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Search engine optimisation or paid placement systems : user preference

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SEARCH ENGINE OPTIMISATION OR PAID PLACEMENT SYSTEMS - USER PREFERENCE

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DECLARATION

I, Riaan Neethling, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed R. Neethling

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ABSTRACT

SEARCH ENGINE OPTIMISATION OR PAID PLACEMENT SYSTEMS - USER PREFERENCE

The objective of this study was to investigate and report on user preference of Search Engine Optimisation (SEO), versus Pay Per Click (PPC) results. This will assist online advertisers to identify their optimal Search Engine Marketing (SEM) strategy for their specific target market.

Research shows that online advertisers perceive PPC as a more effective SEM strategy than SEO. However, empirical evidence exists that PPC may not be the best strategy for online advertisers, creating confusion for advertisers considering a SEM campaign. Furthermore, not all advertisers have the funds to implement a dual strategy and as a result advertisers need to choose between a SEO and PPC campaign. In order for online advertisers to choose the most relevant SEM strategy, it is of importance to understand user perceptions of these strategies.

A quantitative research design was used to conduct the study, with the purpose to collect and analyse data. A questionnaire was designed and hosted on a busy website to ensure maximal exposure. The questionnaire focused on how search engine users perceive SEM and their click response towards SEO and PPC respectively. A qualitative research method was also used in the form of an interview. The interview was conducted with representatives of a leading South African search engine, to verify the results and gain experts' opinions.

The data was analysed and the results interpreted. Results indicated that the user perceived relevancy split is 45% for PPC results, and 55% for SEO results, regardless of demographic factors. Failing to invest in either one could cause a significant loss of website traffic. This indicates that advertisers should invest in both PPC and SEO. Advertisers can invest in a PPC campaign for immediate results, and then implement a SEO campaign over a period of time. The results can further be used to adjust a SEM strategy according to the target market group profile of an advertiser, which will ensure maximum effectiveness.

RESEARCH OUTPUTS

The author has produced the following research outputs.

Output Type	Authors	Title	Event/Journal	Status
Journal Article	Neethling, R., Weideman, M.	Search engine marketing: User profiling for SEO vs. PPC	Information Research	To be submitted 1 December 2007
Conference Paper	Neethling, R., Weideman, M.	Search engine optimisation or paid placement systems – user preference	9th Annual Conference on World Wide Web Applications	Published in Proceedings of WWW 2007 (http://www.zaw3.co.za)
Poster	Neethling, R., Weideman, M.	User perception of search engine optimisation as marketing strategy as opposed to paid placement for e-Commerce benefit	8th Annual Conference on World Wide Web Applications	Programme: 8th Annual Conference on WWW Applications: p. 69, Cape Town, South Africa, 5–8 September 2006.
Poster	Neethling, R., Weideman, M.	Search engine marketing: paid placement vs. paid inclusion	7th Annual Conference on World Wide Web Applications	Programme: 7th Annual Conference on WWW Applications: p. 77, Cape Town, South Africa, 29–31 Augustus 2005.

SUPERVISOR:

Signed **Prof. M. Weideman**

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CHAPTER 1
BACKGROUND AND RESEARCH PROBLEM

1.1 Introduction

Since its introduction, the World Wide Web (WWW) has grown exponentially (Gulli & Signorini, 2005). As a result of this trend, the number of Internet users has also continuously been increasing (Anon, 2007b). This situation has created an opportunity for companies to reach potential clients through the use of webpages. However, with the large number of webpages associated with the Internet, it is rather difficult for Internet advertisers to attract potential clients to one specific webpage or set of pages. The large number of webpages also makes it difficult for Internet users to find specific information.

Search engines gradually became available, helping Internet users to find relevant information (Machill, Neuberger & Schindler, 2003:52), and quickly established themselves as one of the most popular Internet services (Green, 2000:125; Alimohammadi 2003:238). For advertisers, the large numbers of search engine users combined with their popularity make search engines the ideal online marketplace. Furthermore, the tendency of search engine users to not look beyond the first page of results, made the use of a Search Engine Marketing (SEM) strategy, a necessity. Although various Internet advertising strategies exist, advertisers primarily have two options in order to get their website ranked in the top search engine results, namely Search Engine Optimisation (SEO) and Pay Per Click (PPC). SEO is the process of modifying a website in order to better satisfy a ranking algorithm and thus improving the chance of getting listed on the first search engine result page. PPC on the other hand, refers to linking websites to specific keywords in exchange for payment (Moxley, Blake & Maze, 2004:61), guaranteeing that a website will be listed on the first result page of a search engine.

The aim of this research project was to investigate and report on user preference of SEO results versus PPC results. This could assist online advertisers to identify their optimal SEM strategy for their specific target market. Advertisers can achieve this by adjusting their SEM campaigns according to the results from this study. The objectives of this research study include the following:

- to investigate the available SEM strategies,
- to investigate how demographics influences user preference of each identified SEM strategy, and
- to identify the most effective SEM strategy for a specific demographic profile.

In this thesis, the author endeavours to identify the most effective SEM strategy for websites. The author describes the research problem, and identifies user preference of certain SEM results as a possible solution. Research on how demographics influence user preference was also executed to verify the solution.

1.2 Statement of research problem

Opposing views are evident with regards to the effectiveness of SEO versus PPC. This can create confusion in determining which one (or both) of SEO or PPC should be used. Due to constantly changing search engine ranking algorithms, SEO can be expensive to implement. Controversially, because of the competition for the top PPC result placements, especially for popular keywords, investing in a PPC campaign could also be very costly. As a result, the research problem is even more relevant for advertisers that cannot afford both SEO and PPC, and who need to justify a choice between the two concepts.

1.3 Background to research problem

As mentioned previously, search engines provide a sizeable marketing potential for websites. However, more than 60% of search engine users do not look beyond the first page of search results (iProspect, 2006). A study by Jansen and Spink (2006:257) claimed this to be 73% of search engine users, who do not look beyond the first page of search results. Although various Internet marketing strategies exist to assist e-commerce advertisers in overcoming this obstacle, two main SEM strategies were identified with the main purpose of increasing result ranking, namely SEO and PPC. Unfortunately, some opposing views are evident to which strategy is the most effective and as a result, should be implemented.

1.3.1 Search engines and search ranking

The Internet provides a rich source of information. With the Internet consisting of over 11.5 billion websites (Gulli & Signorini, 2005), it can be rather difficult to find subject

specific information. To assist with this problem, search services were designed and provided Internet users with a fast and free way of finding specific information. These search services became the most popular method for finding specific information on the Internet (Green, 2000:125). As they developed, two different types of search services became apparent. The one being web directories, which are manually edited and categorised according to subject or topic. The other search service being search engines, which use spiders or crawlers to visit, index and store information about websites in a database (Sherman, 2001).

When a user executes a search on a search engine, the search query is used to search the database in order to retrieve and display the relevant websites. Search engines use a mathematical algorithm to determine the relevancy of a website, and then rank the websites accordingly.

1.3.2 Importance of SEM

The Internet has a large number of users spending vast amounts of money online. Most of these users turn to search engines to find the product or service they are looking for (McCarthy, 2006), thus creating a large market. However between 60% and 73% of search engine users do not look beyond the first page of search results (iProspect, 2006; Jansen & Spink, 2006:257). Unfortunately, with many websites competing for these top results, getting listed on the first result page is not an easy endeavour. Consequently a number of Internet marketing strategies have developed, however only two with the main purpose of increasing website ranking.

1.3.3 SEO and PPC

SEO and PPC both aim to increase a website's result ranking, however uses two very different techniques. PPC refers to linking individual websites to specific keywords for payment (Moxley *et al*., 2004:61), and are offered by most search engines. Companies can bid for specific keywords within search engines. When a search engine user now searches, using that specific keyword, the website's listing will be displayed on the first page regardless of the relevancy to the search query. PPC results however are offset from natural results, and can be ignored by search engine users. SEO on the other hand, refers to modifying a website in order to improve the change of satisfying a ranking algorithm, and as a result achieve higher result ranking. Although SEO cannot

guarantee a first result page ranking, as is the case with PPC, SEO results appear in the natural result section of the result page and can thus not be ignored.

1.3.4 SEM strategy controversy

Online advertisers spend far more money on PPC than on SEO. Their reasons are that SEO cannot guarantee a top listing and is more costly to implement than PPC (Sen, 2005:11). As a result, advertisers perceive PPC listings as a more effective means of achieving increased click-through. However, controversially, search engine users tend to click-through more often on SEO results than on PPC results (Enquiro, 2004; iProspect, 2004; Jansen & Molina, 2006:1090).

1.3.5 Summary

It is vital for online advertisers to implement a SEM strategy in order to get listed on the first result page. Failing to do so, could lead to missing out on large numbers of potential clients. Although SEO and PPC can be implemented to achieve these high rankings, controversy exists over which strategy is more effective. This could create confusion for advertisers needing to decide in which SEM strategy (or both) to invest in.

1.4 Methodology

The influence of demographics on search engine users' preference of SEO listings vs. PPC listings was identified as a possible way to assist advertisers in choosing their optimal SEM strategy. If available, advertiser could use this information to optimise their SEM strategy around their target market group profile. For instance, if an advertiser sees that the target market of 'men with high income' click-through more on PPC listings than SEO listings, they can adjust their SEM strategy accordingly.

To execute this study, a quantitative descriptive research approach was used. To collect data for the study, a questionnaire was developed and hosted on Ananzi, which is a South African search engine. The questionnaire was used to collect demographic data about the respondents and how they interact with search engines. Furthermore, personal interviews with two SEM professionals were also conducted. This was used to discuss the initial results and to the gain expert opinions to assist this author in making final recommendations. These results were used to answer the research questions as reflected in Table 1.1.

Research Problem	It is not clear whether advertisers should spend more resources on SEO or on PPC to increase their exposure to potential clients.	
Research Question	What criteria could be made available to marketers to enable them to make the right choice when investing in SEO versus PPC?	
Research sub-question	**Research method(s)**	**Objectives**
How important is SEM?	Literature analysis	To establish the importance of investing in SEM
What SEM strategies are available?	Literature analysis	To establish the options advertisers have when implementing SEM, and understand the different SEM strategies available.
What is the current status of SEO and PPC implementation?	Literature analysis	To establish the perspective of advertisers on the two SEM strategies.
Which is the more effective SEM strategy?	Literature analysis	To establish the perspective of other authors on the two SEM strategies.
How can user profiling help advertisers in choosing the correct SEM strategy?	Literature analysis	To establish how user profiling can aid advertisers in choosing the correct SEM strategy, according to their target market.
How do demographics influence search engine user's response to SEO results?	Online questionnaire on a high-traffic South African website in order to obtain data on user's response towards SEO results.	To produce statistics on how demographics influence the selection of SEO results.
How do demographics influence search engine user's response to PPC results?	Online questionnaire on a high-traffic South African website in order to obtain data on user's response towards PPC results.	To produce statistics on how demographics influences the selection of PPC results.
How accurate are the results?	Interview with SEM experts.	To discuss the initial study results and gain an expert's opinion.

Table 1.1: Research problem and questions

1.5 Results

This research study confirmed that search engine users choose SEO results more often than PPC results when asked to select the result most relevant to a sample query. This effect varies by search engine, with Google users preferring SEO results more often than Yahoo! and MSN users. Throughout, the results returned a relevancy split of 45% for PPC results, and 55% for SEO results regardless of the demographic feature. This was contradictory to the qualitative study, which suggested that PPC listings are more popular. Notwithstanding, the results indicate that advertisers should use both SEO and PPC in their SEM campaign. It should however be born in mind that various factors play a role in determining the effectiveness of a SEM campaign, and advertisers should take these factors into consideration before investing in SEM.

Furthermore, although the results could not identify a demographic profile for which one SEM strategy would be clearly better than the other, some demographic features did show an obvious preference for either SEO or PPC results. This could be used by advertisers to minimize the high cost associated with having a dual SEM strategy, by adjusting their SEM campaign accordingly. Depending on the demographics of an advertiser's target online audience, their SEM campaign may require more emphasis on SEO results than PPC results, or the reverse. Advertisers whose SEM campaigns are weighted more heavily toward one of the two strategies (while this choice is inconsistent with the demographic data), may need to adjust the mix. However, it should be emphasized that user preferences are also influenced by a number of factors. As a result, advertisers are further advised to take other factors than demographics into consideration when investing in a SEM campaign.

1.6 Delineation

This research study had the following limitations:

- The questionnaire used in this study was hosted on a South African search engine and subsequently the results do not necessarily reflect an international trend.
- The data gathered from the personal interviews are based on the opinions of the two experts interviewed, and may not map to the opinions from other SEM experts.

- While a number of factors play a role in the effectiveness of a SEM strategy, this study only focuses on the effect result preference has.

1.7 Conclusion

The importance of being listed in search engines rankings is undeniable. However, to be only listed in a search engine results, is not enough - websites need to be listed on the first result page. Failing to achieve this could culminate in the loss of a large number of potential clients. It is therefore vital for online advertisers to make use of a SEM strategy in order to attract traffic. Unfortunately, contradictory views exist over which SEM strategy is more effective. As a result, advertisers may be unsure on the selection of the correct SEM strategy. Although various factors influence the effectiveness of a SEM strategy, increased click-through is a determining factor. From the results returned by this study, it was possible to advise advertisers how to invest in SEM in order to get increased click-through. Furthermore, the results can also be used by advertisers to reduce the high cost associated with SEM, by adjusting their SEM campaigns according to their target market.

CHAPTER 2
LITERATURE REVIEW AND ANALYSIS

2.1 Introduction

Popular literature indicates that it is important for e-commerce websites to be listed in search engine results in order to be visible, visited and ultimately successful (Weideman & Chambers, 2005). Previous research states that failing to be listed on at least the first three pages of search results, will lead to being invisible to 90% of potential clients. In fact, failing to be listed on the first page of results will mean more that 60% of potential clients will never see that webpage listing (iProspect, 2006; Jansen & Spink, 2006:257).

Various marketing strategies exist to assist e-commerce advertisers to overcome this obstacle. Two main strategies in particular have the sole purpose of improving website ranking, namely PPC and SEO. PPC refers to linking individual websites to specific keywords to ensure high ranking on a search engine result page (Moxley *et al*., 2004:61). Advertisers using PPC have to pay for every click they receive via that sponsored link. SEO is the process of modifying a website to satisfy search engine ranking algorithms, in an attempt to be ranked higher on a search engine result page (George, 2005:3). Websites implementing SEO are however placed among natural harvested results, unlike websites implementing PPC which are offset from natural results. Both of these SEM strategies can be very costly, and with search engine advertising being such a competitive market, it is often too expensive to implement both of these on the same website (Sen, 2005:10).

Advertisers may need to choose which SEM strategy to implement. Some studies show that in general, they invest more in PPC than in SEO (SEMPO, 2006; Sen, 2005:10). This suggests that advertisers perceive PPC as the more effective means of achieving increased click-through. However, research indicates that search engine users tend to ignore PPC results (Enquiro, 2004). Other authors also claim that advertisers not investing in SEO, could be missing out on 60% of potential clients (Enquiro, 2004; iProspect, 2004; Jansen & Molina, 2006:1092).

Noticeably, there appears to be some contradiction involving which marketing strategy is more effective. This can easily lead to advertisers being confused when considering an online marketing strategy. This is even more relevant for advertisers who cannot afford both SEO and PPC, and subsequently need to justify their choice between the two.

2.2 The Internet

A military computer network in the 1960s, which was an experiment by the United States Department of Defence, was the precursor to the Internet as it is known today. Originally it was created as a computer network that would be independent of normal communications systems, as well as of its individual components. The network was used to link researchers and defence contractors (Hoffman, 2002). This early version of the Internet was called ARPANET (Advanced Research Projects Agency Network). In 1989, the USA Government decided to stop funding the project and this led to its commercial successor, the Internet (Hoffman, 2002). The Internet is not owned by anyone, and is best described as a network of networks that links millions of computers all over the world (Anon, 2007e:20, Jemmeson, 1997:139).

Over the last few decades, the population of Internet users have constantly been growing. From 2000 to 2007 the number of Internet users has increased by 202.7% to over 1 billion users at the beginning of 2007. As reflected in Table 2.1, developing countries such as Africa, the Middle East and Latin America are also starting to use the Internet more.

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	**Population (2005 Est.)**	**Population % of World**	**Internet Usage**	**% Population Penetration**	**Usage % of World**	**Usage Growth 2000 - 2007**
Africa	933,448,292	14.2%	32,765,700	3.5%	3%	625.8%
Asia	3,712,527,624	56.5%	389,392,288	10.5%	35.6%	240.7%
Europe	809,624,686	12.3%	312,722,892	38.6%	28.6%	197.6%
Middle East	193,452,727	2.9%	19,382,400	10.0%	1.8%	490.1%
North America	334,538,018	5.1%	232,057,067	69.4%	21.2%	114.7%
Latin America/ Caribbean	556,606,627	8.5%	88,778,986	16.0%	8.1%	391.3%
Oceania / Australia	34,468,443	0.5%	18,430,359	53.5%	1.7%	141.9%
WORLD TOTAL	6,574,666,417	100.0%	1,093,529,692	16.6%	100.0%	202.9%

Table 2.1: World Internet usage and population statistics (**Source: Anon, 2007b)**

The Internet allows a large number of users around the world to be connected and eliminates the time and distance constraints (Wymbs, 2000:465). However, in the early years of the Internet, the interface was primarily text-based, similar to a command line interface like DOS or UNIX (Chambers, 2005:25). Only since 1995 could the WWW be accessed through a graphical interface, called a 'browser' (Notess, 2003:54). Companies can use webpages, built from HTML (Hypertext Markup Language) to publish information on the WWW. The WWW can be accessed using a browser in which webpages can display text, graphical and other multimedia resources. Furthermore, a browser can link to websites on the Internet using Uniform Resource Locater's (URL's) (Poulter, 1997:133), which is a unique address given to all websites and resources on the Internet. Another progression in Internet technology, was the Common Gateway Interface (CGI). This technology combined with the availability of browsers, allows WWW pages to be interactive and respond to user choices on webpages, for example website servers can generate a dynamic webpage in response to a user's choices collected via an online form (Poulter, 1997:133).

As a result, the development of Internet technology and the ease of website access over last few years made it possible for advertisers to reach a large number of potential clients (Bennet, 1997:325; Chambers, 2005:24), and also to establish a global market presence.

2.3 Search services

Due to the introduction of graphical interface browsers (Notess, 2003:54), the WWW has grown exponentially over the last decade. In 1997 after the introduction of the graphical user interface, the Internet had an estimated 320 million pages (Lawrence & Giles, 1999:108), however have since grown to a more recent estimate of 11.5 billion pages in 2005 (Gulli & Signorini, 2005). For search engine users, this growing mass of information makes it difficult to find relevant responses to targeted queries (Machill *et al.*, 2003:52). To help with this daunting task, search engines have emerged. The large amount of available information on the web combined with the ease of search engine access and use (Weideman, 2002) has largely contributed to their success. In fact, Green (2000:125) states that search engines are among the most popular destinations sites on the web (Alimohammadi, 2003:238). As a result, the large numbers of search engine users combined with its popularity, makes search engines an important marketing factor.

The earliest Internet search engine was called 'Archie', which allowed keyword searches of a database consisting of names of files via FTP (File Transfer Protocol) and was based at McGill University (Poulter, 1997:132). Archie servers appeared all around the globe, each offering access to a copy of the original Archie database. Although this form of searching was very primitive, a single Archie search could return references to a file stored on many different sites. A searcher could then download a copy of the file via FTP (Poulter, 1997:132). Another early search engine was 'WAIS' (Wide Area Information Server), a server-side retrieval software program which allowed keyword searching of files and presented the results in relevance-ranked order (Poulter, 1997:132). A precursor to the WWW was 'Gopher', based on the common term 'to go for something'. Gopher was a freely available server side package which function is defined by Pouter (1997:133) as, "… it allowed the creation of menus and links from items in these menus to either files or to menus on other Gopher servers". Many organisations started to use Gopher servers to provide information about them. Links to all the Gopher servers

worldwide were maintained on the ‘Mother Gopher’, located at the University of Minnesota, where Gopher was developed (Poulter, 1997:133). Later a search engine called ‘Veronica’ was developed, that allowed keyword searches of a database of all the worldwide Gopher menu item descriptions. Veronica supporting both standard ‘Boolean’ and ‘nested’ statements, and became very popular with a network of Veronica servers being set up worldwide. Unfortunately, searching was still difficult, as no control existed over the words used in Gopher menu items, resulting in the retrieved Veronica results having a poor description of the resources they led to (Poulter, 1997:133). The first search engine as we know it today was released in June 1993, namely the ‘World Wide Web Wanderer’ and later became known as the ‘Wandex’. By December 1993, three search engines’ where used on the web, namely ‘JumpStation’, the ‘World Wide Web Worm’ and the ‘Repository-Based Software Engineering Spider (RBSE)’. The first web directory was created in 1994 called ‘Elnet Galaxy’. Other directories such as ‘Yahoo!’, ‘DMOZ’ and ‘Infoseek’ soon followed (Wall, 2007). Recently the leading search engine claimed to index more than pages 25 billion webpage’s (Anon, 2006b), and the leading web directory estimated to index 19.2 billion webpage’s (Baker, 2005). Table 2.2 reflects the development of search services.

Year	Search Service
1945	Vannevar Bush Proposes “MEMEX”
1965	Hypertext Coined by Ted Nelson
1972	Dialog – First Commercial Proprietary System
1986	OWL Guide Hypermedia Browser
1990	Archie & the Web
1991	Gopher
1993	ALIWEB, WWW Wander, Jump Station, WWW WORM
1994	ELNet Galaxy, WebCrawler, Lycos, Yahoo!
1995	Infoseek, SavvySearch, AltaVista, MetaCrawler, Excite
1996	HotBot, LookSmart
1997	NorthernLight
1998	Google, InvisibleWeb.com
1999	FAST
2000+	Hundreds of search tools

Table 2.2: A timeline of Internet search technologies

(Source: Sherman & Price, 2002:15)

2.3.1 Visible and invisible web

The Internet can be divided into two distinct parts, namely the ‘visible’ and the ‘invisible’ web (Van der Westhuizen, 2001). The visible web refers to webpages that have been manually created by website designers, known as static webpages. Static webpages provide the same information to everyone (Van der Westhuizen, 2001). Search engines can easily discover and index these webpages by following hyperlinks (Ru & Horowitz, 2005:249). As a result, search engine users can get access to these pages.

Unfortunately, the visible web only constitutes a portion of the entire WWW. The invisible web is estimated to contain 400-550 more times the amount of webpages than the visible web (Van der Westhuizen, 2001). In fact Van der Westhuizen states that even the

biggest search engines only index up to 60% of all the webpages on the Internet. The invisible web is represented by all the webpages search engines can not index because they are in a non-standard format. Ru and Horowitz (2005:250) states than most of the invisible web consists of hundreds and thousands of specialised searchable databases. These databases provide valuable high-quality information that is not always available on the visible web. However, to access the information in the databases users have to fill out a form on a webpage. Since search engines do not attempt to fill in forms, these databases are never indexed (Ru & Horowitz, 2005:249). Other webpages that comprise part of the invisible web are webpages containing files in a non-standard format such as video and movie files. Furthermore, dynamically generated webpages also do not get indexed. Dynamically generated webpages are customised webpages for each visitor, and can be identified by containing a '?' character in its URL (Ru & Horowitz, 2005:249).

Search services mainly index the visible web in two ways. One being human editors employed by web directories, and the other being retrieval software known as search engine crawlers (Chambers, 2005:26). These two types of search services gather their listings in two very different ways.

2.3.2 Web directories

Web directories are described by Green (2000:125) as, "…a pre-defined list of websites, compiled by human editors and categorised according to subject/topic". In order to be listed in a directory, a website needs to be submitted to a directory. Human editors then review the website and determine if the website should be added to the directory or not. According to Sullivan (2007), websites also need to submit a short description of the entire website, or the editors write one for the sites they review. When a search is done, a match is looked for in the description submitted.

Furthermore, directories are also organised into subject-based categories and sub-categories, into which editors place each approved website. Searchers can then use these categories to narrow down their search. Thurow (2003:32-33) has identified the following characteristics directory editors look for when reviewing a website.

- **Unique content**

  Websites that are submitted should have unique content from the websites already indexed under the same category, thereby adding new value to the directory's category and improving the quality of information.

- **Most appropriate category**

  The content of a website should be reflecting and be in line with the category the website is to be indexed in.

- **Legitimate organisation**

  Commercial websites that are indexed in a directory should be legitimate and meet a variety of other requirements, including a secure payment system, return policies and a physical address.

- **Accurate description**

  The description submitted should accurately describe the information, service or product offered by the website.

Figure 2.1 reflects the process of having a website indexed in a directory.

