

## GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES SIMILARITY MEASURE AND SERVICE ORDERING BASED E-LEARNING TO ENHANCE THE QUALITY OF HIGHER EDUCATION

M. Senthil Kumar\*<sup>1</sup> & Dr. M. Prabakaran<sup>2</sup>

\*<sup>1</sup>Research Scholar of Bharathidasan University, Assistant Professor of Computer Science, Srinivasan College of Arts and Science, Perambalur, Tamil Nadu, India.

<sup>2</sup>Research Supervisor, Asst. Professor, Department of Computer Science, Government Arts College, Ariyalur, Tamil Nadu, India

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### ABSTRACT

"E-Learning" is appropriately known as Computer Assisted Learning, now it's a high stage of Virtual environments rather than customary environments. The learning in the current situation is very dependent on areas, teacher's accessibility, and space of contents and availability of materials. The knowledge transfer entirely depends on the teacher or guide or educator. The different style with different shape can give different depths of knowledge space to the learner. This may create disparities to some extents in the learning process and can help to make the teaching-learning process smoother, more comfortable and exciting. The fundamental idea to keep into mind is that the strength of educational technology comes not just from replicating things that should be possible in other ways, however when it is used to do things that weren't possible without it. Examples of e-learning on the Internet today are, excessively regular and often, something more than lecture notes and some associated joins posted in HTML organizes. However, as noted in the previous quote, the real power of e-Learning comes from the exploitation of the full range of capabilities that current technology can bear. The potential settlements of designing, developing and employing great e-learning arrangements are significant, and they include improved efficiency, effectiveness, and enjoyment of the learning experience.

**Keywords:** *E-learning, Higher education, ordering, services, similarity.*

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### I. INTRODUCTION

The advancement of web innovation empowers the electronic realizing which influences the web clients to learn through the electronic world excellent web E-learning. The E-Learning is the way toward adopting any subject or assembling any data through the web, and there are numerous instructive establishments authorized e-learning ideas with the goal that the understudies of the college might learn through the internet upon enrollment. The development of distributed computing has been distinguished as the ideal stage where the assets can be sent and got to through the network by the outer world.

E-Learning is the guide related to the virtualized digital learning (VDL) utilizing electronic correspondence as the assistance of the way toward educating education. The Cloud Computing condition ascends as a specific stage to offer help to e-Learning frameworks and moreover for the usage of data mining strategies that allow investigating the large databases produced from the above procedure to separate the characteristic information since it can be continuously adjusted by giving a versatile framework to changing necessities along time.

By and large, a similar theme of design might be created as an online class by various mentors. These online classes are the aftereffect of services, and the client can see the online course through the web, or the client can see the site pages which has data about the theme. Then, not every one of the sessions of all mentors is acknowledged and preferred by the cloud students. A portion of the workshops displayed beyond any doubt guides might be wanted and seen by numerous people groups or students. So the issue is to identify the services which return such online courses and themes to the clients so the client can effectively take in the matter.

The human ability in the learning procedure is the conduct of the student; the student invests more energy in the workshop or online course just if he prefers the method for educating or he comprehended what the mentor is stating. In here and there the client may play out the number of activities like review the administration commonly, investing more energy in that et cetera. These are considered as the conduct examination which can be utilized to distinguish the client intrigue.

The action of any client can be part of two kinds specifically understood and unequivocal. The specific practices are the time spent on the website page, the circumstances the client seeing the page. Additionally, the activities like a duplicate, bookmarking, and printing the page can be considered as the particular activities. These verifiable and unequivocal activities can be utilized as a part of positioning the cloud administrations and positioning them as needs be retrieved.

The eLearning services can be positioned by various techniques, similar to some entrance, the things the client has used the administration et cetera. Although there exist N number of capacities introduce in the cloud for a related point, the technique needs to choose the appropriate size to satisfy the demand of the client. The administration choice strategy needs to uphold productive measures in picking the services.

How the services can be chosen from the expansive arrangement of comparative management is, by positioning them as indicated by a particular proposition. Their fulfillment measure and service weight can record the administrations. As noted in the service weight, the services can be arranged and seen by the client, from which the cloud client can pick an ideal capacity to take in the theme.

