

# RECOMMENDATION OF BLOGS IN E-LEARNING

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**Abstract**— Weblog which was initially coined as daily diaries turned into place containing information directly from a source with richer context. Evolution of a blog has lead to different kinds of blog such as personal blogs, corporate blog, by genre, by media type etc. Blog has invaded the electronic learning. E-Learning is an interactive teaching and learning e-environment, where teachers and students communicate about their subject. Information about various subjects is provided as e-learning blogs, based on the user's interest. E-Learning has become much more interactive compared to the classroom learning. Students can post their queries in the form of comments, these comments can be viewed by other students and teachers and they could reply back as comments. Rich content such as image, video, audio can also be passed as comments. The challenge in the highly polluted web environment is to identify the best e-learning blog from the existing various blogs. The identification of the best e-learning blog depends on certain criterion such as considering the previous history and personal interest of the user, word of mouth, the rate of the blog on the web and. In the paper proposed, appropriate algorithms are chosen to incorporate the proposed ideology.

**Keyword** - *Word of mouth, CRS (Customer Driven System), WBLE (Web Based Learning Environment), WAP (Wireless Application Protocol), TR (Trustworthiness and Reliability), Customer Network*

## I. INTRODUCTION

The internet started its career as a medium to share information in defense has spread in a wide spectrum. Now the whole world is revolving around it. The advancement in internet has shown a tremendous invasion in last five decades. Internet has paved way in transfer of data, online chatting, banking and finance system, online stock market trade, reservation for various modes like flight, train and bus.

Traditional method of class room teaching had a geographical issue, timing as the factor of disadvantage. Students find E-learning as a easy way of gaining knowledge from their home rather than spending more time in travelling to reach the class room. With the growing technology, e-learning has shown convenience towards learning due to the abundant availability of information on the web. But, often the relevant information was not available as a whole; hence, the blog came into the picture. A blog is expected to be more interactive and informative to create an intuitive site for the user's ease. Such blogs are plenty in existence.

Now, identifying the relevant and the most desired blog is a challenging issue as it depends on many considerations. Basing on the user's previous history a decision can be made on the user's personal short-term and long-term interest. The short-term and the long-term interest can be categorized based on the amount of time they spend using it. The short-term could be the blogs that are visited by the user occasionally depending on the user's need for a certain period of time. The long-term interest could be considered depending upon the high frequency of usage of a blog by the user. The word of mouth is one such consideration, where, the comments are analyzed to identify the positive and negative posts. The blogs with highly positive comments are often considered. The consideration depends choosing the one's with the highest ranked posts. The above considerations are filtered at each level and the best posts are published. The optimized level of filtrations gives the appropriate and desired result.

## II. RELATED WORKS

An Blogs are generally popular in internet systems. Since mobile phones are used by many users, it is better to have a blog on mobile phones. Many problems can be discussed in same sites and many users can interact by solving a problem. In PC, to check a blog the system has to be ON, go online and view the particular webpage. But in mobile phones, the updated document is sent to user mobile phones by describing a summary of 100 words. Ranking and comments are provided. Cost is low compared to PC internet. WAP service is used as a bridge between internet and mobile phones.

Classify and select high quality documents across themes (*use non-negative matrix factorization algorithm*) [4]. User preference and personalized document recommendation are analyzed. Messages are sent through a WAP gateway by encoding a WAP push message into SMS format and delivered. *Conventional recommender system* [3] is a hybrid approach proposed to recommend blog articles based on personalized popularity of topic cluster, item based collaborative filtering, the attention degree. Collaborative filtering combines the above clustered contents to obtain the user desired blogs. The approach integrates a recommender system that retrieves information and recommends blogs, and the WBLE (Web Based Learning Environment) named MASSAYO (a real time scenario) to help students to gain knowledge. The recommendation is based on *user's profile and interacts with the WBLE* [8]. It has the ability to find the relevant topics from the recommended blogs. Intelligent Agent keeps a track of the user interaction and provides the recommended blog for the user. Agent oriented approach combines both papers and blogs for learning resources in one recommendation method. The blog recommender is a flexible and promising mechanism. It combines "trust models, social relation and semantic analysis". It measures the *trustworthiness and reliability of the targets, addresses the social intimacy and similarity of blog behavior in social network* [6] and also compares the textual similarity of a blog article. They follow the "6-degrees" theory to develop the mechanism. It is a network based recommendation system. The recommendation of blog is using is *Customer-driven Recommender System (CRS)* [2] followed by collaborative filtering. Searching process is done on the customer network based on similar neighbors. CRS method is efficient and as accurate as a traditional recommender system of Global search mechanism.