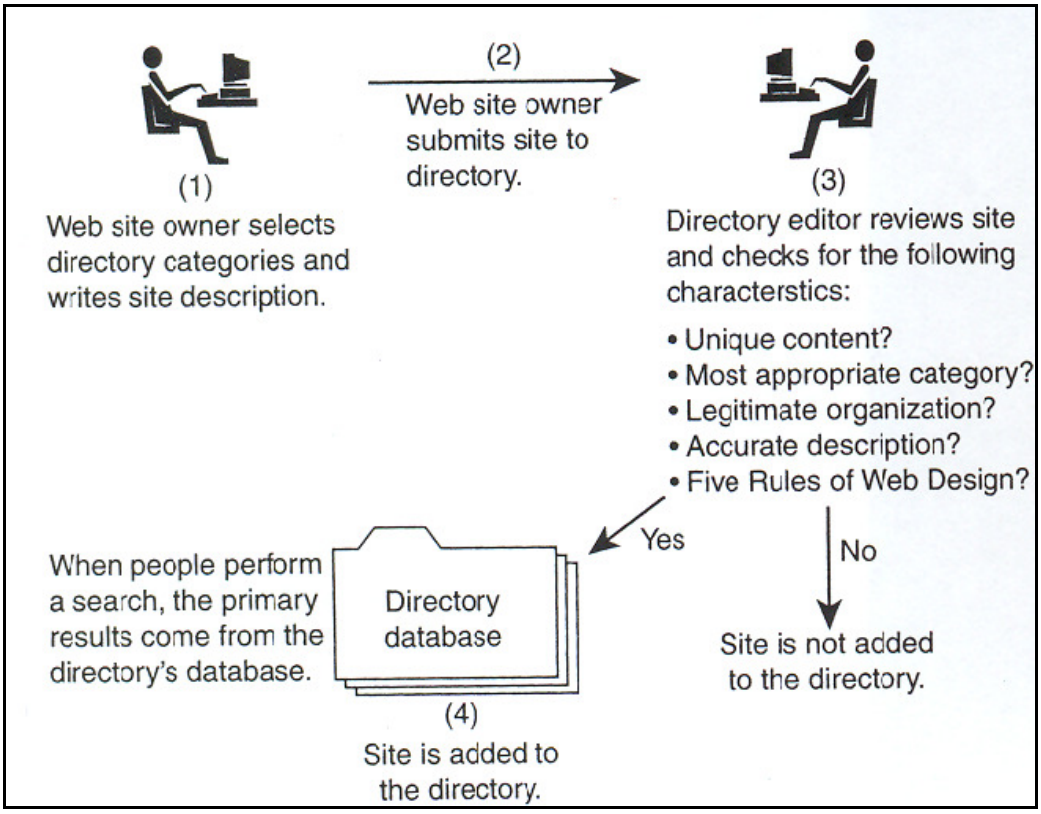

Figure 2.1: Directory submission (Source: Thurow, 2003: 31)

According to Moran and Hunt (2005:52), directories have a relative small amount of information, however are characterised by high quality. Because of this relative small amount of information, they can still make use of search engine index results, whenever they fail to produce matching results to the user's query. Furthermore, websites that have been indexed by Web directories will almost certainly remain there. This permanent presence is not guaranteed for a listing within a search engine index, and as a result makes a listing within a Web directory very desirable (Green, 2000:125). Sullivan (2007) also states that optimising a website for a search engine has no effect on directory listings. Another advantage of being listed in a web directory is that it is likely to improve the chances of a website being indexed by a search engine (McGee, 2004).

Problems with Web directories include that they are not comprehensive. According to Hubbard (2004), because Web directories use manual indexing, they can not keep up with search engines, and as a result have a limited number of links. However, Forthey

(2003) claims that the human editors of directories have already selected the best links on a subject, outweighing the problem of having a limited index. Green supports this by stating that humans compile Web directories, which implies that a qualitative decision concerning the content on each listed website has already been made (Green, 2000:125).

2.3.3 Search engines

Poulter (1997:131) defines a WWW search engine as

> "…a retrieval service, consisting of a database (or databases) describing mainly resources available on the WWW, search software and a user interface also available via WWW".

The search software Poulter refers to are also known as software called 'spiders', 'crawlers' or 'bots' (Sullivan, 2001a). These 'spiders' visit webpages on the Internet, discovering new pages and updating already indexed pages along the way. This is done by following links from one webpage to another (McGee, 2004). Sullivan (2007) points out that because spiders follow links to index new webpages, a website having no in-bound links pointing to itself, is unlikely to be indexed by spiders. Webpages with no in-bound links will have to make use of Paid Inclusion (PI) (to be discussed in Paragraph 2.6.1). The search engines store the full-text of the visited pages in a large database, also called the 'search engine index' or 'catalogue', which is keyword searchable. Furthermore, every time a 'spider' finds a webpage that is already indexed but have since changed, that webpage is updated in the Index. Unlike web directories, website owners do not need to submit their site to be indexed. As long as a website has a link pointing to it from another site, a 'spiders' can follow that link and in so doing, index the website (Sherman, 2001). Sullivan (2007) however warns that it can sometimes take a while for new webpages, or changes to an already indexed webpage, to be reflected in an Index. Until the webpage is indexed, it is unavailable to search engine users.

Hubbard (2004) points out that 'spiders' that index websites can only read open-text formats, such as HTML files, and cannot record any more that the basic file attributes of non-text format files, including PDF, sound, image and video files. Furthermore, 'spiders' cannot survey frame-based sites or dynamic pages (Visser, 2006:40). Another problem

with search engines is that they often index duplicate and irrelevant records due to spamming techniques (Oppenheim, Morris & McKnight, 2000:191).

When a user executes a search, the search engine employs a program to scan all the indexed webpages, finding matches to the search query, and ranking them in the most relevant order possible. The relevancy ranking of search results is based on a mathematical algorithm that the search engine uses to determine how to rank and display pages. This process is termed 'page ranking', which is elaborated upon in Paragraph 2.4. Figure 2.2 reflects the process of a website being indexed by a search engine.

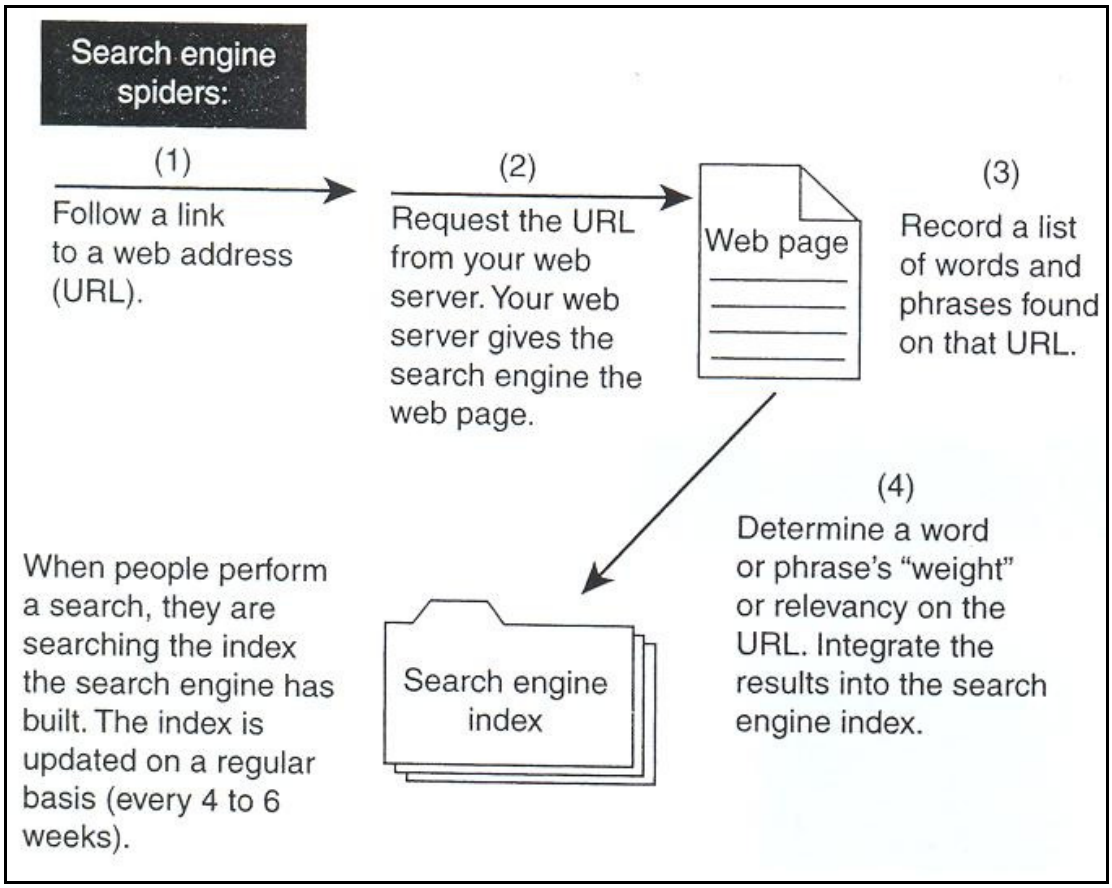

Figure 2.2: **How search engines index web pages (Source: Thurow, 2003: 15)**

2.3.4 Meta search engines

Popular meta search engines include 'Dogpile', 'Vivisimo' and 'Mamma' (Sherman, 2005; Green, 2000:127). Unlike traditional search engines, these meta search engines do not use spiders or humans to index WebPages. Instead, they allow queries to be sent to several search engines all at once. As a result, when a search is completed on a meta search engine, the query is actually sent to several other search engines and directories. The results from the other search services are then blended onto one page (Sherman, 2005). Thus meta search engines do not own a database of webpages like traditional search engines, instead they use the databases maintained by other traditional search engines (Barker, 2006).

Meta search engines enable users to search multiple search engines for the most relevant results, without having to search each engine individually. Users as a result save time and eliminate the need to use and learn several separate search engines (Chen & Luh, 2005:422). Furthermore, Chen and Luh (2005:422) emphasise that by using individual search engines, users may miss critical information provided by other search engines (Hu, Chen, Schmalz & Ritter, 2001:358). Zhang and Cheung (2003:433) supports this by stating that it is virtually impossible for one search engine to index the whole WWW, and therefore using multiple search engines or a meta search engine, provides the searcher with a broader scope of information.

Disadvantages of meta search engines are that most of them tend to mix PPC ads in their organic search results (Wall, 2007). Although some studies indicate that meta search engines are able to remove duplicates (Zhang & Cheung, 2003:434, Green 2000:131), a more recent study claims the opposite (Xie, 2004:216).

2.4 Search engine ranking

Search engine currently index billions of webpages (Anon, 2006b). Even with this large volume of information, it is relatively easy to produce a list of pages containing given search queries. The difficult part is to rank these pages in order of relevance to the user's query. Although the exact details are not publicly known, it is generally assumed that each search engine assigns a score to each webpage in its indexed database and ranks the webpage according to that score. The score is calculated by how well a webpage satisfies certain requirements (Bifet, Castillo, Chirita & Weber, 2005). Although

Google alone claims to use over 200 factors to determine a webpage rank (Evans, 2007:22), some of these factors have a bigger influence on a webpage's ranking than others. According to the same author the factors that are most likely to influence a webpage's ranking include:

- **Number of webpages in a site indexed by search engine**
  Some websites are larger than others by several orders of magnitude. Larger may be better as far as rankings are concerned.

- **PageRank value of a website**
  Google's PageRank algorithm helps rank websites according to the number of in-links, and calculates the authority of each site providing the in-link. Generally, the higher a site's PageRank, the higher its ranking.

- **Number of in-links to a website**
  PageRank can be substituted by in-links as a good approximation of rank.

- **Age of the website's domain name**
  The SEO community currently speculates that older domain names will rank more highly that newer domain names for the same content.

- **Listings in Yahoo! and DMOZ directories**
  Both Yahoo! and DMOZ.org are human-edited directories whose results feed into directories from other search engines companies such as Yahoo! and Google, respectively. Because of the high quality control of these directories, the sites they list are deemed to be of high authority, which the search engine may or may not use as one of their ranking factors.

- **Number of pages listed in Del.icio.us**
  Del.icio.us is a social book-marking site that enables any user to bookmark a page. Because of its popularity and the fact that a bookmark can be interpreted as an implicit recommendation of a page, the number of different bookmarks of a specific page may add to that page's ranking (Evans, 2007:25).

A large number of search engine users never look beyond the first page of returned results, and only a very small percentage looks beyond the first three pages of search results (iProspect, 2006; Jansen & Spink, 2006:257; iProspect, 2004). As a result, it is essential for e-commerce websites to have a high ranking in popular search engines, as this will lead to more traffic and ultimately more profit. Consequently, in order for a website to achieve high ranking and attract users an understanding of the factors that can influence a page ranking in a search engine is crucial. Furthermore, a market has emerged for companies who perform SEM services (Sullivan, 2002b). The goal of these companies is to increase the ranking of their client's webpages in search results (Sullivan, 2002b). SEM companies have partial knowledge of how search engines calculate page rank. Through experience and empirical tests, these companies can also reverse-engineer some important ranking factors (Fortunato, Boguna, Flammini & Menczer, 2006). However, the same authors also state that an SEM company's work is largely guided by guesswork and trial and error (Fortunato *et al*., 2006).

2.5 Internet marketing technologies

An important issue for any website owner is how visitors will find their way to the website. This is a crucial question for business, since the effectiveness of an online initiative is likely to be dependent upon the number of potential customers that access the site (Thelwall, 2001:114). Since the start of Internet advertising in the mid 1990s, several advertising technologies had evolved to attract traffic to a specific website. Commercialisation of the Internet has resulted in online advertisers adopting several of these strategies, to direct as much traffic to their website as possible. Each year the Interactive Advertising Bureau (IAB) measures the revenue share of the main eight Internet advertising technologies, namely display ads, keyword search, classifieds, sponsorships, rich media, email, slotting fees and referrals. As shown in Table 2.3, it was found that the popularity of different advertising technologies has changed dramatically over the last few years. Display ads have decreased in popularity from 29% in 2002 to 21% in 2006. Sponsorship has also decreased in popularity from 18% in 2002 to only 4% in 2006. Controversially, advertising technologies such as referrals has increased from 1% in 2002 up to 7% in 2006. The largest popularity rise however is for keyword search, rising from 15% in 2002 up to 40% in 2006.

	2002	2003	2004	2005	2006	% market share increase from 2002 – 2006.
Keyword Search	15%	35%	40%	40%	40%	+25%
Referrals	1%	1%	2%	6%	7%	+6%
Classifieds	15%	17%	17%	18%	20%	+5%
Rich Media	5%	8%	8%	8%	6%	+1%
E-mail	4%	3%	2%	2%	2%	-2%
Display Ads	29%	21%	20%	20%	21%	-8%
Slotting Fees	8%	3%	2%	1%	0%	-8%
Sponsorship	18%	10%	9%	5%	4%	-14%

Table 2.3: Different Internet advertising technologies revenue share over the last five years (Source: IAB, 2006)

Two new Internet advertising technologies include three-dimensional visualisation and brand integration in Internet movies and online games, called 'Advergames'. In the following paragraphs some of the abovementioned advertising technologies are elaborated upon.

2.5.1 Banner ads

The first Internet advertisement was introduced on 'HotWired' in October 1994. This form of advertisement consisted of narrow strips that ran across the top of pages, termed display ads or banner ads (Li & Leckenby, 2004; Bruner, 2005). The first banner ad displayed on HotWired read, "Have you ever clicked your mouse right HERE? YOU WILL" (Figure 2.3). If an Internet user clicked on the ad, the user's browser would have opened the home page of American Telephone and Telegraph (AT & T), which was the first advertiser to use banner ads.

Figure 2.3: The first Internet advertisement (Source: Bruner, 2005)

Banner ads as shown in Table 2.3, were one of the more popular forms of advertising. They often consist of text and graphics, either static or animated. Some studies show that the click-through rate of banner ads has decreased over the years as users started to ignore them (Henshaw, 2001; Kopytoff, 2001). An earlier study of banner ad effects, measuring the impact of banner ads on Internet users found that even without click-through, banner ads increased brand awareness among Internet users (Briggs & Hollis, 1997:33). Other authors have considered the effect of banner ad characteristics on their click-through rate. Li and Bukovac (1999:341) examined the effects of banner ad types (static or animated) and banner ad size on click-through rate, and found that animated ads generated a higher click-through rate than static ads. The authors also found that larger banner ads generated a higher click-through rate than that of smaller ads. Sundar and Kalyanaraman (2004:7) investigated the effect of banner ad animation speed, and found that banner ads with fast moving animation are more noticeable than ads with slower moving animation.

2.5.2 Sponsorship

Online sponsorship involves the placement of a sponsor's identity in any manner, be it the sponsor's logo, slogan or name on a sponsored website for any type of marketing gain. Ryan and Whiteman (2000) define online sponsorship as:

> "The linking of a brand with related content or context for the purpose of creating brand awareness and strengthening brand appeal in a form that is clearly distinguishable from a banner, button or other standardized ad unit".

Sponsorship achieves brand awareness by creating and maintaining in the consumer's mind an association between the brand and an event that the consumer values highly (Crimmons & Horn, 1996:15). Furthermore, online sponsorship also benefit from the user's visitation and positive disposition toward the sponsored website (Li, 2005:55). As

a result, it is essential for an advertiser to select an appropriate event, cause or activity to sponsor (Li & Leckenby, 2004), since the perceived fit affects the success of online sponsorship.

2.5.3 Rich media

'Rich media', is a generic term for a variety of interactive Internet advertising formats. This format can include animation, audio and video. Rich media ads can also be viewed without ever leaving the webpage on which it appears. Various web programming technologies can be used to deliver rich media functionality, including Java, JavaScript and DHTML. The most popular method however is Macromedia's Flash software (Bruner, 2005). The visual impact of rich media ads is often positively related to the amount of information displayed by them, which in turn determines the size of the ad. As a result, the larger a rich media ad, the more time it takes to download and display in the user's browser (Li & Leckenby, 2004). Advertisers however, over the last few years have taken full advantage of the increasing use of broadband access among Internet users, to utilise rich media as an advertising format (Bruner, 2005).

Various studies have found rich media to be more effective than banner ads as an Internet advertising format. For example, a study by DynamicLogic (2002) indicated that the average lift in message association for rich-media was double that of normal .gif/.jpeg files. Message association refers to the ability of a consumer to link a brand to a specific message, while 'lift' is the difference between users who are exposed to a message and those who are not. Furthermore, Gluck and Bruner (2005) claims that the brand interaction that rich media offers advertisers in terms of brand impact, is significantly higher than that of .gif/.jpeg ads.

2.5.4 3-D visualisation

This type of advertising enables consumers to interact with simulated products on the Web (Li & Leckenby, 2004), differing from display ads in the sense that 3-D visualisation enables users to interact with a website. The interaction enables a user to alter a product's design features, background, context, viewing angle, zooming in and out for details and simulates the product's operation on a website (Lee, Fiore & Kim, 2006:622). This facilitates communication, customises presented information, allows image manipulation, and creates entertainment for the customer (Fiore, Jin & Kim, 2005:622).

Research shows that using 3-D visualisation on a website can have a number of advantages. Schlosser (2003:196) found that a potential customer is more likely to purchase a product when that product was advertised via object interactivity rather that passively. Sicilia, Ruiz and Munuera (2005:31) found that an interactive website leads to higher favourability toward the product and the website. Furthermore, individuals were more motivated to revisit a website containing interactive features (Joines, Scherer & Scheufele, 2003:104).

2.5.5 Advergames

'Advergaming' is the integration of ads in online games through the use of interactive technology, with the purpose of increasing brand awareness (Winkler & Buckner, 2006:37). Chen and Ringel (2001) describe three levels of integration namely: 'associative', 'illustrative' and 'demonstrative'. Associative integration is the lowest level, where a brand can be linked to a certain lifestyle or activity featured in the game. An example would be a soccer game where banner ads of breweries would appear around the stadium. Illustrative integration can be seen as the second level of brand integration. In illustrative integration, a brand is placed in a prominent position in a game, such as when Lego uses Lego characters in a game (Chen & Ringel, 2001). Demonstrative integration presents the highest level of brand integration. In this instance, the gamer has the opportunity to interact with the features of the product. An example of this would be a racing game which enables a player to select a car model whose performance could then be compared with that of other models during the course of the race (Chen & Ringel, 2001; Winkler & Buckner, 2006).

Advergames are increasingly being used as part of advertisers marketing strategy (Winkler & Buckner, 2006:37). Experts estimate that by 2009, Advergames will be worth more than $500 million, increasing to $1 billion by 2010 (Terdiman, 2005). Although Vedrashko (2006) encourages advertisers to invest in Advergaming, the author also states that gamers are becoming wary of advergames and will learn to ignore the 'ad noise', in games.

2.5.6 Search engine marketing

SEM consists of various marketing strategies, all of which has the goal of achieving top rankings in search engine results. SEM began when search engines in need of revenue,

started to sell their users' clicks to advertisers (Moxley *et al*., 2004:63). Furthermore, they took advantage of advertisers need to be visible and visited. Having the advantage of creating the largest amount of Internet traffic (Thelwall, 2001:114), search engines offered services that would satisfy the advertisers. Specifically, they addressed these advertisers's enthusiasm for more visibility, eagerness for being placed on the first page of returned search results, and impatience for waiting to be reviewed and indexed.

SEM is currently by far the most popular form of Internet advertising (IAB, 2006), and literature widely acknowledges its importance. Curran (2004:205) claims that:

> "Some companies are budgeting enough for payment to search engines and they have to. Deciding not to is a bit like launching a media campaign and deciding to ignore one whole media, like TV".

2.6 Importance of SEM

It is claimed that there are over 1 billion Internet users today (Anon, 2007f), and this is expected to increase to 1.8 billion by 2010 (Anon, 2006a). It is also claimed that Internet spending reached $143.2 billion in 2005 (Anon, 2006c). Of all the Internet users, 80% turn to search engines to find information (BTLookSmart, 2001). A survey returned that adult Web users search the Internet more than they engage in any other activity except using email. The same author also found that half of Web users spend 70% or more of their time searching online (Nachmias & Gilad, 2002:476). McCarthy (2006) states that over half of all website visitors found the website through a search engine. This underpins the importance of a website being listed in a search engine index.

Furthermore, it is of importance for advertisers to have their website ranked on the first page of search results, or at least on the first three pages of search results (Weideman & Chambers, 2005). A recent study reported that 62% of users of search engines tend to click on results within the fist page of search results, and 90% of users click on results within the first 3 pages of search results returned (iProspect, 2006). Additionally Jansen and Spink (2006:257), states that 73% of search engine users never look beyond the first page of returned results. Taking into consideration the high number of commercial websites on the Internet and the importance of a high ranking in search results, it is clear that competition for the top rankings is dynamic.

2.6.1 Different SEM strategies

A number of SEM strategies exist, which attempt to make websites more visible. For example, PI is a SEM strategy, which ensures inclusion in a search engine's index normally in exchange for a once off payment (Sullivan, 2001b). PI further also ensures that changes made to a website will be updated in the search engine index more quickly, as websites using PI will be visited more frequently. However, PI also varies from one search engine to the next. Some search engines like Yahoo! offers a PI service for payment, whereas other search engines for example Google, do not even offer a PI service. PI can not guarantee high rankings in search results. In fact PI does not even guarantee placement in search engine results (Sullivan, 2001b), although websites that do invest in PI are likely to receive more traffic than websites that do not. This is due to the fact that websites can wait for weeks or even moths for a search engine spider or crawler to index their website, whereas websites using PI, may see results within days. To ensure top rankings, a website owner could invest in one or both of two SEM strategies, namely SEO and PPC.

2.7 Pay per click

PPC or Pay for Placement (PFP) is used to describe a number of overlapping practices, however in essence refers to linking individual websites to specific keywords for payment (Moxley *et al*., 2004:61). As a result, websites can immediately drive potential clients to their website, by selecting keywords that their specific target market will use in a search (Curran, 2004:204). It is also important for a website to research the possible keywords that may be used in a search for their specific product or service (Curran, 2004:205). PPC could become costly as advertisers are locked in an ongoing rivalry for popular keywords (Sullivan, 2003b). As PPC suggests, advertisers also have to pay for every click they receive via that sponsored link. (See Figure 2.4)

PPC was designed as a method of creating revenue for search engines. Users have become accustomed to search engines as free services for which they are not prepared to pay (Moxley *et al*., 2004:64; Henshaw, 2001). Yet listings do not just appear on the screen after a search, search engines go through a number of steps to review, index and generate listings. Although there are a number of ways to complete these steps, all of them are expensive (Wittenberg, 2004). This leads into the requirement that search

engines need some sort of revenue to cover such costs, and if the user is not willing to pay, they have to look elsewhere for income. Consequently, search engines take advantage of advertisers' need to be visible and visited. Having the advantage of creating the largest amount of Internet traffic (Thelwall, 2001:117), they offered services that would satisfy the advertiser. Specifically they addressed these advertisers' enthusiasm for more visibility, eagerness for being placed on the first page of returned search results and impatience for waiting to be reviewed and indexed.

Most search engines offers PPC services in order to generate income. Google has Google AdWords, Yahoo! has Yahoo! Search Marketing, while MSN has Microsoft AdCentre. Companies can place bids for search terms at their preferred PPC search engine. When a user now enters this search term, the search engine will display the companies' website links in descending order of their bid price for that specific term. The bid represents the amount of money the company is prepared to pay the search engine every time a user clicks on the link to its website on the search results page. The bid-amount is shown by 'cost to advertiser' below each link in Figure 2.4. The highest bidder for a given search term (in this case 'shoes'), will see their website listed as the number one link; In this case www.designerapparel.com who pays $0.05 for every click through. The second highest bidder, www.reebnet.com who pays $0.03, will be listed second.

