An Analytical Study of Search Engine Optimization (SEO) Techniques: To Maximize Number Of Visitors On An E-content Website

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Abstract — **The paper aims at exploring and explaining the concept of Search Engine Optimization. The Research Process followed is carried out in four steps: Analyzing the Current Performance of the website using Google Analytics, Keyword Research and Popularity of Keywords using Google Trends, Content Development and Content Marketing through Social Media, and Gathering Customer Responses through a Questionnaire. The paper explains in detail the various types of SEO tools and Techniques that can be applied to a website. The Primary data is collected through a semi-structured questionnaire. The sample size taken is 30. The final result of the analysis indicates that more than 60% of a website's traffic comes through organic searches and hence optimizing your website to the popular search engines will be beneficial in enhancing its visibility and popularity.**

Index Terms — **Content Marketing; On-the-page and Off-the-page SEO; Search Engine Optimization (SEO); Social Media Marketing (SMM)**

I. Introduction

Over the past few years, more and more Internet visitors are reaching websites through search engines rather than through direct links from another web page. Search engines have come to occupy a prominent position in the online world and are being used to find all kinds of information including things, events, people, and places. The search engine is also coming to play a greater role as a critical link between firms that use the Internet to build their image and find their target audience. How to achieve a high ranking in such search results given certain search words or phrases has become an issue of much interest in the digital marketing scenario.

A. Framework Of The Study

In this study, we have applied two SEO techniques to a health website in order to maximize the number of visitors: Content Marketing and Social Media Marketing.

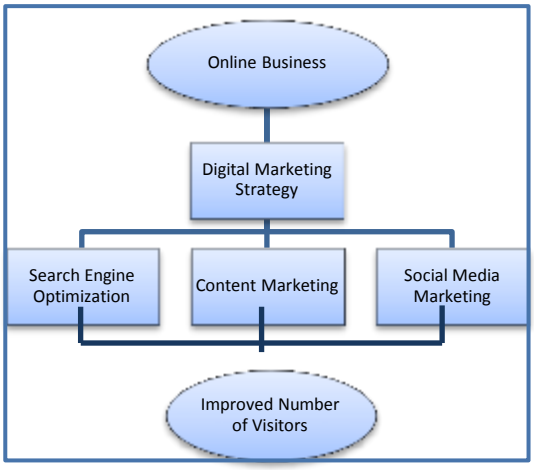


Figure 1: Framework of the Study

The *objectives* of the study are: To understand the process of Search Engine Optimization (SEO), to understand the application of tools of SEO and to analyze the effectiveness of SEO on the website in terms of improved number of visitors.

Ref. [1] states that a SEO mechanism can be used by an enterprise to improve the ranking of its website in the search engine results. The use of social networking sites is included in the exploration of Internet marketing strategy. One of the most important aspects of search engine optimization has always been the keywords, those words that people use to find our content in search engines.

Ref. [4] states that in the early days of SEO, the goal was to achieve exact keyword matching. This meant that the page we wanted people to find was perfectly tuned to show up in the search results when someone searched for that phrase. If you searched for "exact keyword match," for example, you would find pages that used that phrase exactly as written. But now, you will find pages that discuss the general topic of exact keyword matching.

II. Search Engine Optimization

Search Engine Optimization is usually done by doing a keyword research and then by going after the highest volume keywords, but this usually does not return loyal customers. In order to have long-term customers one needs to combine search engine

optimization with content marketing. Some of the metrics used to do so are:

Traffic: This helps in measuring your audience and indicates your performance in terms of the Acquisition rate.

Keyword Ranking: This keeps a check on your performance in relation to the competitors and your own self in the long run.

Subscribers: This is used to evaluate how many of your Visitors turn into Subscribers.

Engagement: It can be calculated in terms of-

1. Average Session Duration
2. Bounce Rate
3. % New sessions
4. Pages/Session

SEO can be categorized into two types of ranking factors namely, On the page and Off the page as seen in Fig. 2.

A. SEO Ranking Factors

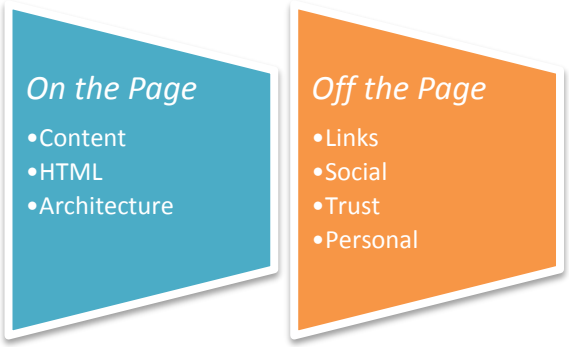


Figure 2: SEO Ranking Factors

On the page and Off the page factors can be divided further as in Fig. 3 and Fig. 4 respectively.

