PERSONALIZED CLOUD LEARNING ENVIRONMENT BASED ON COGNITION OF THE LEARNER

Dr. L. Jayasimman[1], R.Vijayalakshmi[2], B. Senthil Kumar[3], Dr. Nisha Jebaseeli[4]

[1]Dr. L. Jayasimman Assistant Professor, Department of CS, Srimad Andavan Arts & Science College, India
[2]DR.Vijayalakshmi, HOD,, Department of CS, Srimad Andavan Arts & Science College, India
[3]B. Senthil Kumar Former Principal, Department of Animation, ES Pan Asian College, India
[4]Dr. Nisha Jebaseeli, Assistant Professor, Department of CS, Bharathidasan University constituent College, India

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Abstract – *The main aim of this research Paper is to study the cloud learning environment based on cognition of the learner. Cloud computing is a fruitful new strategy for teaching and learning. It is gaining importance over other traditional teaching and learning processes and systems and it is not only helps the collaborative learning but also individual learning. Many institutions successfully adopts cloud environment to assist their learners. However, there has been insufficient research works in the area of cognition and user preferences in the cloud environment. Therefore, this research works aims to study various aspects such as cognition, cognitive load, user preferences and individual differences in the cloud environment. A frame work is developed based on the concept of cloud environment and cognition in order to enhance the learning activity. Also, this research paper describes the concepts like cognition, cloud computing and its' importance.*

Key Words: *Cloud Learning Environment, Cognition, Cognitive Load, collaborative learning, User preferences and Individual differences, learning activity*

1. INTRODUCTION

In this fast developing information society, learning through cloud network environment is inevitable and it has huge potential to develop the manpower [1]. Cloud environments are less expensive to study and interact in a focused group. Cloud computing is new and fast growing technology in the world of computing. Outsourcing the unlimited storage, resources and processing power by means of virtual cloud is the basic aspect of cloud computing. In the last ten years, the advancement of internet technologies has been exponentially changes from 2G to 4G. Now downloading collaborating and studying in the cloud environment within the reach of anyone. A smart phone with network can be very helpful to learn new skills in the cloud environment.

Cloud environment applications

There are many areas where the Cloud environment has been developing to great extent. Some of the fields of developments include,

- Learning management system
- Social networking
- Business
- Surveillance
- Communication

Importance of Cloud Computing

The revolution of cloud computing and learning technologies provides more opportunities to enhance the current cloud learning environment [3]. To develop the cloud environment, learners' preferences, learners' cognition and cognitive load should be considered in order to classify the user data. With the help of Cloud computing environment massive computing resources such as storage space, processing speed and other services are possible.

Problems in cloud computing

There are two major problems in cloud computing regarding the security [2]. They are security for the customer data and security for the providers. Security issues may fall into the following ways,

- Network infrastructure security
- Data storage and transmission security
- Operation system security
- TCP/IP security
- Software security

Types of Cloud computing

Some companies have their own cloud environment for their learners. This type of private clouds are safer than other public clouds because this type of private clouds are controlled and managed by the single company and its learners. These are called private clouds [4].

Some cloud computing companies offers services to public for their own purpose. These companies' offers storage space and computer resources for their customers. They offers this service by using pay per data usage and virtual space usage. These are called public clouds. There are high security risks in this public cloud [5].

Very few companies offers services both private as well as public. This type is called hybrid clouds.

According to the software providers' services cloud computing may also be classified into the following ways [6],

- Software services and applications (SaaS)
- Infrastructure- storage space (IaaS)
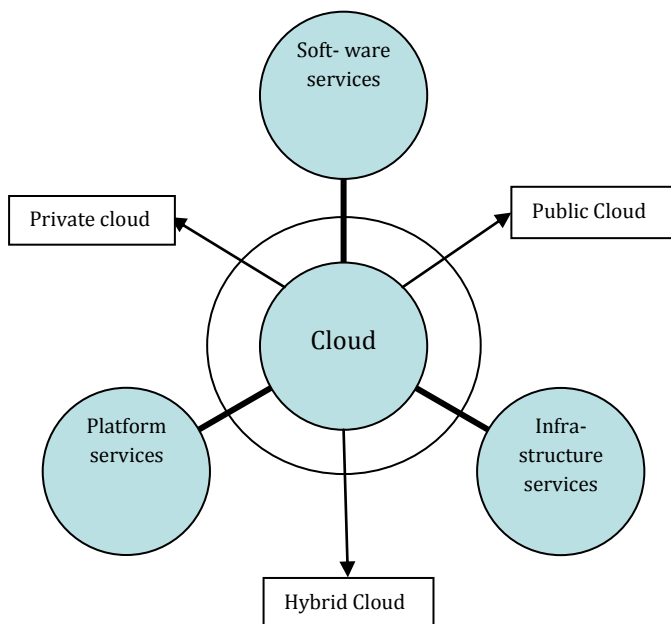- Platform services (PaaS)

Cloud environment

Figure: 1 **Cloud services**

Advantages of Cloud environment

- Flexibility
- Massive computer resources
- Cost

Cloud computing resource and service providers [7]

