

“An exploration of the utilisation of search engine optimisation for business marketing “

Honours Research Report

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Abstract

The researcher has selected to explore the algorithmic technique search engine optimisation. Bathelot (2012) an associate in economics management and operations marketing explains this technique as a computer process that is applied to the search engine index to determine the most relevant results. Moreover, it assigns rankings to each of these pages based on the webpages traffic interaction. Search engine optimisation algorithmic techniques are said to enhance the information that individuals receive. Therefore, by applying it as a marketing tool, individuals such as consumers could receive the best information based on keywords associated with brands. Hence, this study aims to dissect its adaption and application towards a marketing function in terms of its advantages and disadvantages.

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Declaration

I hereby declare that the Research Report submitted for the Bachelor of Commerce Honours degree was submitted to:

- The Independent Institute of Education.
- The following Report is my own work.
- The Research Report has not previously been submitted to another University or Higher Education Institution for degree purposes
- This research report does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted correctly.

Signed:

Farah Khan

29 October 2018

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Introduction

This was an exploration study aimed to explore the inner workings of search engine optimisation specifically in a marketing context. Moreover, looked at how and why marketing managers applied these tools to enhance their marketing activities.

Contextualisation

This research study explored the dynamics of search engine optimisation as a marketing tool. Search engine optimisation has become a fundamental tool used in modern day marketing. Therefore, due to the lack of knowledge and understanding surrounding this topic this study aimed to gain a holistic understanding on how marketing managers select a specific algorithm technique and apply that technique to their marketing efforts.

The researcher hoped to have a better insight on search engine optimisation within a marketing realm to understand how these algorithmic techniques assist in attracting consumer. Hence, this study aimed to discover why marketing managers have migrated towards using this type of tool in their marketing efforts. Furthermore, the research aimed to uncover the advantages and disadvantages of marketing managers utilising this type of tool.

Rationale

Search engine optimisation is an old technological concept that has been refurbished to be able to apply as a marketing tool. This new application of this algorithm technique is being used by different marketing managers enabling them to attract old consumers and new consumers. However, algorithms specifically search engine optimisation algorithmic techniques is a complicated concept that is often misinterpreted.

Therefore this study is relevant as it aimed to understand search engine optimisation algorithms as a marketing tool. By conducting this study the researcher would be able to obtain a better understanding of how marketing managers select their campaign specific technique and whether they apply different search engine optimisation algorithms according to objectives they aim to achieve. It would also allow for the researcher to look at other aspects of search engine optimisation such as application guidelines and algorithm development. This study would allow the research to build on existing knowledge pertaining to search engine optimisation algorithm in order to improve the lack of understanding surrounding this concept.

Research Goal or Aim

The intended goal of this study was to explore search engine optimisation algorithm fully in order to provide a simplistic understanding of a complicated concept. More importantly, the researcher aimed to understand its application as a marketing tool. Search engine optimisation algorithms application to marketing is fairly new.. The main objective of this study was to create more knowledge on this concept in terms of understanding its working, how it was advantageous to marketing managers and what disadvantages came with utilising search engine optimisation as a marketing tool.

Research Questions

There were 4 key research questions for this study:

- 1) What is search engine optimisation algorithm as a marketing tool?
- 2) What is machine learning and data mining?
- 3) What are the advantages of search engine optimisation algorithm?
- 4) What are the disadvantages of search engine optimisation algorithm?

Literature Review

Theoretical Framework

According to Maslow (1943) there are five main sets of needs that every human being has, these goals can be deemed the basic need, each basic need is more important than the other creating a hierarchy of needs. Maslow (1943) goes on further to stipulate that human beings are sustained by a motivation to satisfy these needs. This hierarchy of needs postulates that needs are structured hierarchically in such a way that the satisfaction or gratification of a lower-order need inevitably leads to the activation of the next higher-order need in the hierarchy (Van Raaij and Wandwossen, 1978).

Kaur (2013) identifies these five levels of needs as psychology needs, safety needs, love/belonging needs, esteem needs and self-actualisation needs. According to McLeod (2017) psychology needs is the first level which is the need for basics such as food, air and shelter. The second level is the need for safety which is the need for security, law and stability. The third level is the need for love and belonging which is the need for belonging, acceptance and trust. Finally, the fourth level is esteem needs which is the need for respect, reputation and dignity and finally the last level is self-actualisation which is the need for reaching self-fulfilment.

Maslow's (1943) theories have been adapted and altered by marketing departments in order to tailor marketing messages to consumers, to create the Motivation-Need Theory. Lee (2015) substantiates this point stating that psychology meshes with marketing as a psychology allowed marketers to gain insight into consumer behaviour. This means by understanding consumer behaviour marketers can use these behaviours with Maslow's hierarchy to manipulate their advertising activities to communicate messages that are meaningful to consumers using all five levels of needs. In order to identify these needs marketing managers can use search engine optimisation algorithms to track this type of data. Furthermore, by having an understanding of these patterns marketing managers can utilise search engine optimisation algorithms to target their audiences.

Thompson's (2018) stipulates marketers are able to create an artificial need by using marketing campaigns to appeal to individual drivers of motivation to satisfy a need. For instance, if an individual does not feel good about themselves, a marketer can use their need of self-esteem to market a gym membership or spa treatment (ibid). This would motivate the consumer to accept those offers to satisfy their need to feel good (ibid). This

can be achieved by Virgin Active marketing manager, these marketing managers can promote Virgin Active memberships through search engine optimisation algorithms. If an individual's enters key phrases such as lose weight, healthy eating or swimming on a search engine, Virgin Active marketing managers can ensure Virgin Active links or ads to appear as results for those searchers This is due to their web page being optimised to appear when those types of words aresearched.

This theory applies to this study as search engine optimisation algorithms aims to provide information to consumers based on key words. Search engine optimisation algorithms also allow marketing managers to use key words to their advantage to market their products/services to consumers using their needs as leverage. By, conducting this study the researcher can understand search engine optimisation algorithms within a marketing perspective and how its been adapted to apply marketing functions.