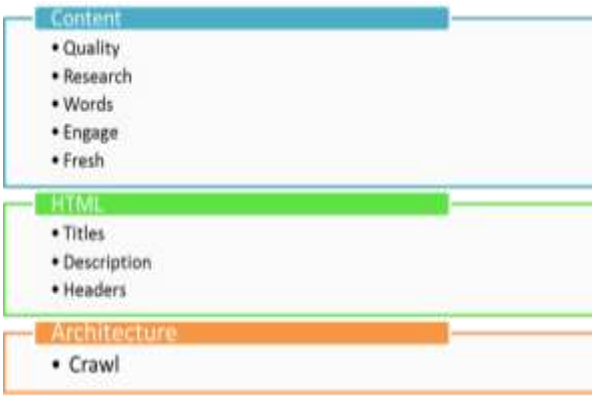


Figure 3: On the page Ranking Factors

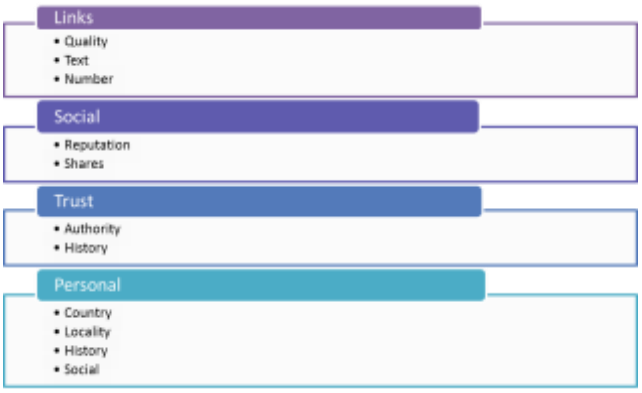


Figure. 4: Off the Page Ranking Factors

B. SEO Tools

1. *Google Analytics:* It is a tool used to provide the following metrics: Traffic Channels, Queries Searched, Landing Pages, Social Media Flows and Audience Overview. The Key Performance Indicators are (Fig. 5):

Acquisition-Users (Unique Visitors), Sessions (Total number of Visitors), New Sessions (Percentage of first time Visitors)

Behavior-Bounce Rate (Percentage of single page visits), Pages/Session (Average number of pages viewed in one session), Average Session Duration

Conversion-Goal Completion, E-commerce Transactions and Top Conversion Paths

Figure. 5: Google Analytics

2. *Google Trends:* It helps in analyzing the popularity of the keywords and the regions where they are popular. Also, under various categories the most trending keywords can be identified. Keywords can be searched in terms of different countries and segments like: Business, Entertainment, Sports, Health, Sci/Tech, etc. Under each category, there are further sub-categories that can be searched for in terms of time zones and different locations.

Google trends helps marketers in developing country-specific content as seen in Fig. 6, using the most commonly used keywords and phrases of these regions.

Figure. 6: Google Trends

C. Research Process

The Research Process was carried on in the following four steps (Fig. 7):

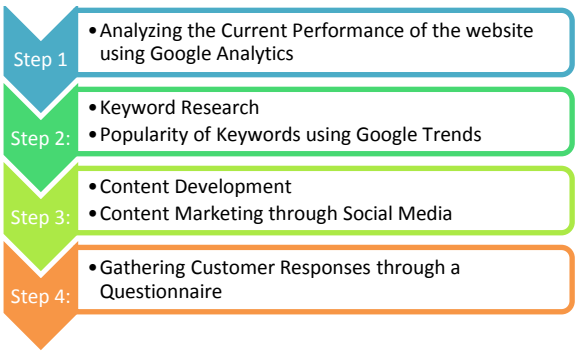


Fig. 7: Research Process

Step 1: Analysis from Google Analytics

The analysis of the website for a 1 month period (Fig. 8):

Key Performance Indicators	Values
Users	88,735
Sessions	94,660
%New Sessions	92.23%
Bounce Rate	88.12%
Pages/Session	1.30
Avg. Session Duration	00:00:39

Figure 8: Analysis from Google Analytics

Step 2: Keyword Research through Google Trends (Fig. 9)

The steps followed were: Identify Top Trending Topics in the Health Category, Look at the Target Audience of the Category and Collect the Most Searched Keywords of the Category.