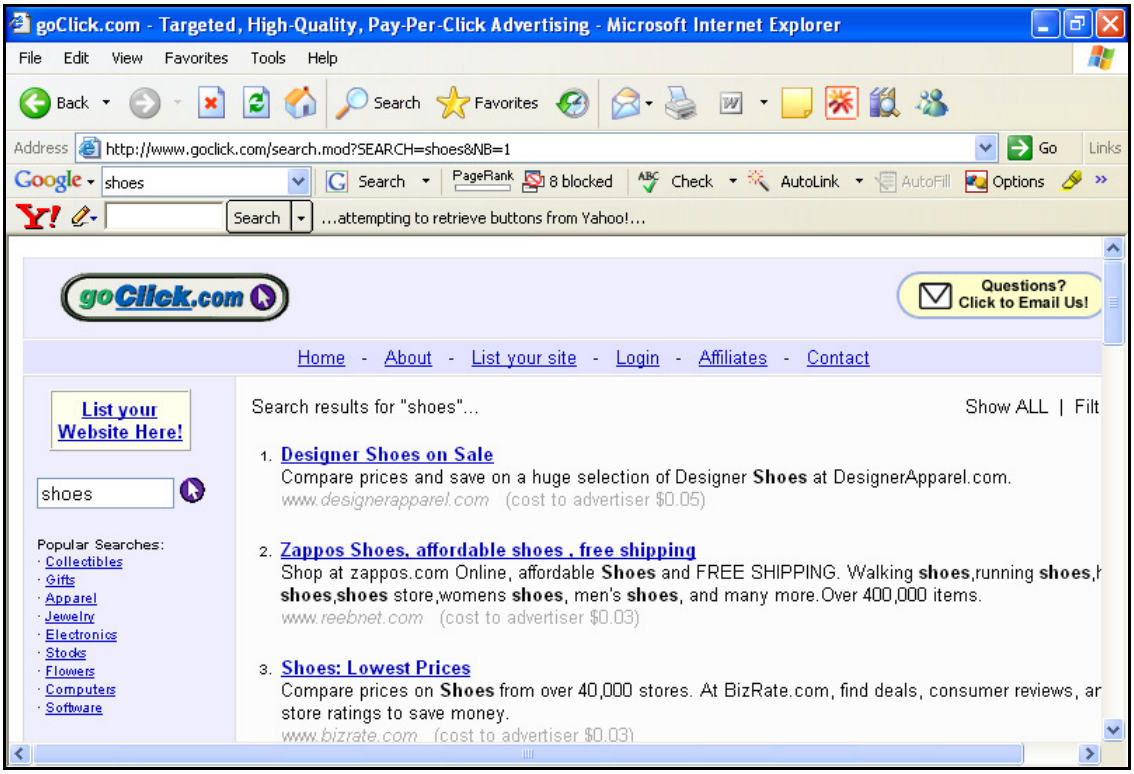

Figure 2.4: **Sponsored links on goClick.com**

PPC can also be dynamic. For example, www.designerapparel.com who is the highest current bidder for the search term 'shoes' in Figure 2.4, can be the number one link today. Any advertiser can still at anytime outbid www.designerapparel.com by paying $0.06 for each click through. That would mean www.designerapparel.com will move to the number two link and the new advertiser will move to the number one spot for the keyword 'shoes'. It should be noted that goClick.com, reflected in Figure 2.4, is a PPC only search engine resulting in their result page consisting of only one main area. As discussed later, traditional search engines like Google, Yahoo! and MSN, has three main result page areas.

'Conversion rate' represents the percentage of clicks on a PPC link that produces a sale for that website. If a website has a conversion rate of 30%, seven out of ten clicks do not produce any income for that website. Wall (2006) states that the average conversion rate for PPC links are between 3% and 5%, and that a good conversion rate is crucial for the success of a PPC campaign. It is therefore vital for a website to optimise its landing page (the page that opens when a user clicks on a PPC link) in order to increase conversion rate. To optimise a landing page a website can consider the following:

- remove unnecessary navigation links and minimize distractions,
- make link text appealing as it is more likely to be read than the body text of the webpage,
- do not be redundant,
- match the landing page to the information searched for by the user, and
- give users a clue that they have found the correct page, by placing the words they searched for in large text (Wall, 2006; Jennings, 2006).

PPC results are not mixed with naturally harvested search results and are usually offset from them in some way. PPC results appear in various places on the result screen, but not in the centre (Henshaw, 2001). In 2002, the U.S.A Federal Trade Commission (FTC) made a recommendation for more clear and conspicuous disclosure of search results among search engines (Sullivan, 2002a). This was done after 'Commercial Alert', a consumer watchdog group filed a complaint with the FTC in 2001 that search engines are failing to disclose that advertisements are part of search results. This was confirmed during a study done at that time, claiming that 60% of search engine users are unaware of PPC listings (Riquelme & Kegeng, 2004:450). In response, the FTC's sent letters to search engine companies recommending that they clearly present their PPC results as such. The FTC further advised the use of prominence, placement, presentation and proximity to achieve this. As a result, most search engines are making use of terms such as 'Sponsored Links' or 'Featured Links' to distinguish PPC results from natural results. However, even the use of these can still cause confusion for search engine users (Lastowka, 2002:13). This was proved in a study by Consumer WebWatch with 17 users who were initially unaware of paid listings, all of whom considered the term 'sponsored' to be unclear and misleading (Sullivan, 2003b). Figure 2.5 shows the Google result page when searching for the term 'best laptop prices'. As can be seen the page is divided into three main sections:

- **Top listed PPC listings**
  These results appear above the natural results, and do not appear for every search.

- **Natural results**

  These results occupy the main area of the result page.

- **Side listed PPC listings**

  These results appear on the right side of the result page.

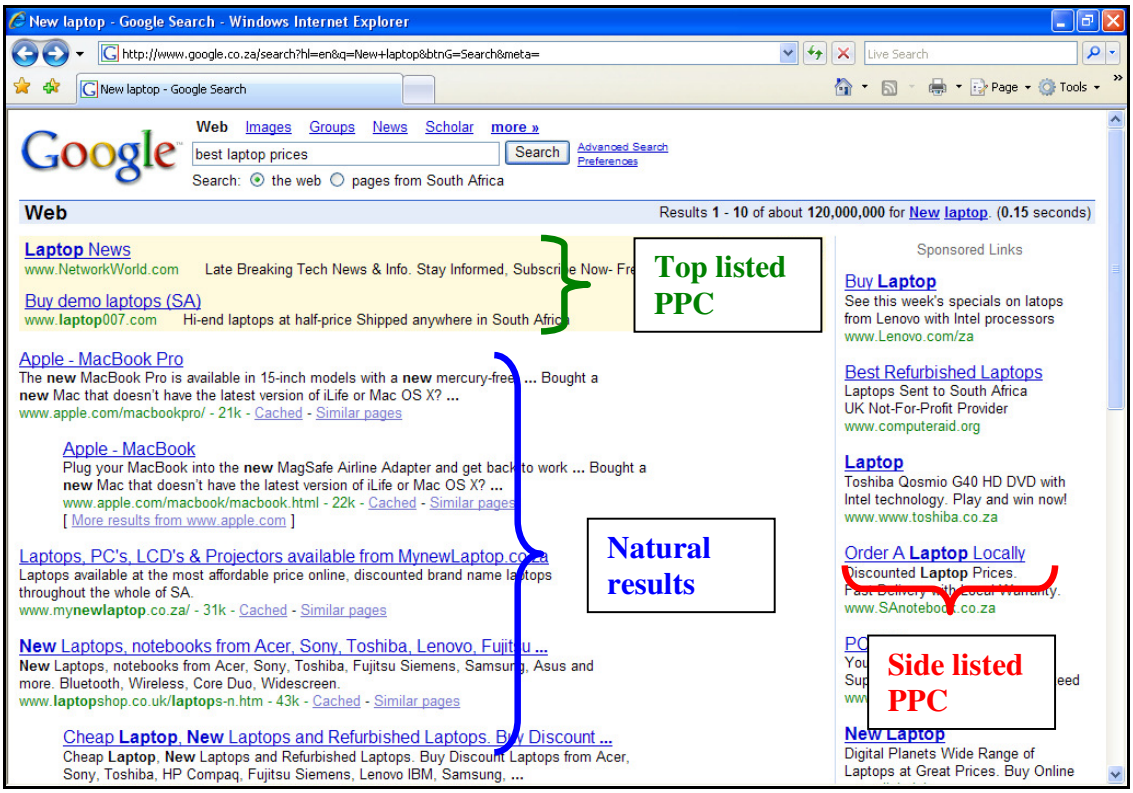

Figure 2.5: **Search results on Google.com**

An eye tracking study done by Hotchkiss, Alston and Edwards (2005) measured how users interact with the Google result page. The study produced an image showing where search engine users look and click-through most on a result page, called the 'Golden Triangle'. As can be seen in Figure 2.6, the most popular area on a result page is the top left hand side, showing the first few listings in the search results. When search engines realised this, they made this placement available for PPC bidders. The top listed PPC placements also offer another advantage. Search engine users who are unaware of PPC may easily perceive these listings as natural results, and ignore them as may be the case with side listed PPC listings. In fact, as illustrated in Figure 2.6, side listed PPC

listings hardly receive any attention from search engine users. Consequently, the advertisers who bid the most for a specific keyword will have their PPC listings appear at the top.

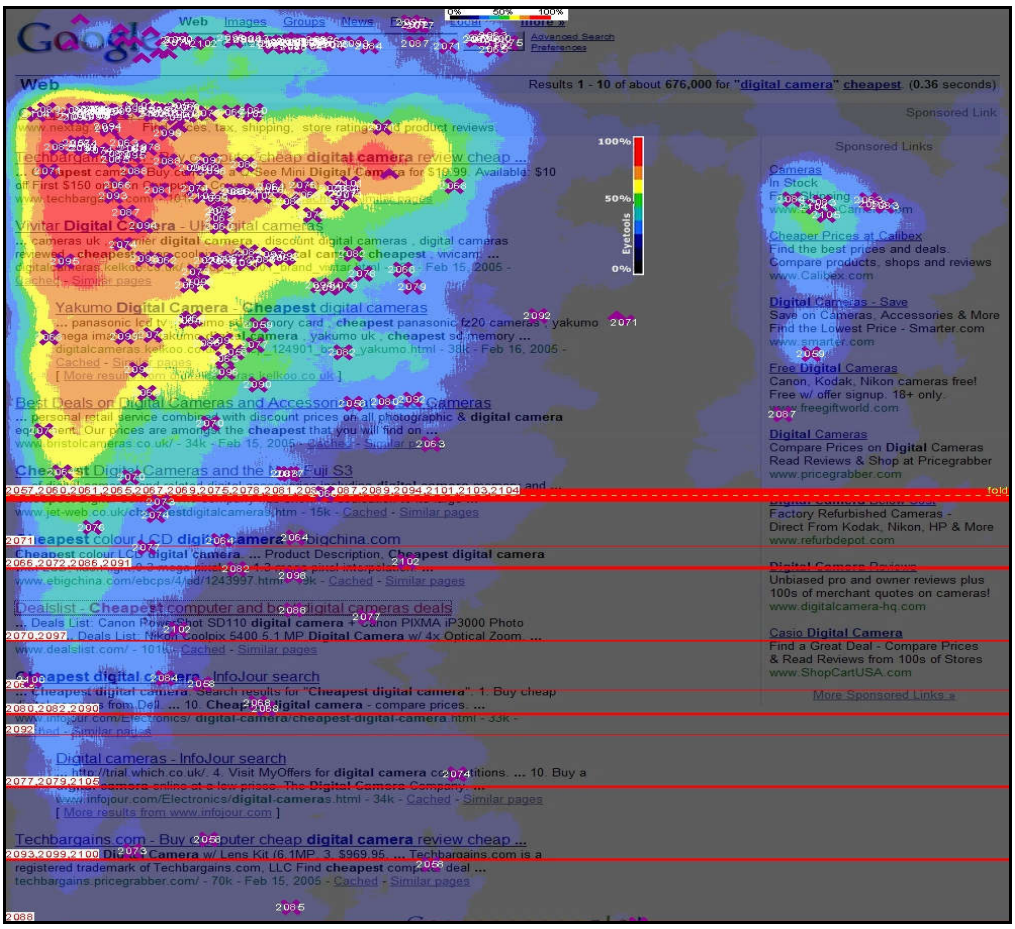

Figure 2.6: **Golden triangle (Source: Hotchkiss *et al., 2005*)**

Nielsen (2006) also studied how Internet users interact with different webpages. Figure 2.7 reflects how users read a corporate website (left side of Figure 2.7), an e-commerce website (centre of Figure 2.7) and a search engine result page (right side of Figure 2.7). Nielsen found that regardless of the webpage being looked at, users scan webpages in an “F” pattern, starting at the top left to right, down the left side, to the right again and then further down the left. This further supports the importance of the top listings on a search engine result page, and that side listed PPC results are ignored.

Figure 2.7: **The F-pattern when reading webpages (Source: Nielsen, 2006)**

Due to the fact that websites pay a certain amount to search engines for every click they receive on their PPC link, click fraud has developed (Hinman, 2005:20). Click fraud occurs when a user manually or through the use of software, clicks on a PPC link without the intent of visiting, buying or getting information from the website. Hosts of PPC links, such as search engines, might use click fraud to increase their income, whilst businesses might use it to increase their competitors marketing expense. Given that click fraud is such a big threat, most search engines implement anti-click fraud technology, used to filter out invalid clicks (McGann, 2004).

Recently Google (and other search engine are likely to follow), has introduced a new type of PPC called Pay Per Action (PPA). PPA allows advertisers to bid on keywords in the same way as PPC. However unlike PPC, the advertiser only pays if a specific action is executed by the user. These actions include making a purchase, signing up for a newsletter or any other clearly defined action (Anon, 2007h). An advertiser having successfully bid to get a website listed, will only have to pay if the specified action has been taken by the user that clicked on the ad. Unfortunately, PPA is at present still in a testing phase and only available to a limited number of advertisers.

It should be noted that the rapid success of PPC can also have a negative affect. Critics are concerned that paid placement will make finding educational material difficult, if not impossible. The Internet is rapidly replacing other information sources as the number

one place users turn to for information (Krueger, Ray & Knight, 2004:286; Guenther, 2001:52). A recent study conducted by Pew Internet & American Life returned that 71% of middle and high school students now use the Internet as their number one source for information for class projects (Pew Internet & American life, 2002). Only 24% list the library as their number one source for class projects (Guenther, 2001:53). As an increasing number of people use the Internet for information, a greater demand exists for sources that allow users to find information (Cockrell & Jayne, 2002:122; Liaw & Huang, 2003:762). Currently, the most commonly used method for finding information on the Internet is through the use of search engines, which are influenced by paid placement.

2.8 Search engine optimisation

Search engine result ranking is determined by how well a webpage satisfies certain criteria, called the 'ranking algorithm' (See Paragraph 2.4). This is used by search engines to return appropriate results to the searcher search query. They then rank the results in the most relevant order. For search engines, this is important as relevant ranking makes them more popular among searchers. This in turn is likely to increase advertising revenue (Mbikiwa, 2005:34).

SEO is the process of modifying a website to improve the chance of satisfying a ranking algorithm (George, 2005:3). SEO can not guarantee a top ranking as is the case with PPC. On the other hand, SEO results normally occupy the main area on search engine result pages (See Figure 2.5) and can as a result, not easily be ignored by users as they tend to do with PPC results (Enquiro, 2004). Ranking algorithms are influenced by two major factors. One is 'query-factors', which relate to the content of the webpage, and the other is 'query-independent factors', which rely on information from webpages that link to the webpage (Evans, 2007:23). Query-independent factors can be divided into 'internal' and 'external' links, and consists of words underlined by the web browser, which provide access to another webpage location (Visser, 2006:49). Internal links connect webpages within the same domain, whereas external links connect one website to another. The use of external links is an important part of SEO as most search engines allocate some percentage of their page rank weight to the number of incoming links from other webpages (Moran & Hunt, 2005:341), provided that the incoming link is from a reputable website (Curran, 2004:203).

Query-factors can be controlled and modified by webpage owners and designers, and should be considered primary factors when optimising the visibility of a webpage (Zhang & Dimitroff, 2004a:667). Many query-factors (including meta tags and keywords) can be modified through SEO in order to ensure that the ranking algorithms allocate the modified webpage a higher score in comparison to other websites resulting in a higher ranking in search results (Sen, 2005:10).

Meta tags can be described as 'data about data', and are used by webpage designers to describe the content of a webpage. Many different meta tags exist including the 'keyword', 'description', 'robots', 'author' and 'channel' meta tags (Sullivan, 2002c). According to a study done by Henshaw and Valauskas (2001:92), meta tags have no significant impact on web page ranking. A study by Mohamed (2006:165) also concluded that no noteworthy difference exist in the search engine ranking of webpages that use meta data, and webpages that do not use meta data. The reason for this is that most search engine ignores meta tags when indexing a webpage due to abuse by web designers to boost their search ranking (Dawson & Hamilton, 2006:317). Controversially, Zhang and Dimitroff (2004c:319, 2005:713) found that the use of meta data can effectively improve the ranking of a webpage in search results. Alimohammadi (2005:630) is also of the opinion that meta tags still influence webpage indexing and ranking. Furthermore, the 'Chambers Model' ranks meta tags as the most important element when optimising a website (Chambers, 2005:128), while the 'Visser Model' also points to the fact that meta tags are an essential part of SEO (Visser, 2006:118). On the website submission specifications of Ananzi, a South African search engine, they too state that, "…meta tags play a definitive role in determining the searchability and ranking of a site" (Ananzi, 2007). The analogy can be drawn that, in spite of the paradox regarding the usefulness of meta tags, a good SEO strategy should still include optimising a website's meta tags.

Keywords are used by search engines to index a webpage and match it to user search queries. Selection of these keywords is also an important part of SEO, as there are clear tangent planes between keywords submitted by a search engine user, and the keywords present in a webpage (Visser, 2006:38). It is therefore important to choose the correct keywords to describe the product or service a website offers. The chosen keywords should also match the search terms used by potential clients. A number of free services

are dedicated to help advertisers with finding search terms that are most likely to be used by search engine users, such as www.wordtracker.com and www.toppayingkeywords.com. The placement of keywords is also important. According to Curran (2004:203) keywords should be placed in the <HEAD> area by using meta tags and repeated in the <BODY> area of the page. Curran (2004:203) further states that keywords should be used in the <ALT> tags associated with pictures and photos. Furthermore, Kritzinger (2005:57) found that when keywords are placed at the top of a webpage's body text, search engine ranking will increase, but when keywords are placed at the bottom of a webpage's body text, it will have the opposite effect.

Furthermore, webpages are generally divided into two categories namely 'static' and 'dynamic' webpages. Static webpages display the same information to all visitors. Dynamic webpages can produce a different interface for different requests (Anon, 2007a). Dynamic webpages are produced through the use of client-side scripting such as, JavaScript, Frames and Flash, or through server-side scripting such as ASP, Perl and PHP (Anon, 2007a). Various studies warn that the use of dynamic webpages can influence a website's ranking negatively (Mbikiwa, 2005:12; Chambers, 2005:37-38; Curran, 2004:203). However, Ngindana (2006:24) points out that there are various benefits to using dynamic pages. As a result, the use of dynamic webpages should not be excluded before weighing the possible benefits against low search engine ranking.

Chambers (2005:128) produced a model ranking the above mentioned query-factors and others in order of importance. In this respect, see Table 2.4. The higher the rank value in the right-hand column the less important the query-factor is. Chambers (2005:131) claimed that websites implementing this model will achieve increased website visibility.

Number	Leading Visibility Elements	Rank
1	Inclusion of meta tags	1.5
2	Hypertext / anchor text	2
3	No Flash or Fewer than 50% of content	3
4	No Visible Link Spamming	4
5	Prominent Link Popularity	4.5
6	No Frames	5
7	Prominent Domain Names	7
8	Prominent Headings	7
9	No Banner Advertising	8
10	Prominent HTML Naming conventions	10

Table 2.4: Leading visibility elements (Source: Chambers, 2005:128)

Visser (2006:118), after applying the Chambers Model to various websites, found some discrepancies and produced a new model as graphically depicted in Figure 2.8. The Visser Model contains four headings, namely 'Essentials', 'Extras', 'Cautions' and 'Dangers'. 'Essentials' contain the elements that must be present in a website for it to become effectively visible to search engines. 'Extras', are the additional elements that could assist in improving website visibility, but could achieve this only when they are used in conjunction with the core component. The 'cautions' section could reduce website visibility as most crawlers are still unable to index these elements. 'Dangers' comprise the elements that could reduce website visibility (Visser, 2006:118).

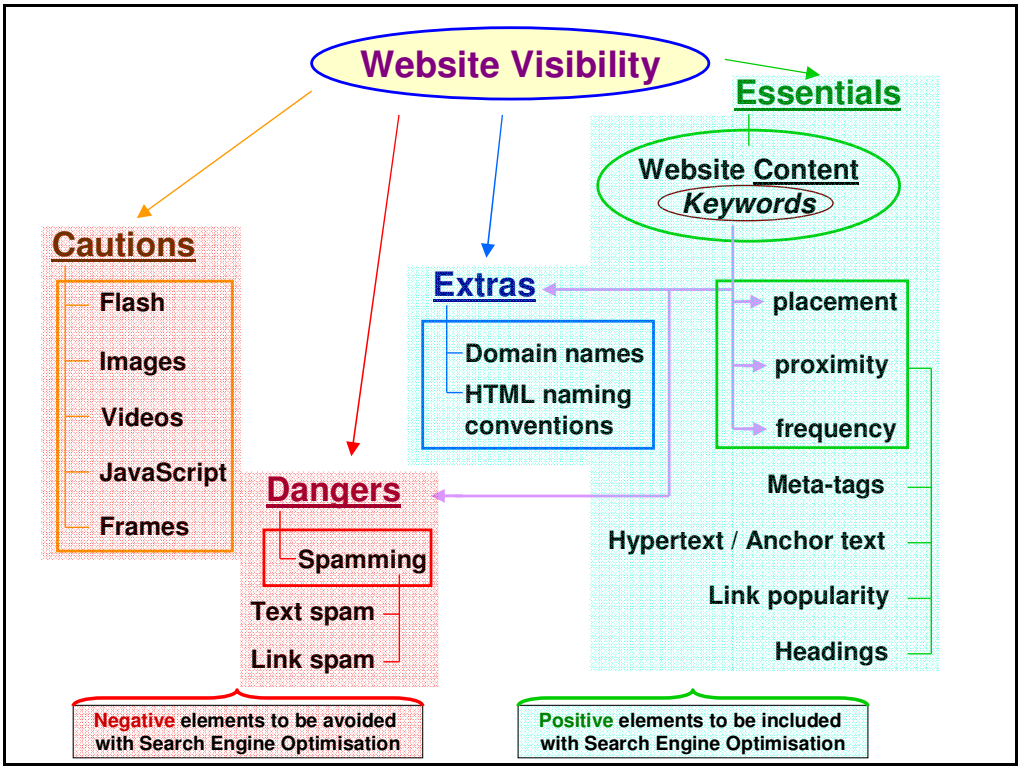

Figure 2.8: An improved model of website visibility elements (Source: Visser, 2006:118)

Various SEO tactics also exist, which attempt to deceive search engine crawlers in order to gain a better ranking for a website (Curran, 2004:203). This process is termed 'search engine spamming'. Search engine spamming is defined by Wilkinson (2004) as "…anything that constitutes unethical practice within SEO, including manipulating spiders and redirecting users to inappropriate content". The analogy can be drawn that the use of SEO tactics does not constitute spamming, but the use of unethical practises within SEO, is spamming. According to various researchers the following SEO tactics are considered to be search engine spam:

- the use of keywords unrelated to the site,
- keyword stuffing,
- mirror/duplicate content,
- tiny text,
- doorway pages,
- link farms,

- keyword stacking,
- gibberish,
- hidden text, and
- hidden links (Hunt, 2005; Weideman & Chambers, 2006:287; Mbikiwa & Weideman, 2006).

Furthermore, search engine spamming can be divided into three categories, namely text spam, link spam and cloaking (Henzinger, Motwani & Silverstein, 2002:12).

- **Text spam**

  Text spam is used to modify the text of a website in such a way that search engines rate the page as being particularly relevant, even though humans may not perceive the website as relevant (Henzinger *et al*., 2002:12). This is normally done in one of two ways. The first is where a website designer concentrates on a small set of keywords and tries to improve the relevancy for that set of keywords. This can be done by repeating a set of keywords on a website and hiding it, placing it at the bottom of the page in small size or even making the text invisible (Henzinger *et al*., 2002:12). The other text spam technique is to increase the number of keywords for which the website is perceived relevant by a search engine. This is achieved by adding text on different topics to a website to make it appear relevant for topics differing from the website's topic (Henzinger *et al*., 2002:13).

- **Link spam**

  Since search engines started to include link analysis in their ranking algorithms, websites have been trying to take advantage of this system. A 'link farm', is a collection of links that is placed at the bottom of every page in a website, and points to every other page in that site. This is done to take advantage of ranking algorithms that use raw counts of incoming links to determine the importance of a website (Henzinger *et al*., 2002:13). However link farms can be easy to identify and ignore, hence more sophisticated techniques are now being used. One of these is 'doorway pages'. Doorway pages are not meant for humans, but are constructed in such a way that search engines will easily discover them.

Doorway pages consist of thousands of links often linking to the same website multiple times (Henzinger *et al*., 2002:13).

- **Cloaking**

  Cloaking is when websites provide search engines with entirely different content than that which they provide human visitors. This ensures that the search engines are deceived about the content of the website and thus ranks the website in a way that is illogical to humans. Cloaking can be achieved by providing a search engine with a text only version of a website that is otherwise full of multimedia content (Henzinger *et al*., 2002:13).

Using any of the above mentioned techniques can lead to falsely boosting a website's ranking, and thus result in reducing the quality of search engine results (Mbikiwa & Weideman, 2006). In turn this could lead to search engines losing users and ultimately advertising income. As a result, search engines now make use of various penalties if search engine spamming is detected (Mbikiwa, 2005:48; Sullivan, 2003a). Penalties can include having a website's domain name and IP address banned from a search engine (Marckini, 2000). Mbikiwa and Weideman (2006) warn that it requires a very skilled designer to use SEO successfully without mistakenly implementing spam. Although free SEO advice is available on the Internet (Zang & Dimitroff, 2004b:693), advertisers should be watchful about which techniques are used to boost their website ranking.