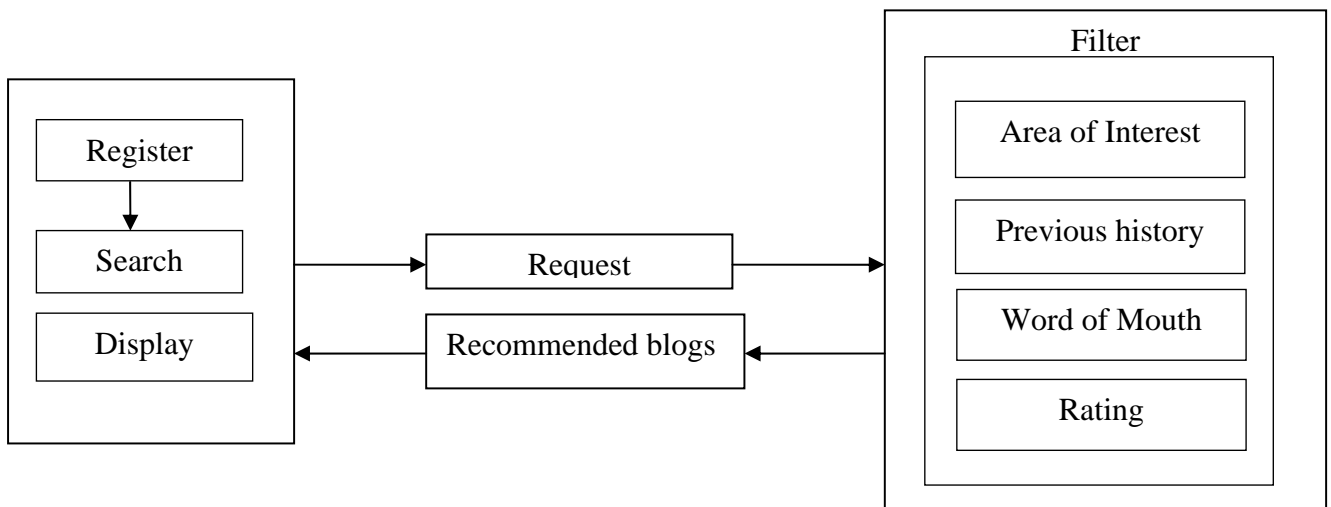
TABLE 1 COMPARATIVE STUDY OF VARIOUS RECOMMENDATION SYSTEMS

RECOMMENDER SYSTEM/ PARAMETERS	MOBILE CONTENT RECOMMENDER SYSTEM	WEB-BASED LEARNING RECOMMENDATION SYSTEM	CONTENT RECOMMENDATION SYSTEM	SYNTHETICAL RECOMMENDATION SYSTEM
<b>Information Retrieval</b>	Keyword Analysis	System ontology	Customer Network	Trustworthiness and Reliability, Social intimacy and Popularity, semantic similarity
<b>Interaction Level</b>	Dynamic	Dynamic	Dynamic Network Reformation	Dynamic
<b>Document Classification</b>	Detect new document, save, Matrix Factorization	Based on user interest	Personal information set	Scores based classification
<b>User Preference</b>	Collaboration Filtering Algorithm	Multi-agent Recommender	Local processing of collaboration filtering	Neural Network based approach
<b>Problems</b>	Cannot classify light users and heavy users	Classroom interactions	Only closed neighbors give better values	Trustworthy issues, trust in the score, hard to digest

For the mobile users, the contents are efficiently searched and recommended to the intended user. The system Ontology method is being recommended for the web-based learning environment. Based upon the personal information set of the customer recommendation system is being proposed. Highest quality recommendation in blog network is based on trust model, social relation and semantic analysis.

### III. ARCHITECTURE

When a user searches on a particular topic, the blog relative to it is displayed. While the user browses a blog an event is generated and the URL sent to the server is analyzed through text mining using Document Classification Technology which is saved as previous history. When later searches are made on the similar topic, the user is recommended with the blogs that are filtered under the previous history is displayed. After the first level of filtration, the comments are analyzed and the blog posts are classified based on the positive comments using the Collaborative Filtering Principle. Basing on the above filtered blog posts, the rate on them is considered using HITS algorithm and the one with the highest rate will be given the highest priority for display. To incorporate the issues architecture is being proposed. The system here, improvises the efficiency in recommendation systems in the blogs.



### A. System Components

Whenever a user registers into the e-learning blog, a log of that user is maintained. The log contains details of the user and history of previously visited pages. When a search is made by the user, the blog is recommended based on certain criterion which includes user's interest, previous history, word of mouth and rating. The search request made by the client is sent to the server. Filtration is made based on the various criteria at the server side and the final recommended blogs are sent to the client through the interface. Each criterion is considered as a level of filtration to produce the best result at the top level, as required by the user.