Review of past literature

Before exploring the basic workings, this study would start by defining the concept. As defined by the Fishkin (2015) a search engine optimisation algorithm tool is used to enhance a websites visibility within search engine results in order to allow the marketer to gain better traffic, improve awareness and internet rankings for their company. These improved rankings allow the brand to be more visible to an individual online. Creating better visibility creates better awareness of brands on the websites which can be achieved through search engine optimisation algorithms. This is illustrated by Moth (2013) explaining how South African Tourism used Google Earth to realistically represented different points of interest because of diversity of demographics and culture within the country, in order to generate visitors to their website which resulted in 130,000 visits and increased its page ranking. Hence, this study wants to further explore search engine optimisation algorithm to create a body of knowledge that develops greater insight into this topic. This study aimed to understand search engine optimisation algorithm development and how they are applied within a specific marketing function. The researcher wants to explore aspects such as the advantages and disadvantage of search engine optimisation as a marketing tool to gain a holistic view on this subject. Furthermore, this study would look at machine learning and data mining as they are both important components of search engine optimisation algorithms.

The Basics of Algorithms

Dr. Zahoor (1997) states that Abu Abdullah Muhammad Ibn Musa al-Khwarizmi a well known influencer in the growth of mathematics, astronomy and geography, is responsible for the development of algorithms. According to Mehri (2017) Al-Khwarizmi wrote the book “On the Calculation” that was written in Hindu-Arabic numerals system throughout the Middle East and Europe. It was then translated into a Latin version called “Algoritmi de numeroIndorum”, this Latin translation of Al-Khwarizmi gave way to the term known as “algorithm”.

Das (2016) recognises contributions of present day algorithms by Alan Turing’s computing machine, alongside, Alonzo Church’s Lambda Calculus which is deemed the calculating equivalent of Turing Machines. As a result of these contributions to algorithms, today individuals are now able to develop various types of algorithms to assist in different operations. This development of algorithms allowed for the creation of search engine optimisation algorithms. This algorithm was designed to enhance search engine operations such as data retrieving.

Dr. Seymour, Frantsvog and Kumar (2011) state the creation of the first Internet searching method which was developed by Alan Emtage, Bill Heelan and Peter Deutsch called ARCHIE in 1990. Dr. Seymour, Frantsvog and Kumar (2011) further outline the timeline of search engines created including MetaCrawler in 1995 and Google in 1998. Similarly, they go on to speak about advances that have occurred through search engine optimisation in reference to Search Engine Marketing Management (SEMM), which operates exactly like a search engine optimisation tool as its main purpose is to drive return on investments through website traffic.

Rouse (2016) a former trainer in Educational Technology, curriculum development at NYS Model Schools and current director of WhatIs.com further contributes by explaining further that a search engine optimisation algorithm is explained as the process of taking search strings of keywords and operators as an input, it then searches its associated database for relevant web pages in order to return results. Wordstream (2018) an advertising agency specialising in online advertising elaborates more on search engine optimisation marketing stating it is a technique used by marketing managers purchasing advertisements to appear on a webpage as an individual is searching for a product on search engine results pages. This means that when one enters a keyword or sentence within the search bar for example “where to buy Gucci bamboo perfume South Africa” on Google, the first three results are

Redsquare, Takealot and Clicks which would result the individual clicking on one of those websites creating traffic. This traffic can then lead to return on investment i.e the individual purchasing the perfume. Search engine optimisation algorithms can improve marketing efforts such as attracting individuals to a brands web page. This traffic created by search engine optimisation algorithms can generate cash flow for that brand as it is continuously attempting to attract individuals.

McIlroy (2008) conducted a case study that revealed that the brand Smirnoff was aiming to create interest and traffic for their drinks Smirnoff Raw Tea and Smirnoff Ice. In order to do so Smirnoff leveraged consumers interest for one brand by creating interest in another by applying keywords, such as "Smirnoff Ice," "finger sandwiches," "hilarious video" and "hip-hop music". It is evident that Smirnoff used popular key words both related to their product and related to their campaign to create awareness to a large population. The result of this tactic using search engine optimisation algorithmic technique as marketing tool to create brand awareness. It created 14.9 million search impressions in four months (ibid). Subsequently, Stamoulis (2005) an experienced marketer in SEO and web marketing experience follows this line of reasoning saying that by using various search engine marketing techniques such as using certain words to target a specific population a website can enhance the chances of them appearing as a result for a specific search. This is what occurred when Smirnoff applied this technique, using common daily keyword individuals would use such as "hilarious video" would allow their chances of brand awareness to any demographic. This tactic by Smirnoff is a perfect example of how marketing managers can implement search engine optimisation algorithms to fulfil marketing functions. For instance, brand awareness.

Agarwal, Hosanagar and Smith (2011) in their research paper state that investment in Internet advertising is growing far more than compared to other forms of advertising, in particular it has grown from \$23.4 billion in 2008 to \$34 billion in 2014. In fact Agarwal, Hosanagar and Smith (2011) declare that 40% of internet advertising is paid to search engines such as Google and Yahoo on sponsored searchers. Therefore, by applying a search engine optimisation algorithm correctly with the correct keywords it would allow the marketing managers to enhance the visibility of their website and products to consumers in order to entice them to click on their website, which can lead to profits.

Yuan (2006) cements this perspective by stating that search engine sponsored links is a good example of Internet advertisement formats that is generally favoured by advertisers

as they exhibit robust growth level. In fact, Yuan (2006) states that advantages often cited by utilising this tool is that it allowed marketing managers to reach targeted audiences and other improvements that are performance based

Machine learning and Data mining

Machine learning and data mining are two components that form part of algorithms. The first component, Ben-David and Shalev-Shwartz (2014) defines machine learning as the process of programming a computer with the purpose of learning from inputs given to them. In fact the input provided to the computer is a learning algorithm which aimed to train data, represent experience, in order to reach an output. Chowa (2017) explains by explicitly feeding data with correct answers to a machine it will assist in training the machine to connect the patterns in the data to the correct answer. Once trained, a machine can now be given test data that has no answers enabling the machine to predict the correct answers based on the training it received (ibid).