## II. RELATED WORKS

An internet learning condition is a massive effort from the didactical and progressive perspective, and also from service and specific point of view [1]. In this, on a fundamental level overview the methods taken for influencing a web-based understanding out how to arrange available to a completely open by working up a model for application advantage in higher education. A significantly more adaptable association between the expert association and buyer ought to be developed. They plot the critical parts included, and assignments viewed [2].

Along with this strategy that spotlights on various leveled, specific and cash related conditions, which must be investigated when undertaking a similar wonder. Learning and indicating frames, like every human activity [3-4], can be interceded utilizing mechanical assemblies. Information and correspondence headways are available in all cases inside preparing. Their usage in step by step life of teachers and understudies oversees duty with informational activities at wherever and time and not associated with an establishment or an assertion [5].

Without formal affirmation, learning under these conditions is known as easygoing learning. Notwithstanding the nonattendance of certification, absorbing with advancement like this exhibits opportunities to gather information about and demonstrate better methodologies for abusing a man's learning [6]. Cloud advancements offer ways to achieve this through new plans, methods, and work forms that empower semantic marking, affirmation, and assertion of easygoing learning works out [7-8].

The straightforwardness and accessibility of cloud organizations infer that establishments and understudies can manhandle existing data further bolstering their current good fortune [9].

E-Cloud Services are cloud administrations which give a reference to the client to get to the course which is accessible as the web record or recordings or video conferencing [10-11]. The colleges may direct the class in the separate mode, and the workshop could be gotten to through E-Cloud benefit which is as video conferencing mode.

Toward the finish of the session, the students will be gotten some information about an arrangement of inquiries, and the cloud client needs to answer the queries [12]. The determination of the understudy and the issue is

performed arbitrarily by the E-Cloud framework. Appropriated changed the manner in which applications are made. They are a way to run applications as organizations over the Internet on a flexible structure [13-14].

The Engaging Cloud presents capable scale segment can let the advancement of E-learning system be relied upon suppliers and give another mode to E-learning. Subsequently [15], an E-learning structure in light of Cloud enlisting establishment is feasible, and it can uncommonly upgrade the efficiency of theory and the power of organization [16 -17], which can make E-learning system change into a hopeful circle and achieve a win-win condition for suppliers and customers. Instructive information mining is a developing interdisciplinary research zone that works plans with the evolution of systems to examine data beginning in an educational setting [18].

Instructive information mining uses computational approaches to manage to look at useful points of interest remembering the ultimate objective to think about the insightful request [19]. This investigations the most appropriate examinations finished in this field to date. Regardless, it presents Educational information mining and depicts the various social occasions of the customer, sorts of enlightening circumstances, and the data they give [20]. It by then proceeds to list the most common/fundamental endeavors in the instructive condition that have been settled through data mining techniques.

### **III. MATERIALS AND METHODS**

In this approach, choice of services has been performed in another measurement. Nonetheless, there exist the number of functions accessible for any subject of e-learning situation, the connection of data returned by the capacity for any topical inquiry must be estimated. E-learning process focuses on the social administration in light of the client benefit choice. Every facility would create different outcomes for a similar survey from the student. It is essential to cover the Similarity Measure in Higher Education (SMHE) which expresses to the understanding or relevance of the inquiry and result created. Such an approach would enhance the execution of services determination in the advanced education learning of cloud frameworks. So we consider Similarity Measure and Service Ordering in E-Learning for Higher Education for semantic closeness between the reports is essential when it is isolated from the free substance record. Addressing the proximity and nonappearance of thought in the twofold association may not give romanticized precision. Assumed weighting through term repeat will grow the exactness of grouped report. Also, term frequencies for the removed thoughts are registered using content planning. In this Cosine likeness using thought weight measure is associated with find equivalence between different chronicles. As shown by the likeness score, reports are gathered. In this exploration, an illustration walkthrough for the proposed system has been analyzed by differentiating two reports.