2.9 SEM strategy controversy

To achieve online business success, it is vital for online companies to attracting sufficient traffic to their website (Kwan, Fong & Wong, 2005:189). Online companies can achieve this by efficiently and effectively implementing a SEM campaign, such as SEO, PPC or PI. Not surprisingly then, according to a report by SEMPO (2006), the total spending on SEM in the United States and Canada for 2006 amounted to $10 billion. This amount is anticipated to reach $55 billion in 2010 (Rachtchy, 2005). Research indicates that advertisers invest far more on PPC than on SEO. Advertisers explain that SEO is more costly to implement than PPC and does not consistently result in high rankings (Sen, 2005:11). Figure 2.9 illustrates advertiser's spending on PPC versus SEO in 2006 (SEMPO, 2006). This suggests that advertisers perceive PPC as the more effective means of achieving increased click-troughs. This claim is supported by a recent

study indicating that even if the cost and ranking of SEO and PPC had been the same, PPC would still be the more effective marketing strategy, because of a higher Return on Investment (ROI) (Sen, 2005:22).

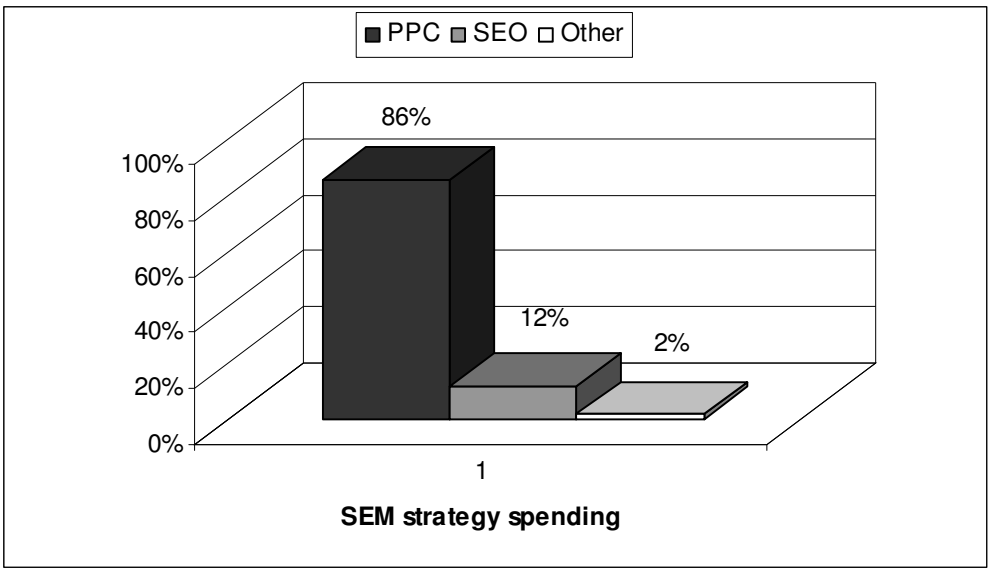

Figure 2.9: Advertiser spending on PPC vs. SEO (Source: SEMPO, 2006)

Empirical evidence however exists that PPC may not be the best SEM strategy for online advertisers. Other literature studies indicate that SEO may lead to more click-troughs than PPC (Enquiro, 2004; iProspect, 2004; Jansen & Molina, 2006:1090; Clay, 2006a). Clay (2006b) reports that SEO listings outperform PPC listings three to one in click-through, and are also known to achieve higher conversion rates. Research conducted at Enquiro (2004) has confirmed that search engine users tend to prefer SEO results, as illustrated in Figure 2.10.

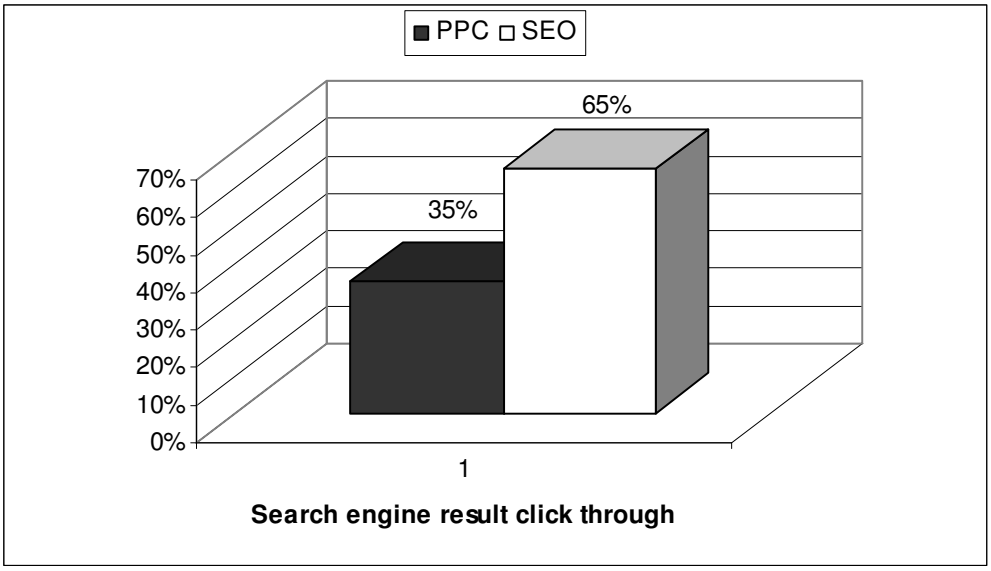

Figure 2.10: Click-through on PPC vs. SEO (Source: Enquiro, 2004)

Another study indicate that marketers, who are not yet investing in SEO, could be missing out on over 60% of potential clients. In the same study it was also found that over three times as many search engine marketers generate a higher ROI from SEO than from PPC (iProspect, 2004). This is confirmed by the authors of a recent study, proving that SEO results are more relevant to e-commerce searching than PPC results. The authors conclude by warning that online advertisers should more carefully refine their marketing campaign to potential customers, and should not ignore SEO (Jansen & Molina, 2006:1092). This suggests that SEO can generate more traffic than PPC.

There appears to be some contradiction in the two sets of claims regarding the preference of the one system over the other. This can lead to advertisers being confused when considering an online marketing strategy. This is even more relevant for advertisers that can not afford both SEO and PPC, and who need to justify a choice between the two.

2.10 Importance of search engine user profiling

Research has shown that thus far, advertisers due to contradiction, do not know how to determine which one (or both) of SEO or PPC should be used. In order for online advertisers to successfully invest in SEM, it is of importance to understand user

behaviour and perception of SEM strategies. This will help online advertisers to adjust their SEM strategy according to their specific target market for optimal effectiveness.

Advertising is one of the most important aspects for companies. Part of this is ensuring that advertisements are not directed towards the 'wrong people'. Attributed to advancement in technology, quality information on consumer preferences and purchasing behaviour is easily available, to assist advertisers with this choice (Iyer, Soberman & Villas-Boas, 2005:461). Advertisers can use consumer information to precisely target advertising to specific consumers within a market (Iyer *et al*., 2005:461). Iyer *et al*. (2005:473) also state the following as advantages of implementing targeted marketing:

- increase the equilibrium profits of a company,
- improve effectiveness of advertising, and
- lead to lower advertising expenditures.

With the introduction of the Personal Video Recorder (PVR), which allows users to record television programming, targeted marketing can also be used for television advertisements (Gal-Or, E., Gal-Or, M., May & Spangler, 2006:713). Because PVR's are programmable and addressable, they can record the viewing patterns of identifiable households. PVR's are able to collect information regarding which shows and commercials are watched and which are skipped. Gal-Or *et al*. (2006:714) advises advertisers to make use of this new technology to identify those households who are likely to be interested in their products or services, and present those potential consumers with commercials they will choose to watch. Advertisers can do this by making use of data mining methods to build a profile of a specific household, and send targeted advertisements to that household PVR (Gal-Or *et al*., 2006:714).

As for the Internet, the profile of online shoppers can not be distinguished by demographic factors at the present time (Sorce, Perotti & Widrick, 2005:122). Although this may be true, age, gender and other demographic features do play a role in their purchasing behaviour (Lorigo, Pan, Hembrooke, Joachims, Granka & Gay, 2006:1124; Sorce *et al*., 2005:131; Anon, 2007e:20; Constantinides, 2004:111; Wolin & Korgaonkar, 2003:383). iProspect (2004) conducted a study on 1649 search engine users,

considering how various demographic features including gender, education, employment status, Internet usage and experience individually influence click response. The results indicated that demographic features also influence users' click response to SEO and PPC. The use of consumer demographic features can be a very useful marketing tool for advertisers. Moreover, a better understanding of the association between the demographic characteristics of search engine users and their click response towards SEO and PPC respectively can greatly assist advertisers in their choice regarding which SEM strategy to implement. Sherman emphasizes the importance for advertisers to build up a profile of their target market, and optimising their SEM strategies around that profile (Sherman, 2004). Understanding customer search behaviour will dramatically increase a search marketing campaign's success (Hotchkiss cited by Lloyd-Martin, 2004). Sen, King and Shaw (2006:225-226) states the following about Internet advertising and target marketing:

> "Online sellers invest in various online advertisement and promotional activities in order to improve their chances of inclusion in a buyer's consideration set. For example, they invest in search engine optimization to improve their listings on the search result page by modifying their site code to make it more relevant and therefore more search engine compatible. Many sellers invest in paid placement, that is, pay search engines for placement in the sponsored section of the search result page. Other purchase key word-linked banner advertisements on search engines and shopping agents to attract potential buyers. With all these options to choose from, a seller has to balance the expenses involved with the expected business generated by these activities. If sellers have an understanding of the dominant search strategy used by their potential buyers, they can invest more wisely in their online promotional activities. "

Search engines are also identifying the potential of demographic use in marketing campaigns. Google, MSN and Yahoo! are all beginning to offer some sort of demographic profile targeting service. For example, Google Adwords allows advertisers to select their preference in up to three demographic categories. Google will then analyse these preferences and return a list of Google network sites that are popular with that specific demographic profile (Anon, 2007g). MSN AdCentre also provides advertisers the option of selecting demographic features of their choice. Instead of

returning websites popular with that demographic profile, MSN targets the given demographic profile with the specific advertiser's PPC ads (Geddes, 2006). Although these search engines are not using the demographic data to help advertisers adjust their SEM campaign, their interest of using demographics in marketing does show potential.

The analogy can be drawn that should a user profile show users' perception of SEO versus PPC, advertisers can correlate the profiles with the profile of their target market, and thereby adjust their SEM campaign for optimal effectiveness.

2.11 Conclusion

The Internet provides a number of potential online consumers. Commercial websites owners can reach these consumers by implementing a variety of advertising techniques. However, most Internet users turn to search engines to find information, making it important for all commercial websites to implement SEM. Search engine users also tend not to look beyond the top ranked search results, emphasising the importance for websites to have a high search ranking. Websites can acquire top ranking through two main forms of SEM, namely SEO and PPC.

Literature has shown that online advertisers invest more in PPC than in SEO. Advertisers reason that SEO is more costly to implement than PPC, and does not consistently result in high rankings. This suggests that PPC is perceived as the more effective means of achieving increased visibility and ultimately more traffic. However, empirical evidence exists that PPC may not be the best SEM strategy for online advertisers. Literature studies show that search engine users find SEO listings more relevant than paid listings. Furthermore, evidence also indicates that most search engine users ignore paid listings displayed in the PPC section.

In conclusion, the research has shown that by investigating and reporting on user perception of SEO versus PPC, advertisers can use the results of this study to decide which SEM campaign to implement and adjust their SEM campaign for optimal effectiveness.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

Through the literature review and analysis of Chapter two, it became evident that in order for websites to receive a high amount of traffic and ultimately be successful, it is important to be ranked high in search engine results. Two main SEM strategies were identified that have the sole purpose of improving a website's ranking in search engine results, namely SEO and PPC. However, contradiction exists around which SEM strategy is the most effective. Furthermore, both these SEM strategies can be costly, and with SEM being such a competitive market, it is often difficult to implement both for the same website.

To assist advertisers in their choice of which SEM strategy to implement, the demographic influence on search engine users result preference was studied. Advertisers should use these results to correlate their target market group profile with the optimal SEM strategy for their specific target market.

The research question and sub-questions as well as the sample size are discussed. After considering different research approaches, reasons for choosing the selected research method as well as other factors relevant to the research methodology are provided.

3.2 Research questions

Contradiction exists with regard to the effectiveness of SEO versus PPC. As a result, this can create confusion in determining which one (or both) of SEO or PPC should be used. This problem forms the base of the research question, namely "What criteria could be made available to marketers to enable them to make the right choice when investing in SEO versus PPC?"

In order to answer the research question, some research sub-questions were posed.

3.2.1 How important is SEM?

The literature review and analysis suggested that the use of a SEM strategy is very important. This is mostly due to high search engine popularity and the lack of search engine users looking beyond the first page of returned results.

3.2.2 What SEM strategies are available?

Although various Internet marketing strategies exist, the literature review and analysis indicated that SEO and PPC are the most popular and effective SEM strategies (See Paragraph 2.5).

3.2.3 What is the current status of SEO and PPC implementation?

Figure 2.4 illustrates that advertisers invest more in PPC than in SEO. The literature review and analysis indicated that the reasons for this phenomenon are that advertisers perceive SEO as being more expensive than PPC and that SEO does not consistently result in high rankings. It was concluded that PPC is implemented more than SEO by advertisers.

3.2.4 Which is the more effective SEM strategy?

Figure 2.5 reflects that search engine users click more on SEO results than on PPC results. The literature review and analysis further indicate that some users tend to ignore PPC results. This suggests that SEO is more effective than PPC. To investigation this belief, this question will again be addressed in the research results and conclusion.

3.2.5 How can user profiling help advertisers in choosing the correct SEM strategy?

The literature review and analysis indicate that by correlating the demographic information of search engine users that prefer PPC results and SEO results respectively, with an advertisers target market profile, an advertiser can choose the optimal SEM strategy for their target market.

3.2.6 How do demographics influence search engine user's response to SEO results?

This sub-question will be addressed in the research results and conclusion.

3.2.7 How do demographics influence search engine user's response to PPC results?

This sub-question will be addressed in the research results and conclusion.

3.2.8 How accurate are the results?

This sub-question will be addressed in the research results and conclusion.

Due to the fact that the first five sub-questions could be answered conclusively in the literature review and analysis, the three remaining sub-questions will be answered on conclusion of the research. Once all the sub-questions have been addressed, the research question will be answered.

3.3 Sample environment

The data used in this research study was collected through the use of an online questionnaire that was hosted on Ananzi, a South African search engine, for a period of two months. Hosting the questionnaire on Ananzi's result page (and not the home page) ensured that all participants have used the Internet and a search engine. Ananzi are predominantly visited by South African users, therefore the results do not necessarily reflect global trends. However, the questionnaire was completed by participants with various demographic profiles.

3.4 Research methods

Before adopting a particular research method the research called for an analysis of available research approaches.

3.4.1 Quantitative research approach

Quantitative research refers to quantifying data to help answer research questions and meet objectives (Saunders, Lewis & Thornhill, 1997:287). In order to do this, quantitative research makes use of large representative samples and fairly structured data collection procedures. A primary aim of quantitative data is to measure the social world objectively, to test hypotheses and to predict and control human behaviour (Vos, Strydom, Fouche & Delport, 2002:79). A hypothesis is a proposition regarding the relationship between two or more variables and can be tested (Struwig & Stead, 2001:4). After collecting the data, a range of quantitative analysis techniques can be used to analyse and interpret the

data. This may range from creating simple tables which show the frequency of occurrences, through establishing statistical relationships between variables to complex statistical modelling (Saunders *et al*., 1997:287).

According to Struwig and Stead (2001:7) the most common methods used to conduct quantitative research are exploratory, descriptive, experimental, and quasi-experimental.

3.4.1.1 Exploratory research

Exploratory research is conducted with the major purpose of developing ideas, questions and hypotheses for more precise investigation later (Struwig & Stead, 2001:7). The need for such a study could arise from a lack of information on a new area of interest, or in order to become acquainted with a situation so as to formulate a problem or hypothesis (Vos *et al*., 2002:109). This type of research is normally done on a small scale, by gathering a great deal of information from a small sample of the real total community where the main investigation will take place (Vos *et al*., 2002:214). Saunders *et al.* (1997:78) suggests three ways of conducting exploratory research:

- a search of the literature,
- talking to experts in the subject, and
- conducting focus group interviews.

3.4.1.2 Descriptive research

Descriptive research presents specific detail of situations or relationships, and focuses on “how” and “why” questions (Vos *et al*., 2002:109). It can also be used to describe something like specifying the degree to which product usage varies with income, age, sex, etc (Struwig & Stead, 2001:8). When using descriptive research in contrast with exploratory research, the researcher begins with a well defined subject and conducts research to describe it accurately. Research methods which are used to conduct descriptive research include case studies and statistical methods (Struwig & Stead, 2001:8).

- **Case studies**

  Case studies are used for detailed, intensive research about a single case or a small number of related cases, over a period of time (Saunders *et al*., 1997:76).

The aim is to gather a complete description and understanding of the case being studied. Used as a first step in a research process, it is a valuable method for exploring existing theories. However, because a case study involves such intensive study of a relatively small number of cases, it is not often used (Struwig & Stead, 2001:8). Data collection takes place through detailed in depth data collection methods that can include interviews, observations, documentary analysis and archival records (Vos *et al*., 2002:275; Saunders *et al*., 1997:77).

Vos *et al.* (2002:276) describes three types of case studies, all with different purposes:

- the intrinsic case study used to gain better understanding of the individual case, and describe the case being studied,
- the instrumental case is used to elaborate or gain a better understanding of an existing case, and
- the collective case study is used to extend or validate theories about a group of cases, rather than an individual case.

- **Statistical studies**

  Statistical studies differ from case studies in the number of cases being studied and also how in depth each case is studied. The statistical method examines a few variables in a large number of cases (Struwig & Stead, 2001:8). Because a large number of cases are being studied, statistical studies ensures that a single case or a few cases are less likely to distort overall findings. Thus a better overall picture may emerge than that from a case study, however detailed insight may be compromised (Struwig & Stead, 2001:9).

3.4.1.3 Experimental and quasi-experimental research

The aim of experimental research is to establish causal relationships between variables. This is done by determining to what extend a set of variables, known as independent variables, influence other variables, known as dependent variables. The process starts with randomly dividing participants into two groups, the experimental group and the control group. Both groups are then tested before the experiment begins. Independent variables are then applied to the experimental group but not to the control group. During this process, the researcher must ensure that no other external variables

influences the research. After the experiment the experimental group is tested and compared to the control goup to establish the existence or absence of any relationships between the independent variables and dependant variables (Struwig & Stead, 2001:9).

The big difference between experimental and quasi-experimental research is that participants are not randomly divided into the experimental and control group. Furthermore, the quasi-experimantal researcher can not ensure that other external variables may influence the research (Struwig & Stead, 2001:10).

3.4.1.4 Questionnaires

Questionnaires provide an efficient way of collecting responses from a large sample group. A questionnaire is a set of questions which is prepared beforehand. Respondents can answer these questions in either their own words, or by choosing from a set of responses also prepared beforehand (Rugg & Petre, 2007:142). Because respondents can answer the questions in different ways there is a need for different questions. Question types may include:

- open-ended questions, where no choices or alternatives are provided, and a respondent is free to answer in their own words and to express any ideas they think apply,
- multiply choice questions, where specific options are provided from which the respondent must choose one or more,
- dichotomous questions provide options that indicate an unmistakable division. Here respondents are offered only two options e.g. 'yes' or 'no',
- scaled-response questions are a format where a respondent's attitude and perception are measured based on a scale. Examples include the Likert-type scale and the semantic differential scale, and
- ranking questions - this type of question allows a respondent to rank a list of items in order of importance, normally using increasing numbers to indicate importance (Struwig & Stead, 2001:92-95).

Furthermore, a questionnaire can be administrated in different ways. Interview-administrated questionnaires are used in situations where the questions are read to the respondent and then completed by the interviewer, referred to as an interviewee.

Subsequently, a self-administrated questionnaire can be used where the respondent completes the questionnaire themself and then return it to the researcher, commonly referred to as a survey (Saunders *et al*., 1997:243). Interview-administrated questionnaires can be conducted in a number of ways, as discussed below.

Personal interviews, where the questionnaire is handed to the respondent who completes it on his/her own. The researcher is available in case problems are experienced. During personal interviews, the researcher encourages the respondent to enhance his/her contribution, or lead the respondent back to the subject, while the researcher's own contribution is limited to the absolute minimum (Vos *et al*., 2002:172).

Telephonic interviews, where a questionnaire is completed over the phone. This approach has several advantages. As with personal interviews the researcher can explain and encourage the respondent. Other advantages include the speed and response rate of telephonic questionnaires. Several disadvantages also exist. This may include the cost of conduction a long distance or a large number of phone calls. Furthermore, because not everybody has a telephone, bias can enter the results as only households with telephones can be interviewed (Vos *et al*., 2002:173).

The following methods may be used to conduct self-administered questionnaires:

Mailed questionnaires are mailed to a sample with the hope that respondents will complete and return it. However, non-response rates are normally high. Advantages of mailed questionnaires include a relatively low cost and that a great part of a geographical area can be covered (Vos *et al*., 2002:172-174). It should be noted that over the last few years, the usage of e-mail as a part of mailed questionnaires has increased rapidly. This brings a new set of advantages and disadvantages to the fore.

Questionnaires can also be delivered by hand to the respondent be collected after completion. This ensures increased response rate and time is saved. A disadvantage however is that a smaller geographical area can be covered (Vos *et al*., 2002:172-174).

Vos *et al.* (2002:176) advises that a small description of the purpose of the study should be given in order to motivate respondents to co-operate in the investigation. Struwig and

Stead (2001:89) recommend that a small sample of respondents should be used to complete the draft questionnaire. This pilot study could indicate any problems before the actual questionnaire is finalised.

3.4.2 Qualitative research approach

A key distinction is drawn between qualitative and quantitative research (Saunders *et al*., 1997:339). Struwig and Stead (2001:10-13) states that qualitative data is not easily defined, therefore to distinguish between qualitative and quantitative research, qualitative research can be defined as any research that uses qualitative data. Qualitative data refers to any information that the researcher gathers that is not expressed in numbers. When using qualitative research, the researcher endeavours to understand the issues being researched from the perspective of the participant. As a result, the data gathered from the participant is based on meanings expressed in words (Vos *et al*., 2002:79). Unlike quantitative research, this is normally done in a relatively open and unstructured manner (Struwig & Stead, 2001:12). More specific, qualitative research investigates the 'why' and 'how' of decision making, as compared to 'what', 'where', and 'when' of quantitative research. Hence, the need is for smaller but focused samples, rather than large random samples (Anon, 2007d).

To conduct qualitative research, a researcher could make use of a variety of methods. Some of these methods as defined by Struwig and Stead (2001: 98-102) and Vos *et al.* (2002:272-276) are discussed below.

3.4.2.1 Observation

Observation can include one researcher or a team of researchers. Participants continue with everyday life unaware of being observed, while the observer(s) look(s) for patterns or trends of behaviour relevant to the study rather than looking for minute aspects of behaviour, as is the case with quantitative research. The environment, length and method of observation may vary greatly, depending on the type of study and participants. Notwithstanding, researchers should always respect their participants' rights and base their work on ethical practices.

3.4.2.2 Grounded theory

Grounded theory is a research method where a researcher creates a theory to explain some action, interaction or process related to a study. With grounded theory the

research does not start with a theory, and then proves it, rather the researcher will use the data of the study to formulate a theory. Data, normally collected through interviews and observations, are used by the researcher to deliver a theory or theoretical model as the product of the study.

3.4.2.3 Ethnography

Ethnography is the study of a cultural or social groups based primarily on observations over a period of time spent by the researcher in the field. The researcher studies the groups' patterns of behaviour, customs and way of life. As a final product, the researcher aims at producing a descriptive and interpretive, holistic cultural portrait of the group.

3.4.2.4 Case study

Case study methods involve an in-depth analysis of a single case over a period of time. The case being sudied can refer to a variety of events, which could include a processs, an activity, event, an individual or multiple individuals or even a period of time. Exploration of the case takes place through detailed data collection methods. These can include interviews, documents, observation or archival records. As a result, the researcher creates an in-depth description of the case studied.

3.4.2.5 Focus group

This method uses group interaction and discussion to generate data. Participants are gathered to discuss how they percieve a certain topic they deem important. A focus group normally consist of four to eight participants whose participation is voluntary. This method is often used to explore areas where little is known or where the views of a certain sample need to be obtained.

3.4.2.6 Interviews

Interviews are used by researchers to gather valid and reliable data, related to their study. This is done through a purposeful discussion between the researcher and one or more people. The nature of the discussion is based on the researcher's research questions and objectives. There are three common types of interviews, namely the standardised interview, semi-standardised interview and the un-standardised interview.

3.5 Research design and methodology

To answer the sub-questions ("How does demographics influence search engine user's response to SEO results?") and ("How do demographics influence search engine user's response to PPC results?") as discussed in Paragraphs 3.2.6 and 3.2.7. It was decided that a quantitative, descriptive research approach should be used to conduct this study. The results returned by this study will then be compared to the initial findings from the literature review. To answer the sub-question ("How accurate is the results?") as discussed in Paragraph 3.2.8, a personal semi-structured interview with two representatives from the leading South African search engine will be done. Part of the interview aim was to discuss the initial results produced by this research study. The interview was also used to gain an expert opinion to further assist this author in identifying the most effective SEM strategy. Table 3.1 shows the phases that were followed in this study.

Phase	Description
1. Design questionnaire	Design and test questionnaire
2. Data collection	Host questionnaire on Ananzi
3. Sample selection	Select useable questionnaires
4. Data analysis	Produce initial results
5. Gain expert opinion and discuss study results	Interview with representatives from a leading South African search engine to verify results
6. Finalisation	Produce final results

Table 3.1: Phases in conducting this research

3.5.1 Phase 1: Design questionnaire

Saunders *et al.* (2001:244) state that questionnaires implemented by standardised questions are best suited for descriptive research. In order to collect the needed data for this study, it was decided that an anonymous questionnaire would be used. The questionnaire consisted of 17 multiple-choice questions (See Appendix A). Questions were designed to be simple, unambiguous and had a consistent style. The aim was to collect demographic participant data and data about how the participant interacts with search engines. This provided the authors with the necessary information to report on how demographics influence search engine user's response to SEO results and PPC results respectively. To ensure that the participants were not biased in any way, it was

decided not to explain SEO or PPC in the questionnaire. In addition, the questionnaires were divided into three sections.