McClelland (2017) explains further that machine learning is seen as a subordinate of artificial intelligence, although machine learning is simply an easier method of achieving artificial intelligence. For example different individuals tag photographs that possess a cat versus individuals that tag photographs that do not possess a cat, the algorithm would attempt to build a model that can accurately tag or identify a photograph that contains a cat or not as well as a human individual could. Once the level of accuracy is determined the machine is now considered to have learned what a cat looks like.

In a marketing perspective this means that in order for a search engine optimisation algorithm to return results using keywords, the machine would have learnt the types of information allocated to each key words. If an individual enters where to buy perfume or just perfume in the search bar the machine already has an understanding of websites that provide “perfume” as a product. However, Enge (2016) the CEO of Stone Temple Consulting, predicts that machine learning in search engine optimisation is transforming as Google and other engines are becoming more focused on customer satisfaction, as a result, marketers must now not only centre on keywords but also content quality and user satisfaction in the future to boost SEO rankings. The researcher identifies that due to the high volumes and varieties of consumer data there is a need for marketing managers to analyse large, more complex data and deliver faster, more accurate results that can be used to gain returns which can be achieved by applying machine learning to search engine

optimisation algorithms. By utilising these precise models, marketing managers can possibly identify profitable opportunities to target a population or avoid unknown risks.

The second component, is data mining. Helbing, Moise and Pournaras (2016) state that it is the automated process of using large sets of data to discover interesting, unknown, potentially useful, patterns, as well as descriptive and predictive information. This means data collected from a search engine optimisation algorithms that are applied by marketing managers through machine learning programs are effectively analysed by data mining. The data or patterns discovered by this analyses allowed marketing managers to have a better understanding of the information. By using this technique to sift through large sums of data and identifying patterns it would allow marketing managers to manipulate their advertising through their search engine optimisation algorithm. This knowledge allowed the marketing managers to optimally apply their search engine optimisation algorithms. If the data mined revealed that individuals were attracted to their advertisements with yellow, red and blue compared to their advertisements with pink, green and white, marketing managers in future would ensure more yellow, red and blue advertisements appear through their search engine optimisation algorithm. Moreover, If the data revealed that individuals shop online mainly between seven and eight in the evening marketing managers can advertise their offers in that area of time by apply more keywords to their search engine optimisation algorithm in order to be more visible within that time frame. The next section this study would cover is the advantages of search engine optimisation algorithms in marketing.

Advantages of search engine optimisation algorithms

Ward (2018) describes a marketing tool as a means for marketers to communicate information to consumers in order to stimulate interest and motivation to buying a certain product or service. As the world is evolving this research study wants to understand the advantages of search engine optimisation algorithm as a modern marketing tool method applied by marketing managers. Dholakia (2015) prescribes that an algorithms helps marketing manager utilise customer-specific knowledge such as previous behaviour, demographics, fellow customers' choices which allowed the marketer to craft customised offers to deliver to them in real time.

The education provider EDUCBA (2016) talks about the importance of marketing managers knowing their consumer behaviour as it allows the marketer to adapt and change their products and campaigns to better capture their consumer's attention. Furthermore, Leonard (2018) explains that marketing managers need to be able to identify

their demographics as it allowed them to know their target population. Hence, search engine optimisation algorithms assists marketers to advertise their products or services more effectively. This view is further substantiated by Patel (2017) who was named one of the top 10 marketers by Forbes and was recognized by President Barack Obama as a top 100 entrepreneur under the age of 30 states that in this era it is imperative for marketing managers to have a sound online marketing plan – a plan that allows the manager to leverage the power of social media, as well as utilising search engine optimisation to drive traffic.

Patel (2017) also provides an example of a tool that can be used that is powered by algorithms: Google Analytics, which allowed the marketing manager to track every action by every visitor to their website. This feature would allow marketing managers to understand how consumer interact on their website i.e which tabs do they click on. This is further elaborated on by DeMers (2014) with Google analytics, marketing managers can identify the amount of traffic on their website. It also allows marketing managers to know where their consumers come from and go to at any point in time.

Boughton (2004) substantiates this point in his paper where he states Ge'LenaVavra a business specialising in the Italian suits market had paid in 2003 \$60,000 for Google ads which resulted in a boom in their business just by utilising Google's search engine optimisation as a marketing tool. The researcher has explored algorithms in marketing, this study aimed to identify advantages of machine learning as it is a component of algorithms.

Chow (2017) VP of Marketing at Google, speaks on how companies are taking advantage of machine learning technology, for instance Google's open-source machine-learning platform which allows companies to develop a machine-learning model that assists the marketing managers in predicting the most efficient sequence individuals interact and select items at a store. The study "Online content analysis using supervised machine learning – an empirical evaluation" (2011) was presented to the ICA conference stipulated that using automatic techniques such as machine learning to analyse data can improve content analyses. By improving content analyses, marketing managers can improve their decision making in respects to their marketing activities as the data gathered accuracy would more efficient. Moreover, Pineda (2017) states the main advantage of machine learning is its ability for continuous improvement. For instance, as the machine is learning it stores information allowing it to make user prediction by referencing historical data

stored for a particular period and machine learning would continue learning. Therefore, machine learning would always reference newly acquired data to make better predictions.

According to Amatriain (2016) data mining is often used by machine learning to identify connections between relationships, patterns, and viable information which marketing managers must take into account. Xiang (2006) explains that data mining can aid marketing managers by providing them with useful and accurate trends based on their consumers' purchasing behaviour, based on these trends marketing managers predicting which products their customers may be interested in buying through this prediction marketing managers can enhance their consumers shopping experience in turn building customer loyalty. Lombardo (2016) explains by identifying the predictive behaviour such as buying habits of customers and product sales allows marketing manager to make the necessary adjustments in operations and production of the good/service to ensure minimum losses and maximum sales. This shows that search engine optimisation and its components can be applied to marketing activities. This application can be useful in gathering information and targeting individuals in order to for marketing managers to grow their brand.

