INTRODUCING NEW SEARCH ENGINE OPTIMIZATION
TECHNIQUES FOR EXPERT TOOL GRINDERS WEBSITE

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Abstract

Search Engine Optimization [SEO] is a strategy used for improving a website’s position in order for the website to be listed higher in search engine result pages. Majority of websites are often developed along with current optimization’ strategies which are set by search engine management in organizations. However, with the frequent changes in search engine algorithms, these strategies are ought to be changed with emergent demands and requirements by search engine management. The project investigates the various strategies that are currently available for search engine optimization. By evaluating the pros and cons of the optimization approaches, and examining the existing techniques used by expert tools grinders website, the research will put forward recommendation as to how to best optimize these pages in order to increase the website search ranking. In addition, website performance results will be collected and analyzed using various optimization tools; this will help in strengthening the enforcing proposed recommendations. The project argues that effective promotion of a website is a result of maximizing the guidelines of the SEO techniques and that following the white-hat optimization technique as best practices for superior webpage indexing.
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Chapter 1: Introduction

1.1 Background

As the world evolves and demand increases, the competition between companies and business owners also grows. Company owners have to drive the competitive nature of a business to make them stand out from the rest. To do this, they have to expose themselves to the people who are looking for the services that the company offers. The Internet is increasingly important for businesses to make their services known to a global audience. For this reason, search engine optimization is a complex, growing field.

According to Malaga (2010), Search Engine Optimization [SEO] is a process that manipulates websites' characteristics and incoming links to improve a site’s ranking and visibility in a search engine's results list for particular search terms. When the website ranks higher and appears on the first page of a search engine's results list, the site will have a higher chance of click-through from numbers of online visitors. SEO techniques are used to optimize websites by increasing the website ranking and hence gaining greater audience attention. However, according to (Rehman & Khan 2013), website optimization is not enough to put your website on the first page of search results, rather, it requires the development of search engine protocols, as competition is expected to become tougher in the future.

The evolution of SEO will continue to change, as search engines continue to make improvements in their abilities to perform crawling and indexing. Some other possible directions of SEO can be in mobile, and voice search. Lyngbo (2014) said that the fast development of mobile and voice search would lead to non-traditional SEO. Search engine optimizers are going to need new skills to handle the changes in the future. Technology is improving at a much faster pace than anticipated (Saberi, Saberi & Mohd 2013), and hence changes in SEO can be expected. For example, Search engines like Google keep updating their search algorithms. Different areas that can be affected by the future improvements in
SEO includes, backlink, content, popularity of sites, and activity through social media in mobile design.

1.2 Project Aims

The main aim of this study was to determine what strategies could be utilized to enhance a website’s visibility and apply this to expert tool grinders. In my previous study, a systematic literature review was being conducted. In addition to examining the different strategies and ranking techniques that can be utilized to improve a website’s ranking as well as distinguishing the advantages and disadvantage of the various techniques, a further study will be performed to focus on the specific objective which to gain knowledge of what best practices in relation to the research study result, the guidelines from search engines and the recent informed algorithmic changes. The preferred best practices will be used as checklist and will be used when reviewing expert tools grinders website. This process will provide a direction when reviewing the expert tool grinders website. The current webpages of expert tool will be reviewed using the above information, which in turn can result in high ranking.

Chapter 2: Methodology

2.1 Research Study Process

A research study will be conducted through a literature review following the protocol of the research process that Trant and Bearman (2012) promoted, to review the academic and professional literature on search engine optimisation. They suggest that research is a multi-stage iterative process that involves a series of tasks, which is composed of two realms (Trant & Bearman 2012). The first realm is called “provider space” where the researcher is finding the information and the second realm is called “user space” where the researcher is using the information. The provider space is divided into two phases: discovery and retrieval, while the user space is subdivided into three phases: collation, analysis, and re-presentation.
Adapting this method, this research focused initially in the first realm of finding information. Information discovery (first phase) is the identification of relevant literature reviews. It is important to clearly define the questions for the study. Questions include: how can the ranking of Expert Tool Grinders in the search results of various engines be increased? What are the pros and cons of various strategies for search engine optimisation?

In the retrieval phase popular discipline databases that were accessed to retrieve literature reviews included Emerald, ACM Digital Library, Computer & Applied Science Complete (EBSCO), Science Direct, and Gartner Group ICT Resources from 2006-2014. Keywords used included: search engine optimization, website visibility, ranking, search algorithms, web crawling, and Webmaster. List of the sources can be found in Appendix A.