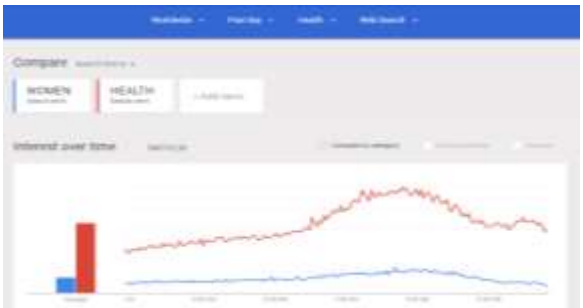


Figure. 9: Keyword Research through Google Trends

Step 3: Content Development and Social Media Marketing (Fig. 10)

The next step is to develop content based on the Most Trending Topics and Most Searched Keywords. The content is not solely dependent on the trending topics, it is also necessary that the content is of value to the target audience as only then they will become loyal customers.

Once the article is ready, links are then posted on the website's page on various social media platforms like Facebook, Twitter and Instagram.

As the maximum number of followers is on Twitter (40,000), hence we linked the Instagram and Facebook accounts with the Twitter Account to increase the visibility of the posted content to masses.

A brand new Instagram Account was established on 20th February. The average number of followers growing every week on the Account was: *375.*

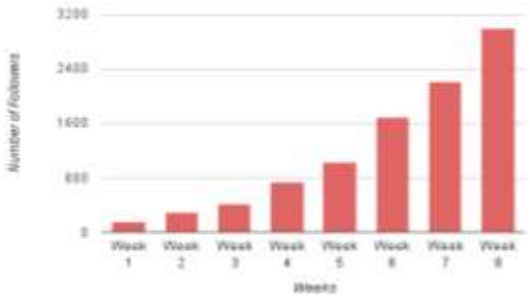


Figure 10: Popularity on Social Media

Step 4: Gathering Customer Responses through a Questionnaire

A Semi-structured questionnaire was used to gather responses about various sections of SEO in relation with the e-content website. Some of the findings are shown in Fig. 11 and Fig. 12.

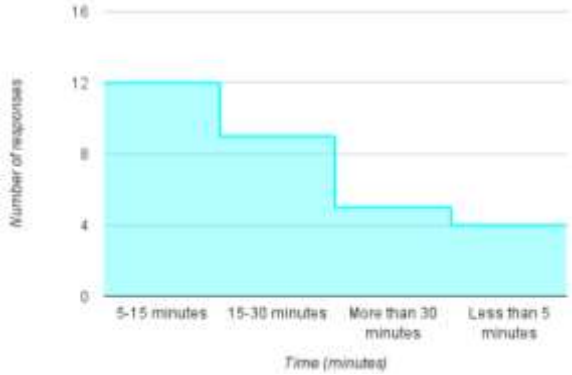


Figure 11: How much time do you spend on the website in one visit?

Several other questions were asked to evaluate three segments: Content quality, Traffic channels and Engagement levels.

From the findings it can be inferred that more than 60% of the traffic on the website comes through popular search engines like Google, Yahoo and Bing (Fig. 12).

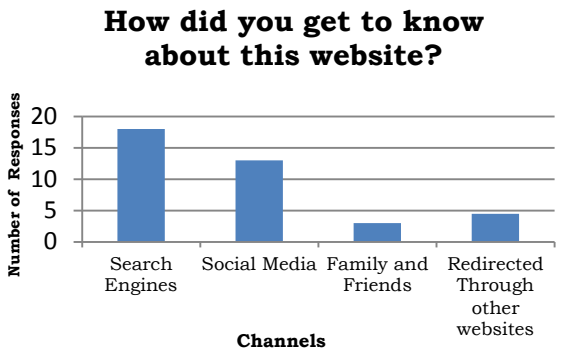


Figure 12: Traffic Channels

D. Analysis

Regression Analysis: To create an equation of the relationship between Traffic on the website (Output) and the Quality of Content based on the five parameters (Inputs): Well-written, Answers Query, Understandable, Relevant and covers Trending Topics.

The equation derived is in the terms of:

$$Y = a + bx$$

Equation (1) shows the relationship between the dependent variable Y (Website Traffic) and Independent variables x(x_1, x_2..., xn) (Well-written, Answers Query, Understandable, Relevant and Covers Trending Topics). The output summary can be seen in Fig. 13.

*Y = Website Traffic = 1.600619 + 0.140982 * Well-written + 0.46762 * Answers Query – 0.4862 * Understandable – 0.04699 * Relevant + 0.109318 * Covers Trending Topics* (1)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.309345
R Square	0.095694
Adjusted R Square	-0.0927
Standard Error	1.267933
Observations	30

Figure 13: Regression Analysis 1

Equation (2) shows the relationship between Repeat Visits (Y) and Age, Frequency of Visits and Time spent in each Visit (x_1, x2, x3). These are the key components that are used to evaluate the basis for repeat visits and Customer referrals.