Disadvantages of Search engine optimisation algorithms

Every marketing tool has both advantages and disadvantages, the researcher has previously looked at advantages of search engine optimisation algorithms. Therefore, this section would cover disadvantages. Previously it was stated by Patel (2017) that he believes algorithms in the form of search engine optimisation are excellent ways of gaining leverage allows the organisation to bring in more consumers, however Boughton (2004) explains how some advertisers cannot reach top rankings due to limited budgets and increased competition in search engine optimisation marketing, this leads to advertisers using smaller search engines often not knowing what sites their ads are being placed on. This would make it difficult for marketing manager of smaller companies to break into the market and obtain accurate data.

Worth (2013) reported how Google installed cookies within Apple Safari browsers, which gave Google access to information of browsing habits this was done observing their Internet movements allowing them to place the most relevant ads. This shows a lack of privacy consideration. However, Worth (2013) noted this behaviour lead to Google having to pay a \$17 million fine. This would indicate a privacy concern, in a consumers perspective. As Google a large, global company should have known prior that their actions

were an invasion of privacy. However, this also indicates the lack of guidelines imposed on these companies. Dholakia (2015) follows this concern on privacy of using algorithms as consumers believe strongly in trust, when consumers feel a marketer knows too much about them it breaks the trust. Pallant (2017) a lecturer of marketing at Swinburne University of Technology backs this up by saying that algorithms undoubtedly do provide benefits, however it brings into light a serious issue about privacy where in some instances companies have predicted before the consumer knew that they were pregnant before they know themselves, which again brings into question how much personal data is collected by marketers.

Chen, Yuan and Zhang (2013) research paper on *Legal Issues Research in the Search Engine Marketing* brings up the legality side of algorithms and speaks on how search engine marketing laws are not itemised completely and there are a lack of laws to cover the full scope of network marketing, or is itemised completely. Thus, resulting in the creation of various legal gaps within the current search engine optimisation algorithms marketing area. Moreover, Sadowski (2016) outlines a disadvantage of data mining such as data appropriation which is the act gathering large sums of data. Sadowski (2016) states this can be deemed as a form of exploitation due to companies using this data to create value to their companies without individual consent, affects on consumer or providing individuals with any form of comparable compensation. For instance, Martin, Borah and Palmatier (2017) state that the collection of consumer's personal information through search engine optimisation algorithms increases the potential of consumer's feelings of vulnerability. This can occur when adverts or products advertised to consumers that have relevance such as a product the consumer looked at a week ago appears; this creates a sense of vulnerability. The vulnerability of having their personal preferences used to create a need. Martin, Borah and Palmatier (2017) on further to state that negative customer effects stem from feelings of anxiety due the potential for damage or a feelings of violation, than actual misuse and reputation harm. Dr. Newan (2014) substantiates this by explaining how aggressive practices are used by advertisers to undermine the control consumers have of their own data. This means that consumers have no direct control of the type of data marketing managers collect and how they use it.

Furthermore, Woods (2018) a Growth Marketer that also specialises in the development and optimisation of growth funnels in order to generate more leads and sales, argues that algorithms lack understanding of human psychology. Therefore, these techniques cannot be accurate in marketing efforts. Woods (2018) goes on to suggest heuristics as the

better choice than algorithms. Heuristic's explained by Secore (2015) are using psychological techniques within marketing messages to guide consumer buying behaviour. This suggest that consumer perception is subjective, therefore heuristics can be more efficient in consumer behaviour than algorithms that do not take into account subjective experiences but web data usage only.

Cooke (2017) identifies a flaw to marketing managers using machine learning and date mining. The flaw identified is that if machine learning is applied to meaningless data and completes meaningless data mining (ibid). Hence, in the end the data would be meaningless as the machine would learn meaningless actions due high volumes intakes of information provided by consumers (ibid). This results in decisions to be made on inaccurate results. This can lead to failed marketing activities in terms of advertising, product preferences and sale. Incorrect data leads to incorrect strategies to be developed as they are based on incorrect information. Pineda (2017) cements this idea by stating Machine learning can also be prone to hidden and unintentional biases this usually depends on the data that is provided to train machine learning.

Conclusion

In conclusion the researcher had identified many advantages and disadvantages of search engine optimisation algorithms. This allowed marketing managers to pin point target segment instead of wasting efforts on different trivial segments. These advantages include identifying consumer shopping patterns and creating brand awareness. However, with advantages come disadvantages, this research study has identified two main concerns. The first concern is the invasion of privacy of consumers and second the lack of knowledge in terms of consumer affects.

Machine learning and data mining as part of algorithms seems to provide a sustainable amount of benefits to marketers but neither takes into account the impact the information provided could have on the targeted consumers. Another alarming factor the researcher identified while compiling this review is the lack of literature on ethical guidelines, standards or laws implemented by government on these techniques.

This brings to question if using these techniques as a marketing tool are in the best interest of consumers. To summarise these techniques can greatly improve optimisation in marketing but marketers need to find a way to incorporate consumer impact factors when using these techniques.

Methodology

Research Design

Research Paradigm/Tradition or Worldview

The researcher had selected to follow an Interpretivist approach for this study. This approach believes that in order to understand different individual realities, the researcher would need to understand how people develop different perceptions of reality through their interactions as reality is socially constructed (Du Plooy-Cilliers, Davis & Bezuidenhout, 2014). As each individual experiences reality subjectively, the researcher aimed to explore how individuals such as marketing managers perceive search engine optimisation algorithms due to their experiences and use with it as a marketing tool. By understanding how different marketing manager interact with search engine algorithms the research can identify the fundamentals of this type of algorithm and how they can be applied differently to consumers.

Interpretivist are more focused on the meaning of a subject than how it can be measured, as a result the researcher relies on a subjective relationship between the researchers and subjects(Thomas, 2010). This approach applies to this study which is to explore the use of search engine optimisation algorithms in marketing. This paradigm allowed the researcher to gain an in-depth understanding of how different marketing managers interact with search engine optimisation algorithms as a tool to gain a competitive edge in their marketing campaigns. Furthermore, this paradigm allowed this study to gather primary information from marketing managers themselves therefore enabling the researcher to identify any shortcoming or patterns from the information provided.