The user space focuses on using the information undertaking a literature reviews is an effective way to perform collations, analysis, and re-presentation of the information in this study. The user space area enables the researcher to encapsulate the previous data and use it for the purpose of this study, whilst also
ensuring that the research does not overlap with previous literature reviews. Collation systematizes evidence from numerous databases into a uniform conceptual order (Trant & Bearman 2012). Utilization of the above research process was fundamental to answering the research questions. According to Trant and Bearman (2012), in the process analysis the user desires increased knowledge and establishes a new dimension of ideas, which then creates a revised schema that will bring new meaning to the previously collated information. In this way, a new information resource will be created.

2.2 Preferred SEO Practices

The knowledge gained from the research study, in relation to the search engine guideline and the algorithms changes the study comes up with the preferred SEO best practices that will be use as a checklist when reviewing expert tool website. There are many strategies that could be applied in expert tools however it is always important to understand what works on the specific situation and time (e.g. situation of the website, ranking stage and the techniques that works based on the recent algorithmic changes). By observing closely these guidelines, the study can construct a checklist as a tool when reviewing the website. Below are the following.

1. **Mobile friendly website** – the study decide to include mobile friendly interface or a responsive site design as a best practice to be implemented in the website. This is based on the recent change in algorithms. To be exact, last April 22, 2015 Google announce that they recently updated their algorithms to rank first the website that is mobile friendly. This is not a surprise, as mobile devices become an indispensable part of people’s life.

2. **On-page optimization strategies** – The fundamental of SEO doesn’t change, keywords is always important and so putting on-page optimization techniques in action can positively influence a website ranking. This also relates to a recent change in Google algorithms. Last 3rd of May 2015, Google confirmed this changes which affect the websites that has quality content. The decision to include this best practice in the list is due to the reason that expert tools website is probably created without SEO in mind.
3. **Website performance** – Web performance has a huge impact in conversion or website activity which affect the overall sale for business based on the result from the case study of Everts, 2014 as shows in Figure 1.1 and Figure 1.2 below.

*Figure 1.1 Reduces average load time and increase download in Firefox*

*Figure 1.2 Effect in the conversion rate*
4. **User Experience** – affects search engine-ranking decision. User experience offer an indirect but measurable advantages and benefits to website external popularity. When the websites user access the pages and keep doing it, the search engine robots will then interpret this signal as a higher quality content. To keep the users in the website, it must have a quality and relevant information. Although this activity is mainly on-page optimization, the study separate this intentionally, so that when reviewing the expert tools website, user experience will be given the same attention when reference.

5. **Off-page optimization** – Aside from the on-page optimization, off-page optimization is also a core method in SEO. Developing a quality links will play an important part in moving the site up the rank of search engine especially for websites that is meant for businesses.

**2.3 Website Review**

The research study was conducted as learning bases for this project, using the knowledge gain, and with reference to the guidelines from the search engines and from the latest releases of algorithms changes.

*Figure 1.3 Project approach mechanism*
There are various tools that are used to examine the construction and structure of expert tools website which will be mentioned in the next pages of this report. The techniques that will be generated will then have to re-assist if it relates to what is important to search engine and website users by revisiting if its relates to the research information of the best optimization practice.

Aside from understanding what works, this study look at the importance of evaluating the website using Webmaster tools, analytics and other free tools that will provide data or information regarding the website. According to Laratro (2013) analytics provide idea regarding the website visitors and webmasters tools provide idea on how search engine sees the website. In this way, the study will able to collect observe and collect information regarding the expert tools website.

![Figure 1.4 Reviewing expert tool grinders website using Google and Bing Webmaster and Google Analytics](image)

The first step is by setting up the account in Google Webmaster, to do this the optimizer or the author of this report created a Google account to be use in this activity. Primarily, using seoforcduseit@cdu.com.au account. Then added www.experttools.net website by clicking “Add a site” and the page below will appears for optimizer to add on the information.
To successfully create the account, the optimizer must have the full ownership of the website to perform the authentication and a username and password of the account must be enter when uploading HTML file to the website. Another account setting up is for Google analytic once the account is successfully created, a tracking code will be provided and an access to account for tracking will be enable.

A successful SEO program consists of keyword-rich text, information architecture and page layout, and link development (Thurow 2006). As optimization is centred on query-based searches, the webpage must contain HTML text format in order for spiders to perform crawling and use the information collected to identify its
relevance and be listed in the search engines. To attract visitors and to keep them coming back, the webpages must contain quality content. High quality content and relevant links are important to search engines, without these qualities it will be hard for users to trust the content of the website. Quality content refers to information being well written and without error (i.e. both typographic mistakes and content accuracy), and most importantly it should be informative. This in turn will give the reader confidence that the information is written by someone who has a good knowledge of the topic. Websites should be updated regularly with new relevant information, so that visitors have a reason to revisit.

