ones.Unless the aggregated up-trending keywords show sufficient accessible demand is found, the process stops.The lists of up-trending keywords were then checked for conversion rates. Those which did not produce conversions were dropped.

The results for the university showed that there was modest demand, with a level trend, neither increasing nor decreasing over the past several years. The number of searches was higher in some states in the USthan others.It was apparent that the states which required its elementary and secondary teachers to have or to obtain a graduate education degree showed much more search activity. The university had discovered demand for its programs and the locations of potential customers. Although the overall trend was flat, searching was up-trending in some areas and the search numbers were high enough, so the university decided to proceed. It is worth noting that, to this point, the only resources the university had expended was a few hours of support staff research time.

2.4 Culling the most useful keywords.

Having cleared the first decision point, the staff put the keyword list in order of trend and checked the keywords for conversion rates, using the free or proprietary tools available to search conversion-tracking databases. Keywords with low conversion rates were dropped. The top 100 keywords remaining on the list could be expected to capture over 80% of the sales (Skiera et. al., 2010) and were selected. These were the keywords which were used in the campaign and for embedding in the university graduate education program website code as meta tags, so these were the ones carried forward in the analysis. Using more keywords than 100 can add significantly to the costs of keyword management. Since each keyword must be separately tracked and evaluated, maintaining, for example, 500 keywords instead of 100 might increase management costs 500%. So all but the 50 next-best keywords above the adopted 100 were discarded. The extra 50 were held in readiness to swap for any of the adopted 100 that faltered or failed.

2.5 Estimating the cost per sale for keyword advertising.

Again using provider-supplied free tools or low cost tools available on the internet, the conversion rate and the cost-per-click (CPC) for each of the 100 keywords was determined by the university staff. These data are industry/business/service/product specific, so businesses average the conversion rate and CPC whenever the keyword triggered more than one category.

The university's target was adding 1,000 graduate students to the education programs. Currently firms typically purchase clicks (paying for user clicks on the paid ad) rather than paying for impressions (paying for every appearance of the paid ad) or conversions (paying only when action such as a sale results), as the best balance of risk between provider and advertising business, and the university planned to do the same.

Enrolling 1,000 new students with the keywords which averaged a 2% conversion rate required the university to purchase 50,000 clicks to get the 1,000 students. The average price for first or second position on page one of the search returns was $4.60, so the total cost of the pilot campaign was estimated at $230,000, and the advertising cost per student enrolled (CPA) therefore expected to be $230 (Table 1).

Table 1: Cost of pilot campaign for 1000 sales

Sales	Convert rate	Clicks needed	CPC	TotalCost	Cost per sale
1 000	0,02	50 000	4,60	230 000,00	230,00

Although lower advertising page positions in the search return are less expensive, first and second place are more attended to (Phillips, et. al., 2013) and yield more conversions (Jansen & Liu, 2013). Any savings realized from accepting a less desirable page position can be consumed by the extra clicks purchased or extra time required to complete the 1000 sales campaign.

Pilot testing the campaign is essential, because it tests the estimates and uncovers unanticipated problems in the advertising, follow-up, website, and staff procedures. The pilot cost expenditure should not be too limited. Curtailing the cost of the pilot too severely, for example by limiting the keyword advertising cost to $1,000, would have lowered the university's expenditure but very few, if any, conversions (new students) would have resulted (Table 2). The pilot must be adequate to test the campaign completely, in miniature, and sufficient budget must be allowed to accomplish that goal. This brought the university staff to the second decision point.

Table 2: Estimated sales in a pilot test with $1,000 ad cost limit.