Section one: Eight questions were posed to obtain demographic data about each participant. This was done by developing multiple choice questions where the participant had to select from the provided options the group that he or she belonged to. The demographic data collected included the following: gender, age, marital status, ethnic group, highest qualification, employment status, current studies and net income per month.

Section two: Six questions were posed to obtain data on the participant's use of Internet and search engines. This information was used to verify some findings from the literature survey, which included the frequency of search engine usage, the importance of high search result ranking, search engine popularity and search engine loyalty. Data collected in this section was also triangulated with data collected in section three of the questionnaire. This was used to determine how Internet experience and SEM awareness influences the respondents' perception of search results. Two of the questions in part two where also used as filter questions. The filtering questions determined the participant's Internet experience and search engine usage. If the participant's Internet experience was less than one month or the user has not used a search engine before, the response was discarded in the analysis process.

Section three: Three questions were posed to obtain data about which search engine results the participant perceive as more relevant. Each question included an illustration of a search engine result page after searching for a search term. For each question, a different search engine and search term was used. The three most popular search engines at the time where chosen, being Google, Yahoo! and MSN Live (Sullivan, 2006). This ensured that the results where not search engine specific, but gave a more general view. Although random search terms were used, it was required that the search term produced at least four PPC results, visible above as well as next to the natural results. Furthermore, the search terms used covered a variety of markets including services, rentals and products. For each question, the participant chose the result they perceived as more relevant to the used search term. By analysing the respondent's answers it could be determined whether he or she selected SEO results or PPC results. The

answers to these questions were triangulated with the answers to part one, in order to determine how demographics influence perceived search result relevancy.

After completing the questionnaire a pilot study was conducted. Fifty students from Cape Peninsula University of Technology (CPUT) were requested to complete and comment on the questionnaire. Feedback was then used to improve the questionnaire and finalise it.

3.5.2 Phase 2: Data collection

In this phase, the questionnaire designed in phase one was hosted on Ananzi (See Paragraph 3.3). This ensured that the respondents were a targeted sample size. From Ananzi's result page, users could follow a hyperlink to the questionnaire. Whenever a user completed a questionnaire, the results were mailed to the author for analysis.

3.5.3 Phase 3: Sample selection

After hosting the questionnaire, the author received 379 responses. Of these, 25 were discarded since an exclusion option at one of the two filtering questions (See Paragraph 3.5.1) was selected, and another 48 were omitted because they were incomplete. This left a total of 306 usable responses, which were used for analysis. The number of responses qualifies as a representative sample for analysis purposes.

3.5.4 Phase 4: Data analysis

An analysis of the responses was used to determine the following:

- the frequency of search engine usage,
- the value attached to being listed high in search results in order to attract traffic,
- to what extent search engine loyalty existed,
- the preference of SEO results or PPC results,
- how awareness of SEM strategies influences user's preference of SEO and PPC results,
- how Internet and search engine experience influences user's preference of SEO results and PPC results,
- how demographics influence user's preference of SEO results and PPC results,
- search engine specific click-through preference, and

- click-through preference per search engine result page section.

3.5.5 Phase 5: Gain expert opinion and discuss study results

In this phase, a personal, semi-structured interview with two representatives from a leading South African search engine (who chose stay anonymous) was done. Seeing that part of the aim of the interview was to discuss the research questions and results from this study, questions for a semi-standardised interview (See Appendix B) were designed. The questions used for the interview were so structured as to discuss the research sub-questions and the initial findings from the study as well as to gain an expert opinion on the effectiveness of SEO and PPC respectively. The following questions were included in the interview:

- **How important would you rate SEM for online advertisers?**
  This question was included to compare the experts' opinions with the literature review findings and the initial results produced by the study.

- **How important is PPC advertising for the specific search engine in terms of revenue income?**
  This question was used to establish how important PPC is from a search engine's point of view.

- **At what rate have you experienced PPC usage growth or decline over the last few years?**
  This question was used to establish how the implementation of PPC by advertisers has grown or declined.

- **Could another reason for the increase in PPC implementation be because advertisers perceive PPC as a better source of getting increased click-through?**
  This question was included to stimulate further discussion on the initial finding from the literature review that advertisers invest more in PPC than in SEO.

- **How does SEM awareness effect click-through?**
  This question was included to establish what role SEM awareness plays in result selection.

- **Which in your opinion is the most effective between SEO and PPC in terms of increased click-through?**
  The question focused on verifying the findings from the literature survey that SEO results generate more click-through than PPC results.

- **If you could advise advertisers which SEM to implement or whether they should implement a combination of SEO and PPC?**
  This question was used to get an expert opinion on whether SEO or PPC is more effective. This will assist the author in drawing a conclusion to this study.

- **In your opinion, would it be feasible and can advertisers use demographic profiling to structure their SEM strategy?**
  This question was used to verify the feasibility and importance of the research project.

During the interviews, the researcher clarified and discussed the background for each question. The interviewees were encouraged to discuss and elucidate their answers in detail and were given the opportunity to elaborate on issues related to the question. This provided for detailed responses and maximum contribution by the interviewee.

3.5.6 Phase 6: Finalisation

In this last phase, data collected in this study was used to report on search engine user behaviour and perception of SEM strategies. Results were triangulated with information from the literature review and knowledge gathered from the interview to guide website owners in choosing their optimal SEM strategy.

3.6 Conclusion

In this chapter this author described the research question and sub-questions whereby the sample environment was identified and discussed. Furthermore, this author identified and discussed several research approaches, and concluded that a quantitative,

descriptive research approach would be the most suitable for this study. A qualitative research approach was also used in the form of an expert interview. Lastly the phases used in this research project were discussed in more detail.

CHAPTER 4
RESEARCH RESULTS AND ANALYSIS

4.1 Introduction

In this chapter, the results obtained from the questionnaire and interview will be interpreted and analysed. Firstly, some results obtained from the questionnaire will be used to determine the importance of SEM for advertisers. The results are discussed and compared to the findings from the literature review for some of the research sub-questions. Other questionnaire results were processed in order to determine how demographics influence search engine user's response to SEO and PPC results respectively. Confidence intervals were then calculated to determine the statistical significance of each result. Confidence intervals are defined as:

> "A range of values for a variable of interest constructed so that this range has a specified probability of including the true value of the variable. The specified probability is called the confidence level, and the end points of the confidence interval are called the confidence limits". (Davies, 2001)

Davies (2001) also advises to create confidence intervals at the 95% level, which was used in this study. This transposes into the fact that 95% of the time the confidence interval of any result should contain the true value of the variable of interest. Each confidence interval has a lower limit and upper limit showing how large or small the true effect may be. In this study, the number of click-through on PPC result was used as the variable of interest for each demographic feature. In this study, the confidence interval for any given result provides a range in which the true percentage of users that click on PPC results lie. Should, if the upper limit and lower limit of the confidence interval fall below 50%, it would mean that users with that specific demographic feature prefer SEO results as apposed to PPC results. The opposite also applies should the upper limit and lower limit are above 50%.

The study includes a report on search engine specific SEM preference as well as how different result page sections affect click-through. Results from interviews with representatives from the leading South African search engine are discussed and

compared to the initial findings of this study. In conclusion, the key findings are summarised.

4.2 Respondent demographics summary

Table 4.1 provides a summary of the demographic information of the 306 usable responses.

<table>
<tr><td>Gender
53% Male
47% Female</td><td>Age
4% 19 and below
21% 20 -25
28% 26 - 35
22% 36 - 45
25% 46 and above</td></tr>
<tr><td>Marital status
50% Married
41% Unmarried
9% Other</td><td>Ethnic group
62% White
22% Black/African
10% Coloured
4% Asian
2% Other</td></tr>
<tr><td>Employment status
73% Full time
16% Not employed
11% Part time</td><td>Current studies
56% Not studying
30% Part time
14% Full time</td></tr>
<tr><td>Highest qualification
23% High school (Grade 12)
10% College certificate
21% Technikon diploma/degree
21% University diploma/degree
21% Post graduate degree
4% Other</td><td>Approximate net personal income per month
11% Less than R3 000
24% From R3 000 – R9 999
24% From R10 000 – R19 999
12% From R20 000 – R29 999
17% R30 000 and above
12% Decline to answer</td></tr>
<tr><td colspan="2">Internet usage of respondents
12.7% of the respondents have used the Internet between 1 month and three years
21.0% of the respondents have used the Internet between three years and six years
66.3% of the respondents have used the Internet for longer than six years</td></tr>
</table>

Table 4.1: Demographic profile of respondents

4.3 The importance of implementing a SEM strategy

In the following paragraphs, the questionnaire results are analysed to determine the importance of SEM for advertisers. The findings are discussed and compared to the results found in the literature survey.

4.3.1 Frequency of search engine usage

Figure 4.1 summarises the responses to the question: “How often do you use search engines on the Internet?”

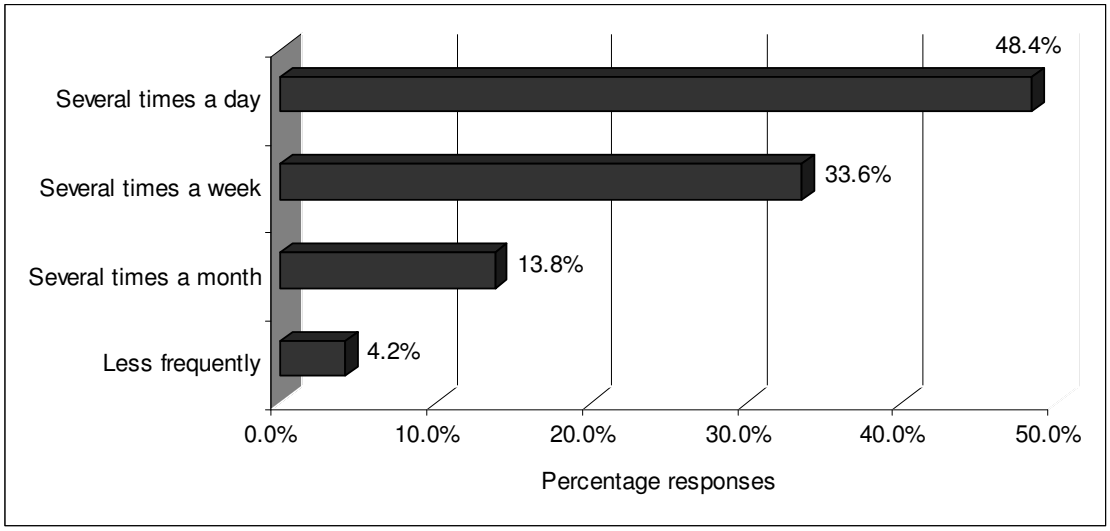

Figure 4.1: Search engine usage

Of the sample, 48.4% responded that they use search engines multiple times per day. Another 33.6% indicated that they use search engines several times a week. Only 18.0% of the participants claimed that they do not use search engines that often. This indicates that search engine usage is a frequent activity among Internet users, with 82.0% of all the respondents using search engines at least several times a week. From this the analogy can be drawn that search engines generate a large amount of Internet traffic providing a good online advertising opportunity. Furthermore, this shows the importance for advertisers to have their websites listed on the Internet. This result also supports the findings of the literature review for one of the research sub-question as detailed in Paragraph 3.2.1 (“How important is SEM?”).

4.3.2 Termination point

Figure 4.2 summarises the responses to the question: "If you do not find what you are looking for in search engine result listings, at what point in the search results do you move on either to another search engine, or to another search on the same engine?"

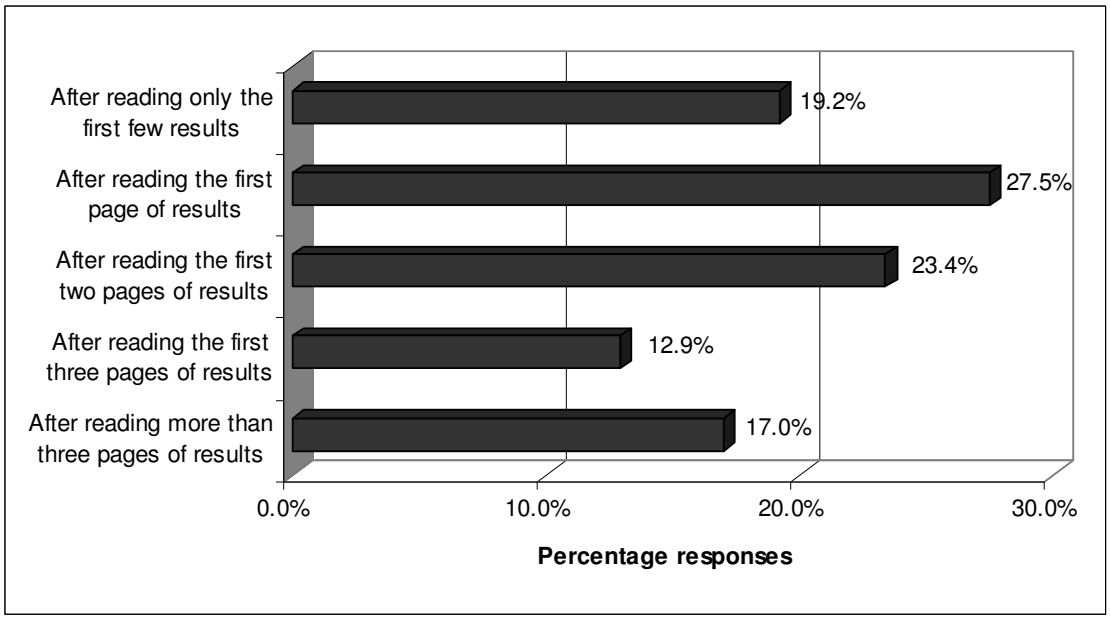

Figure 4.2: Result page termination point

Results show that 83.0% of respondents do not look beyond the first three pages of search results. In fact 46.7%, almost half of all respondents, do not look further than the first results page. Both Clay (2006a) and iProspect (2006) claim that about 62% of search engine users do not look beyond the first result page. In another study the percentage of users not looking beyond the first page of search result is estimated to be 73% (Jansen & Spink, 2006:257). The results from this study indicate a lower percentage of users not looking beyond the first page of search results, if compared to previous studies. Notwithstanding, all results indicate that should advertisers fail to get their website listed in the first three pages of search engine results for keywords that relate to their product or service, it would equate to not having a website in the opinion of over 80% of search engine users. Perhaps even more critical for advertisers, failing to be seen on the first page of results, transposes in nearly 50% of potential clients not

finding their website. This result further supports the findings of the literature review for the research sub-question as detailed in Paragraph 3.2.1 (“How important is SEM?”).

4.3.3 Search engine popularity

Figure 4.3 summarises the responses to the question: “Which search engine do you use most often?”

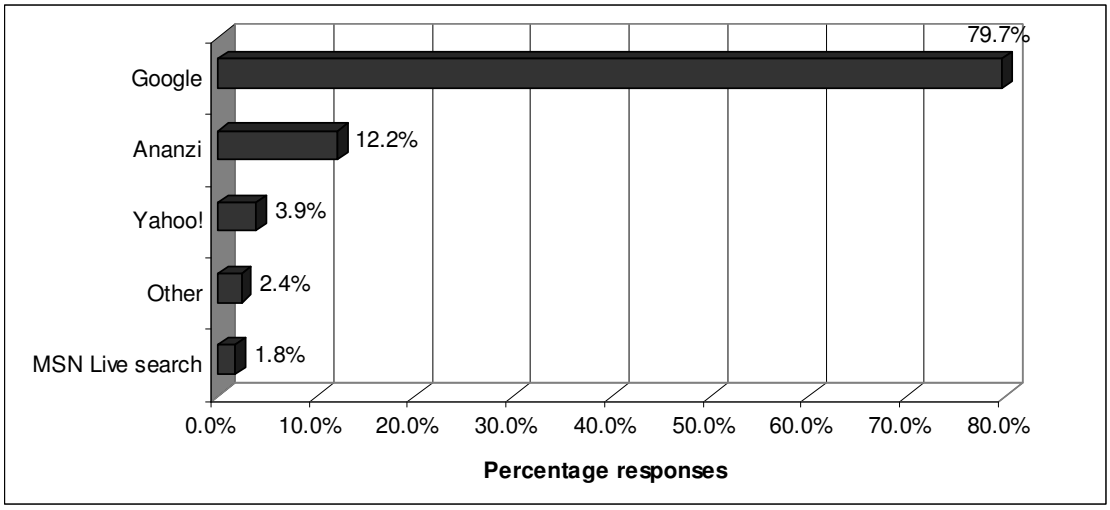

Figure 4.3: Search engine popularity

Google was chosen by 79.7% of the respondents as their favourite search engine. This result shows that Google is the most used search engine among the sample, and as a result attract the most traffic.

Figure 4.4 summarises the responses to the question: “Which option would you say best describes how you use search engines?”

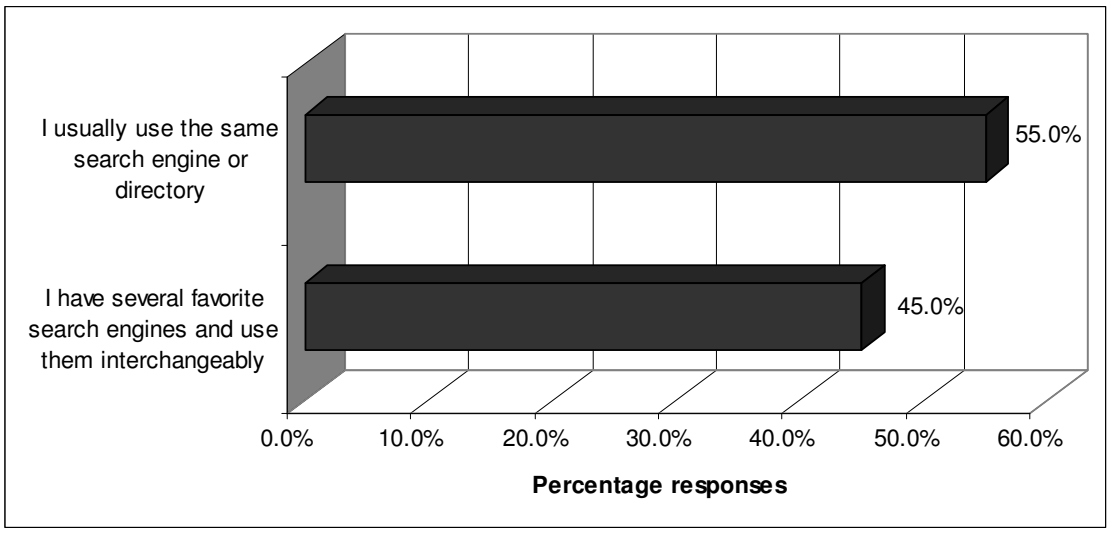

Figure 4.4: Search engine usage

Of the respondents 55.0% indicated that they normally use the same search engine. However, 45.0% of the respondents claimed to use different search engines interchangeably. This indicates that although some degree of search engine loyalty does exist, almost half of the sample is not necessarily bound to just one search engine.

Some search engines however appear to have more loyal users than others. When the results from the previous two questions where cross-tabulated, it was found that 60.1% of users who claim to use Google most often, only use one search engine (Figure 4.5). Only 33.3% of respondents preferring MSN and 16.7% respondents preferring Yahoo!, use one search engine.

From the above, the analogy can be drawn that Google users are less likely to use another search engine if they do not find what they are looking for than MSN and Yahoo! users. This indicates that Google does not only have the majority of users, but also more loyal users. As a result, advertisers should focus more on getting their website listed in Google results than on Yahoo! and MSN, in order to receive maximum exposure.

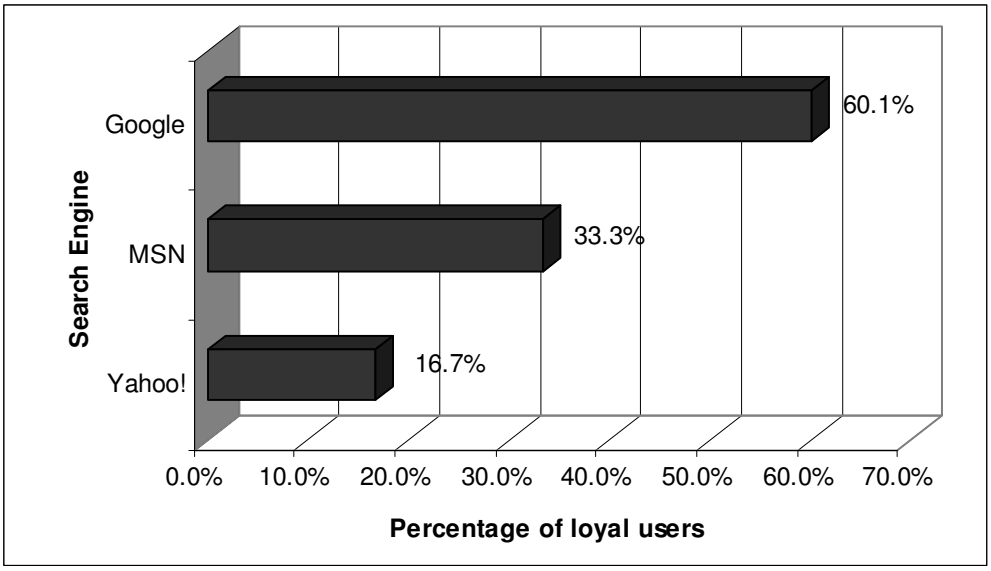

Figure 4.5: Search engine specific loyalty

4.4 Demographics and SEM preference

This paragraph addresses two of the research sub-questions namely, one as detailed in Paragraph 3.2.6 ("How do demographics influence search engine user's response to SEO results?") and the other as detailed in Paragraph 3.2.7 ("How do demographics influence search engine user's response to PPC results?"). To elicit responses to this, three questions were used, each containing a sample page of search results from the three most used search engines, Google, Yahoo! and MSN (See Appendix A). For each of the three questions respondents where asked to do the following:

> "The screen shot below represents a sample search that was conducted on [one of the search engines], using the search term as in the search box below, by an individual who is thinking about [one of the three search terms]. Based on the search results that are presented below, please indicate which individual search result you consider to be most relevant to this query by selecting the corresponding letter from the list below."

Each result on the three different result pages was annotated with an alphabetical letter. This was used to determine whether the respondent selected a SEO result or a PPC

result. This was then cross-tabulated with the demographic information produced by the questionnaire.

4.4.1 Search result preference

Across the three search engines, 53.3% of the respondents selected a SEO result, while 46.7% selected a PPC search result (Figure 4.6). This indicates that despite online advertisers investing far more in PPC (Figure 2.9), SEO results attract more clicks from search engine users. From this analogy can be drawn that, websites not ranking in SEO results are potentially missing out on more that 50.0% of search engine traffic. In the research sub-question as specified in Paragraph 3.2.4 ("what is the more effective SEM strategy") the literature review findings created a view that SEO may be more effective than PPC. This result however indicates that although SEO listings might produce slightly more click-trough than PPC, however the margin is not big enough to support the belief that SEO is more effective. It should also be born in mind that a number of other factors, besides click-through rate, could influence the effectiveness of a SEM strategy.

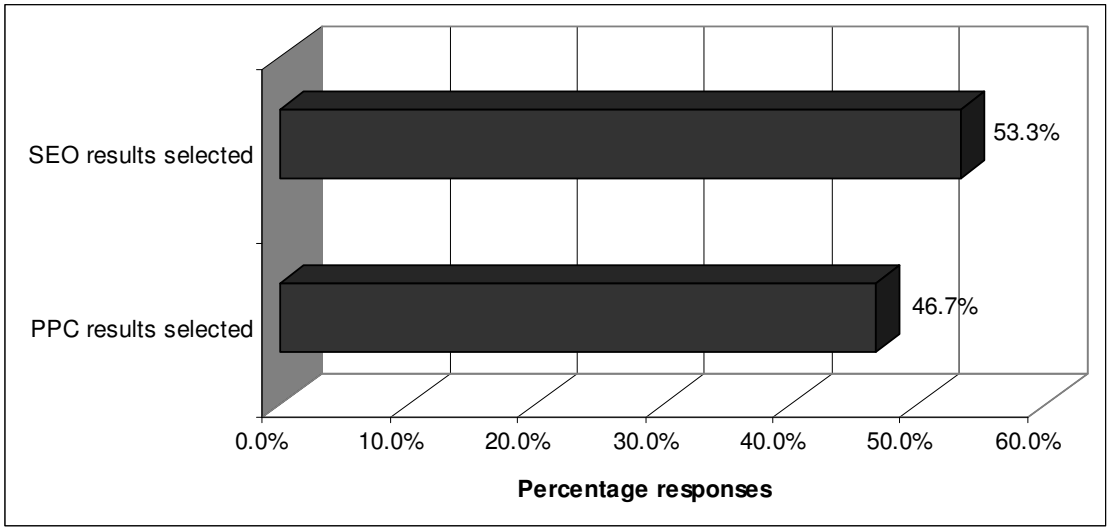

Figure 4.6: Types of search results selected

4.4.2 SEM awareness

Figure 4.7 indicates that 58.2% of all the respondents are aware of SEM while 41.8% are unaware. This result is in contradiction with what was found in the literature survey. In Paragraph 2.7, in a survey conducted in 2002, it was found that more than 60% of

respondents were unaware of SEM. In contrast in 2007, search engine users seem to be more aware of SEM than a few years ago. This is most likely due to the FTC advising the search engine industry to more clearly identify and distinguish paid result (See Paragraph 2.7).