Another support of the SEO is information architecture and page layout. Information architecture is a practice that is focused on bringing principles of design and architecture to the digital landscape (Morville & Rosenfeld 2007). It is about organising the digital structure, so that it will be easier for the users and robots to locate and understand the information. One of the requirements of SEO, is for the optimizer to generate a webpage that employs a user-centred design; which means ensuring that the information contained in the website is appropriate and related to the original search term, and that information is categorized according to topic.

Link development is another one of SEO building blocks, and is commonly referred to as “link popularity”. This refers to how many external links exist, that links one website to other websites through the domain. When the content of the websites are popular, valuable, and informative, people tend to link the sites. When building link popularity, it is always necessary to think of the guidelines when developing links. SEO is about building a strong foundation (e.g. on-page optimization) and not on deceiving techniques.

**Optimal SEO**

When designing websites, there are a number of characteristics/features that are important to consider if optimal SEO is to be achieved. Successful website features are built to ensure easy user access to high quality/accurate information, ideally which is linked to mobile devices and other application. Lee, Ungson and Russo (2011) claimed that the success of the operational performance of a website
is not only built on access and interactivity, but is also critically influenced by user browsing activities and website characteristics.

Search engines also require a focus on content, links, and activity of the website are important factors for success. Hence, the website optimizer should design a site to cater for users and also for what search engines require. Effective websites are characterized in various ways. Monideepa and Jie (2005) suggest that there are six critical characteristics of the website, this includes information content, easy access of content, usability; download speed, customization and security.

People use keywords when searching for information online. In SEO, the website must use the same language as the users for the sites to rank highly in search engines. For instance, when a website refers to the words “international exchange” and users are searching for the words like “Study overseas”, the website will not rank highly. Search engines (for example Google), will be able to suggest keywords using tools such as Google Adwords (refer to table 1.1). While it is important to capture the word searches, it is important to include only the words that make sense and serves the purpose of the websites.

The navigational characteristics of websites are also important. The information, design, and layout should be polished and professional. Text size should be easy to read, colour must not be distracting, meaningful graphics and professional quality photographs should be used. It is also important to maintain the simplicity of the layout to allow viewers to focus on the message. An attractive website can create a positive impression for users, and maintain the users interest in further accessing the website.

Another critical component of a successful website is usability. Web usability promotes the importance of simplicity, clarity and consistency in web design so that the users can accomplish their desired operation in an efficient and effective manner (James and Zhenyu 2007). Simple and well-organized sites can help the user navigate through the entire website. Usability embraces easy access links in the main page for minimal scrolling. The websites should be easy to use and read, navigate, and most especially be understandable to users.

In addition download speed also matters. A page that is fast loading can help maintain site visitors. According to Monideepa and Jie (2005) access speed is
characterized by how fast the sites can be downloaded by users and how fast it can display multiple pages. Accessibility and availability plays an important factor in keeping users exploring the websites. If the site is available for quick access, users will most likely return to it.

There are various guidelines for effective websites, including different search engine optimization strategies, which have been described in earlier sections of this report (i.e. white and black hat techniques). As much as white hat techniques can be applied, black hat techniques on the other hand should be avoided. Search engines are programmed to recognise these black hat practices that do not serve the websites objectives.

Finally, the last component of a successful website according to Monideepa and Jie (2005) is customization and security. Customization and security can considerably influence the performance of a website. As performance makes a difference to user experience, it is important for optimizers to look at response related features (for example, transaction details in order for user to review the information stored initially). Also, the information kept on the web server and database must be highly secure. When these factors are realized, the users will develop trust for and continue using the site.

**SEO and SMO**

Social networks offer another place where searchers can conduct their queries, similar to what people do when using search engines such as Google and Bing. Social Media Optimization [SMO] is related to SEO, with the goal of SMO being, to generate traffic and awareness for a website. SMO is the process by which optimizers create content that is easily shared across the social web (Tobin 2010). Social media is another way for people to interact online. Social media provides another venue for searching for information, and it also serves as an important tool to the SEO optimizer for acquiring links. Social media optimizations have become a significant factor in search engine optimization, as users of social media conversely use the search engine especially in terms of views and likes. When someone is conducting a search through a social media site, such as Facebook, Google+ or other social media channels to access a certain article or video, it will link back to the search engines. Likewise, when someone is using a search engine
and finds interesting articles, which they then share through social media, this is considered as additional points to webpage quality. People in society nowadays don’t just limit their sources of information to computer Internet searches, books, magazines, and other reference materials; they additionally access information through social media, which are likely to be accessed through their mobile phones.

