CAN KEYWORD LENGTH INDICATE WEB USERS' READINESS TO PURCHASE?

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Abstract: *Over the last ten years, the internet has become an important marketing tool and a profitable selling channel. The biggest challenge for most online business is converting Web users into customers effectively and at a high rate. Understanding the audience of a website is essential for achieving high conversion rates. This paper describes the research carried out in online search behaviour. The research looks at whether the length of a Web user's search keyword can provide insight into their intent and proposes an initial model for using keyword length to predict Web users' readiness to convert when they land on a website.*

Keywords: online searching, search keyword, search keyword length, experiential users, goal-oriented users.

1 INTRODUCTION

Over the last ten years, the internet has become an important marketing tool and a profitable selling channel. According to Ofcom [1]:

"UK leads the way with the internet accounting for nearly a quarter (23 per cent) of total advertising spend. Outside of Europe, the internet accounts for 15% of advertising spend in the US and 12% in Japan. The internet's share of total advertising spend is growing everywhere."

It is estimated that the internet population will grow from 1.83 billion in 2010 to 2.10 billion in 2012 [2]. This represents a considerable increase in the number of potential customer for any online business. The biggest challenge for most online business has been about converting Web users into customers. Understanding the audience of a website is essential for achieving high conversion rates [3, 4]. When a website "it is important to keep in mind who your audience is and [to] make sure that the information you provide is relevant to them." [5].

There have been a large number of studies that have focused on understanding the goal behind a Web user's search query (also commonly called search phrase or search keyword) with a view to improve the quality of search engines' results [6]. However, few studies have investigated whether by understanding the goal behind a Web user's search query, their experience on a website could be personalised and improved or whether their likelihood to purchase or convert could be predicted.

In this paper, we first look at the two main types of Web users and how previous studies have linked Web users' search query to motivation and intent. This paper then proposes a search-conversion model to infer the likelihood of online conversion based on the length of the search query.

2 LITERATURE REVIEW

2.1 Online Search Behaviour

Web users arrive at websites with different motives and goals in mind. There are two generally recognised types of Web users [7, 8]:

- Goal-oriented or Seekers.
- Experiential or Surfers.

Goal directed Web users are motivated by external factors (extrinsic motivation), task oriented, and influenced by interests or concerns brought about by the particular situation or context that they are in. They use directed searches, characterised by work- like thoughts, to reach their goals [9].

Experiential Web users are motivated by fun which leads to browsing. Their searches were non-directed and they usually do not have an explicit goal in mind when carrying out searches. They also spend a lot of time browsing sites usually in an ad-hoc fashion. "Relatively unstructured recreational use [of the web or websites] is experiential behaviour." [10, p. 26].

One of the characteristics differentiating goal oriented Web users from experiential Web users is the type of search that they carry out. Goal-oriented Web users carry out "directed (pre-purchase)" search while experiential Web users carry out "non-directed (ongoing) search" [9]. Usually Web users start their search with a generic search phase and gradually refined their search terms until they find a search phrase that leads them to a website that satisfies their needs.

Web users can adopt two types of search strategies namely browsing and analytical strategies [11]. According to Zhang and von Dran [12]:

> browsing [is] an informal and natural information seeking approach that [depends] heavily on the information environment and the user's recognition of relevant information. Analytical strategies, in contrast, [depends] on careful planning, recall of query terms, iterative query reformulation, and examination of results. (p. 1254)

Pavlou and Fygenson [13] found that the intention of buying a product occurred before the intention of acquiring information on a product. Following this reasoning, an individual who has decided to buy a product will go online and try to express this decision in terms of a search query. Pirolli [14] made a similar distinction between task and need and referred to a query as an external representation of need.

Jansen, Booth and Spink [15] suggested that the search query was not the only expression of intent and that other "aspects of the interaction including number of query reformulations, selection of vertical, use of system feedback, and result page viewed" (p. 1255) were also expressions of intent.

2.2 Long tail search phrases

Long tail is a phrase that became popular following the publication of a best-selling book by Anderson [16]. Long tail keywords are low-volume, obscure, infrequently searched-for keywords. While long tail searches are individually insignificant compared to generic searches, added together long tail searches can provide significant search volume. They can produce higher conversion rates as it is thought that Web users who carry out long tail searches are likely to be further along the buying cycle and therefore more ready to buy than users who make generic searches [17].