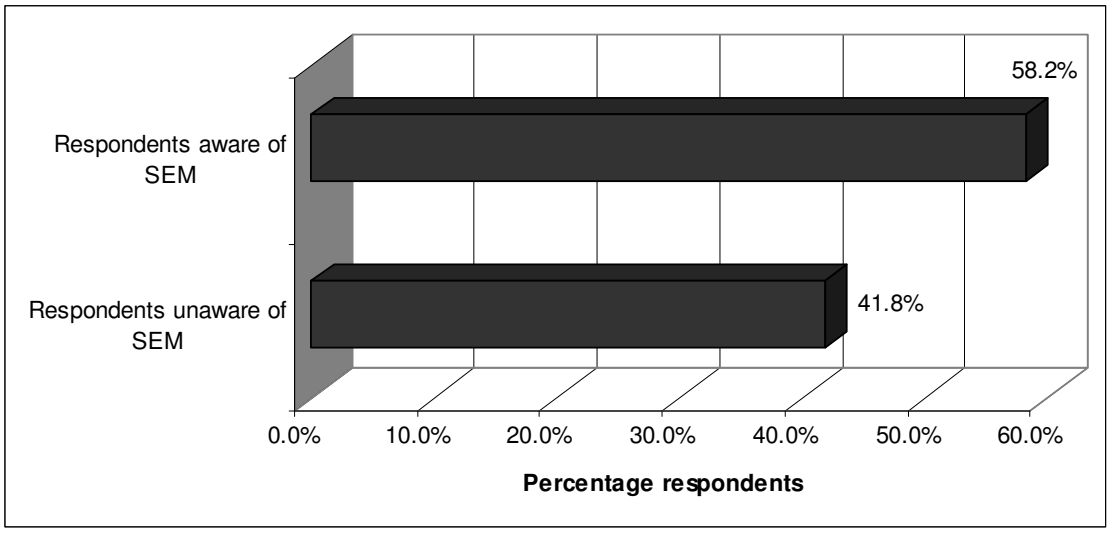

Figure 4.7: Search engine users' awareness of SEM

Figure 4.8 indicates that 54.2% of respondents who are aware of SEM selected an SEO result as more relevant to the given search query, as opposed to 45.8% that chose PPC results. The respondents that are not aware of SEM, are also more likely to choose SEO results. Of the respondents aware of SEM, 52.0% chose SEO results, while 48.0% selected PPC results. Only respondents who were aware of PPC showed a slight statistical significance with a lower limit of 41.8% and an upper limit of 49.9%, reflecting that users aware of PPC prefer SEO results.

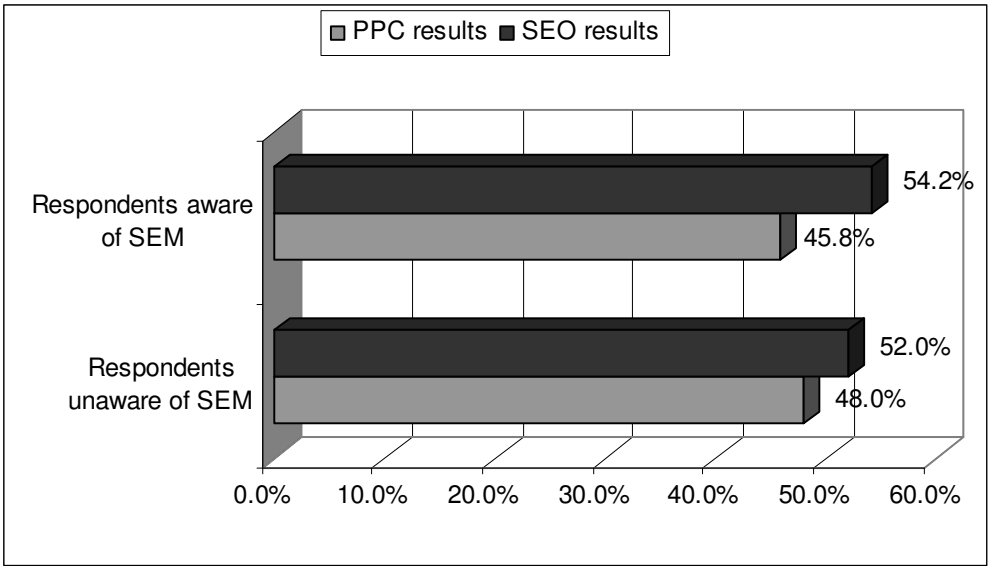

Figure 4.8: The influence of SEM awareness on result preference

4.4.3 Internet experience

In all instances, more users preferred SEO listings than PPC listings. In Figure 4.9 it is evident that 54.1% of respondents, who have been using the Internet for longer than six years, selected a SEO result as a more relevant search result. Of the respondents with more that three years of Internet experience, 52.1% selected a SEO result as the most relevant, while only 50.4% of respondents with less Internet experience selected a SEO result as more relevant. The only statistical significance found in these results was with users with more that six years of experience. This however was only slightly in favour of SEO results with a lower limit of 42.1% and an upper limit of 49.7%. Although the difference is not substantial, this indicates that more experienced Internet users perceive SEO results more relevant than users with less Internet experience.

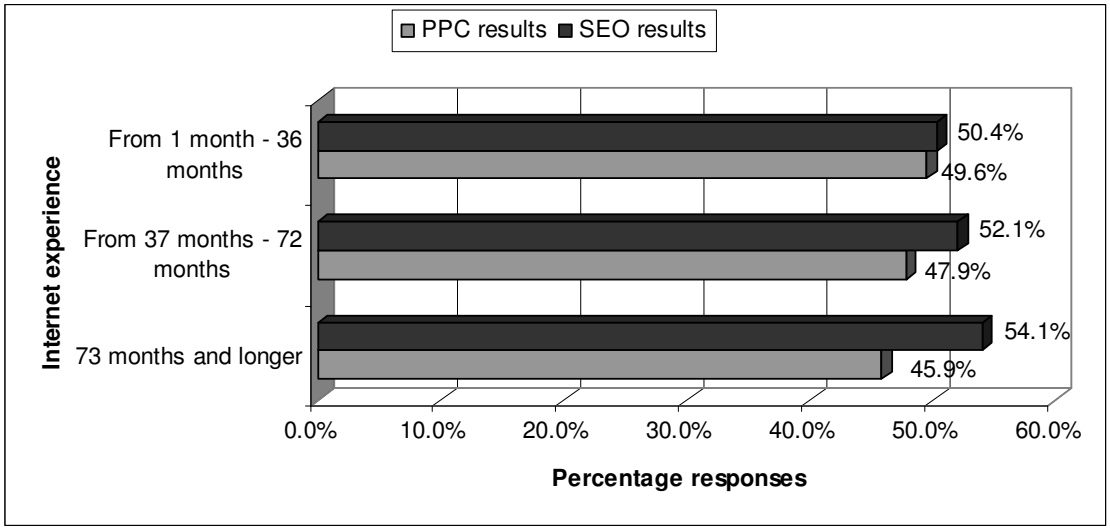

Figure 4.9: Influence of Internet experience on result selection

4.4.4 Gender

Female respondents selected PPC results 47.8% of the time as a more relevant result, while 45.8% of the male respondents selected a PPC result as most relevant (Figure 4.10). The results indicate that gender does not play a major role in how users perceive the relevance of search results. Furthermore, no statistical significance was found for either males or females.

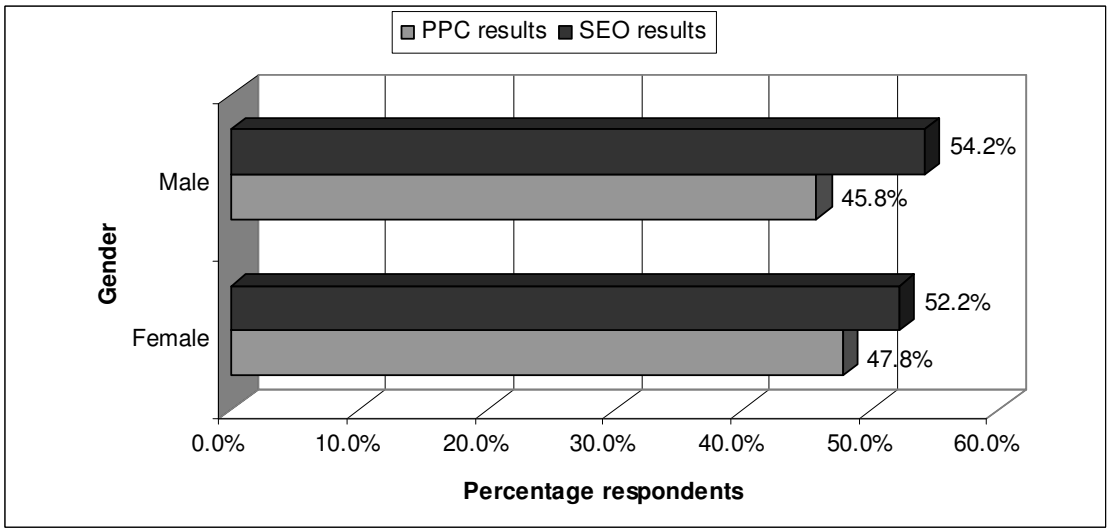

Figure 4.10: Influence of gender on result selection

4.4.5 Age

Respondents aged 26 to 45 selected a SEO result as more relevant with an average of 56.7%, while an average of 50.7% of respondents younger and 51.0% of respondents older selected a SEO result as more relevant (Figure 4.11). Furthermore, both age groups 26-35 and 36-45 showed a statistical significance favouring SEO results. Respondents between 26 and 35 had a lower limit of 38.12% and an upper limit of 49.7%, while respondents between 36 and 45 had a lower limit of 36.3% and an upper limit of 49.3%. Although the difference is not significant, this indicates that it is more important for websites which predominantly target middle aged users (age 26-45) to invest in a SEO campaign than websites that predominantly target younger or older customers.

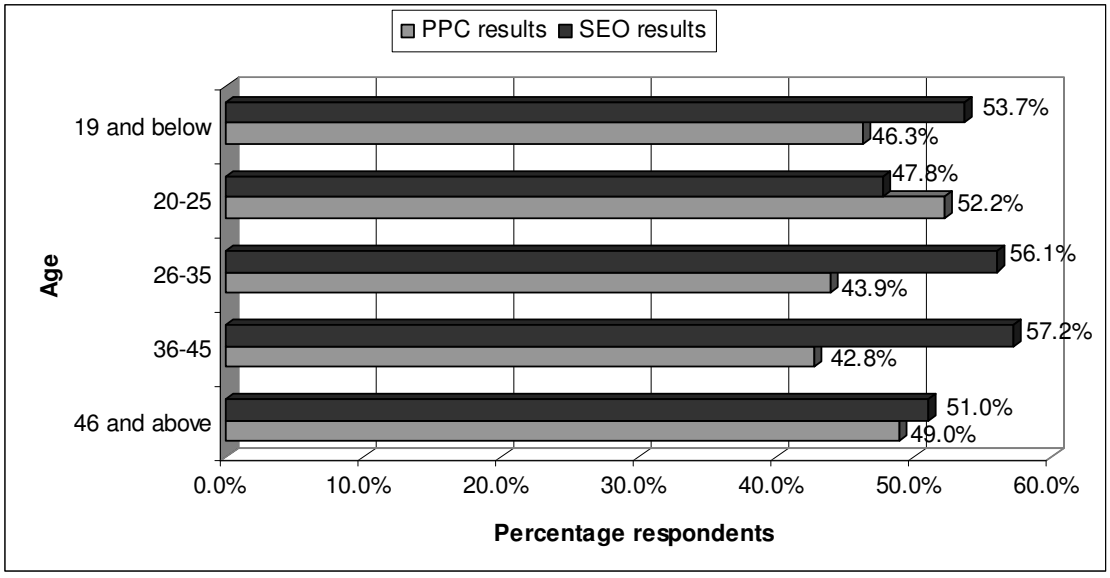

Figure 4.11: Influence of age on result selection

4.4.6 Marital status

Of the unmarried respondents, 48.6% selected a PPC result as more relevant, while 45.3% of married respondents selected a PPC result as more relevant (Figure 4.12). A statistical significance, with a lower limit of 40.1% and an upper limit of 49.7%, was found with married respondents. Again, although this is only a small significance, it indicates that married respondents prefer SEO results above PPC results.

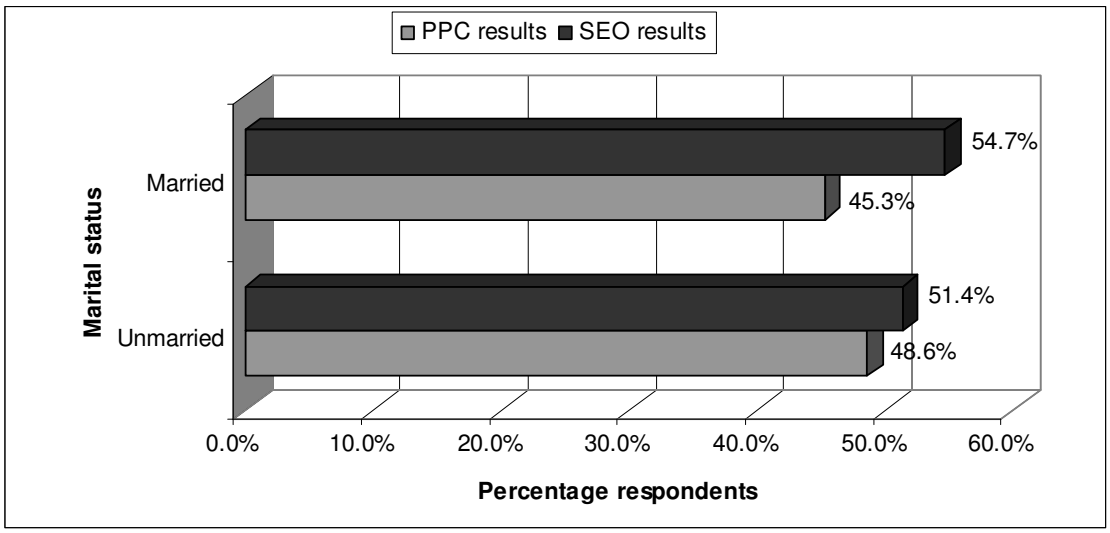

Figure 4.12: Influence of marital status on result selection

4.4.7 Education

Search engine users with a technikon, university or post graduate qualification selected a PPC result as more relevant an average of 47.1%, while only 33.3% of past college attendees selected a PPC result as more relevant (Figure 4.13). This indicates that a higher qualification level could lead to users perceiving PPC results as more relevant. The only statistical significance however was with respondents who have a college qualification. The confidence interval had a lower limit of 23.8% and an upper limit of 42.9%. This indicates that respondents prefer SEO results above PPC results.

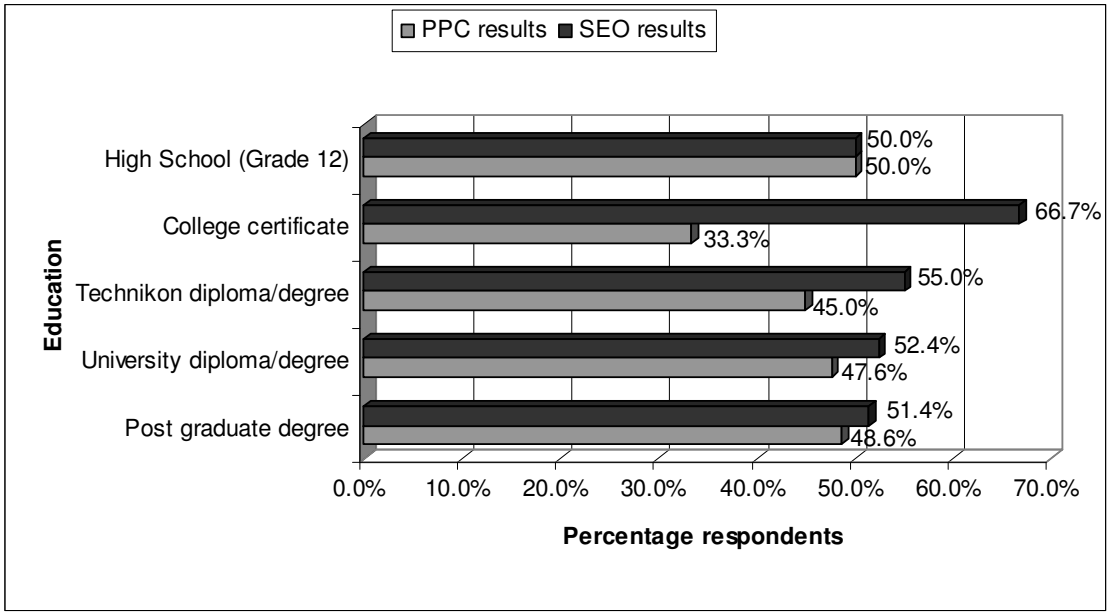

Figure 4.13: Influence of education on result selection

4.4.8 Employment status

Figure 4.14 indicates that 46.0% of the respondents that are employed full time selected a PPC result as more relevant than a SEO result, while only 41.0% of the respondents employed part time selected a PPC result as more relevant. Furthermore, 54.1% of the respondents that are unemployed selected a PPC result as the one they found most relevant to the sample query. Only 45.9% of the respondents that are unemployed selected a SEO result as a more relevant option. This suggests that employment companies whose websites only target part time employees need to utilise SEO advertising. Employment companies whose websites only target unemployed users need to make use of PPC. However, the only group that showed a statistical significance was full time employees. With a lower limit of 42.4% and an upper limit of 49.9%, the confidence level indicates full time employees slightly favour SEO result.

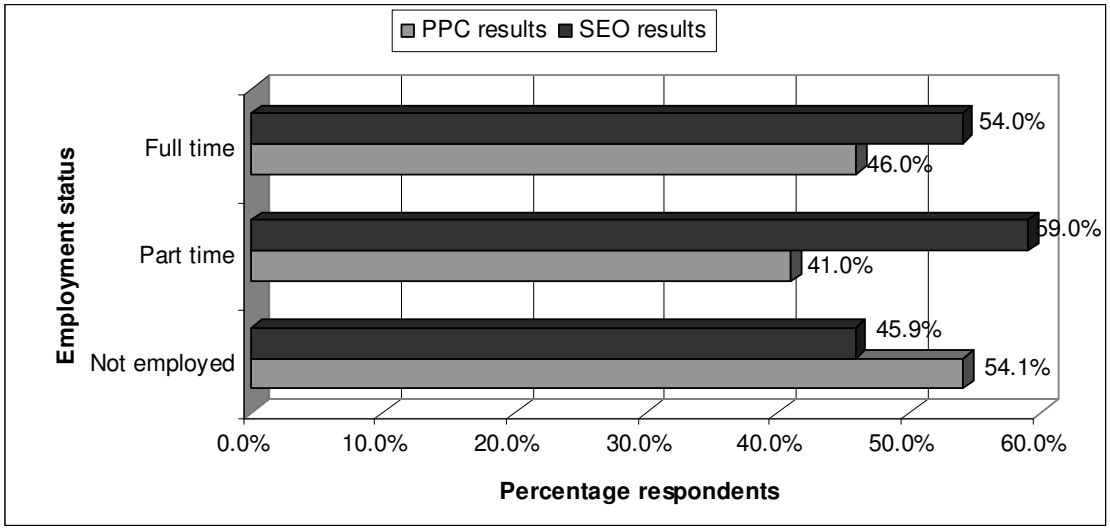

Figure 4.14: Influence of employment status on result selection

4.4.9 Study status

Of the respondents, 49.3% who study full time selected a PPC result as the one they found most relevant to the sample query, while 45.1% of the respondents who were not studying selected a PPC result as more relevant (Figure 4.15). Again, only one group had a statistical significance in favour of SEO results. The confidence level for non students had a lower limit of 41.0% and an upper limit of 49.2%.

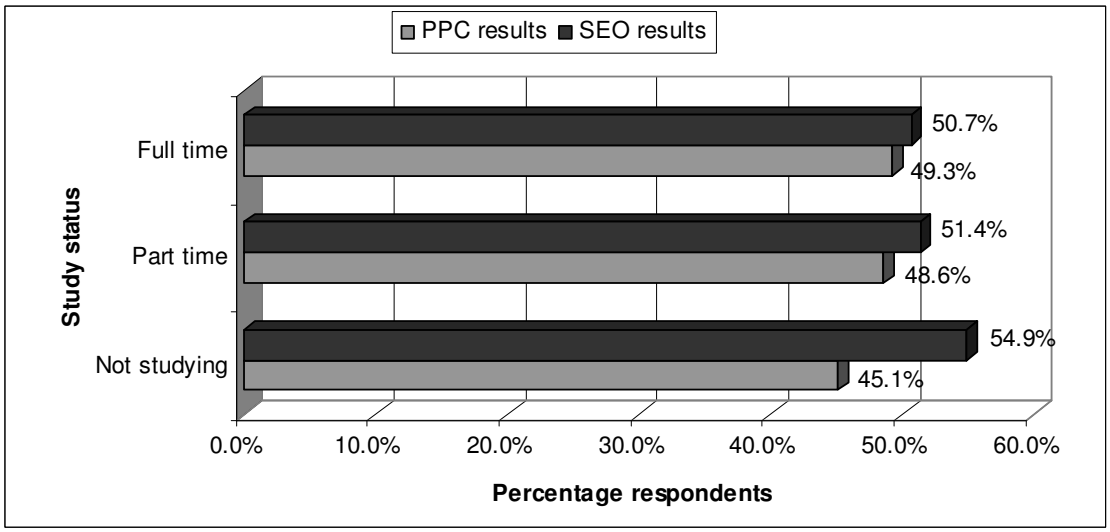

Figure 4.15: Influence of study status on result selection

4.4.10 Income

The results indicate that respondent's perceived relevancy of SEO results increase in parallel with their income (Figure 4.16). Respondents earning less than R3 000 monthly, had a confidence level with a lower limit of 56.6% and an upper limit of 74.3%, indicating a preference of PPC results. Controversially, respondents earning between R20 00 and R29 999, had a confidence level with a lower limit of 30.6% and an upper limit of 47.5%, indicating a preference of SEO results. With a lower limit of 30.8% and an upper limit of 45.6%, the confidence level of respondents earning more than R30 000 also showed a preference of SEO results. As a result, advertisers who target customers in higher income groups should invest more in a SEO campaign than those who target customers in lower income groups.

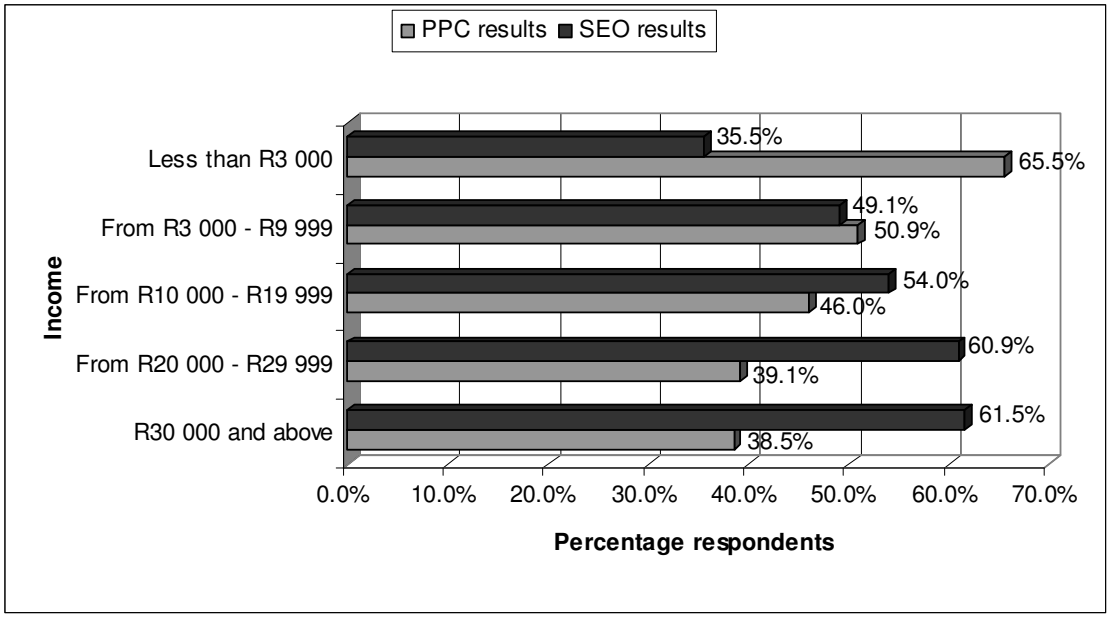

Figure 4.16: Influence of income (net per month) on result selection

4.5 Search engine specific results

To further assist website owners in deciding which SEM campaign to invest in, it was deemed necessary to determine how the respondents responded to each of the different search engines used in the questionnaire. Each of the three questions illustrating a

search on a different search engine was analysed separately to determine how many SEO and PPC listings was chosen for each of the search engines.

4.5.1 Click-through preference on Google and Yahoo!.

In Figure 4.17 it is evident that for Google respondents' selected natural results 66.0% of the time as more relevant, against 34.0% who picked a PPC result. Google also had a confidence level with a lower limit of 28.8% and an upper limit of 39.0% indicating that Google users prefer SEO results more often than PPC results. For Yahoo!, respondents chose a natural result 52.8% of the time while 47.8% selected a PPC result. No statistical significance however was evident. Reasons for this could include a number of factors. Some of the possibilities are that Google place more emphasis on their natural result search results than on PPC results. Another possibility may be that PPC results on Google are more clearly identified, causing more of those respondents who are distrustful of paid listings to avoid them.

Regardless of the reason for users preferring natural results (See Paragraph 4.5.2), it is vital for advertisers to ensure that their site is listed in the natural results to ensure that they are not missing out on the majority click-through. In order to achieve these high natural rankings on Google and Yahoo! advertisers should make use of SEO.