The researchers epistemological position means the researcher would value the knowledge gained through human interpretation, in this case how each marketing manager interprets search engine optimisation algorithms as a marketing tool and its purpose. The researchers ontological position values the knowledge of subjective experiences or interactions, therefore the researcher would value how marketing managers interact with search engine optimisation algorithms within their marketing strategies and how each marketing manager feels it impacts their consumers and consumer interaction. The researchers axiological position focuses on values itself, the researcher would value information that not only allowed for better understanding of search engine optimisation algorithms as a marketing tool but also information that can allow for future improvements.

By exploring these interactions this research study is able to comprehend how each marketing manager apply their own search engine optimisation algorithm to gain consumer insight. Through this exploration this study could pin-point the ideal search engine optimisation algorithm techniques used as a marketing tool. Similarly it could bring to light the advantages and disadvantages of algorithms that could be studied further. This would allow the researcher to identify whether search engine optimisation algorithms are an effective marketing tool. It would also allow this study to identify vague areas on this subject that future studies can build on. The researcher wants a holistic understanding of search engine optimisation algorithms within the marketing realm to acquire greater knowledge of its practical world effects.

Conceptual Approach and Design

This research study would follow a qualitative research study approach. As a qualitative study is more naturalistic as it focuses on natural interactions and aimed to understand human ideas, thoughts and perspectives of participants (Creswell, 2016). This is ideal as the researcher aimed to conduct an exploratory study that explores various marketing managers perspectives and thoughts of utilising search engine optimisation algorithms as a marketing tool. By exploring these thoughts and perspectives the researcher can identify the commonalities in using this type of algorithm as a marketing tool. This can only be achieved by using a qualitative approach as it would allow for the researcher to gather in-depth information on these aspects. In order to have a better understanding of them as this approach acknowledges subjective human perceptions compared to a quantitative approach that values objective knowledge. Therefore, a phenomenology approach would be conducted.

A phenomenology approach assists the researcher to study search engine optimisation algorithms within a real-world perspective (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). Du Plooy-Cilliers, Davis and Bezuidenhout, (2014) state phenomenology allowed the researcher to interpret marketing managers interactions with search engine optimisation algorithms from the individuals point of view. This allowed deep exploration of search engine optimisation algorithms in a marketing circumstance. By doing so the researcher gains subjective experiences in the context this study aimed to understand. In gaining subjective insight the researcher can assign meaning to the actions used when utilising search engine optimisation algorithms. To achieve this, a cross sectional time dimension design would be used in order to create an overall picture of the topic the researcher aimed to explore (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). This study

aimed to gather information from marketing managers at specific point in time. The research wants to know their perspective and opinion on search engine optimisation algorithms currently therefore data only needs to be collected once. Therefore this study would follow deductive reasoning as this reasoning moves from general premises of an area of interest towards more specific conclusion as the study is conducted (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). This reasoning fits this study as the researcher would look at search engine optimisation algorithms generally to build a understanding, there after move to specific areas of interest such as advantages and disadvantages of search engine optimisation.

Research Plan

Population

Unit of analysis

The unit of analysis for this study would be individuals.

Population parameters

These individuals must align with the following parameters: must be a marketing manager, must work with search engine optimisation algorithms, and must reside in South Africa.

Target population and Accessible population

The target population for this study are marketing managers in South Africa that use search engine optimisation algorithms as a marketing tool. The accessible population for this study are marketing managers within Durban that use search engine optimisation algorithms as a marketing tool.

Sampling

Probability/ Non- probability

A non probability sampling method would be used as it is difficult to gain access to the entire population or to identify the entire population. Therefore not all participants have an equal chance in this form of sampling. This research study has selected this method as a sampling approach as it is nearly impossible for the researcher to gain access to all marketing managers in South Africa. Due to the lack of access every marketing firm in South Africa does not have an equal chance to be in this study.

Sampling method

A purposive sampling method would be used. This allowed the researcher to independently select the important elements to be include in this study (Du Plooy-Cilliers, Davis and

Bezuidenhout, 2014). By using purposive sampling this study can identify appropriate participants that would add value to this study. Therefore, marketing managers would add value to this study.

Sample size

In terms of sample size this study aimed to include a maximum of two sample participants that are positioned as marketing managers working with search engine optimisation algorithms to market products or services. This study would make use of a maximum of two sample participants as only two participants could be found to partake in this study. However, last minute only one SEO manager participated in the interview.

Data Collection Methods

For this study an in-depth interview was used as a qualitative data collection method (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). This approach resulted in the researcher posing questions to their selected participants to unlock the participants knowledge on the given topic. This method allowed the researcher to ask unstructured questions to the marketing manager from the marketing firm. It also allowed the researcher to ask extra probing questions to the marketing managers (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). For instance, the researcher asked a marketing manager their experiences using search engine optimisation the research can further questions based on marketing managers response. This method allowed the researcher to obtain rich data from participant. This method allowed the researcher to clarify and get better understanding of answers provided by the participant if there was any ambiguity in the marketing manager's responses. The research study was conducted at an office park in Umhlanga. Only one participant was included as other businesses denied participation in this study.

Data Analysis Methods

To analyse the information gathered the data analysis method this study would use was a qualitative content analysis. According to Du Plooy-Cilliers, Davis and Bezuidenhout, (2014) a qualitative content analysis would allow for the researcher to determine apparent and hidden patterns that could be ingrained within a piece of information. This method would aid the researcher to link patterns found within in the information gathered from the answers provided by the interviews conducted to academic literature that was already available. By linking these patterns it would allow the researcher to better interpret the data to arrive to a credible conclusion (ibid). This analysis would allow the researcher to identify any new information or angles on search engine optimisation algorithms when critically analysing the data (ibid). Thus, creating new information and take on search engine

optimisation algorithms as a marketing tool. This data analysis method would assist in building knowledge as it can cement similar views on search engine optimisation algorithms currently existing.

The researcher would then use phrases as a coding unit in order to break down and examine the data collected (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). By breaking it down it would allow the researcher to compare data easier. Moreover, the researcher would organize the data into different categories. Each category would be exhaustive, mutually exclusive and specific to ensure the information was organised optimally (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014).. For instance, search engine optimisation algorithms can then be subdivided into advantages and disadvantages, these can be further divided into brand awareness or privacy. Furthermore, line-by-line coding would be conducted in order to mark key phrases of relevance to this study (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). This would be done in order for the researcher to microanalyse the data without missing a key phrase.