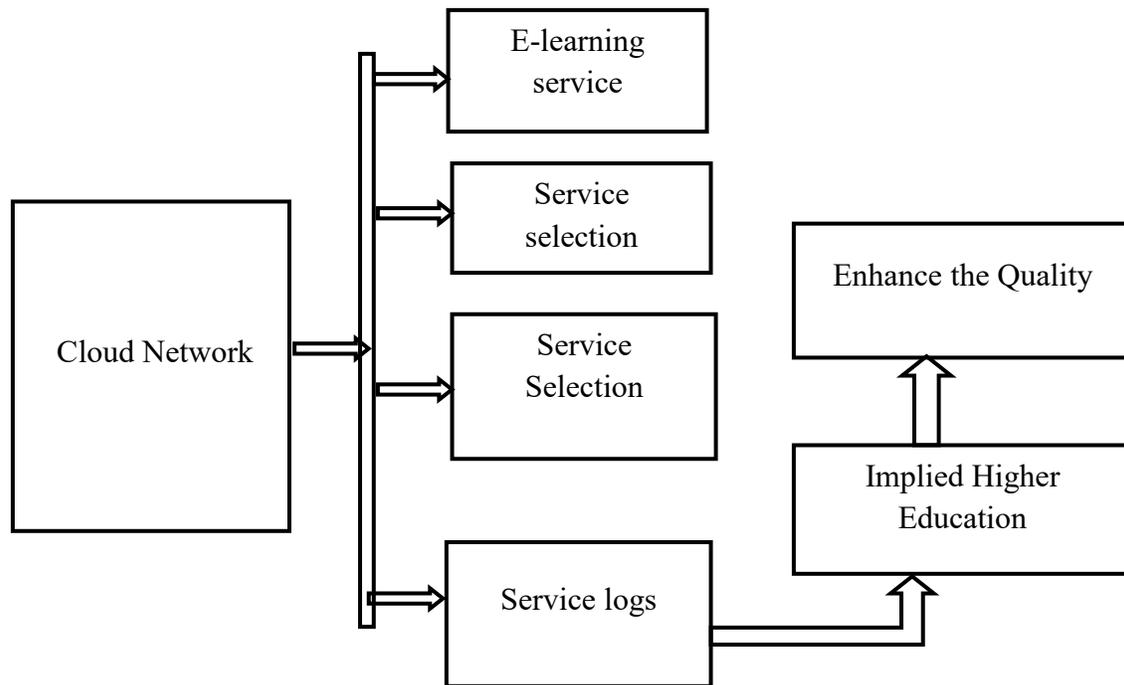


Figure 3.1 workflow of E-learning based Higher education system

Above figure shows the E-learning based Higher education system attempt to transmit information and aptitudes because of student interest point of contact and furthermore examine mentally on how people learn. Psychometrics and measurable systems have been connected to information, similar to understudy's conduct/performance, educational modules, and so on, that was assembled in classroom situations.

### 3.1 Similarity Measure in Higher Education (SMHE):

The cloud benefit delivers an arrangement of result for the input question. The client presents an inquiry and e-learning framework provides a method of the outcome of the problem. The information similarity measure discourses to the quality of importance the issue has to the information inquiry. However, there exist various records for a question which has been arranged in any frame. Approving the significance of the substance towards the inquiry is vital. The SMHE has been estimated between the investigation and the class with the archives. Endeavors for figuring semantic closeness between two sentences:

- First, each sentence is separated into a once-over of tokens.
- Part-of-talk disambiguation (or naming).
- Stemming words.
- Find the most fitting sense for each word in a sentence (Word Sense Disambiguation).
- Finally, figure the equivalence of the sentences in the perspective of the resemblance of the arrangements of words.