The percentage of people using their mobile phones to browse the Internet and use social media is growing rapidly. Smartphone ownership among Asian American adults has risen to 75%, which is a huge increase compared to 45% a year earlier (Shinder 2013). Having knowledge of both SEO and SMO guidelines can be advantageous, as this will result in improving rankings and avoiding penalization by search engines.

**Search Engine**

Search engines available on the Internet have evolved as rapidly as the technology supporting them, based on the needs of the users. As hundreds of millions of webpages have been created, Webmasters and content providers began optimizing websites so that search engines could help find their information more efficiently. For the purpose of this study a Webmaster will be referred to as an optimizer, or an SEO professional, or SEO experts.

Many techniques were developed and used by SEO optimizers to acquire higher rankings and enhance the possibility of website access. Nevertheless the most effective way to ensure that a website is a success, is to make certain that the website provides information that the user needs. According to Rehman & Khan, (2013) SEO techniques involve two processes: on-site optimization and off-site optimization. On-site optimization occurs when the optimizer performs direct control to the content of the website, including adding unique, valuable, and engaging content to the webpages. In contrast, off-site optimization strategies are done to market the website and get ranked in search engines.

Search engines were developed to assist people locate information stored on other sites. According to Davies (2013), Google, Yahoo and Bing are some of the major search engines. These three engines will be explored in a relation to SEO. Although most of the sources used in this study focus on Google, Yahoo, and Bing are the other two engines that will still be referred to and evaluated as
Search engines performed similarly in some areas of the SEO process, such as crawling, indexing based on important words, and displaying what is in the index. The related data that was indexed is stored on a database. Web search engines are a software system that designed to find and index webpages (Notess 2013). According to Fishken and Moz (2013) search engines have two major functions—web crawling and building an index, and providing answers by calculating relevancy and serving results. Before the search engine can provide information about where to locate the data, it employs robots called web crawlers. Web crawlers, sometimes called automated robots, or spiders, are software, that slurps up the site’s HTML text for the purpose of web indexing and brings it back to be analysed by the search engine (Grappone & Couzin 2006). This in turn obtains the top 100 Web pages (URL) for each keyword found and through links spiders can reach many billions of interconnected documents (Ao-Jan et al. 2014).

Although search engines have the abilities of artificial intelligence, it is also critical to recognize the technical limitations of search engines. Understanding the capabilities and limitations of search engines allows the optimizer to properly build, format and annotate the web content in a method that search engines spiders can understand and digest. Some of the most common limitations of search engines include: crawling and indexing problems, content to query matching and even marketing (Fishken & Moz 2013).

Crawling and indexing issues include errors in a website’s crawling instructions and may lead to blocking the search engine entirely. All search engines have difficulty reading non-HTML text, and content with a rich media format such as: images, video, audio, flash files, and plug-in content. Similarly, sites that have poor link structures cause search engines to be unable to reach all of the content in the websites. Additionally, search engines aren’t good at completing online forms, and thus any content contained behind them may remain hidden. Also with query-matching the written text is not what people normally use to search. For instance, a user will search “flat”, but what is written may be “apartment”, thus there will be a conflict in language. Even the spelling matters as “optimization” lists different results to “optimisation”. Aside from the technical aspects of SEO configurations, it must also look at how other people will discover, comment, and link to the content presented in the website. However, these steps can only be
performed by humans and are not be able to be configured by SEO strategies, at least not right now.

3.2 Search Engine Optimization Processes

Search engine optimization [SEO] relates to the process of optimizing each of the pages in the site to get a higher position in the search engine result page. SEO techniques involve two processes: on-site optimization and off-site optimization (Rehman & Khan 2013). On-site optimization applies when the optimizer has direct control in the content of the website and off-site strategies are done to market the website and get ranked in search engines.

On-page optimization

“On-page optimization” (sometimes called “on-site optimization”), occurs during the development of a website. In terms of key wording, the fundamental of SEO doesn’t change. The webpages with the keywords that were targeted are extremely important. Keyword research will provide the opportunity to understand the target audience (e.g. students locally and internationally). Each of the pages in the website have to be unique and optimized individually.