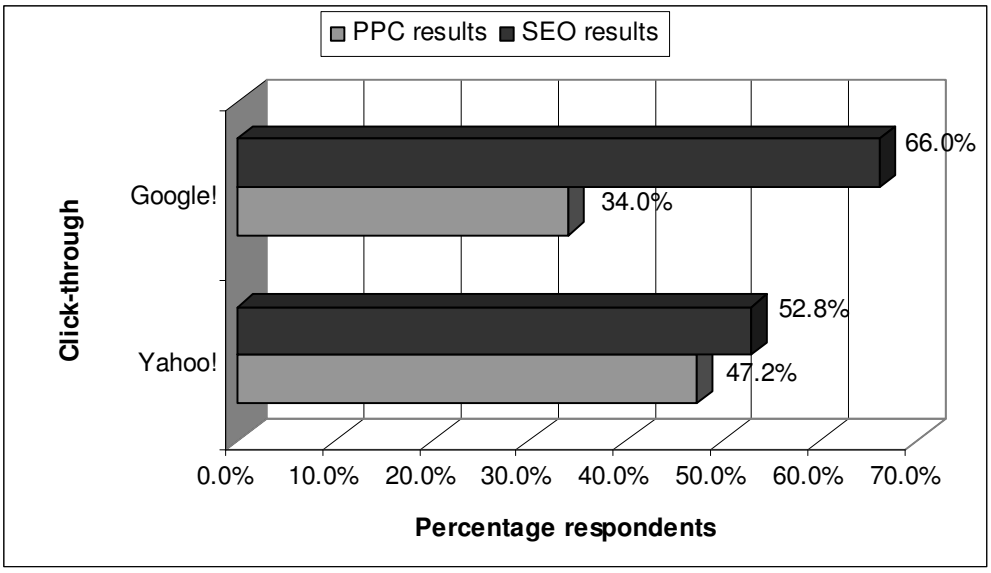

Figure 4.17: Click-through preference on Google and Yahoo!

4.5.2 Click-through preference on MSN Live Search

Surprisingly for MSN Live Search, the majority (59.0%) of the respondents selected a PPC result, against 41.0% that selected a natural result (Figure 4.18). The confidence interval with a lower limit of 53.8% and an upper limit of 64.3%, also showed that MSN Live Search users prefer PPC results above SEO results. Also in this instance, various reasons can be attributed as to why PPC listings were selected as more relevant. One possibility could be that PPC listings on MSN may be less clearly identified causing fewer of those users distrustful to paid listings, to avoid them. Another possibility could be that PPC listings are given more emphasis and therefore results in more user click-through.

Regardless of the reason, it is clearly more important for websites to be listed in the paid listings on MSN than in the natural listings in order to attract the majority of their users.

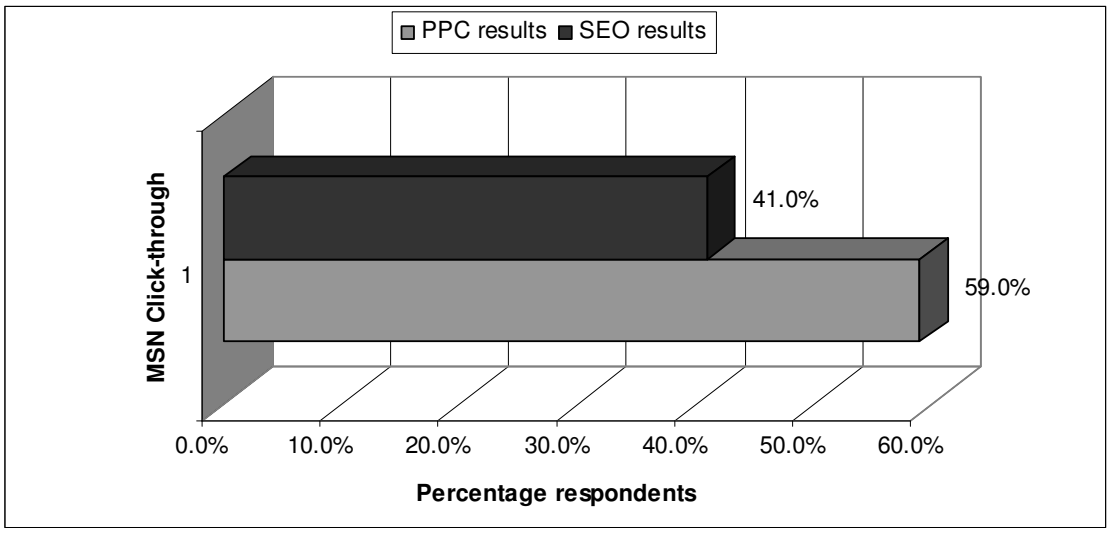

Figure 4.18: Click-through preference on MSN Live Search

4.5.3 Click-through per section

Figure 4.19 illustrates how respondents clicked through on different sections on a search engine result page (See Paragraph 2.7). Also in this instance, SEO listings, more specific the main section of the result page, received the most click-through on both Google and Yahoo!. However PPC top listings listed just above the main section,

received more click-through than SEO on MSN. Also, on Yahoo! PPC top listings received more than 40% of the click-through. Controversially, PPC side listings received by far the least click-through on all three search engines. One reason that PPC top listings have such a high click-through rate could be as indicated in literature, that search engine users who are unaware of PPC, may view them as part of the natural results and thus click on them. Another reason may be that search engine users only look to the left side of a search result page and ignore the right side, including side listed PPC listings. This also shows that advertisers investing in PPC but not bidding enough for the top PPC placements, could be missing out on a lot of Internet traffic.

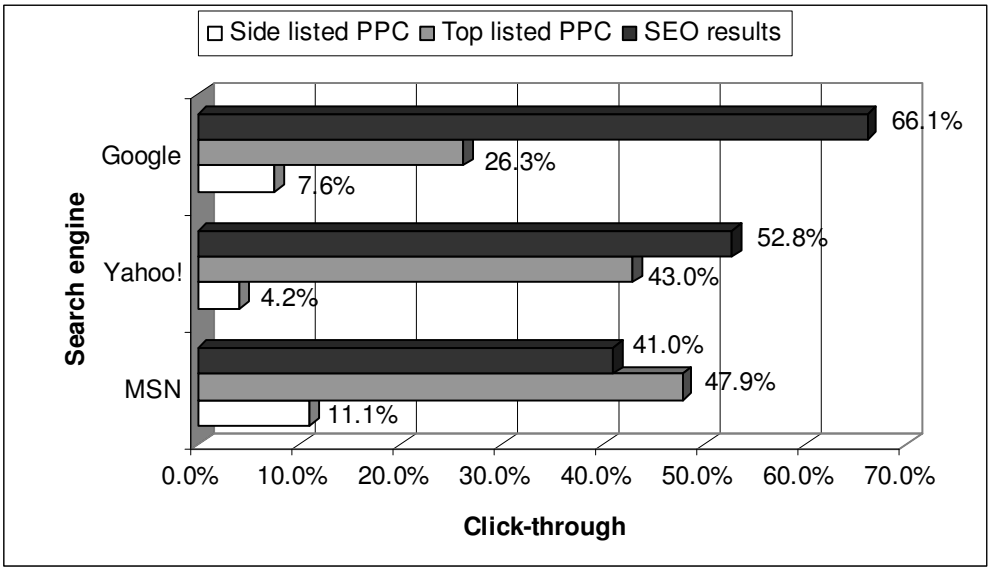

Figure 4.19: Click-through on different result page sections

4.6 Summary of results

In summary, this study returned the following key findings.

- Search engines are used frequently by Internet users.
- Search engine users rarely look beyond the third page of search results.
- Google is the most popular search engine and has the highest number of loyal users.

- Search engine users perceive SEO results to be more relevant to their searches than PPC results.

- Respondents who are aware of SEM favour SEO results above PPC results, but only marginally so.

- Experienced Internet users perceive SEO results to be more relevant to their searches than inexperienced Internet users.

- Gender does not play a major role in search result preference.

- Older and younger search engine users perceive PPC to be more relevant to their searches than middle age users.

- Married respondents prefer SEO results above PPC results.

- Past college attendees prefer SEO results above PPC results.

- Search engine users that are employed full time or part time perceive SEO results as more relevant to their searches than users who are unemployed.

- Search engine users that study full time perceive PPC results more relevant to their searches than users who are not studying or studying part time.

- Search engine users with a higher income perceive SEO results more relevant to their searches than users who have a lower income.

- Google users perceive SEO results as more relevant than PPC result. Users on MSN however favour PPC results above SEO results.

- The top listed PPC section and organic result section generate more click-through than the side listed PPC section.

Table 4.2 summarises the demographic features, regardless of statistical significance (See Table 5.1), for users who prefer SEO and PPC listings respectively. Each demographic feature used in the questionnaire is listed with all of their associated options. If participants belonging to a specific option for one of the demographic features, preferred SEO listings above PPC listings, that option is listed on the left side of the table. If participants belonging to a specific option for one of the demographic features, preferred PPC listings above SEO listings, that option is listed on the right side of the table.

SEO	PPC
Internet Experience	
• From 1 month – 36 months • From 37 months – 72 months • 73 months and longer	
Gender	
• Male • Female	
Age	
• 19 and below • 26 – 35 • 36 – 45 • 46 and above	• 20 – 25
Marital status	
• Married • Unmarried	
Education	
• High School (Grade 12) **(50%)** • College certificate • Technikon diploma/degree • University diploma/degree • Post graduate degree	• High School (Grade 12) **(50%)**
Employment status	
• Full time • Part time	• Not employed
Study status	
• Full time • Part time • Not studying	
Income	
• From R10 000 – R19 999 • From R20 000 – R29 999 • R30 000 and above	• Less that R3 000 • From R3 000 – R9 999

Table 4.2: Demographic profile for users preferring SEO and PPC respectively

4.7 Personal interview with a South African search engine representative

To gain expert opinions to assist in identifying the most effective SEM strategy and also to answer a sub-question as discussed in Paragraph 3.2.8 ("How accurate is the results?"), Anon (2007c), representatives of a leading South African search engine (who preferred to stay anonymous) was interviewed (See Paragraph 3.5.5) (Anon, 2007c). In the following paragraphs each question from the interview and response provided by the interviewee is discussed. Take note that none of the verbatim quotes listed below were grammatically corrected or contextually rewritten.

4.7.1 How important would you rate SEM for online advertisers?

A question was posed on how important SEM implementation is considered to be for online advertisers. Anon (2007c) were of the opinion that SEM implementations are very important. They further explained that the reasons for this is that SEM is cheaper than printed media and is more targeted and thus ultimately more effective than traditional media marketing. They used the shotgun and rifle marketing technique to explain why SEM is more targeted. The shotgun is used to illustrate traditional marketing where companies use mass advertising in the hope of also reaching their target market. The rifle used to illustrate SEM marketing is where advertisers focus more directly on advertising to their targeted market.

4.7.2 How important is PPC advertising for the specific search engine in terms of revenue income?

Anon (2007c) explained why PPC is important for search engines by stating the following:

> "If you look at any search engine, the search engine is not meant to give free results. They are just like media companies. We give you material to read so that we can sell you ads. So that is where we make most of our income and that is what keeps us alive."

4.7.3 At what rate have you experienced PPC usage growth or decline over the last few years?

Anon (2007c) confirmed that there is an increase in PPC adoption by advertisers, and stated the following reasons (cited verbatim for the purpose of content relevance) for this:

> "We normally used to research keywords, you would get keywords that have been searched by people, but not keywords that are converting. There are certain keywords that people really search for a lot. Like 'Nokia cell phone' but it is not like somebody really wants to buy, because most searchers on search engines don't seek to buy. There is then a point where you realise you need keywords that are converting into something and that is where PPC came in. So based on that, companies who do succeed in SEM are the ones that can do PPC and push PPC. And as a result of that we are telling more of our clients that PPC is better for them. There is no point in being number one and getting tons of traffic when that traffic is doing nothing on you site. PPC removes that aspect of just having searchers coming. Of course I am not saying you can control it to have people just clicking your advert and you making a loss, but chances are that the persons that click your add hopefully are going to buy. So yes, we are increasing our PPC, in fact we are getting more sign-on then we ever had."

4.7.4 Could another reason for the increase in PPC implementation be because advertisers perceive PPC as a better source of getting increased click-through?

Anon (2007c) again emphasised that the main reason for PPC increase is because being number one in SEO results, may generate traffic however this traffic is normally not targeted, where as PPC listings are more targeted and will normally convert into paying customers. They also gave the following explanation of why South African companies are increasing their PPC adoption:

> "…the first position result that comes up is always a PPC listing. So the South African companies what that position simply because of the position. Not really because they understand the value of what is going on. Why I say they don't really understand the value of that position is because the keywords that they bid

for are strange. Some bid for the company brands when in actual fact people don't search for brands they search for products. So just based on that you can see that companies want that position simple because it is number one. So that is what brings an increase in PPC here in South Africa."

4.7.5 How does SEM awareness effect click-through?

Anon (2007c) were of the opinion that:

> "Chances are people will never know. The man in the street will not really know the difference. We work in the industry so we know but are only a small percentage. To someone that does not know anything about search engines, when they do a search they will just see websites being listed, they wont know which ones are PPC listings and will click on it."

They were also of the opinion that search engine users that are aware of PPC listings will ignore PPC listings. When asked if users that are aware of PPC listings will click on it, Anon (2007c) stated that:

> "Well from personal experience no, I don't click on those. I skip all the listings that's highlighted or marked as a sponsored listing."

They used the following explanation for this:

> "Generally I discovered that not only on the Internet but in marketing in general if someone's going to come up to you to sell something to you chances are you will ignore them and not buy it. This is because generally we are defensive when something is being sold to us. The PPC model works, we do specify that it is a sponsored link, but really I don't think people would click them if they knew it was an advertisement. Unless that person wants to buy something, like I said earlier on it is more targeted. "

Anon (2007c) further suggested that the purpose of a user's search can play a role in result selection. For instance, should a user who is aware of PPC searches with the

intent to purchase something, he/she is more likely to select a PPC listing than when that user searches for information on a specific topic.

4.7.6 Which in your opinion is the most effective between SEO and PPC in terms of increased click-through?

Anon (2007c) stated that in general, the PPC listings are the ones that are clicked the most. They gave the following reasons for this:

> "This is because of two reasons. One they are more prominent and two they are well written. PPC listings are written by professional advert people that want to sell and were designed as specifically an advert. If you compare that to SEO results it was done in a SEO way to get spidered by search engines and is not necessarily reader friendly. So just based on that alone PPC listings will be clicked more than SEO listings."

Anon (2007c) further emphasised that top-listed PPC ads generate up to 60% more traffic than side listed PPC advertisements.

4.7.7 If you could advise advertisers which SEM to implement or whether they should implement a combination of SEO and PPC?

Anon (2007c) stated that they would advise advertisers to make use of a dual SEM strategy. They also stated that the best way to do this would be to implement a PPC campaign for immediate results, and over time implement a SEO campaign. Again Anon (2007c) stated the following reasons for their advice:

> "Look, SEO takes a very long time to get listed in organic results. It used to take three months for a new site to really get results. If you submit your website to us today don't expect to get found tomorrow. I would not say to someone who is starting a business and wants to sell immediately to go the SEO route. It will take you a long time. Do your SEO slowly either in-house or subcontract it to someone. But if you want to sell something today, and you will sell something today, go the PPC way. Because you will get your targeted traffic once you have signed up. But it is expensive in the long run. For someone just starting a business you can not just go the PPC route if you don't have the finances.

Depending on what you are selling you will find that it becomes really expensive, because you discover more and more people are doing it so competition for keywords make it more expensive. But SEO is too risky and can even be more expensive, because algorithms are changing all the time. You can not keep up with the algorithms, chances are you will start your business and struggle for the next three years without selling anything. SEO does not guarantee anything, you can win or you can lose. But with PPC you know definitely if you are doing it correctly you will get your targeted traffic and chances are you will sell. Rather pay for PPC - it is worth it, the ROI on PPC is more visible than SEO. ”

4.7.8 In your opinion would it be feasible and can advertisers use demographic profiling to structure their SEM strategy?

Although Anon (2007c) again stressed that a dual strategy should be implemented, they did agree that demographic information can be used to adjust a SEM strategy. Anon (2007c) stated the following in response to this question:

> “Yes I think you can because when I think of paid ads it is normally your bigger companies that has a products to sell for which there are a target profile. But I can not say that you should really just concentrate on the one, I feel that there should be a dual approach.”

4.7.9 Interview conclusion

From the Interviews, it can be concluded that various factors, like ROI, time and cost, influence the effectiveness of a SEM campaign. The interviews, in contradiction with the literature review findings and initial results from quantitative research, indicated that PPC listings generate more traffic than SEO listings. The reason for this is possibly, as concluded from the interview, that most search engine users are unaware of SEM and therefore click through on PPC listings. The interviewees also stated that, if possible, advertisers should invest in a dual SEM strategy. The best way for advertisers to achieve this would be to invest in a PPC campaign for immediate results and over time, implement an SEO campaign. However it was again found that both SEO and PPC are expensive and this is not always feasible. The main reason for advising advertisers to implement a dual strategy according to the interviewees, is that a portion of search engine users will always prefer SEO and another portion PPC. As a result, the

demographic features for each group can be identified, and information can be used to adjust a SEM accordingly. The interviewees agreed with this strategy although they stressed the importance of a dual SEM strategy and not weighing to much on either SEO or PPC.

4.8 Conclusion

Results of this study confirmed the importance of SEM established in the literature survey. It was also found that Google produces the most traffic and would therefore be the best search engine option for a SEO or PPC campaign. Furthermore, results indicate that users perceived relevancy split is 45% for PPC result and 55% for SEO results, regardless of demographic factors. This was however contradicted by the interview results, which found that PPC listings produce more traffic. It was also found that some demographic features do play a role in result selection and can be used to adjust a SEM strategy to be more effective. Results further showed that result selection can be influenced by specific search engines, as Google users prefer SEO listings, while MSN users prefer PPC listings. Lastly it was found that respondents tend to ignore side listed PPC listings, as these listings generated a low percentage of the total click-through.

CHAPTER 5
CONCLUSION

5.1 Introduction

The aim of this chapter is to evaluate the results produced in order to reach a conclusion. A brief summary of the literature review and analysis, methodology and the results and analysis is presented, providing the framework of the thesis. The research results are discussed and recommendations are made to advertisers on how to use the results in choosing their optimal SEM strategy or combination of SEM strategies for their specific target market profile.

5.2 Summary

5.2.1 Literature review and analysis

Through the literature review and analysis it became evident that Internet usage over the last few years has grown exponentially. Together with the escalation of Internet users and reciprocal number of potential online clients, the need for advertisers to be visible on the Internet has increased. Unfortunately, with a growing number of online websites, attracting potential clients to an advertiser's website, is a formidable task. However, Internet users also have the challenge of finding specific information within the context of the vast number of websites. This requirement created the establishment of search engines. Search engines enable Internet users to find specific information which they require. Research show that search engines attract large amounts of users and also potential clients for online advertisers. It was also found that in order to be visible to the majority of search engine users, a website needs to be ranked in the top search results.

Research was further undertaken to identify different Internet marketing technologies to assist advertisers in being more visible. Two main strategies were identified with the purpose of increasing search engine visibility namely SEO and PPC. These strategies were then further investigated and discussed. It was found that although both aim to improve search engine ranking, they use very different techniques.

During the research on SEO and PPC, it was established that a contradiction exist in the use and popularity of these SEM strategies. Research indicated that advertisers invest more in PPC than in SEO, while search engine users tend to click through on SEO listings more than on PPC listings. It was also found that both SEO and PPC are expensive to implement and not all advertisers can afford both. The contradiction around which SEM strategy is more effective, and the high cost of both SEO and PPC, makes it difficult for advertisers to decide which SEM strategy to invest in.

Further research into user profiling returned that demographics play a role in purchasing behaviour, while another survey indicated that demographics can influence a user's search result selection. Research results also stressed the importance of structuring a marketing strategy around a target market group profile. In fact, both Google and MSN have recently launched tools that assist advertisers in taking advantage of this to target their advertising campaigns more accurately at their target markets. In order to assist advertisers in selecting their optimal SEM strategy or combination of SEM strategies, this author decided to investigate how demographics influence click-through on SEO and PPC respectively. Advertisers can use the results to correlate it with their target market profiles and optimise their SEM strategy accordingly.

5.2.2 Research methodology

The research methodology consisted of two phases. The first was a quantitative approach in the form of a questionnaire. The second phase was an interview which falls under qualitative research.

5.2.3 Quantitative research

A questionnaire was hosted on an Internet search engine result page, to ensure respondents had some degree of Internet and search engine experience. The purpose of this phase was to collect data, which was later used to produce the research results. A total of 306 usable responses were received and analysed. The questionnaire was divided into three main sections. The first collected demographic information about the respondent, which was used to analyse how different demographic features influence the perceived SEO listings vs. PPC listings. The second section was used to collect data on the respondent's Internet and search engine experience and behaviour. The results were also used to determine how these factors influence the selection of SEO listings vs.

PPC listings. The third section consisted of three questions each displaying a screen shot of a search on a different search engine. The respondents were asked to select the listing they perceived as the most relevant to the search query. These answers where cross-tabulated with the answers from the previous sections in the questionnaire to produce the final results.

5.2.4 Qualitative research (interview)

In this research process, an interview was conducted with two SEM experts representing the leading South African search engine. Part of the aim of this phase was to assist this author with an expert opinion in determining whether SEO or PPC is more effective in terms of increasing click-through. The interview was also used to evaluate and discuss the results found in the literature review and the quantitative study.

5.2.5 Research results and analysis

Some responses from the questionnaire were used to confirm the findings from the literature review and analysis. It was established that search engine usage is a frequent activity of Internet users but that the majority of them tend not to look further than the first three pages of results. The results support the findings from the literature review, that SEM is important for online advertisers in order to take maximum advantage of all the potential clients using search engines. The finding from the literature review that search engine users prefer SEO results to PPC results were also confirmed by the quantitative study, showing that an average of 55% of all respondents selected an SEO listing as more relevant against 45% who selected a PPC listing as more relevant. However findings from the qualitative study contradicted this, suggesting that most search engine users select PPC results. Notwithstanding, from both research methods it could be concluded that a large group of users exist that click on PPC listings and as well as a large group that prefer SEO listings. Furthermore it was established that Google is the most popular search engine and also have the most loyal users, and should therefore be the first search engine to target in a SEM campaign.

After cross-tabulating the demographic data of the respondents with their answers to the third section of the questionnaire, statistics were produced to illustrate how different demographic features influences click-through. Although results indicated that most demographic features do not impact click-trough selection dramatically, some patterns

could be identified. Table 5.1 illustrates the demographic features that showed a statistical significance, as discussed in Chapter 4. Although it seems that most features do show a major significance, Davies (2001) states that:

> "Non-significance does not mean no effect. Small studies will often report no-significance even when there are important, real effects."

As a result, although the confidence intervals may not look like showing a major significance, due to the sample size used in this study, the demographics may actually have an important effect on result selection.

Demographic feature	Confidence level lower limit	Confidence level upper limit	SEM strategy preference
Age group 26 - 35	38.12%	49.74%	SEO
Age group 36 - 45	36.28%	49.30%	SEO
Married	40.98%	49.68%	SEO
College certificate	23.75%	42.91%	SEO
Full time employees	42.35%	49.58%	SEO
Non students	40.96%	49.21%	SEO
Monthly earnings <R3 000	56.57%	74.34%	PPC
Monthly earnings between R20 000 – R29 999	30.61%	47.51%	SEO
Monthly earnings >R30 000	30.77%	45.59%	SEO
Internet experience > six years	42.07%	49.70%	SEO
Aware of SEM	41.76%	49.90%	SEO

Table 5.1: Statistical significant demographic features

Figure 5.1 illustrates a ranking of how much each demographic feature influenced result selection. This was executed by calculating the average difference between SEO and PPC selection for each demographic feature. The demographic features were then ranked from the one with the most influence, to the feature with the least influence on result selection. According to Figure 5.1, advertisers that use demographic features such as income, employment status and education in their target group profile could use the

results from this study more effectively than advertisers using features such as Internet experience, studying status and marital status in their target group profile.

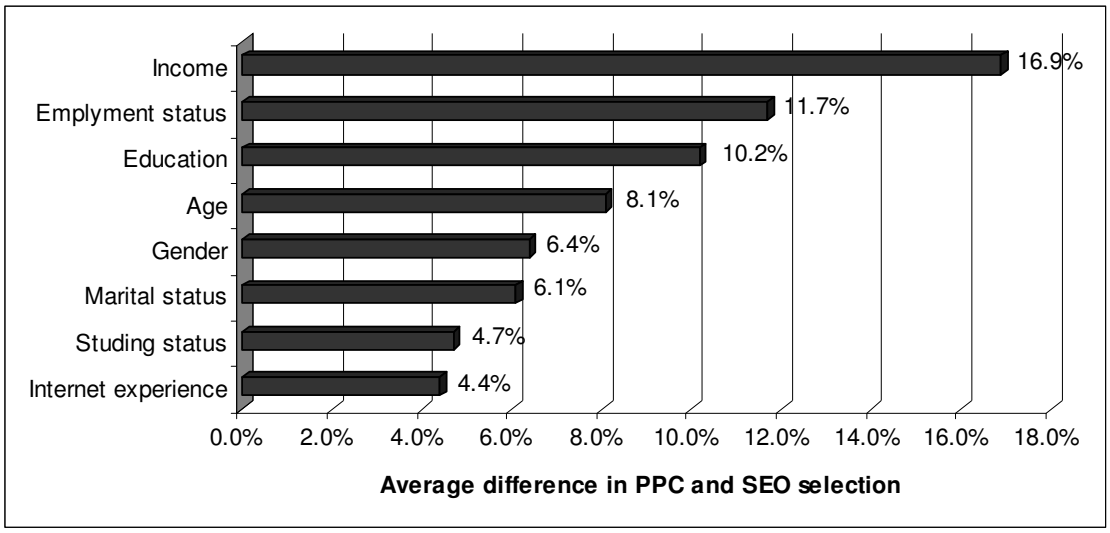

Figure 5.1: Ranking of demographic influence on result preference

It was further analysed how respondents reacted to SEO and PPC listings on each of the three search engines used in the questionnaire. This can further assist advertisers in identifying their optimal SEM strategy. It was found that respondents perceive SEO listings on Google and Yahoo! as more relevant to the search query, but surprisingly selected PPC listings on MSN as more relevant to the search query (Figure 5.2).