#### Algorithm:

S1 - list of tagged tokens ← disambiguate  
 S2 - list of labeled symbols ← disambiguate  
 Vector length ← max (length (S1), length (S2))  
 V1, V2 ← vector length (null)  
 V1, V2 ← vector length (word similarity (S1, S2))

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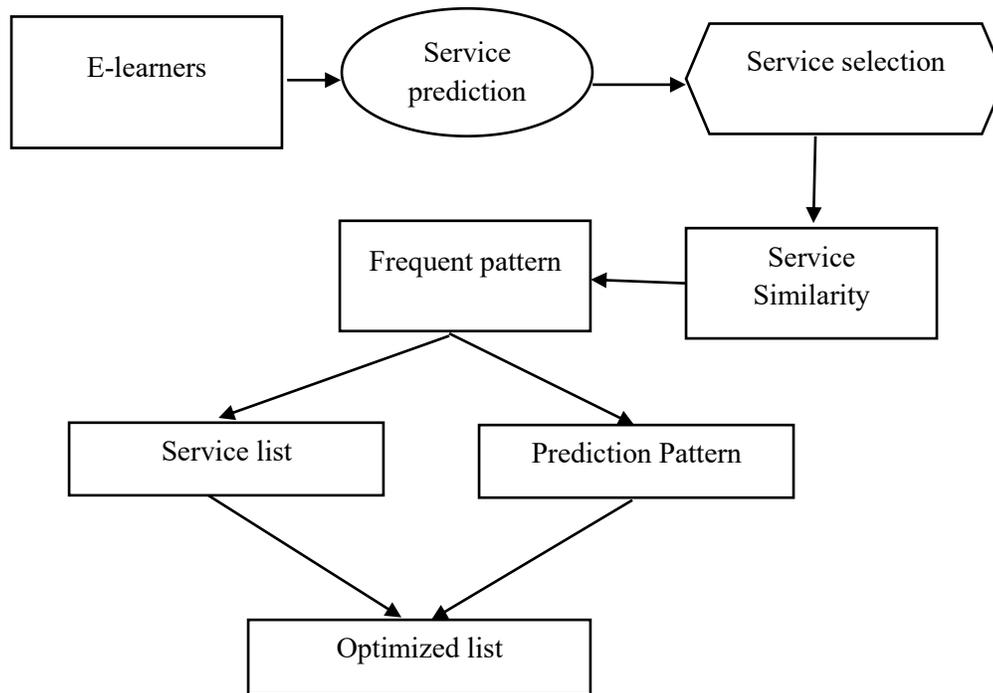
SMHE = 0
8: while the S1 list of tagged tokens do
  If word similarity value > benchmark similarity value then
    C1 ← C1+1
  End if
  While an S2 list of tagged tokens do
    If word similarity value > benchmark similarity value then
      C2 ← C2+1
      SMHE ← sum (C1, C2)/γ
    End if
    S ← ||V 1||, ||V 2||
    If sum (C1, C2) = 0 then
      SMHE ← vector length/2
      SMHE ← S
    End if
  End if
End

```

At first, the strategy separates the critical terms by performing NLP (Natural Language Processing) systems which have been adjusted to distinguish the class of the query. The student input query has been part of words, and from that term set, a subset of words which are characterized as catchphrases are chosen. With the picked term set, the strategy evaluates an Information Similarity Measure with the outcome returned by various administrations. The SMHE has been resolved given the event of the terms of info term set and the rundown of conditions being chosen from the recovered records. This is a learning framework which measures SMHE and stores the terms set of various all out reports. The evaluated SMHE measures have been utilized to perform positioning.

### 3.2 Frequent patterns Analysis in E-Learning:

Pattern analysis in considering two estimations for course employ evaluation and one computation for the significant group is used. A proper examination in light of a past approach was associated with e-Learning data from the authenticity of the strategy and exhibited a stable association between the course use and the looking at understudy's assessments in the exams. From an instructive point of view, this methodology adds to upgrades in course substance and course usability and the change of sequences according to understudy limits. The difference in course quality gives understudies the shot of unique examination of courses with finished and perfect instructive material and, like this, higher execution in exams. For making e-learning structures, it is essential to comprehend customers' notions and appraisal about them.



*Figure 3.2 Pattern Analysis in E-learning*

The above figures show the E-learning has loads of advantages over the standard classroom lessons and learning. The most basic benefits are the adaptability and the decreased cost which originates from movement free training. There are various advantages of e-learning like cost-adequacy, changed learning, adaptable and information advancement. It is locked in with applying the modified substance examination to isolate the suppositions and acknowledgment arranged appraisal examination to perceive the idea of sentiments from the Web pages on which customers are discussing or portraying their bona fide convictions and evaluation of the organizations. Prohibitive self-assertive fields are used for perceiving and isolating the conclusions. E-learning is more affordable to create when contrasted with standard instruction. It is self-guided, there is no correspondence opening, E-learning gives predictable informing, and it limits the issues identified by various teachers. Information refreshing is rudimentary and smart. With e-learning, we can have a more grounded handle of the subject.

### 3.3 Similarity-based Service Ordering in E-Learning:

This great measure of data is making look progressively troublesome with standard web list as they return colossal data for a given inquiry which is containing material and moreover additional data. These results in wastage of customer time and additionally provoke data over-trouble issue. Along these lines, customers are not content with glancing through the information by ordinary web searcher. So the purpose of re-situating request pages or results has ended up being one of the critical issues in the data asset field. Starting at now looking techniques are similarity based service ordering in e-learning. In any case, this technique has a couple of weaknesses. The primary shortcoming is that web customers can't express their chase objective correctly or fittingly using a couple of catchphrases. So as a general rule, the simply planned results don't satisfy the web customers. The second shortcoming is that watchword coordinating can't guarantee the chose hopefuls to have the high relationship with the utilization different implications of the catchphrases. Another issue with conventional web crawlers is their positioning techniques.

**Algorithm:**