To ensure that spiders can crawl and locate keywords successfully, appropriate keywords for the website need to be located in the title tag, Meta description, web copy and heading tags (Khalil and Khan 2013). First, determine the appropriate keywords, and when creating the website, it is important that these keywords are in the title tag. A good title will ensure that the website clearly communicates to the viewer what the webpage is about, which will help increase the click-through rate of the website. Next the page Meta description should be considered. Although the Meta description is only visible to search engines, it is important to include the keywords within the description as robots will recognize and understand this. Also the Meta description should include a description of what the entire webpage is about. Another aspect of on-page optimization is the use of heading tags. Heading tags are also significant in optimizing webpages, as they represent different sections of the webpage content. Headings should have consistency. It is important that the keywords are also located within the web copy.
Ensuring that the webpages of a website have a high quality title tag, Meta description, heading tags, and web copy can positively influence a website’s rank.

A further strategy employed to help onsite optimisation is Internal linking. *Internal linking* are hyperlinks that are directed to the same domain (Moz 2014a). This means that webpages are internally linked together, so that when a user clicks the links from one page of a domain it drives to a different page on the same domain. This allows users to navigate the entire website and help spread link juice (ranking power) around. Internal linking will support SEO techniques, provide user experience, and result in higher ranking.

**Off-page optimization**

After the Webmaster applies on-page optimization techniques, another factor that has to be understood are the techniques for off-page optimization (commonly known as “off-site optimization”). Off-page strategies relates to the practices where a site and its contents are disseminated throughout the Internet to increase its traffic which results in a higher high ranking (Rehman & Khan 2013). External influences include but are not limited to social media, blog posts, forums, RSS feeds, press releases, link building, and etc.

Below are some of the suggested ways to perform off-page optimization:

1. Place links to social networks websites.
2. Perform back linking to reputable websites to enhance page rank as well as insert links of reputed sites such as those with “. gov” and “. edu” links.
3. Build link popularity through trade links.

**3.3 Strategies and Ranking Algorithms**

**Webmaster Guidelines**

Webmaster Guidelines provide instructions for optimizing websites. Abiding by the Webmaster guidelines will not just allow a search engine to locate, index, and rank a site, but it also will help a website to retain a high search result over an extended period of time. Webmaster responsibilities are not just to conform to the
guidelines of the search engine but also to ensure that the content is designed for the users. Keywords are indexed and ranked by search engines, and is exactly the same content that a user will see in the webpage, subsequently making it easily accessible to the spiders. The guidelines encourage webmasters to think of how to make a website, unique, valuable, engaging and most importantly a website that provides useful material, and an information-rich site to the viewers. The Google Webmaster guidelines are categorized into three parts- design and content, technical, and quality guidelines (Wyszomierski 2014).

Presenting information to a viewer requires a clear hierarchy and text links. A well-structured website creates an easier navigational interface to the user as well as providing a clearer view of what the site is all about to the search engine. Using text instead of images will enable users and search engine crawlers to see the information when navigating. Websites that are using a text link navigation menu can be easily understood compared with navigation menus that consist of image links. In some cases, search engine crawlers still won’t be able to index each of the pages, so Google recommends having at least one static text link to each page (Wyszomierski 2014).

To check for a clear hierarchy is to create a site map page: this page provides a good organizational outlook of the site. According to Yalçın and Köse (2010) the site map is a page included within the websites that are linked together. This page helps users and search engines to quickly find the entire developed site. If the site map has a small number of links, there will be no problem doing a site map, however if there are numerous links, then it has to separate to multiple pages. Titles and ALT tags are features of the content and design guidelines for Google Webmaster. Titles are the first and important information that the users are going to notice in the Google search results. Titles should provide a concise and convincing description of a webpage.

Viewers and search engines spiders can determine what a webpage is about through accurate titles, and viewers will choose one page over another in the search engine result list based on the title. Users received help to locate content and familiarize themselves within the content by ensuring that each webpage has a descriptive title (Lourdes & Paloma 2013). Additionally, the search engine may index the content of the page that correlates to the title.
In the technical guideline, crawlers may misinterpret session IDs. Session IDs is one of the duplicate content creators. This happens when a user visits a website and is assigned a different session ID, which is then stored in the URL. Google will penalize a website that consists of only duplicate content (Malaga 2010). Another factor to consider when creating a website is to ensure that the web server supports the If-Modified-Since HTTP header. The HTTP header is a header that was sent by browsers. It contains the modification date by the server on the last visit. This will let Google be aware if the webpages have been updated since last crawled. Without alterations Google spiders won’t have to use their resources to look for any changes. Also the content of robots.txt file communicates to search engine spiders how they should visit the site. This is the first point of encounter of the search engine crawlers when visiting a page, as it checks with the site to ascertain if it has a new instruction to do. Using the robots.txt file, webmasters will be able to regulate how Google interacts with the webpages. However, webmasters have to make sure that the robots.txt file is accurately written because an incorrect file can block the bots that index the site.