Sales[a]	Convert rate	Clicks	CPC	TotalCost	Cost per sale
4	0,02	217	4,60	1000,00	230,00
[a] Note: Sales are rounded					

2.6 Second decision point.

If a firm's new product is a single item, it will have to be a high priced item for an advertising cost of $230 per sale to be acceptable. If it is a service, and the conversion brings the firm a new customer who will be the firm's student, as it was for the university, or a new patient, or club member, the cost of acquiring each new customer may be reasonable. Other added values are also included when evaluating the cost per conversion. For example, there is a value in the unclicked impressions in merely exposing the searching public to the product or service (Cheung, 2006; Zajonc, 1968). If $230 is too expensive, the firm continues to use the keyword list, for free, to populate their website pages (both the meta tag code and in the page content) and track searches and trends, but does not use paid keyword advertising for sales leads. Since the demand has been established, the firm uses other ways to develop leads and make sales.

If the margin on the sale or the value of the new customer is enough for $230 each to be an acceptable advertising cost, the firm proceeds with the pilot campaign. The university staff evaluated the cost of $230 per new graduate student as acceptable, and the preparations for the pilot campaign were continued.

2.7 Alternatives to keyword advertising.

Although a decision to proceed with keyword advertising was justified in the university's case, several staff members noted that the potential students were grouped closely in small clusters in the university's catchment area, and preferred to pilot a non-keyword campaign. Because the students were clustered and local, they argued, this market could be enrolled by personal contact, a strong marketing method. In addition, they could be taught in standard classroom settings since they were grouped in school districts, where classrooms would be available for on-site instruction. The enrolled students, all of them teachers in the school district, could be expected to appreciate the convenience of using local facilities as well as the convenience of the classes' being scheduled immediately after their teaching work day.

So the university selected one area within its home state with rising demand, as evidenced by the number of keyword searches. The local school districts were identified, and administrators from the university contacted the district superintendents, to find out how many of their teachers lacked the required graduate degrees. Where there were enough, 20-30 per program area, the university offered to send professors to the district to teach two courses each semester, leading to graduate degrees in three years. The superintendents reflected the offer to the teachers, who responded enthusiastically.

The first group of teachers served as a pilot test. They were 25 in number, paid the course tuition of $2,300 each for each of the first two courses, for a total of $115,000. The 2 professors cost the university $10,000. Gross margin was $105,000 with few other expenses, since the district supplied the facility in which the teaching occurred. Because having the graduate degree was a job requirement, the teachers did not drop out. By the end of the semester, the pilot had proven successful, and the program was continued at the test district. The revenue for the 36 credit, 12 course program was $690,000 with few expenses, just for these 25 teachers. Although keywords were used in this business activity, no keyword or other advertising was purchased. The same model was used in other districts within the limits the state department of education allowed a university to operate off-campus courses until the 1,000 target for new students was reached. Gross revenue was $27,000,000 and EBITDA $19,000,000 for the entire group of 1,000 students over 3 years, as anticipated.

This university made effective use of keywords without keyword advertising, saving almost all of the $230,000 the ads would have cost. The staff set up professor schedules for the school districts, enrolled the teachers in each district as the 1,000 new students. This type of sales approach to finding customers is preferred when possible, and the instant authors have experienced its' being possible with surprising frequency in many situations. It produces a sustained revenue stream from each customer. The university did have some advantages in that the product was "off the shelf" for the university, requiring no development or approvals, and the university did not suffer from the liabilities of newness or smallness (Lukason & Hoffman, 2015; Kennedy & Kennedy, 2008). Start-up companies having these liabilities as well as lean budgets can make good use of the keyword system without cost, as the university did, to find the demand and the location of potential customers and populate their website to make it more easily found. The decision to buy keyword advertising, though, must be very carefully weighed by the lean budget start-up, and low cost alternatives like one the university found actively sought.

Having staffed and filled the maximum allowed number of extension centers with students, the university resumed the process of preparing for keyword advertising where it had left off. This time the goal was adjusted to increasing university enrollment by offering the degree programs online by distance learning, as had originally been planned. The new campaign was to attract a large, unspecified number of students in the US, UK and other English speaking countries.