Data Analysis and Findings

The themes of this study were analysed by two individuals to ensure the data captured is portrayed as accurate as possible. The researcher has included headings to highlight each theme, this is to ensure each section is concise and easy to navigate. Moreover, direct quotes are provided from the dataset to allow for a clear data analysis structure. From analysing the dataset four themes emerged. This research study will cover each theme in the most logical order.

To protect the identity of the participant their name has been changed. Saraj is an SEO specialist at his firm. Saraj has worked in the SEO field for 5 years and has achieved a certificate in Google Analytics Individual Qualification.

Google

There are many algorithms responsible for many activities. For this study search engine optimisation algorithms (SEO) was chosen as a focus. When discussing SEO algorithms revealed they do not use their own algorithm but use algorithms provided by search engines. The participant acknowledges that the main algorithm used for SEO is through Google.

Saraj: So there's tons of them that Google's pushing out.

Therefore, SEO managers work around Google's algorithm to optimise a web page. By using Google's algorithm and following the rules stipulated by Google they may return the best results for their client compared to other algorithms. This means that by properly utilising the algorithm a business's webpage can rank on page one which is the goal.

Saraj: Following Google guidelines is the only way to the top of the rankings.

It is also noted that whilst it is the most commonly used algorithm it seems Google has stopped informing SEO managers about the latest updates.

Saraj: uhm previously they use to tell us about updates now they don't.uhm when Matt Cuts was at Google,so now we kind of have to look at our metrics and see if anything is being shaken up and we got to stay on our toes, read the news and see what other SEO's are saying.

This would make it difficult for SEO managers as now they would constantly have to be alert about new updates being provided. If they are no alert they could miss out on an algorithm provided by Google that could be beneficial. However, it seems it is worth it for marketing managers in long-run to stay alert as the algorithm provided by Google is constantly being advanced and they have focused on providing the best service it can to users. This in turn means SEO marketing managers can provide better service to their clients.

Saraj: Google will... essentially wants to provide the best and most relevant results. [If not] the user or people will leave Google and start using Bing or something else. It's part of Google's strategy as well.

These points align itself with the literature found. The participant continuously went back to Google's algorithm and Google throughout the interview process. The use of Google algorithm being the favourable option is cemented by Patel (2017) and Demars (2014) in the literature as both individuals suggested Google Analytics as a beneficial tool for businesses to utilise in their marketing in the literature. Krawczyk (2014) states that Google is the world's most popular search engine. In fact, statistics provided by Qwerty Digital (2017), state that at least 41% of South African's use Google as a search engine.

Saraj: Uhm those guidelines are there to like I said before to weed out the

spammers and they guys who want to cheat their way to the top.

Google's safety measures and advance system to weed out spammers to create a safe user friendly interface could be the reason for its popularity amongst businesses and SEO managers. Google's algorithm is continuously portrayed beneficial, safe and easy to integrate with other tool. Furthermore, this links back to the literature found and explains why it constantly mentioned when algorithms are spoken off.

Literature: Boughton (2004) substantiates...he states Ge'LenaVavra...had paid in 2003, \$60,000 for Google ads which resulted in a boom in their business..

Purpose of Search Engine optimisation

The participant continuously reinforced the true purpose of SEO and how it should be applied appropriately. When asked about their understanding of Search Engine Optimisation Alortihms the participant provided an example in order for a better understanding.

Saraj: So if you search like restaurants near me it would look at restaurants near you and give you the most accurate results and they are always improving it so it is more and more accurate.

The example provided by the participant matched the understanding the researcher had drawn from the literature. That the aim of SEO marketing management is to allow of a business's website to be visible when keywords are searched. Therefore, the participant was asked why their company chose to use this algorithm as a marketing tool. The participant did not really acknowledge that their company uses this type of algorithm but instead stated they provide it as a service. The participant continued on to explain how they provide this service to business.

Saraj: Search engine optimisation aims you help you to be visible in that broader scheme of things.

The concept of visibility seems to be linked to the purpose of Search Engine Optimisation algorithms. The main purpose of Search Engine Optimisation as stated by the participant and literature is to allow for “visibility” through ranking of the web page to consumer. Hence, if you are ranked on page one a consumer is more likely to click on it.

Saraj: uhm but there’s a lot of leeway in those rules in terms of how you can gain your visibility and rank really well.

The literature revealed that in order to gain visibility to consumers SEO uses keywords for products searches in order to appear to consumers once those words are entered into a search engine. Therefore, the participant was asked what sorts of keywords are used.

Saraj: but to your question, broad or specific. . . we tend to focus on all of it so specific would be on brand so if you selling printers they quite specific so somebody who is in the industry and knows the specific model of the printer verses somebody who’s coming of the street and doesn’t know much about printers you would have to vary your key word.

This ties back into Google and the main purpose. By using terms the consumers is most likely to type into i.e Google is used to create brand awareness for busineeases by SEO marketing managers. The responses provided by the participant match the understanding of Search Engine Optimisation Algorithms provided by the literature. The main objective of SEO is to optimise a business’s webpage through visibility.

Saraj: we said according to our research there’s more search volume for courses than programs so we advised them to do that and as a result they got more traffic using courses instead of programmes.

The general understanding abstracted from the data is that by creating high visibility and ranking it correlates with high traffic. High traffic is known as the amount of consumers that view a certain webpage or a business’s webpage. Therefore, high traffic means more consumers are interacting and viewing your business which is a positive return. This positive return could be in terms of increased brand awareness because more consumers

are aware of the businesses or profits as more and new consumers have found interest in your products.

No Blaring Disadvantages

The literature collected implicated a handful of disadvantages of Search Engine Optimisation Algorithms. However, when the participant is asked about the advantages and disadvantages the participant stated many positive attributes to this type of algorithm but struggled to find any disadvantages. This could be due to the participant not finding any disadvantages with the SEO technique itself but does not fully acknowledge the algorithm.

Saraj: Disadvantages using SEOs. . .uhm I wouldn't say any blaring disadvantages just that sometimes we will have clients that come to us who don't need SEOs.