Filter value= AOI + PH + WOM + Rating

#### 1) Area of Interest (AOI):

After the registration, based on the searches made by the user, a list of blogs is recommended. Based upon the search query, 'n' blogs are obtained and each blog is assigned with the base value as 'n' where the value of  $n > 0$ . The behavior of the user is based on the user's activities such as likes, comments and keywords used to search. The recommended system of the blog identifies those behaviors and is filtered from the web and is pushed onto the user's log. Using Bag of words approach, this methodology is used to monitor the user's act by analyzing the user's behavior. The factors such as likes, comments and keywords are normalized and those values are made to be in fuzzy logic. If the blog is being liked by the user, a value is being assigned else it is considered as it is unknown to the user and hence the value zero is assigned. The result obtained becomes a tokenized value ranging from 0 to 1. These values are added to the value of 'n' for filtration.

At the next visit of the user, the user's log is considered for recommendation as the area of interest is being recorded.

#### 2) Previous History (PH):

The references the user has made in the past visits are also considered as a criterion for recommendation of blogs to the user. From the moment the user login to the system, the activities and the references made by the user are being logged into the log record with respect to their user id. The history of the user is thus recorded. Whenever the user searches for the blog, the particular blog is checked in the user's log whether the blog is already being visited or not. The binary value '1' is assigned if the blog is visited in the past else the binary value '0' is being assigned for previously non-visited blog. The obtained value is added to the filter value. The log is to be regularly updated to avoid the inconsistency of data.

#### 3) Word of Mouth (WOM):

The blogs chosen from the above scenario helps the recommended system to find the user's interest. Among those interested areas of the user the best blog should be prioritized and those prioritized blogs should appear at the beginning as the user chooses to select the blog which appears in the first. The best blog is identified and chosen based on the positive reviews of the blog, provided by the other users visited previously. The given 'n' blogs are considered, the blog with the highest positive comments given by the other users holds the value 1 and the one with the lowest positive comment holds the value 0. Rest of the 'n-2' blog holds the value in the range  $0 < x < 1$ . These values are then tokenized and the resultant value is added to the filter value.

4) *Rating:*

The identified blogs from the previous levels of filtration are considered for the rank and the one's bearing the highest rank is pushed on to the user's system as the first priority, on the first rack followed by the lower ranking blogs in the next corresponding racks. The obtained blog on the user's system is the one that is most popularly visited by the many users on the web. Hence it is assumed to be more content-oriented and appropriate. Hyper-Induced Topic Search (HITS) algorithm which is a rating algorithm is suggested for the blog recommendation. HITS is text-based search algorithm for the 'n' blogs. Focused subgraph is formed from the base set of webpages and hyperlinks in that webpages. HITS algorithm is performed only to the subgraphs. The authority and hub update are the two steps on which algorithm is performed in the series of iteration. Based on the rating value which is obtained is further added with the filter value

## IV. EXPERIMENTAL RESULTS

In this approach, the recommender system proposes the method obtaining details of the static data of the individual user and also the dynamic interaction made by user. With the combination of both the static and dynamic data more efficient recommendation of blog is done compared to the other traditional approach where only static data are involved.

The quadratic filter consisting of an area of interest, previous history, word of mouth and rating gives exactly relevant blogs which user wants.

Based on the affirmative statements received from the various other users, the system understands the environment of the blog and those blogs are recommended to the new user. This process happens dynamically by the recommender system. The intensity of interaction made by various users makes the selection of the blog efficient which helps in the ranking of the blog and also prioritizing them. The word of mouth which is based upon content recommendation system gives a recommendation for the personalized needs of the user rather than giving a generic need.

This recommendation system provides users to search and retrieve the blog efficiently and productively, thereby saving search time and providing an easy way of gaining knowledge which are relevant to the needs of the user.

The blog without recommendation system shows that hardly few students are involved in the e-learning process. When the recommendation system is implemented, there were gradual increases in the number of students participating in the e-learning blog. As the day increases there were huge drastic increases in the interest of the student participation.

## V. CONCLUSION

The paper discussed gives solution to the bloggers who blog through their mobile phones. It provides an efficient way for them to blog the best way, due to the levels of the filters it uses to intensify the modesty in search. The resultant often results in the best blogs that is intended by the user that involves optimized technological usage. The blog searched by the user is sent as a request to the server where the filtration takes place on the basis of area of interest of the user, the user's previous history, the word of mouth and the rating given to each blog. Once the blogs are filtered, it is recommended to the user and is displayed in the user interface. It is an efficient and effective analysis of user's desires and trends.

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