2.8 Considerations in selecting a provider.

Although Google's AdWords dominates the market, there are many alternatives, large and small. Businesses evaluate Yahoo!, Bing, Facebook, YouTube and a host of others. None have the audience reach and advertiser support structure Google has, but cost can be very much less using another provider without too great a drop in conversions. Beyond the per-click cost, a business considers how the provider handles click fraud, searcher resistance to ads as opposed to organic search returns, ad rank or page position, and the related mechanics of the type auction each provider uses. Click fraud protection prevents the advertiser from being charged for repeated clicks from the same source. Click behavior has been studied and fraudulent patterns are detectable (Kitts, et.al., 2014). The selected provider should have implemented effective means to prevent this waster of advertisers'

4

budgets. Advertisers select a provider with this mechanism in place, but must be prepared to compare the number of clicks charged by the provider to reasonable estimates (Richardson, et. al., 2007).

Searcher resistance to ads is known to search providers (Jansen& Resnick, 2006) and should be managed by the provider and advertiser by attending known parameters (Phillips, et. al., 2013). The advertiser mayfurther lower searcher resistance by using add-ons, such as live links, in the paid keyword ad to attract clicks.

The structure and methods of the auction have consequences as well. The keyword auction does not operate as an auction in the traditional sense, where a single item is sold to the highest bidder once. A keyword is sold over and over to many businesses at overlapping times, and at different prices. The pricing is dependent upon bids, upon ad rank (where the ad will appear in the paid ad sections of the search return page), upon ratings the quality of the advertiser's landing website, and upon ratings of the content of the paid ad. These elements which determine the price and placement of the paid ad are not independent of each other, and the formulae weighting and combining them are usually not disclosed by the providers. It is reasonable to expect that the formulae, elements and weighting primarily maximize gains for the provider, which controls the payoffs for various advertisers' behaviors.

In addition, some providers operate the auction as a generalized second price auction to stabilize the bidding process. This style auction charges each successful bidder the bid amount for the next less desirable position, as described by Edelman and his colleagues (Edelman, et. al., 2007). This reduces the bidding frequency markedly, astability achieved, in part, through Nash equilibria. Conceptualize the auction as a non-cooperative game involving two or more players where each is aware of the strategies and results for the opposing players. Given this information it does not benefit any single player to change his or her strategy. It is like a society where there is no judicial system, yet there exists a law that, even without punishment, no one will break. For example, there is a four way intersection with a traffic light and two cars, whose drivers we will call player 1 and player 2. They are approaching the light perpendicular to each other. Player 1 has the green light and player 2 has the red. In this scenario there are three realistic solutions: the first solution is player 1 continues and player 2 stops; the second solution is that both players stop; and the third solution is that both players continue through the light. The only solution that is optimal for both players is solution 1 because it allows for a slight pause for player 2 and player 1 continues without any delay or injury. Solution 2 causes a delay for both players and could leave them hanging in limbo as to what to do now, and solution 3 causes an accident. Clearly, neither of these is an acceptable solution, leaving only one which causes a slight delay for player 2 but he will get his turn.

As in this example, players (advertisers in the keyword auction) are forced to bet against their own value and worth in trying to out maneuver an opponent. They do not benefit from changing their bidding value, and are often constrained to a stable solution which is not optimal for them (vanDamme, 1991).

Nevertheless, in spite of these limitations on controlling the auction by altering bidding strategies, advertisers can maintain a website with good SEO characteristics and place paid keyword ads with several live links. These are the options, within the constraints set by the providers that enable the advertiser to buy the desired keyword in the desired spot for a lower cost.

2.9 Launching the pilot campaign.

A website is needed to provide complete product information and close the sale once the second decision point has cleared. Firms may construct a separate website for the campaign apart from the main company website to keep the potential customers on the corridor to conversion. The separate site provides links to the main company website where needed for additional information, but envelops the user in pictures, reviews and features of the product/service that caused the click. The site is small (few pages), targeted, and fluent: its design permits the user to step through the process of closing the sale with every needed thing convenient, clear, and brief. All obstacles to conversion are removed: for example, there is no forcing all users to set up an account, and the creation of user name and password is simple and facilitated by pre-propagating the form with user's email address and whatever else is known.