The techniques of SEO can be categorized into two: white hat and black hat. There are basic principles and specific guidelines specified in the Google support website, that provide a guide regarding appropriate optimization. Webmasters that manipulate the rankings and trick the algorithms in search results by stuffing pages with excessive or irrelevant keywords are called black hat, and those who correspond to the search engines guidelines without duplicity are called white hat (Malaga 2010). If black hat techniques are observed, Google may respond to this behaviour negatively, and in the worst case scenario would result in Google permanently removing the site from the search result page. Specific black hat strategies, that the webmaster should be aware of include: black hat indexing, on-page methods such as keyword stuffing with hidden content, clocking, doorway pages, and link building, such as guestbook, blog, forum, stats page spamming, link farms and HTML Injection which allows optimizers to insert a link in search programs that runs on another site. According to Malaga (2010), many of the tools and techniques performed by “black hat” optimizers, may also useful in “white hat” SEO campaigns. Webmasters who focus entirely on utilising white hat techniques are unlikely to have problems.
White-Hat Technique

Websites benefit from employing white hat techniques. It is assumed that the white hat approach serves search engines, so that robots can easily crawl related information for indexing and provides users with appropriate responses to their enquiries. White hat SEO techniques are considered to be acceptable by search engines. Outlined in the table below are the pros and cons.

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<th>PROS</th>
<th>CONS</th>
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<td>Free /COST</td>
<td>Long term investment</td>
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<tr>
<td>Trustworthy</td>
<td>Unknown influence</td>
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<tr>
<td>Higher ranking/popularity</td>
<td>Lack of control</td>
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<td>Retain the high ranking for a long time</td>
<td>Different page ranking criteria</td>
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<td>between search engine</td>
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Table 1.0 Pros and Cons of White Hat SEO

The main benefit of white hat SEO techniques is that it is cost effective because there is no payment is required for placing the sites in search engines. Strategies that adopt search engine good practice guidelines will also benefit from being known as being trustworthy and reliable. Engaging with white hat SEO techniques will not only potentially put the site into a higher ranking on a search engine listing but will also perpetuate its position. Eventually, the sites will gain popularity with all users and will generate better results for the website owners.

In contrast, the cons associated with adopting white hat SEO techniques include: there is no assurance of quicker results or a higher site ranking, regardless of if you have developed the website personally or if you have employed a professional to do this. Search engine optimization requires a long-term investment of time and effort to achieve positive results, especially when optimizer support white hat techniques are employed. Successes in SEO come from the unknown influence of search engines (Google, Bing and Yahoo) algorithms. Search engines algorithms are not disclosed, because search engine providers do not want optimizers who are adopting black hat techniques to abuse the algorithms. There are no magic steps to drive a website to the top of the search engines list. Search engines regularly
update their algorithms, which will result in changes to the acceptability of currently used SEO techniques. This in turn means that guidelines for SEO techniques will also change. Changes to the algorithms serve as a wake-up call to search engine optimizers who implement low-quality sites, and black hat link building tactics.

Chapter 4: Tools Applications

4.1 Webmaster Tools

There are many SEO tools available to assist a Webmaster to maintain their websites. Creating a Webmaster tools account (e.g. Google Webmaster Tools; Bing Webmaster Centre), will allow webmasters to add/submit a website easily so that search engines will know that the website exists. This review focussed on the top two search providers—“Google and Microsoft (which serves both Bing and Yahoo searches) – because these two would have to be judged the most authoritative sources on their own search engines and because their advice is so fundamental” (Killoran 2013, p.51). Both search engines provide easy ways to set up the account for the websites on Webmaster Tools. Once the Webmaster manages to create an account and is able to login to the Webmaster Tools dashboard, then the Webmaster can add the website they administer. It is an advantage for a website when it is active in Webmaster tools because it has the better opportunity to be indexed completely and so it will help the site to be ranked well. A range of people that have websites, such as business owners, SEO specialists, web developers, and site administrators, can use Webmaster Tools.

Google Webmaster tools [GWT]

The Google Webmaster toolset is a free service that is offered by Google to webmasters, to monitor and maintain their websites’ existence, in Google search results (Google 2014). It provides the functionality for a Webmaster to see their own website as Google sees it. These tools provide webmasters with insights into what pages have been indexed and what is linked directly to the site.

The advantages of the GWT service includes:
1. Providing a report of any errors that are on the website such as Malware and crawl errors.
2. Adding sitemaps (XML) that accept optimizer to direct user agents like spiders to crawl and index the websites.
3. It has a functionality that recommends necessary HTML Improvements.