*Y = Repeat Visits = 2.181833 + 0.107348 * Frequency + 0.008453 * Time spent + 0.007401 * Age* (2)

The summary of the output is shown in Fig. 14.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.294342
R Square	0.086637
Adjusted R Square	-0.01875
Standard Error	0.488753
Observations	30

Fig. 14: Regression Analysis 2

Hypothesis Testing: It has been stated in studies that 60% of a website's traffic comes through organic search from popular search engines: Google, Bing, etc. In order to verify this we conducted the T-test on our findings from the Questionnaire.

H0 = Null hypothesis
HA = Alternate hypothesis
μ = Average Percentage of Organic Searches
H0: μ = 60%
HA: μ > 60%

To calculate the t-statistic, we will use the following formula:

$$t = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{N}}}$$

The values calculated from the test (Fig. 15):

Sample Mean (X bar)	60.21333%
Sample Standard Deviation (S)	0.2306
Sample Size (N)	30
Degrees of Freedom (dF)	29
Calculated Value (T)	5.067
p-value	1.699
Level of Significance (α)	0.05

Figure 15: Calculated Values of T-test

As we can see that the p-value (Fig. 15) is less than the calculated value of T, hence we will reject the null hypothesis. Therefore, we can infer that the *Website Traffic from Organic Searches is more than 60%.*

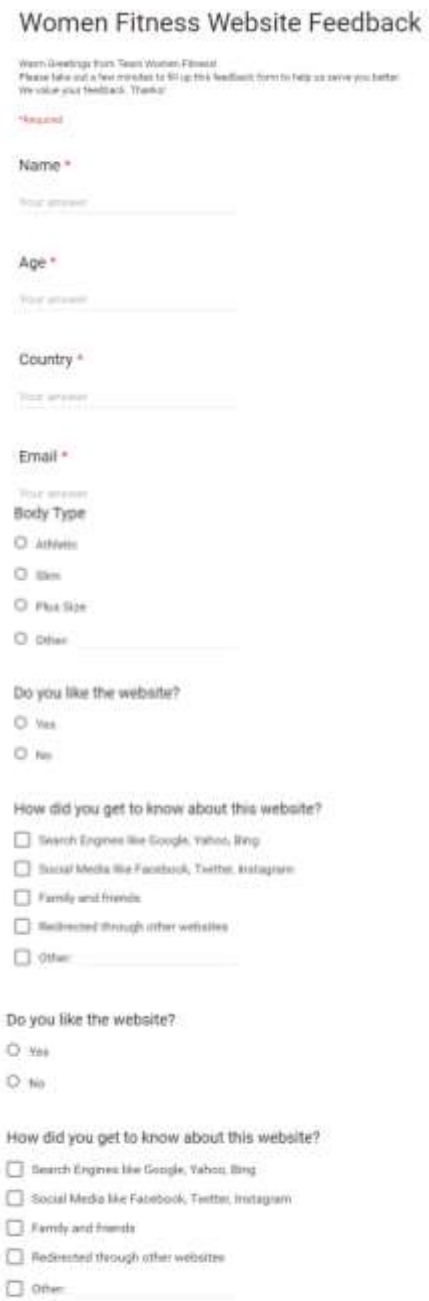
Conclusions

We can conclude from the research that Search Engine Optimization is currently one of the most critical factors responsible for a website's success and popularity. There are various tools and techniques that can be applied in order to optimize your website on the popular search engines.

In this research, two techniques were applied namely, content marketing and social media marketing, to improve the number of visitors/ Traffic on the website.

From the analysis, it can be concluded that Traffic through Organic Searches is more than 60% and hence incorporating Search Engine Optimization in the Business Model is of utmost importance to all Online Businesses.

APPENDIX A QUESTIONNAIRE



Women Fitness Website Feedback

Warm Greetings from Team Women Fitness!
Please take out a few minutes to fill up this feedback form to help us serve you better.
We value your feedback. Thanks!

*Required

Name *

Your answer

Age *

Your answer

Country *

Your answer

Email *

Your answer

Body Type

- Athletic
- Slim
- Plus Size
- Other

Do you like the website?

- Yes
- No

How did you get to know about this website?

- Search Engines like Google, Yahoo, Bing
- Social Media like Facebook, Twitter, Instagram
- Family and friends
- Redirected through other websites
- Other:

Do you like the website?

- Yes
- No

How did you get to know about this website?

- Search Engines like Google, Yahoo, Bing
- Social Media like Facebook, Twitter, Instagram
- Family and friends
- Redirected through other websites
- Other:

10. Rate us on our "Articles" from 1 to 5, where 1 Stands for Poor and 5 for Excellent: *

Mark only one oval per row.

	1 Poor	2	3	4	5 Excellent
Well-written					
Answers your query					
Understandable					
Relevant					
Covers Trending Topics					

11. Would you like to visit the website again?

Mark only one oval.

- Yes
- No
- Maybe

12. Would you recommend it to your friends?

Mark only one oval.

- Yes
- No
- Maybe

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