The site should be SEO adequate, that is, reasonable effort should be taken at equally reasonable expense for a pilot site to gain high first page placement in the organic search results to compliment the advantageous positioning of the paid keyword ad. The prime method of achieving this is making a connection with the user by engaging him/her in affective content, which is as contextual to the user as possible (Rose, 2016).

This engagement should begin in the paid notice, expand in the small landing site for the click, and reach the fullness of a background story the business' main site. The decision to buy is, after all, made by affect or emotion, before reasoning occurs. *After* the user has made a decision, the user will create reasoning which justifies the choice.

There were striking demonstrations of this principle, that affect determines decisions and reasoning is used to justify them afterwards, by two researchers at the University of Texas at Austin (Huang & Raghunathan, 2010). The researchers presented pictures of two chickens, an ordinary looking, plump one, and a second, "genetically engineered" one with purple feathers, disproportionate limbs, and strange physiognomy. Half the subjects at random were told the normal chicken was better for them but less tasty than the genetically engineered chicken, while the other half were told the opposite. The normal chicken was overwhelmingly selected by both groups. One look at the picture of the two chickens and the decision was made. Then came the explanation: the subjects who were told that the normal chicken was the healthy choice reasoned that health was more important than tastiness; those told the normal chicken was tastier reasoned that taste was more important. The reasoning served to justify the decision. A parallel experiment was done with a Democrat and a Republican candidate: subjects overwhelmingly preferred the candidate in their own party, justifying their choice by the positive description or by discrediting the description if it were negative.

This principle means that the advertiser is to avoid claims and details about the product or service, no matter how strong, in favor of affective connection. Place the product information on the website where it is available, but not on the landing page anywhere near the decision point. The decision corridor should contain only elements with which users will make an affective connection. Additional features which can increase the probability of conversions are facilitating payment by accepting a wide range of payment alternatives; stating price in local currency, providing attractive pricing for "unlimited use" of licensed products (provides an advantage with comparison shoppers).

Allowing 6-8 weeks for delivery is particularly important when, as here, finding the customers comes first before acquiring or producing the product/service offered for sale. This is an optimal financial approach for the firm, sometimes referred to as "dry marketing." If the campaign is abandoned because insufficient demand is acquired, no payments are charged and an apologetic note is emailed to those who placed orders. In this way, the firm is not left with development expenses together with a supply of designed, produced, and unsold products or contracted-for and unused services. The pilot campaign is then initiated until the planned cutoff of time, sales units, or budgeted costs is reached. During the time it runs, keyword trends are monitored and replaced as needed, CTR, PPC other metrics are studied daily, using the tools made available by the search provider or tools generally available on the internet. Completion of the pilot campaign brings the firm to the third decision point.

The pilot test was launched by the university with the provider offering the best page positioning given the university's capabilities in landing page website quality, at the lowest CPC. The pilot campaign cost $6,000 for keyword advertising, and resulted in 23 new students in 60 days, very close to expectations.

2.10 Third decision point.

If sufficient orders were placed, the firm produces and delivers the product or service and completes the billing process. A full campaign is then initiated after inefficiencies detected during the pilot are fixed. If orders were insufficient, apologetic email cancellation notices and statement that credit card or other payment source was not billed is sent. The product/service is abandoned or completely redesigned. More typically, the process is restarted as demands for other products/services within the company's range of capabilities are discovered.

In the case of the university, the students were sufficient in number for a course. They were enrolled in a distance learning course for credit. All 23 completed the course, and most would be expected to take the remaining eleven courses for their degrees. The gross revenue was $52,900, EBITDA $41,900 for this one course alone. The pilot test provided the usual benefits in streamlining the processes of enrolling the students, collecting academic credentials; etc. A full campaign in English-speaking countries was launched.