```

Channel Result (Similarity measure [])
{
Rundown Documents (docs []); /list the reports in diminishing request of term frequent /demonstrate the
archive chosen by the client
Word Len=get Doc Length (topic);
SMHE get Words per Minute (); /from the client profile
Word Len/ SMHE; /calculate the edge time
On the off chance that (has Reached User Threshold (t) ==false)
At that point
Client Interest false; /the client isn't keen on that report
If (has User Threshold Time (t) ==true)
At that point
Client Interest genuine
Bring comparable reports up in the rundown
}

```

Semantic outcome extricated utilizing term recurrence: Results would be removed on the premise on term recurrence calculation and using similar words of the client entered terms. Similarity-based Service Ordering in E-Learning as per client consideration time: User consideration time calculation would channel the outcomes once the client begins perusing a report. The primary objective of our exploration is to satisfy the necessity of clients with page positioning calculation which will order the archives better and holds the ability to order indexed lists successfully and attempts the best to mastermind the web comes about which are most pertinent for the clients utilizing the client time consideration calculation. The proposed calculation for page positioning depends on the result of the semantic web in which it will order the pages given term recurrence factor of catchphrases and syntactic words. Recurrence factor implies how often a similar trade-mark is repeating in the website page.

#### IV. RESULT AND DISCUSSION

The results are implemented in visual studio framework in Microsoft platform with data processing simulation environment. The projected implementation algorithm is tested with numerous data logs with cloud services with educational online web resources. We considered only good quality preprocessed web links carrying educational web services where there are no overlying to outline suppressed e-learning services, webinars, or dashboards. The proposed Similarity Measure in Higher Education (SMHE) produced efficient results than other service selection methodologies. We have evaluated the proposed algorithm with different methods they are Embedding e-learning (EEL) and Fashionable Adoption of online learning (FAOL).