Because long tail keywords tend to be specific they are usually longer than generic keywords. Online marketing agencies and experts believe that long tail keywords can boost conversion rates especially when keyword relevancy in the website

content is good and elements of good landing page design are present [Search Engine 17, 18].

However, Ghose and Yang [19], found that the "length of a keyword negatively impacts the performance on all three metrics [conversion rate, order value and profit] for natural search listings but only affects the order value in paid search." (p. 2)

It was not clear whether the websites used in the research carried by Ghose and Yang [19] and Skiera [20], were well designed and whether the content was relevant to long tail keywords. These could have affected their results.

3 SEARCH-CONVERSION MODEL

Based the literature review, the research hypothesised that:

H1: Web users' search terms could indicate motive and intent.

H2: Longer search terms indicated that Web users were more ready to convert.

H3: Shorter search terms indicated that Web users were less ready to convert.

H4: Goal-oriented Web users were more likely to convert than experiential users.

A search-conversion model based on these hypotheses is shown in Figure 1. When Web users search for information online they usually go through the process of typing a search term into a search engine and browsing sites returned by the search engine. If they do not find what they are looking for, Web users refine their search term, usually by adding words to their original keywords. Web users go through these steps a number of times before they find the information that they are looking for and are ready to purchase or carry out an action that represents a conversion.

This research theorised that during the search process, Web users go through an experiential stage where they look for information and try to refine their search terms. During this stage, Web users are focused on research and are not ready to buy. Once Web users feel that they have enough information to make a decision and/or are confident that they are
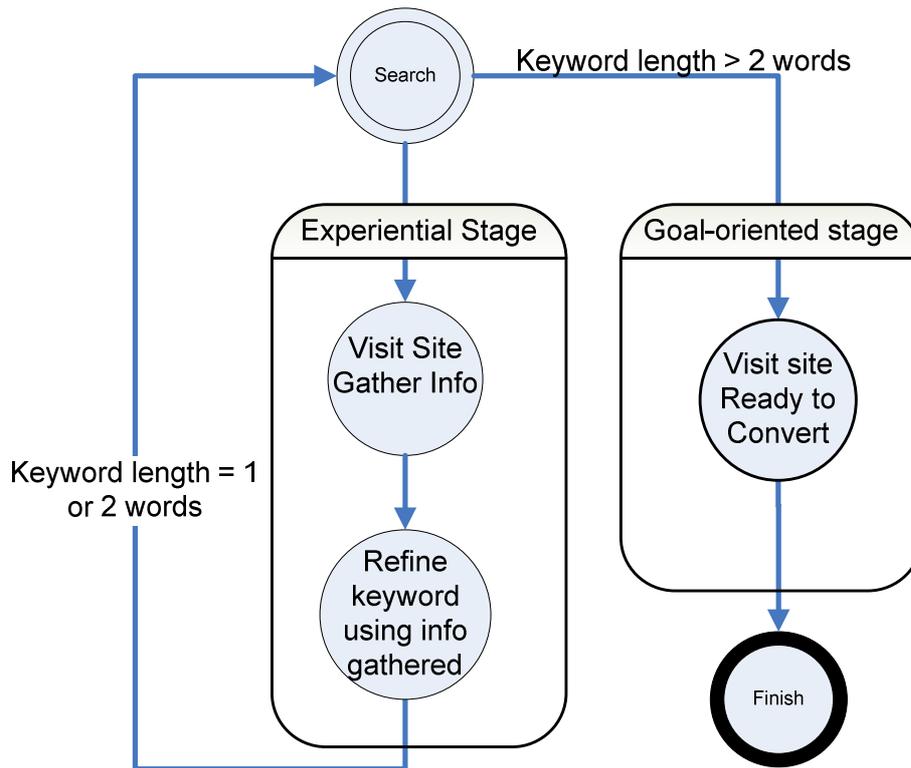
Figure 1: Search-conversion model.

using the right search terms to find what they are searching for, they enter the goal-oriented stage.

At this stage users are ready to convert and are actively searching for websites or browsing websites with the intention to buy or complete a action that represents a conversion.

It is assumed that Web users at the experiential stage are at the beginning of the search process. At this stage, Web users use general search queries that are short and contain one or two terms. Web users who have reached the goal oriented stage are likely to use more specific/detailed search queries for example search queries with more than 2 words. Therefore, it is hypothesised that when Web users arrive on a website, a longer search query could indicate a higher likelihood to convert. Initial data analysis was carried out to test H2 and H3.