The first disadvantage stated is the fact that businesses who do not need SEO want SEO because they see it trending in the business world. This showed that some businesses only utilise SEO marketing because it's a trend in technology world and not because they see benefit out of it.

Saraj: Uhm [pause] but I do think that with SEO there is a point where you just reach a ceiling there is a point where your site is technically optimised as good as it can possibly be from the current stuff that you have that there is nothing more you can do. Uhm and that's pretty much it so you sort of reach a ceiling in terms of how much you can optimise but in steps things like content.

The second disadvantage stipulated is that optimisation reaches a point where it can no longer be optimised further. This revealed the researcher that SEO marketing can reach a point where this marketing tool cannot be used any further. This was a new disadvantage to the researcher as none of the literature had pointed this out. These states made by the participants were particularly interesting as they did not correlate with the disadvantages found in the literature. The literature found did not stipulate these as disadvantages

instead highlighted key other issues such as concern on privacy of using algorithms, increased competition in search engine optimisation marketing and the lack of laws to cover the full scope of network marketing. Therefore, the participant was further asked about their thoughts on perception of SEO as intrusive to gain their view on the subject.

Saraj: [slight laughter] yeah I don't know if they think

SEO as a result or they just don't understand it SEO has nothing to do with your privacy.

This statement conflicts with the literature found as Worth (2013) reported in the literature of an incident of Google installing cookies within Apple Safari browsers, which allowed Google to track the browsing habits allowing the company to place the most relevant ads and web pages. The participant previously stated they use techniques around Google's algorithm to provide their service. It can then be concluded that SEO techniques are not intrusive but the algorithm provided. Moreover, when asked about laws surrounding the use of SEO management the participant indicated there was none.

Saraj: in terms of SEO not really uhm as a business yeah Jellyfish would have to but that is completely separate in terms of SEO
uhm there are the generic uhm internet laws piracy which don't really apply to SEO.

This statement backs up the disadvantage provided by the literature on the lack of laws surrounding this tool. This is an area of concern and further study would need to be conducted on this area. However, this section revealed to the researcher that the participants responses were based on search engine optimisation techniques and not on the algorithm. As stated earlier by the participant they work around Google's algorithm and do not develop it by themselves. This means that the participant could not fully answer the questions in terms of algorithms themselves. Hence, their responses were more based on SEO marketing through optimising webpage's rather than in-depth about the true workings of algorithms.

Trustworthiness / Rigour

Shenton (2016) state there are four criteria researchers should adhere to, namely a) credibility, transferability, dependability and confirmability. Anney (2014) defines each criteria -credibility is the confidence placed in the truth of the research findings, transferability is the degree to which final results of qualitative research can be transferred to other types of contexts, dependability refers to the ability of all the researcher to be able to evaluate the findings and it offer recommendation for the study that is supported by the data collected from the participants of the study and finally confirmability refers to the degree to which the results of a study can be confirmed or corroborated by other researchers.

For example this study can be deem transferable as it can be applied to other studies on algorithms and marketing or this study can be deemed creditable as the findings of this research study conforms and conflicts passed research literature. According to Given (2008) trustworthiness has now become an important concept of research as it allows the researchers to provide a description of the virtues of qualitative research variables outside of the parameters that are typically applied in quantitative research. Therefore trustworthiness will ensure the result of the research are authentic results by ensuring all aspects of this study are done transparently. Hence, this research study used a variety of data sources to create the best possible understanding this topic including conflicting arguments to ensure all aspects of authenticity.

Conclusion

The researcher aimed to explore the Search Engine Optimisation as a algorithmic technique that can be applied as a marketing function. By conducting this research study the researcher can conclude that search engine optimisation is techniqueused in correlation with algorithms and is not an algorithm itself. In particular, using Search Engine Optimisation algorithms can be a useful marketing tool to increase a business's brand awareness and create consumer traffic. In fact, it was revealed by the participant of this study there are not many negatives about this type of algorithmic technique. More importantly, it can be concluded that some of the literature surrounding search engine optimisation and algorithms are misconstrued by the public. This study has also identified other key areas of interest that need to be explored, such as internet laws and guidelines.

However, due to the minimal number of participants in this study this result can not currently be generalised as a larger number of participants would be needed.

Anticipated Contributions

There was a lack of academic studies based on search engine optimisation algorithms as a marketing tool. Therefore the researcher aimed to expand the current body of knowledge by providing more insight into this topic. The researcher hoped by conducting this study it would provide individuals with a better understanding of search engine optimisation algorithms specifically how marketing managers are applying it to their marketing efforts. This study aimed to provide a detail outline of the dynamics and step by step process marketing managers go through when working with search engine optimisation algorithms.

Ethical considerations and Limitations

Ethical considerations

When conducting this research study the researcher ensured it was conducted ethically. This study would ensure the following ethical considerations identified by Byron and Bell (2001) would be taken into account to ensure this study was conducted ethically. The dignity of each research participants would be prioritised. Hence, full consent would be obtained from each participants prior to the study to ensure they are fully aware of the aim of this study. Therefore, this study protected the privacy of the research participant by allowing for an alias name to be used. Deception or exaggeration of any kind about the aims or objectives of the research study would be avoided. To ensure the credibility of this study the information gathered would not be falsified. Whilst conducting this study the researcher would not allow bias to influence the study or findings. The researcher applied for an audio clearance to be obtained for the interview to ensure the participant was comfortable and aware of being recorded. An ethical clearance and a gate keepers letter was obtained to ensure this study does not have an unethical agenda and the information provided was strictly for academic purpose.

Limitations

The researcher would face a few limitations when conducting this study. This study was limited to a three month data collection and data analysis time frame. Another limitation to

this study was that there was no budget allocation to the study. The researcher would also experience limitations in terms of participant accessibility as there was lack of willing participants. Lastly, this study was limited to Durban and not any other locations in South Africa. This means the conclusions drawn from the data would be limited to Durban and cannot be generalised to represent South Africa as a whole. After exploring the literature on search engine optimisation the researcher has noticed that majority of the literature available focuses on how marketing managers can utilise these modern techniques to gain a return on investment. There is a lack of discussion on its implications on consumers or studies conducted from a consumer perspective. It is also evident there is a lack of legal frameworks in place to guide marketing efforts which does create privacy concern. Thus, this study wants to explore and expand on these aspects in future. By understanding the implications on consumers it could assist in the creation of guidelines when using search engine optimisation algorithms. Moreover, if there is a creation of guidelines it can eventually lead to solutions to combat privacy concerns.