##### 4.1 Impact of service availability

The service availability is the parameter which represents how efficient the service is assigned on request. It is computed based on the number of times the service request has been received and how many times the particular function has been assigned.

$$\text{Service Availability SA} = \frac{\text{Number of times service Assigned}}{\text{Total number of request received}} \times 100$$

The planned approach has been implemented and tested for its efficiency. The proposed method has produced efficient results in all the factors of quality of service.

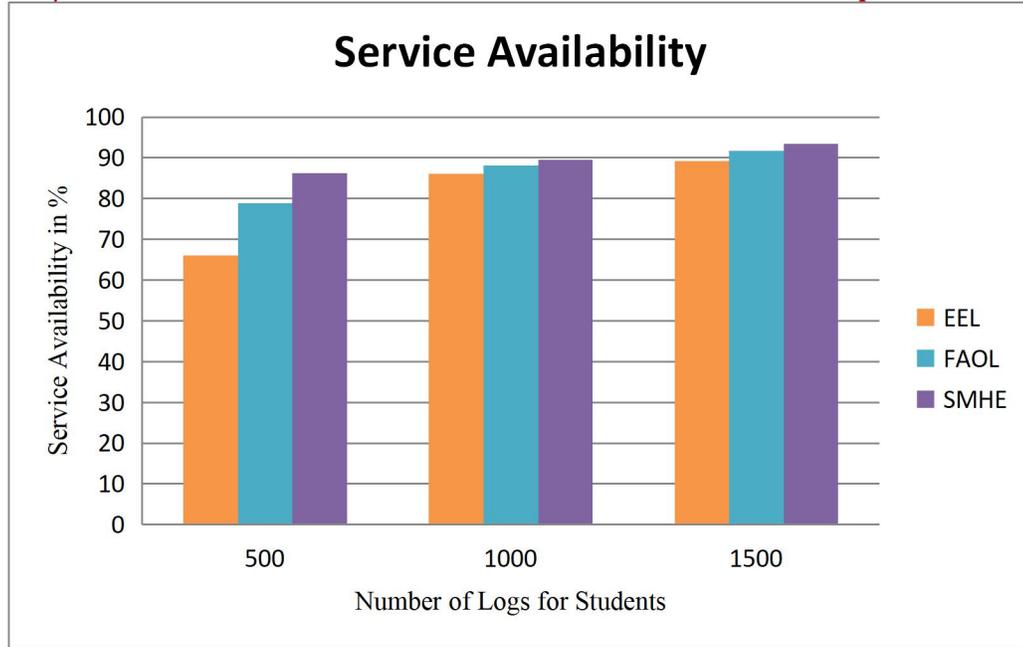


Figure 4.1: Comparison of Service Availability

The above figure 4.1 shows the comparison of service availability measured between different methods. It shows clearly that the proposed plan has produced higher service availability than other methods.

Table 4.1 Comparison of service availability with dissimilar methods

Number of Logs for Students	EEL in %	FAOL in %	SMHE in %
500	65.98	78.85	86.25
1000	86.12	88.12	89.46
1500	89.24	91.64	93.45

The above table 4.1 shows the service availability measure of query search from cloud resource which returns the number of service to the E-learners have high probability level. The proposed system produces more top service availability performance compared to other systems.

#### 4.2 Impact of Frequent Measure

The frequent measure analyses unclassified service providence which in irrelevant subjectivity to the e-learners that are calculated by,

$$\text{Frequent measure FM} = \frac{\text{Number of service wrongly assigned}}{\text{Total number of request received}} \times 100$$

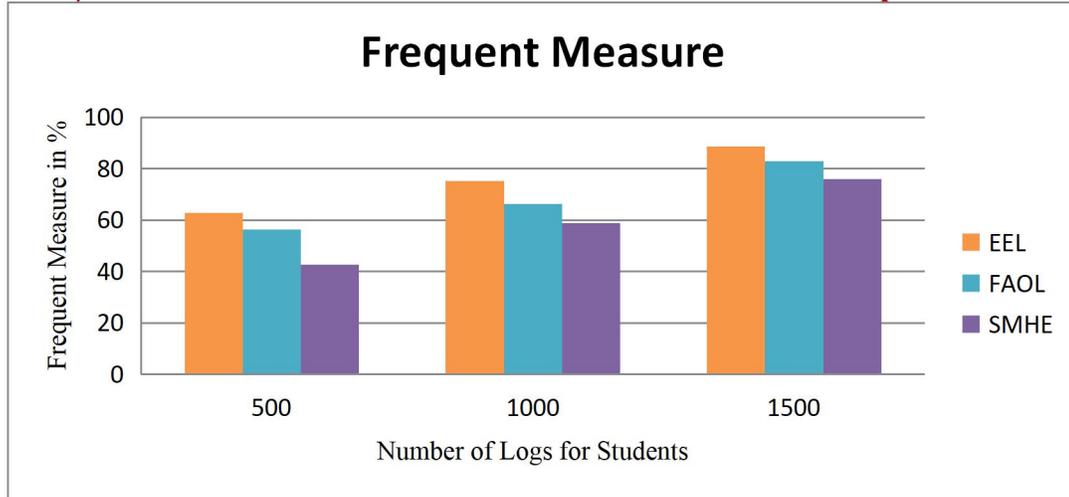


Figure 4.2: Comparison of Frequent Measure

The above figure 4.2 shows the comparison of various measure achieved by different methods. It shows clearly that the proposed plan has produced less routine test than others.

Table 4.2 Comparison frequent analysis with dissimilar methods

Number of Logs for Students	EEL in %	FAOL in %	SMHE in %