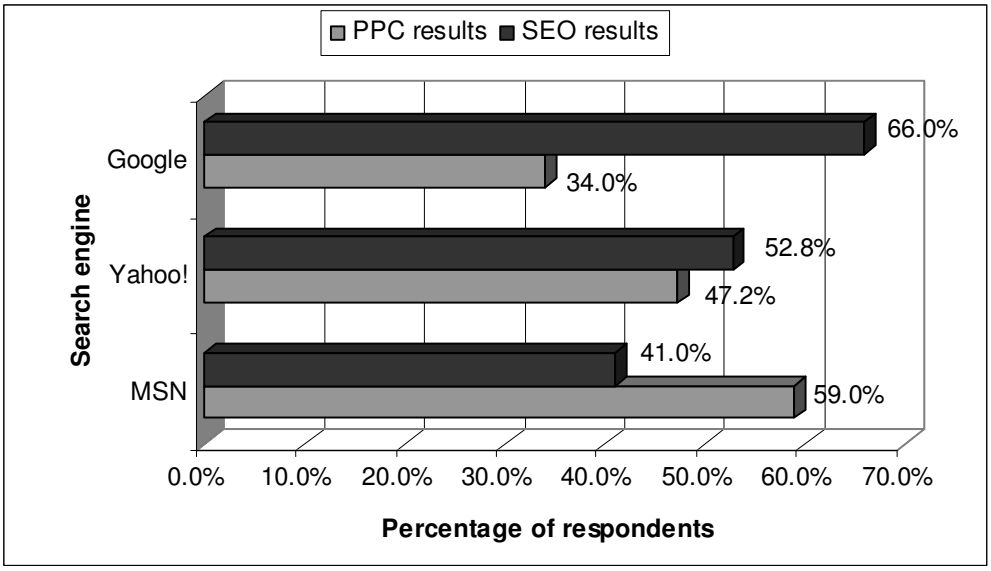

Figure 5.2: Click-through preference on Google, Yahoo! and MSN

It was also found that different result page sections produce different rates of click-through. As illustrated in Figure 5.3, further result analysis indicated that search engine users tend to ignore side listed PPC listings (average click-though of 7.6%) but that top-listed PPC listings (average click-through of 39.1%) produce a high amount of click-through. Figure 5.3 illustrates the average click-through per result page section across all three search engines used.

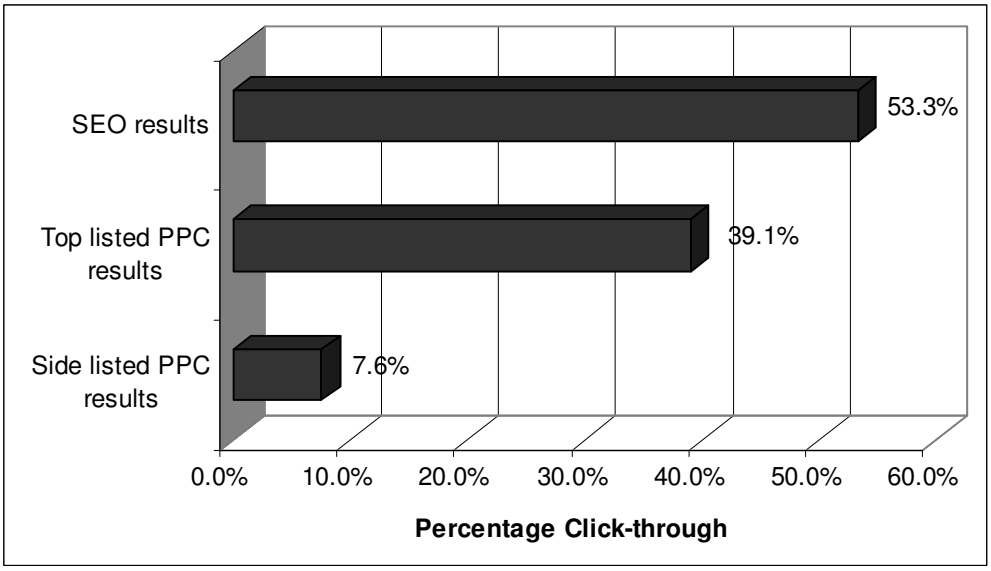

Figure 5.3: Average click-through per result page section

5.3 Significance of study

The owners of websites aiming to increase their search engine ranking mainly have two SEM options, namely SEO and PPC. Various factors have an impact on determining which strategy is more effective. One of these factors is search engine users' preference of either SEO or PPC listings. It was also established that some demographic features do play a role in user result preference. By using information gathered from the literature review and analysing data gathered from the research done in this study, it became possible to determine how various demographic features influences result selection. Advertisers can now use these results to optimise their SEM strategy around their target market group profile. For instance if an advertiser establishes by using the results of this study that their target market of men with a high income prefers SEO listings, they should adjust their SEM strategy accordingly.

5.4 Future research

- Future research can be done to verify the results of this study. A study can be undertaken, by implementing both SEO and PPC for the same website and the same keywords. The researcher can then investigate how many click-through are generated by each SEM strategy. This could confirm whether SEO is indeed a better source of click-through than PPC.

- Future research can include investigating how results found in this study impact a website that optimises their SEM strategy according to it. A website's SEM strategy can be adjusted according to their specific target market profile, using the results from this study. Studies can then measure how this influences the website's traffic.
- Various factors play a role in determining the effectiveness of a SEM strategy. In this study only one of these factors were investigated. Further research can be done to establish the factors with the most impact on SEM effectiveness and then researching each of these factors, in order to assist advertisers in choosing their optimal SEM strategy.

5.5 Final conclusion

The Internet (the number of websites available to users) is constantly growing. Be it new businesses adopting e-commerce or established companies adopting e-commerce, the competition for online customers is constantly increasing. The growth of information on the Internet also drives more Internet users to use search engines. With more potential customers using search engines and more advertisers competing for a place in the top results, the importance of SEM becomes undeniable.

SEO and PPC each has their own advantages and disadvantages. PPC can ensure a website being listed immediately and furthermore can ensure top listings. One disadvantage is that PPC results do not occupy the main area of a search engines result page. As a result, it can easily be ignored by search engine users. Another disadvantage is that PPC can be costly, especially with the growing competition for popular keywords. SEO on the other hand can not ensure top rankings. Furthermore, it can take a long time to effectively implement SEO for a website and eventually achieve high search engine ranking. Search engines also continuously change search engine ranking algorithms in order to prevent search engine spamming. Due to this factor, websites need to be constantly updating their SEO strategy, which can become costly. SEO also have advantages, the biggest being that SEO listings occupy the main area of a search engines result page, and thus search engine users can not easily ignore them as is the case with PPC.

Although the quantitative and qualitative study had contradicting results on whether PPC listings or SEO listings are clicked on more frequently, both showed that search engine users are split between preferences of PPC results vs. SEO results. By ignoring either PPC or SEO as part of a SEM strategy could lead to losing a large number of potential clients. Advertisers would be advised to implement a dual SEM strategy. They can invest in a PPC campaign that will immediately produce high search engine rankings. Advertisers must however ensure that their PPC listing is ranked as part of the top PPC listings as users tend to ignore side listed PPC results. A lot of competition for placement in the top listed can be expected and can thus also be expensive. To ensure costs do not get too high, proper research on which keywords to bid on should be done. Consulting experts in PPC should also be considered especially when the campaign stretches over various search engines. A SEO campaign can then be implemented over a period of time. Caution should also be executed as using the wrong SEO elements could be interpreted as spamming and ultimately exclusion form a search engine.

Although the results from this study could not identify a demographic profile for which SEM strategy would be clearly better than the other, the results can be used to diminish the high cost associated with having a dual SEM strategy. Advertisers can use the results as a guide to determine which are more likely to be clicked on by correlating the results of this study with their target market group profile and then adjust their SEM campaign accordingly. However, it should be born in mind that various factors play a role in determining the effectiveness of a SEM campaign. Furthermore, user preferences are influenced by their searching objectives and can continuously change as new search engine advances are made. As a result, advertisers are further advised to always keep track of new research and also take other factors than demographics into consideration when investing in a SEM campaign.

This author is of the opinion that the research question – “What criteria could be made available to marketers to enable them to make the right choice when investing in SEO versus PPC? “ - has been answered. This study provides evidence *that it is possible to use demographic profiling as criteria when considering a SEM strategy*. In addition this study was used to identify the demographic features of users more likely to click-through on SEO and PPC results respectively (See Table 4.2 & Table 5.1), and can be used by advertisers to effectively implement or adjust their SEM campaign. In conclusion, only

respondents earning less than R3000 per month preferred PPC listings, with any statistical significance.

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GLOSSARY

Terms	Definition
Algorithm	A set of mathematical procedures used by a search engine to rank the content contained within its index in response to a particular query.
Banning	The removal of a website or webpage from a search engine's index, due to search engine spamming or violation of search engine guidelines.
Banner advertising	A marketing mechanism that contains strips of advertisements that are sporadically positioned on a web page and extremely popular on the World Wide Web. These types of ads generally take up a considerable amount of bandwidth and are sometimes disturbing to the Web user.
Crawler	Software used by a search engine to find and retrieve webpages to include in its index. Also known as a robot or spider.
Directory	A directory only indexes websites which are directly submitted; thereafter a human will inspect the site to see if it is worthy of a listing.
Exclusion Policy	Search engine policies often state the criteria for submission of websites. Some go further by listing web design practices to be avoided, which if found in submitted websites, can lead to that site being excluded from the search engine index.
HTML (Hypertext Markup Language)	A programming language used to specify the appearance and contents of webpages.
Index	Systematic guide to the contents of a file, documents or a group of documents created by search engine software.
Indexing	The automatic selection and compilation of 'meaningful' words from a website into a list (often referred to as an index) that can be used by a search engine to retrieve pages.
Internet	The Internet was initially created for Government agencies to share information, but has now grown into a worldwide network of Government, industrial, and private computer systems that can interact and share information.
Invisible web	This refers to information that is available on the web, but

	cannot be located through the use of search engines. This information is invisible to search engine crawlers for various reasons, including search engine policy decisions, (opting not to index certain formats) and information that is located behind a firewall.
Keyword	A word or phrase that relates to a particular topic to focus an online search.
Listing	A listing is the result of a search transaction, as displayed by the search engine software on the user screen.
Meta data	Data about data. Metadata refers to data which can be imbedded in a webpage, and which describes various aspects of that page (e.g. description, keywords, etc).
Meta search engine	A meta search engine is a search tool that retrieves results from a database of a number of search engines. When a searcher performs a search query on a meta search engine, the query is transmitted across several search engines and directories.
Meta tag	HTML tags provide information about a web document, which is not viewable to the searcher in the web browser. Search engines often use keywords from meta tags to index their database.
Optimisation	It is a process involving changes to a website on the Internet executed to achieve higher ranking on search engines.
Pay per click	Under pay per click, websites are guaranteed top rankings for certain keywords at a fee. Participating websites often bid for these rankings, and the highest paying website gets the top rank.
Paid inclusion	This is a search advertising practice where webpages are included in search engine indices in exchange for payment. This practice does not guarantee top rankings.
Query	A word, phrase or a group of words entered into a search engine's search box, characterising the information a searcher is seeking from search engines and directories.
Ranking	A method applied by a search engine to sort and display a particular webpage or website in a search engine result list. This usually depends on the optimisation elements of the website as well as the search engine, as the results listed will differ between search engines.
Relevance	Pertains to how closely the search engine results appear to

	match the searcher's query, as measured by the searcher.
Result page	After a search query has been submitted, the page that displays the results is known as a result page. The result page is sometimes referred to as the SERP (Search Engine Result Page).
Return on investment	Return on investment (ROI) is the ratio of money gained or lost on an investment relative to the amount of money invested.
Robot	See Crawler.
Search engine	A service designed to assist users in finding relevant and accurate information on the Internet in the shortest amount of time. The search engine term is often used to describe an automated and manual indexing search engine. Although both are referred to as search engines, there are operational and other differences between the two.
Searcher	The individual searching for information on the Internet by means of a search engine.
Search engine optimisation	The process of identifying factors in a website which could impact search engine accessibility to the website. It involves fine-tuning the many elements of a website so that it can achieve the highest possible visibility when a search engine responds to a relevant query.
Search engine user	This is a general term describing all clients using search engines either for general search or website design.
Search engine marketing	Search Engine Marketing (SEM) is a form of Internet Marketing that seeks to promote websites by increasing their visibility in the search engine result pages.
Searching	The process of attempting to find useful information on the Internet by correctly nominating keywords, which the user perceives to be the best term(s) that describes what the searcher is looking for.
Spamming	Using any one or more search engine ranking techniques which causes degradation in the quality of the results produced by the search engine.
Spider	See Crawler.
Traffic	The number of unique visitors to a single webpage.

URL (Uniform Resource Locator)	A standard way to specify the address of a particular resource on the Internet. Example: www.google.com is the URL for Google.
Visibility	Visibility refers to the ease with which potential customers can find a particular website among their competitors. This depends on the effectiveness with which a search engine crawler can find and index that particular website.
Webpage	A single HTML document that is accessible on the Internet, usually one of many that comprise a website.
Website	A collection of connected webpages on the Internet under a common IP address.

APPENDIX A

Online questionnaire

This is a survey questionnaire forming part of research for a Masters Degree at the Cape Peninsula University of Technology. The purpose of the questionnaire is to gather demographic data for users preferring natural search results (search engine optimization (SEO)) versus pay per click (PPC) results in search engines.

This questionnaire is **anonymous**, information provided in the questionnaire will be used for statistical analysis only. Should you decide to participate please answer all 17 questions as completely and accurately as possible.

Thank you for your time.

Please answer the following questions about yourself. These answers are needed to produce a demographic user profile:

1. **Gender**
   - ○ Male
   - ○ Female
2. **Age**
   - ○ 19 and below
   - ○ 20-25
   - ○ 26-35
   - ○ 36-45
   - ○ 46 and above
3. **Marital status**
   - ○ Unmarried
   - ○ Married
   - ○ Other
4. **Ethnic group**
   - ○ Asian
   - ○ Black/African
   - ○ Coloured
   - ○ White
   - ○ Other
5. **Highest qualification (only)**
   - ○ High School (Grade 12)
   - ○ College certificate
   - ○ Technikon diploma/degree
   - ○ University diploma/degree
   - ○ Post graduate degree
   - ○ Other
6. **Employment status**
   - ○ Part time
   - ○ Full time
   - ○ Not employed
7. **Current studies**
   - ○ Part time
   - ○ Full time
   - ○ Not studying
8. **Approximate netto personal income per month (before deductions)**
   - ○ Less than R3 000
   - ○ From R3 000 - R9 999
   - ○ From R10 000 - R19 999
   - ○ From R20 000 - R29 999
   - ○ R30 000 and above
   - ○ Decline to answer

The following questions are related to your use of Internet search engines:

9. **How long have you been using the Internet?**
   - ○ Less than 1 month
   - ○ From 1 month - 36 months
   - ○ From 37 months - 72 months
   - ○ 73 months and longer

10. **Which option would you say best describes how you use search engines?**
   - ○ I usually use the same search engine or directory
   - ○ I have several favorite search engines and use them interchangeably
   - ○ I do not use search engines

1. **Which search engine do you use most often?**
   - ○ Ananzi
   - ○ Google
   - ○ Yahoo!
   - ○ MSN Live search
   - ○ Other

12. **How often do you use search engines on the Internet?**
   - ○ Several times a day
   - ○ Several times a week
   - ○ Several times a month
   - ○ Less frequently

13. **Are you aware that search engines accept fees to list some websites more prominently than others in search results?**
   - ○ Yes
   - ○ No

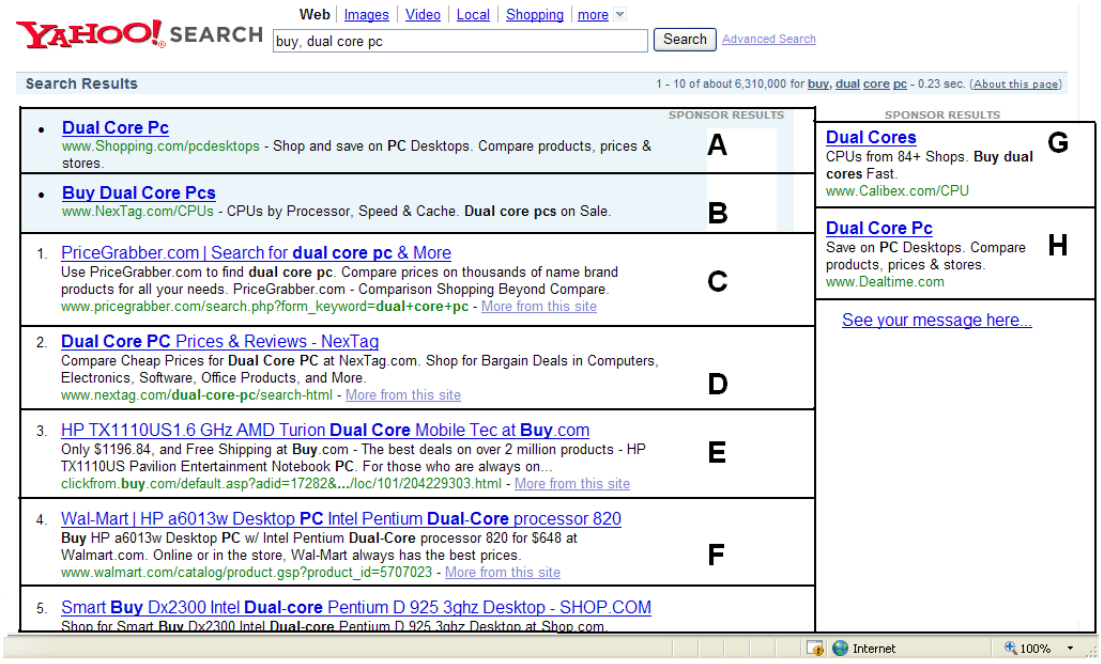
14. **If you do not find what you are looking for in search engine result listings, at what point in the search results do you move on either to another search engine or to another search on the same engine?**
   - ○ After reading only the first few results
   - ○ After reading the first page of results
   - ○ After reading the first two pages of results
   - ○ After reading the first three pages of results
   - ○ After reading more than three pages of results

The following questions illustrate searches done on Internet search engines:

15. **The screen shot below represents a sample search that was conducted on Google, using the search term as in the search box below, by an individual who is thinking about renting a luxury car in New York. Based on the search results that are presented below, please indicate which individual search result you consider to be most relevant to this query by selecting the corresponding letter from the list below.**

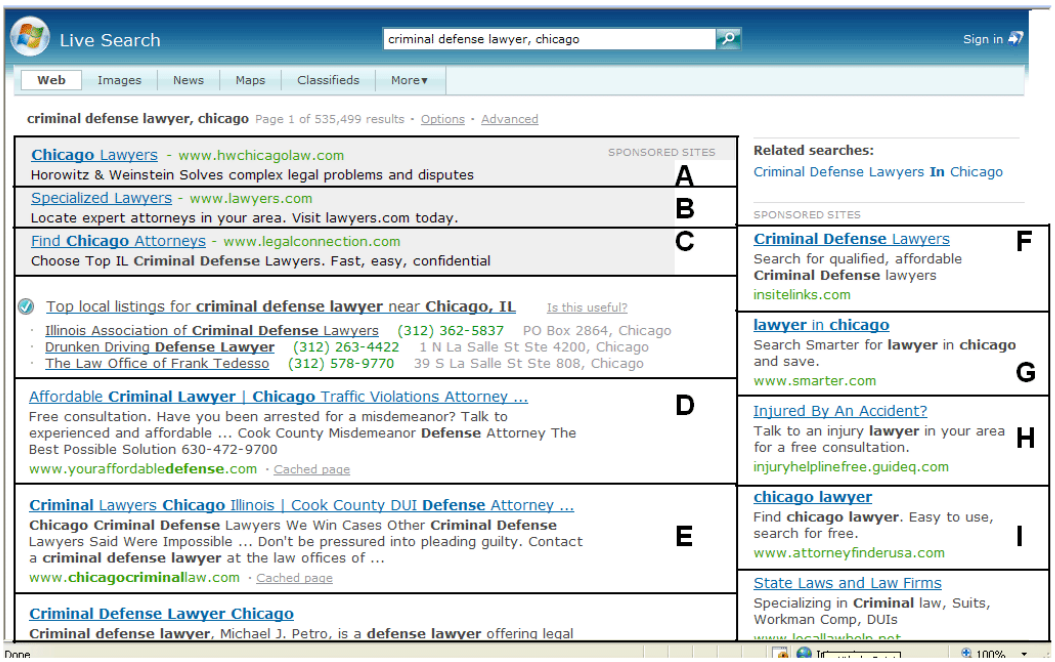
- A
- B
- C
- D
- E
- F
- G
- H
- I
- J
- K

16. **The screen shot below represents a sample search that was conducted on Yahoo!, using the search term as in the search box below, by an individual who is thinking about buying a dual core PC. Based on the search results that are presented below, please indicate which individual search result you consider to be most relevant to this query by selecting the corresponding letter from the list below.**



- A
- B
- C
- D
- E
- F
- G
- H

17. **The screen shot below represents a sample search that was conducted on MSN Live Search, using the search term as in the search box below, by an individual who is thinking about hiring a criminal defense lawyer in Chicago. Based on the search results that are presented below, please indicate which individual search result you consider to be most relevant to this query by selecting the corresponding letter from the list below.**



- A
- B
- C
- D
- E
- F
- G
- H
- I

When you have completed filling out the above form, please click on the Submit button below. If you are not satisfied with your answers above please click on the Reset button to clear the form, and repeat your selections.

Submit Reset

APPENDIX B

Sheet used to conduct interview

1. Clarification of terms:

SEO: Search Engine Optimisation, thus SEO results refers to naturally produced results.
PPC: Pay Per Click or any paid listing.
PI: Paid Inclusion.
SEM: Search Engine Marketing, including SEO, PPC and PI.
Click-through: The number of clicks received by one or a group of result listings.

2. Questions

2.1 How important would you rate SEM for advertisers/websites? More specifically, is it really necessary for advertisers/websites to implement a SEM strategy?

2.2 How important is PPC on Ananzi in terms of revenue income?

2.3 At what rate has PPC usage at Ananzi grown/declined over the last few years?

2.3.1 IF PPC usage has grown:

- What would in your opinion the reasons be for the growth in PPC usage?

2.3.2 ELSE IF PPC usage has declined:

- What would you consider the reasons be for the decline in PPC usage?

- Literature shows that PPC is rapidly growing in big search engines such as Goolge and Yahoo!. Why in your opinion, is South African websites not increasing their PPC usage on Ananzi?

2.4 In your opinion, are search engine users aware of SEM, and know the difference between PPC listings and natural results?

2.5 We acknowledge SEO, PPC and PI is the most popular SEM strategies. Which would in your opinion be the most effective (in terms of generating most click-through)?

2.5.1 IF PPC more effective:

- Could (the answer from 3.4) have an impact on this?

- Could the reason be that users perceive PPC listings are more relevant to their search query?

2.5.2 ELSE IF SEO more effective:

- Could (the answer from 3.4) have an impact on this?

- Could the reason be that Ananzi users ignore PPC listings?

2.6 Establish if answers to above questions contradict each other. Is PPC more effective/popular BUT SEO generate more traffic? If contradiction exists, ask for opinions.

2.7 Research done in this study returned that search engine users choose SEO results more often than PPC listings when asked to select the result most relevant to a sample query. However the relevancy split is 55% SEO to 45%

PPC. The conclusion is that advertisers need to invest in both PPC and SEO in order to not lose a considerable number of potential click-through.

Do you agree with these statements, or is it possible for advertisers to be successful while using only one SEM strategy

2.8 It was also found that some demographics have an effect on which results a searcher chooses. Thus, depending on the demographics of an advertisers target online audience, their SEM campaign may require more emphasis on PPC over SEO, or the reverse. For instance, marketers whose SEM campaigns are weighted more heavily toward SEO or PPC inconsistent with the demographic data may need to adjust the mix.

In your opinion, would it be feasible and can demographic profiling assist advertisers in structuring their SEM campaign?

2.9 The following is a summary of the results of this study. Do you have any comment? Is there anything that seems to surprise you?

Search engine users rarely look beyond the third page of search results.

Search engine users perceive SEO results to be more relevant to their searches than PPC results.

Awareness of SEM does not greatly influence how search engine users perceive SEO results and PPC results.

Experienced Internet users perceive SEO results to be more relevant to their searches than inexperienced Internet users.

Gender does not play a major role in search result preference.

Older and younger search engine users perceive PPC to be more relevant to their searches than middle age users.

Marital status does not play a major role in search result preference.

Users with a technikon, university or post graduate qualification perceive PPC results to be more relevant to their searches than college graduates.

Search engine users that are employed full time or part time perceive SEO results as more relevant to their searches than users who are unemployed.

Search engine users who study full time perceive PPC results more relevant to their searches than users who are not studying or studying part time.

Search engine users with a higher income perceive SEO results more relevant to their searches than users who have a lower income.