4 RESULTS

4.1 Data Collection

The research used data from a commercial website that offered manufacturing and design services online. The aim of the website was to encourage

visitors to enquire about these services. Enquiries were then turned into sales offline.

An Online Tracking Module (OTM) was created to monitor visitors' behaviour while they browsed the website. Pay Per Click (PPC) advertising was used to generate traffic. The website's content and design were optimised to promoted conversion. In the case of the website investigated in this research a conversion consisted of completing and sending an enquiry form from the website.

4.2 Data Analysis

Graph 1 shows the distribution of the length of search queries in the data collected. It can be seen from the graph that search queries that were 2 and 3 words long were most popular followed by search queries that were 4 words long. The length of search queries decayed exponentially from that point onwards.
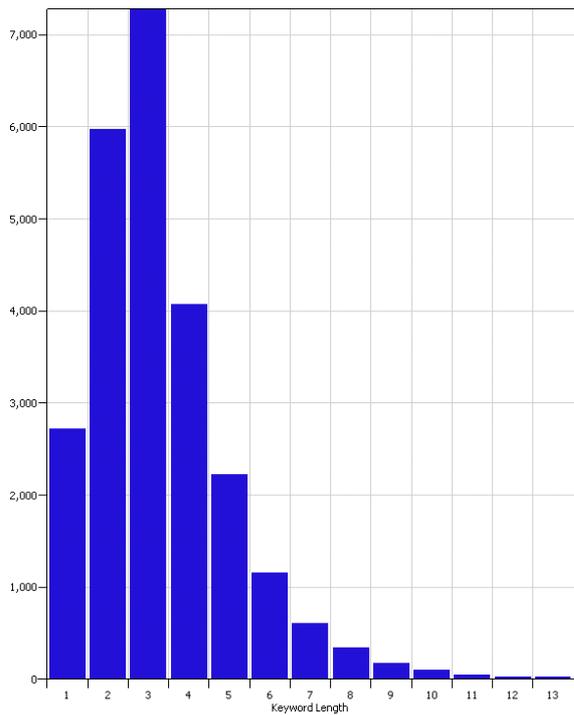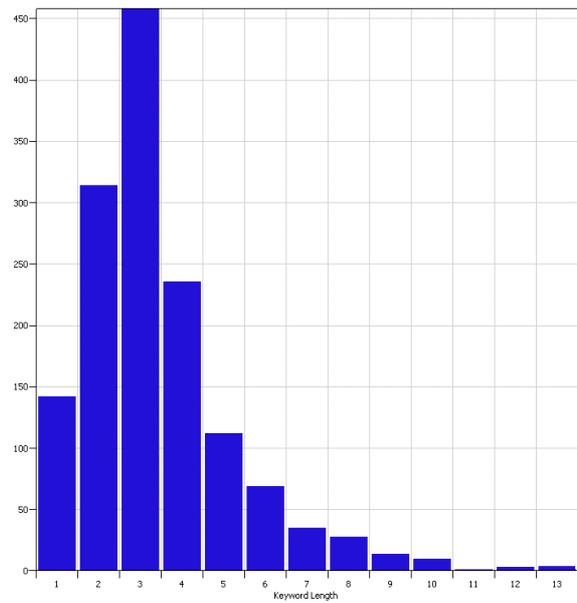
Graph 1: Distribution of search query length vs frequency of occurrence (count).

Graph 2: Search query length vs frequency of occurrence (count) for visits that converted.

Table 1: Breakdown of Graph 2.

Search query length	Count	%
1	142	9.92
2	314	21.93
3	458	31.98
4	236	16.48
5	112	7.82
6	69	4.82
7	35	2.44
8	28	1.96
9	14	0.98
10	10	0.70
> 10	14	0.98

Graph 2 shows the length of search queries that generated a conversion. It can be seen that Graph 2 follows the same kind of distribution as that shown in Graph 1. Table 1 shows a breakdown of Graph 2.

Most conversions (31.98%) were generated from three-word search queries. The distribution peaked at search query length of three then decayed exponentially. There were more conversions originating from search queries containing four words (16.48%) than from search queries containing one word. If the distribution is examined on either side of the highest point on the graph (search query length = 3), it can be seen that 31.85% of conversions were generated by search queries that contained less than three words, while 36.17% of conversions were generated by search queries that contained more than three words.