500	62.85	56.28	42.65
1000	75.25	66.25	58.65
1500	88.65	82.82	75.86

The above table 4.2 shows the frequency analysis with different methods which the test are carried out with an unrelated service probability measure of service result. The proposed method produces the lower false rate of numerous study compared to the other dissimilar ways.

### 4.3 Impact of Time Complexity

Time complexity is analyzed to calculate the total number of time taken to execute service providence from the cloud environment to E-learners that are derived by,

$$\text{Time complexity } T_s = \frac{\text{Number of available service} + \text{number of wrongly service instance}}{\text{time made for the Total number of request received}} \times 100$$

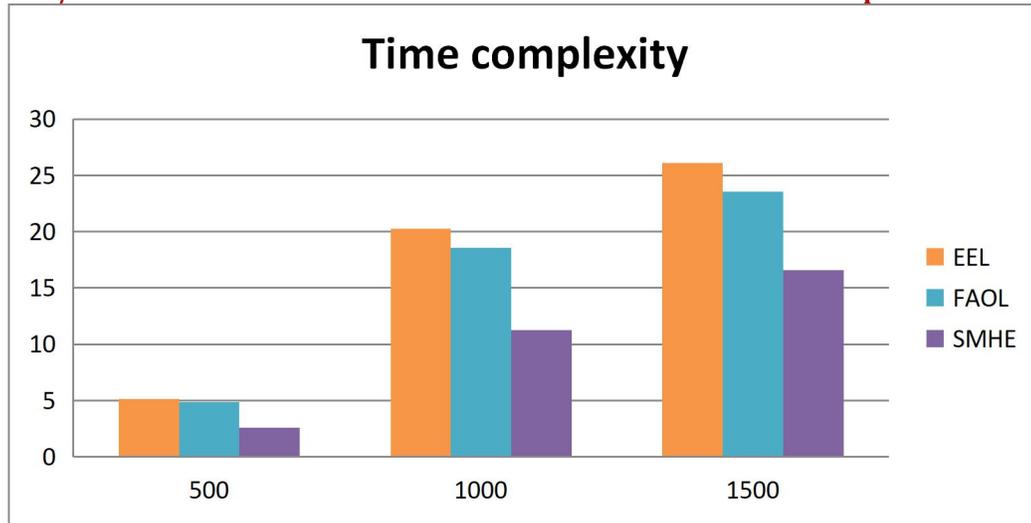


Figure 4.3: Comparison of Time Complexity of different methods

The above figure 4.3, shows the comparison of time complexity produced by various means. The projected methods had less time complexity than others.

Table 4.3: comparison of time complexity with dissimilar methods

Number of Logs for Students	EEL in ms	FAOL in ms	SMHE in ms
500	5.15	4.85	2.58
1000	20.25	18.56	11.25
1500	26.12	23.54	16.58

The above table 4.3 shows the comparison of time complexity which they are tested with service selection execution time taken to process. The proposed method produces lower execution time complexity compared to the other dissimilar ways.

## V. CONCLUSION

Based on similarity using the proposed algorithm it can be seen that E-learning student's non-Linguistic majors able to attend in proposed work, although talent offsets this and also national exam score to induct the service being searched. With the proposed Similarity Measure in Higher Education (SMHE) can make it easier to take decisions and the classification of some student data. This proposed intent can deal an approach to convince nominee students not to hesitate to enter the higher education, even though it performs best e-learning service field in the cloud environment. The proposed system produces higher service availability 93.45% with lower time complexity with a lower constant rate.

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