Final contribution

The findings of this study were very informative in the understanding of search engine optimisation algorithms being used as a modern day marketing tool. The participant contributed very valuable and insightful information in order for the research to explore this concept. By exploring this concept the researcher has discovered that there are some misconceptions of search engine optimisation algorithms in literature found. Therefore, this study hopes to provide answers to any of misconceptions. These misconceptions include the idea of search engine optimisation being deemed intrusive to consumers. More importantly, this study revealed that there are benefits to utilising search engine optimisation as a marketing tool such as increase a businesses brand awareness. Furthermore, this study hopes to assist marketers that are interested in this technique to gain a better understanding of how it can benefit their business and its limitations.

However, this study also did discover some areas of concern such as the lack of laws surrounding internet laws and algorithms. A further study would need to be conducted on their areas of concerns to unearth why are there a lack of laws. Moreover, in future more studies need to be conducted on algorithms as the literature revealed there is a lack of information in a South African context.

Addendums

Addendum A – Gatekeepers Letter

Addendum B – Consent form for participants

I, _____, agree to participate in the research conducted by Farah Khan about search engine optimisation algorithms as a marketing.

This research has been explained to me and I understand what participation in this research will involve. I understand that:

1. I agree to be interviewed for this research.
2. My confidentiality will be ensured. My name and personal details will be kept private.
3. My participation in this research is voluntary and I have the right to withdraw from the research at any time. There will be no repercussions should I choose to withdraw from the research.
4. I may choose not to answer any of the questions that are asked during the research interview.
5. I may be quoted directly when the research is published, but my identity will be protected/anonymity ensured.

Signature

Date

Annexure C - Audio clearance

I, _____, agree to allow Farah Khan to audio record my interviews as part of the research about search engine optimisation algorithms as a marketing tool.

This research study has been explained to me and I understand what participation in this research will involve. I understand that:

1. My confidentiality will be ensured. My name and personal details will be kept private.
2. The recordings will be stored in a password protected file on the researcher's computer.
3. Only the researcher, the researcher's supervisor and possibly a transcriber (who will sign a confidentiality agreement) will have access to these recordings.

Signature: _____

Date: _____

Name: _____

Addendum D – Questionnaire

- 1) What is your understanding of search engine optimisation algorithm?
- 2) Why do you select algorithm as a marketing tool?
- 3) How do you apply search engine optimisation algorithms in your marketing activities?
- 4) What do you think the advantages are of using search engine optimisation algorithms?
- 5) How do you use different search engine optimisation algorithms for different marketing campaigns?
- 6) Have you come across any disadvantage using search engine optimisation algorithm as a marketing tool?
- 7) Would you recommend it as a useful tool for marketing managers?
- 8) Are there specific ethical guidelines you must follow when utilising this algorithm?
- 9) Are there any laws you must comply with when applying a search engine algorithm?

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Concept Document Template

PROVISIONAL TITLE: An exploration of the utilisation of search engine optimisation for business marketing

Research Purpose/Objective	Primary Research Question	Research Rationale	Seminal Authors/Sources	Literature Review – Conceptual Framework	Paradigm	Approach	Data Collection Method(s)	Ethics	Anticipated Findings	References
The purpose of this study is to explore search engine optimisation algorithms as a marketing tool by marketing managers	What is search engine optimisation algorithm as a marketing tool? What is machine learning and data mining? What are the advantages of search engine optimisation algorithm? What are the disadvantages of search engine optimisation algorithm?	The goal of this study is to explore search engine optimisation algorithm fully in order to provide a simplistic understanding of a complicated concept.	Maslow's (1943) Zahoor, A. (1997). Van Raaij, W and Wandwossein, K. (1978).	Theme 1: The basics of search engine optimisation algorithms. Theme 2: Machine learning and data mining as components of search engine optimisation algorithms	The paradigm that will be used in this study is the interpretivist paradigm. Focusing on 3 positions: epistemological position ontological position axiological position	This research study will use a qualitative study approach. Population Marketing managers that utilise algorithms.	An in-depth interview will be used	1 consent will be obtained 2 protection of the privacy 3 information will not be falsified. 4 will not allow bias to influence the study 5 An audio clearance will need to be obtained 6 An ethical clearance will be obtained	There is a lack of academic studies based on search engine optimisation algorithms as a marketing tool. Therefore the researcher aims to expand the current body of knowledge by providing more insight into this topic.	Bryman, A and Bell, E. (2007) Creswell, JW. Ebersohn, L, Elloff, I. Ferreira, R, Ivankova, NV, Jansen, JD, Neuwenhuis, J. Pieterse, J, and Plano Clak, VL. (2016)
	Research Problem	Secondary Questions/Hypotheses/Objectives	Key Concepts	Key Theories		Theme 3: Advantages of search engine optimisation algorithms Theme 4: Advantages of search engine optimisation algorithms Theme 5: Theme 6: Theme 7:	Sampling	Data Analysis Method(s)	Limitations	Anticipated Contribution
To gain further insight on search engine optimisation algorithms as a marketing tool. Due to there being a lack of knowledge surrounding this topic.		Search engine optimisation Algorithm Marketing Data mining Machine learning	Maslow's hierarchy of needs. Maslow is a world renowned psychologist with a PhD in humanistic psychology from New York and the creator of the Maslow's hierarchy of needs		A non - probability sampling method A purposive sampling method	This studies data analysis method is a qualitative content analysis	1 Lack of access to marketing firms that utilise algorithms. 2 Difficulty in acquiring participants 3 Lack of knowledge within a South African perspective 4 Lack of honesty in participants answers	To build on existing knowledge on the search engine optimisation algorithms from a marketing point of view	Du Plooy-Cilliers, F. Davis, C. Bezuidenhout, R.M. (2014).	