This represented 13.56% more conversions by search queries that contained more than three words. This suggested that longer keywords could indicate higher probability of conversion. These conclusions supported H2 and H3.

In order to confirm these observations, the distribution of keywords that did not produce conversions was examined. This is shown in Graph 3.

It can be seen that the shape of the distribution shown in Graph 3 is similar to that of Graph 1 and Graph 2. Table 2 shows a breakdown of Graph 3. It was observed that three-word search queries accounted for 29.13% of visits that did not convert. The distribution peaked at length three then decayed exponentially. There were more non-conversions originating from search queries containing four words (16.40%) than from search queries containing one word (11.02%).
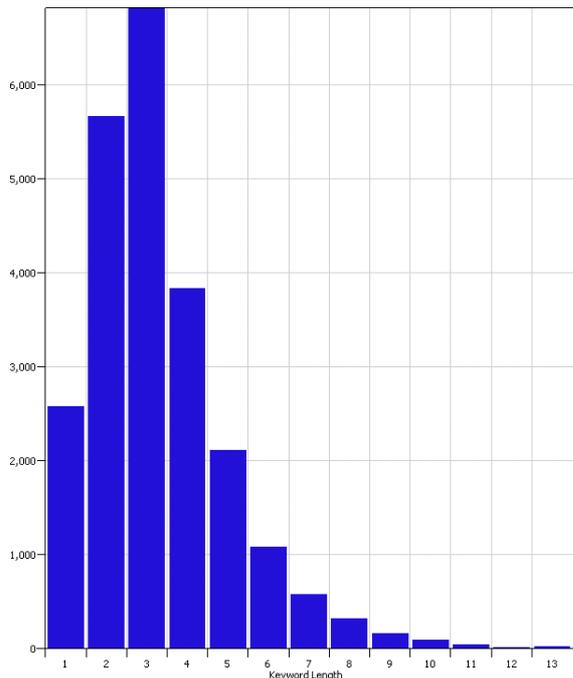
Graph 3: Graph 3: Keyword length vs frequency of occurrence (count) for visits that did not convert.

Table 2: Breakdown of Graph 3.

Search query length	Count	%
1	2,581	11.02
2	5,667	24.21
3	6,820	29.13
4	3,840	16.40
5	2,117	9.04
6	1,090	4.66
7	579	2.47
8	325	1.39
9	165	0.70
10	95	0.41
> 10	132	0.56

When the distribution was examined on either side of the highest point of the graph (length = 3), it was observed that 35.23% of non-conversions were generated by search queries that contained less than three words, while 35.64% of non-conversions were generated by search queries that contained more than three words.

Contrary to what was expected, longer search queries generated almost the same percentage of non-conversion as shorter keywords. These observations did not support the conclusions drawn from the data shown in Graph 2 and Table 1. If longer search queries were more likely to generate conversions, then the percentage of non-conversions from shorter search queries (less than 3 words) were expected to be higher than that of longer keywords (greater than 3 words).

4.2 Limitations

The study had some limitations that affected the results presented in Section 4.1.The relevancy of a Web user's search query compared to the content of a website can affect the likeliness that the Web user will browse or convert. The relevancy of a search query does not depend on its length but rather on the words that make up the search phrase. Therefore, the search-conversion model needs to take search query relevancy into consideration.

The results of the analysis were based on data obtained from one website only. It is possible that better results would have been obtained by analysing data from various websites and comparing the results. Also the website used in this study offered different services and it is likely that the average search query length for finding these services vary. Better results might be obtained by segmenting the data.

5 CONCLUSION

Previous studies have shown that search queries are an expression of intent and need [6, 9, 13-15]. By understanding the intent of Web users when they arrive at a website, it could be possible to infer whether they are ready to buy or convert. The length of a search query could be measure of a Web user's readiness to buy or convert. Short, generic search queries are usually associated with experiential users who are more interested in browsing than in making a purchase or enquiring about a product or service. Longer search queries are associated with Web users who are further along the buying cycle and who are ready to buy or complete an action that represents a conversion.

This paper proposed a model for predicting the likelihood that a Web user would purchase or complete an action that represents a conversion based on the length of their search query. Initial data analysis neither validated nor invalidated the proposed model. Further work has to be carried out to test the model.

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