**Bing Webmaster Centre [BWC]**

The BWT interface provides an overview of a website’s performance. Metrics that are available includes clicks, impressions, pages indexed and number of pages crawled for each site (Moz 2014b). BWT provides limited insights into the search engines algorithms and suggestions on how webmasters could improve their sites ranking (Killoran 2013). Bing tools like Google tools, continues to add additional features, which assist Webmasters managing their websites.

BWC tool features include:

1. Crawling statistics functionality that allows webmasters to view how many pages of the website Bing search engines have crawled.
2. Showing the location of errors in the webpage.
3. Submitting sitemaps to prioritize contents.
4. Viewing and controlling how Bing indexes their webpages.
5. Providing traffic summary report impressions and click-through from both Bing and Yahoo search results.
6. Allowing Webmaster to compare two websites.
7. Measuring social share metrics such as Facebook tweets, like and etc.

**4.2 Google Analytics**

Setting up the Google analytics properties can be done by accessing Google analytics account and as an administrator, the optimizer can easily enter the URL site for tracking.
4.3 Other Useful Tools

Aside from Google and Bing Webmaster tools, Table 1.2 provides some of other useful SEO tools that can help a search engine optimization professional to check, fix and maintain their websites.

<table>
<thead>
<tr>
<th>Type of Tools</th>
<th>Names</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Google</strong></td>
<td>Google Webmaster Tools</td>
<td>Collection of Google tools</td>
</tr>
<tr>
<td><strong>Bing &amp; Yahoo</strong></td>
<td>Bing Webmaster Centre</td>
<td>Collection of Microsoft tools</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>If Modified Since Tool</td>
<td>Check HTTP header and providing responses of the result</td>
</tr>
<tr>
<td></td>
<td>Link Checker</td>
<td>Check and fixing broken links of the website</td>
</tr>
<tr>
<td></td>
<td>Keyword Research Tool</td>
<td>Discover the keywords that searcher used</td>
</tr>
<tr>
<td></td>
<td>Link Analysis Tool</td>
<td>Track the progress compared to competing website</td>
</tr>
<tr>
<td></td>
<td>Search Engine Ranking Checker Tool</td>
<td>Check your search engine position ranking</td>
</tr>
</tbody>
</table>

*Table 1.1 Search Engine Optimization Tools*
Chapter 5: Results

While observing and monitoring, the study found out that the website does not appear on search engine.

*Figure 1.7 Adding the expert tools website to Google console*

*Figure 1.8 Searching website to different search engines*
After ensuring that the search engines are able to locate the website, on top of the observation and analysis perform for the purpose of introducing recommendation. The author implemented the fundamental optimization of the website and as a result, the websites are now in the first line of the first page in Google website but its only 2nd line of the first page in Bing even with exactly the same keywords used. It also appears that it is not the direct link in Bing. This is because the
techniques implemented were inline to Google search engine guidelines and not so much of Bing.

Figure 1.11 Expert tool grinders in Google
Figure 1.12 Expert tool grinders in Bing
Chapter 6: Recommended SEO for Expert Tool Grinders

In reference to the checklist indicated in the earlier page, expert tools grinders website is now developed as mobile friendly website or as responsive design as below compare to the design in Figure 1.13 non-responsive design. Responsive design adjust the display according to the type of device that user is using, or by minimising the website. This type of design addresses the intention convenience, which result a user satisfaction.

Figure 1.13 Expert tools responsive design
These recommendations include in dot point:

- Change from experttools.net to experttools.com – as dot (.com) extension has a highest awareness compare to other extension. Most especially when the expert tools has a competitors with the same domain and with .com extension. Searcher who will look for this site will drive over to .com if its not change.
- Applying “white hat” optimization techniques – focus on quality content. This in reference to the recent algorithm changes last 3rd of May 2015 and so it is important to consider quality content specifically.
- Limit image display – as mentioned earlier in reference to the checklist, performance is also important factors to rank the pages. This is important not just to the searchers but also to website owners. Expert tools grinders websites has loads of images, and image loading affect the speed and speed affects the conversion as mentioned in the early pages of this report. In addition to user experience, searchers will be happier to access the websites when the loading is faster and will likely want to spend more time in the website which search engine read this signal as a high quality content and as the result it will result in the increase of the overall organic website traffic and ultimately improve the website ranking.
- Improve site structure – SEO stresses the importance of user experience. User experience is the major concern of the search engine because of the intention of providing relevant information and when search engine provide relevant content, searchers will keep using the same engine when accessing or researching. Most importantly, when the website has a natural flowing of information from the general topic to specific, user will then have a positive user experience.
- Specify geographic target market – since expert tools website is meant for business, it is important to set the geographic target to focused on the country specific target audience. This can result in a better experience result in Google.
- Extend optimization to off-site platform – this also relates to the initial plan or checklist that was created initially, which are used as reference when reviewing the websites and as for the expert tools, it was just recently added to social media e.g. Facebook.
Chapter 7: Conclusion