3. Conclusion

Findings with direct application to the keyword advertising process emerge clearly from the existing research on keyword advertising. First, developing a comprehensive collection of keywords, free of charge, to describe a new product or service is useful and free for any business, but essential for a lean start-up, whether keyword ads will ultimately be bought or not. Second, analyzing keyword searches, free of charge, identifies the existence and trend of demand for the new product/service before incurring many costs by examining user search frequency. Third, keyword advertising is too expensive for many products and some services, and lean start-ups with one or few low-priced products are unlikely to benefit. Fourth, there are effective alternates to keyword advertising as exemplified by the university case. These should be explored and sometimes selected even if the costs of keyword advertising are within budget. Fifth, low-cap firms can learn the skills for keyword advertising for new products/services without the expense of an advertising firm.

4. References

Anderson, C. (2006). *The long tail: why the future of business is selling less of more.*Hyperion Books. NY. Cheung, R. (2006). Case study of a successful internet advertising strategy in Hong Kong: a portal for teenagers, *Marketing Intelligence & Planning*, 24(4), 393 – 405.

Edelman, B., Ostrovsky, M. & Schwarz, M. (2007). Internet advertising and the generalized second-price auction: selling billions of dollars worth of keywords. *The American Economic Review*, 97(1), 242-259.

Ferriss, T. (2007) *The 4 hour work week*. New York: Crown Publishers.

Huang, S &Raghunathan, R. (2010, February). *Liking exceeds reason for liking: Affect-based revision of attribute importance*. Presented at the 2010 Society for Consumer Psychology Winter Conference.

Jansen, J. J. & Liu, Z. (2013).The effect of ad rank on the performance of keyword advertising campaigns.*Journal of the American Society for Information Science and Technology*, 64(10), 2215-2132.

Jansen, J. J. & Resnick, M. (2006). An examination of searchers' perceptions of non-sponsored and sponsored links during ecommerce web searching. *Journal of the American Society for Information Science and Technology*, 57(14), 1949-1961.

Kennedy, K. & Kennedy, B. B. (2008). A small company's dilemma: using search engines effectively for corporate sales. *Management Research Review*, 31(10), 737-745.

Kitts, B., Zhang, J. Y., Wu, G., Brandi, W, Beasley, J., Morrill, K., Ettedgui, J., Siddhartha, S., Yuan, H., Gao, F., Azo, P., Mahato, R. (2014). Click fraud detection: adversarial pattern recognition over 5 years at Microsoft. In M. Abou-Nasr, S. Lessmann, R. Stahlbock, G. M. Weiss (Eds.) *Real world data mining applications*, Cham, Switzerland: Springer International Publishers.

Lukason, O. & Hoffman, R.C. (2015). Firm failure causes: a population level study. *Problems and Perspectives in Management*, 13(1).

Phillips, A. H., Yang, R., &Djamasbi, S. (2013, January). Do ads matter? An exploration of web search behavior, visual hierarchy, and search engine results pages. In *System Sciences (HICSS), 2013 46th Hawaii International Conference of IEEE,* (pp. 1563-1568)

Rangaswamy, A., Giles, C. L., &Seres, S. (2009). A strategic perspective on search engines: thought candies for practitioners and researchers. *Journal of Interactive Marketing*, 23(1), 49-60.

Richardson, M., Dominowska, E., &Ragno, R. (2007, May). Predicting clicks: estimating the click-through rate for new ads. In *Proceedings of the 16th international conference on World Wide Web* (pp. 521-530).ACM.

Rose, T. (2016).*The End of Average: How We Succeed in a World That Values Samenes.*New York: Harper One.

Skiera, B., Eckert, J. &Hinz, O. (2010).An analysis of the importance of the long tail in search engine optimization.*Electronic Commerce Research and Applications*, 9, 488-494.

vanDamme, E. (1991). *Stability and perfection of Nash equilibria*. Berlin: Springer-Verlag.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure.*Journal of Personality and Social Psychology Monograph Supplement*, 9(2), 1-27.