- Google
- Amazon
- Microsoft
- IBM

- Citrix
- Icloud
- Sun

Personalized Learning

From searching the materials to study, decision to buying new products, the users are trying for new ways to personalize their search [8]. Lessons are uploaded daily or weekly in the cloud environment which can be studied anytime and anywhere. Cloud environment helps the teacher-student communications by the way of feedbacks and remainders [9]. This cloud learning environment setting helps the learners to collaborate, interact with other same group of learners, teachers and subject specialists within the cloud. Cloud environment is also suitable for collaborative learning. Embedding individual preferences and cognition in cloud learning environment is a new and major initiative in cloud computing [10].
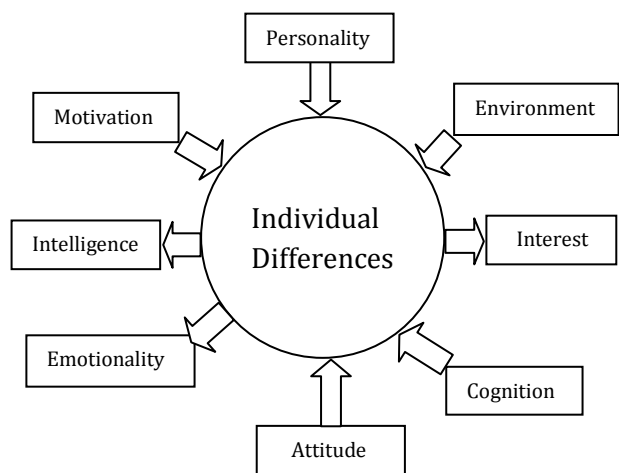
Individual Differences

Figure: 2 **Individual differences**

Figure 1 shows the individual differences due to intelligence, personality, Attitude, interest, needs, etc.

2 COGNITION

Cognition is the mental process involved in human brain through acquiring new knowledge and understanding through senses, perception, thought and personal experience [10]. By reducing the cognitive load in searching and learning in the cloud environment the cloud learning environment can be enhanced by enhancing the cognitive process of learners [11]. Cloud layout should be designed in such a way that easy to understand, easy to apply, easy to use and easy to learn. According to Nikos, individuals' cognitive processes depend upon individual memory, perception, personal traits, intelligence, decision making skills, individual thinking, problem solving skills, learning

methodologies, individual personality, individual Emotional quotients, etc [12]. By considering the individual preferences in the cloud environment users' data, a cloud learning provider can enhance the learning services according to the user requirements in an effective way.

3 FRAMEWORK TO ENHANCE CLOUD COMPUTING SERVICE

The model of the newly proposed classification based [13] on cognition of the learner and profiles is as follows.
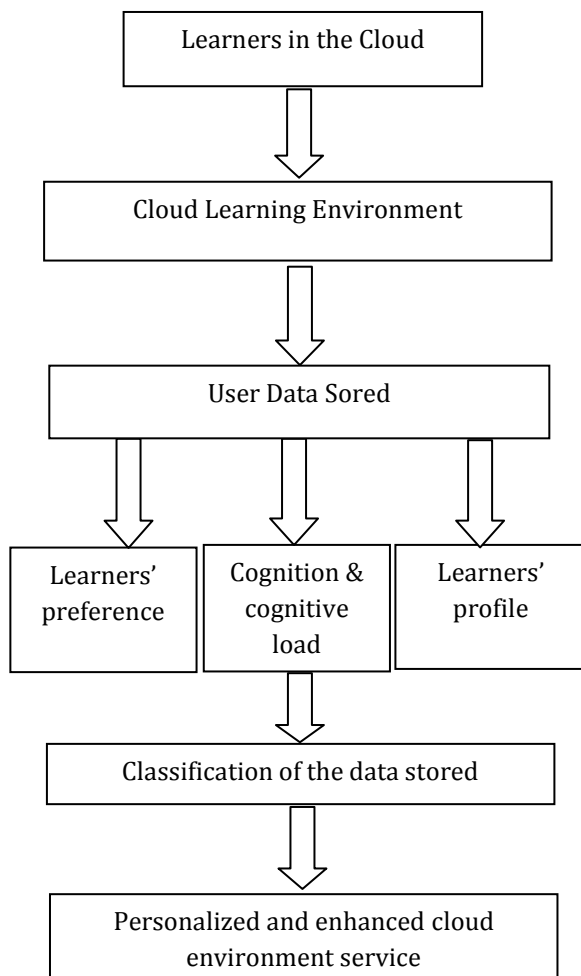

Figure: 3 A **Framework to enhance cloud service**

4 CONCLUSIONS

Cloud computing can give solution to many problems in learning infrastructure availability through virtual space and virtual memory. Providing well-constructed, secured and individualized cloud learning environment based on individual preferences and individual cognition, enhances the services in the learning environment. This newly proposed framework for classification based on user preferences in the stored data helps to find the areas of improvement in cloud computing environment. Cognition

based data classification will help to improve learners' satisfaction in cloud learning environment. This research framework proposes a suitable concept to develop the classification accuracy in the cloud environment based on cognitive load of the learner. Cloud structure, infrastructure and software usability in the cloud environment can be enhanced by using individual preferences. Artificial Intelligence can play a vital role in allocation of space and memory, resources and educational materials to the end user.

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