In conclusion, the algorithms changes affects how optimizer performs search engine optimization. There has been a significant change in the SEO environment. Techniques are unsteady. White hat techniques, if abuse can turn to black hat SEO. Embracing the course on solid white hat techniques and paying attention to areas that are changing rapidly should provide the insight required to improve the website visibility. Search engines are using complex algorithms and will continuously do so to ensure that the delivery of the search result is as accurate as possible.

Chapter 8: Future Work

The possible project focus will be the implementation of the suggested optimization techniques design for expert tools website and evaluation of how the mentioned SEO techniques will increase its ranking in the long run. Another possibility would be to perform the same approach to Charles Darwin University website.
Chapter 9: Appendices

9.1 Appendix A – Glossary

**Algorithms**- an effective steps or method for solving a problem, search engine used algorithms to determine the ranking of websites on the result page.

**ALT Tag**- employed in XHTML and HTML documents in

**Black hat**- an approach that optimizer used that does not in compliance with the search engines guidelines.

**Cloaking**- a black hat technique that demonstrates a content to search engines spiders that appears to be different from what users sees in the webpages.

**Directory**- a descriptive list of links that usually created and maintain by human editors.

**Index**- an act by search engines spiders to gathered content from webpages.

**Google Analytics**- a free web analysis tools that acts between the sites and browser.

**Metadata**- a hidden comments that describe the characteristics of a document.

**Page Rank [PR]**- Google’s proprietary measurement of the importance of a web page.

**Robot**- software used by search engines to crawl and index contents from webpages. Also called crawlers and spiders.

**Search Engines**- is a place to find relevant information through the World Wide Web. Major search engines include Google, Yahoo, and Bing.

**Search Engine Optimizer**- a person who performs optimization. Also called as SEO experts and Webmasters.

**SERP**- Abbreviation for Search Engine Result Page

**Sitemap**- a list of webpages that can be accessible by both users and search engines spiders
Webmaster tools- a free service offered by search engines that provides a complete report of crawling errors, backlink information, search queries and etc.

White hat- an approach that embraces the techniques within the search engines guidelines.
## 9.2 Appendix B – Search Terms

<table>
<thead>
<tr>
<th>Search Term</th>
<th>Title Result</th>
<th>Databases</th>
<th>Year</th>
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<tr>
<td>Search Engine Optimization</td>
<td>How to Improve Your Search Engine Ranking: Myths and Reality.</td>
<td>ACM</td>
<td>2014</td>
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<td></td>
<td>Cloak and dagger: dynamics of web search cloaking</td>
<td>ACM</td>
<td>2011</td>
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<td></td>
<td>Overlapping factors in search engine optimization and web accessibility</td>
<td>EBSCO Host</td>
<td>2013</td>
</tr>
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<td></td>
<td>Search Engine Optimization—Black and White Hat Approaches</td>
<td>Science Direct</td>
<td>2010</td>
</tr>
<tr>
<td></td>
<td>Perron vector optimization applied to search engines</td>
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<td>2014</td>
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<td>Analysing Google ranking through search engine optimization data</td>
<td>Emerald Insight</td>
<td>2007</td>
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<td></td>
<td>The revenge of the gifted amateur ... be afraid, be very afraid</td>
<td>Emerald Insight</td>
<td>2009</td>
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<tr>
<td></td>
<td>Search engine</td>
<td>Book</td>
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<td>Title</td>
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<tr>
<td>optimization for dummies</td>
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<tr>
<td>Search engine optimization: an hour a day, third edition</td>
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<td>2011</td>
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<td>How to Use Search Engine Optimization Techniques to Increase Website Visibility</td>
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<td>What does the future of search engine optimization hold</td>
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<td>Web site search engine optimization: a case study of Fragfornt</td>
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<td>Towards active SEO</td>
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<tr>
<td>Leverage social media for SEO</td>
<td>Summon</td>
<td>2011</td>
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</tbody>
</table>

*Table 1.2 Keywords used to search in different databases.*
Chapter 10: References


Notess, GR 2013, 'Search engine to knowledge engine?', *Online Searcher*, vol. 37, no. 4, p. 61.


