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A Review on Student's Behavioral Analysis in Virtual Learning Environment

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Abstract: ***The development of the technology, virtual learning environments are seeing wider application in college education. The research goal of this paper is mainly to explore the influence of the interaction between students and students in the virtual learning environment, and to improve students' academic performance. The analysis of Student Behavioral Analysis in Virtual Learning Environment has became an important part thinking about education system. Monitoring students' stage of engagement throughout mastering activities is an important challenge in the improvement of tutoring interventions. This experiment is useful to analyzing the exact mind set of student towards traditional learning & virtual learning environment. Virtual learning is effective than traditional methodology because a virtual learning environment allows them to benefit from self-paced learning and the opportunity to learn new skills without having to travel while they attend courses. Virtual learning has the necessity today in the teaching-learning process because virtual learning environment contains many tools to help students to learn their subjects.***

Keywords: EEG, Engagement Index, Virtual Learning Environments, E-learning, Data mining.

I. INTRODUCTION

Virtual learning environments are a popular method of e-learning, which refers to learning through electronic medium. while a virtual learning environment cannot fully replace the traditional classroom, it can be a useful way of teaching students who reside in many different locations. [1] virtual learning is time independent and place independent which makes learning process fruitful, the entire learning process is interesting which have outstanding understanding level. The understanding level of virtual learner is high, the concept clearance of virtual learner is great. [2] The research will undertaken having in consideration of hypothesis that, virtual learning environment in teaching-learning process will contribute to improve the efficiency and quality in learning. This experiment plays important role for analyzing the effectiveness of teaching methods in modern era.

Experiment take important step toward improving human-computer interactions and understanding users' needs The aim of this experiment is to investigate the new e-learning strategies.[3]

A. Comparative Analysis

EEG data provides valuable quantitative and unbiased information on brain activity in a milliseconds time-frame. It has become a low cost and non-invasive tool that is increasingly being used in wide range of application: including medical diagnosis (e.g. patient coma monitoring and epilepsy detection), emotion recognition (e.g. boredom assessment), affective modeling (e.g. uncertainty modeling, emotional state classification), performance assessment (e.g. outcome prediction, learners classification) and users mental activity assessment. EEG data were gathered and analyzed among all participants to investigate students mental state using the engagement brain index. The experimental results are mainly

divided into three parts: 1) We assess the evolution of student's brain activity during the three phases of the clinical problem-solving task (exploration, diagnostic and treatment), 2) we analyze the distribution of the engagement index across the different AOIs, and 3) we investigate the impact of the engagement level on performance. [4]

We intend to analyze VLE logs that can be found in online courses performed and compare with the instructors' statements and literature results about student behavior and performance. In addition, we plan to develop a dashboard using visual analytics techniques, taking into account the requirements and guidelines described in this paper. To evaluate the dashboard, we will want to assess whether there are changes in students' performance when instructors are able to see information about their behavior and performance, and act accordingly. [5] Controlled experiments are needed to confirm a number of our findings. In particular, we need to measure understanding, from a larger group of students with varying abilities, in order to identify the extent to which constructing VEs and using a variety of symbol systems help them learn.

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We need to establish causal relationships between presence, ability to work in a VE, and learning. We need to examine more carefully when and why collaboration among students helps them learn. [6] According to the analysis of the International College of China Agricultural University, we found that the teacher's tracking of student discussions will affect the students' achievements. At the same time, boys are more likely than girls to participate in online discussions to maximize the value of online virtual learning platforms. [7]

Applying data mining techniques to the data obtained from student interactions via the VLE allowed us to determine how effectively these tools contributed to education. In addition, they enabled us to discover how these tools were used by the students in their courses. [8]

The block “Learning Style” (EA) allowed students to visualize the probabilities of each dimension of their EA by observing that, according to their interactions, these probabilities changed. Likewise, the teachers could visualize the probabilities of EA obtained by each student when these interactions were done in the hosted virtual course enclosed in the Virtual Learning Environment. [9]

Most of the students are willing to pursue a second degree after earning a bachelor degree. Most of degree students are aspiring to boost their careers by taking courses in the form of distance education. [10] The most important issue in distance education is student’s attitudes and teacher’s preparedness. It requires distance-learning courses are needed to be properly implemented and delivered. So that student can learn as much as in on-campus courses [11]. The study has shown that the explanations given are suitable for the stakeholders that are involved in VLEs: teachers, tutors, students, and managers. [12] All these people are domain experts but they are not data analysts, so they need to deeply understand automatic generated results, in order to trust them in VLE. [13] This fact points to the urgent need to reconsider the traditional teaching practices faculty use, which students have been routinely exposed to. [14] Preparation is needed to face this challenge though! The goal is to prepare critical and reflexive students. Thus, teacher preparation should be enhanced to dare in terms of teaching methods that are more in line with these needs, so that nursing students can achieve expected competencies to act in professional practice scenarios. [15]

Table 1. Authors, techniques and result obtained in comparative analysis

Sr.No	Author	Techniques	Result
1	Asma Ben Khedher	Emotive EEG headset, Eye tracker	Virtual learning is effective than traditional methods.
2	Priscila Valdiviezo, Ruth Reátegui	data mining WEKA tool, K-MEANS algorithm, EEG	Virtual Learning Environment allowed us to determine how effectively these tools contributed to education.
3	Rami Mahmoud Ahmad	Face recognition.	Virtual Learning environments will result in higher performance scores than will the traditional learning environments, regardless of the learning model employed.
4	Asma Ben Khedher	Eye tracking, Visual behavior, Analytical reasoning, EEG.	support for the students with the goal of improving their reasoning process.
5	Saulius Preidys, Leonidas Sakalauskas	BlackBoard Vista software 2008, data mining programs like	The students can concentrate on the most important course elements; they are interested in the new ICT learning tools, but having no support from the course instructor, they lose a possibility to achieve better results.

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		STATISTICA, WEKA & DBMINER	
6	Lissette Geoconda López-Faican1,	Artificial intelligence. Bayesian model. Felder-Silverman model.	The block "Learning Style" (EA) allowed students to visualize the probabilities of each dimension of their EA by observing that, according to their interactions, these probabilities changed. Likewise, the teachers could visualize the probabilities of EA obtained by each student when these interactions were done in the hosted virtual course enclosed in the Virtual Learning Environment.
7	William Winn, Hunter Hoffman	Questionnaire	It is clear that students were able to make decisions about the content to include in their VE, what objects to use to illustrate it, what metaphors to use when necessary, and what behaviors and interactions the objects should exhibit.
8	Hapini Awang	Google Classroom	VLE eases the teachers in dealing with the workload.
9	Ashutosh Satapathy	Liveness face detection	virtual classroom is one of the widely adopted technologies in educational and industry sectors. This research paper discuss, different methods / models were adopted by researcher to add more flexibility and reliability to learning environment.
10	Jose M. Alonso	Data Mining, Fuzzy Unordered Rule Induction Algorithm.	we will set up an online survey to ask human users (including students, teachers and managers) about the goodness of these explanations.

II. DISCUSSION

In our future research, we propose to incorporate in order to have a multimodal sensor-based assessment of students learning behavior. Controlled experiments are needed to confirm a number of our findings. In particular, we need to measure understanding, from a larger group of students with varying abilities, in order to identify the extent to which constructing VEs and using a variety of symbol systems help them learn. We need to establish causal relationships between presence, ability to work in a VE, and learning. We need to examine more carefully when and why collaboration among students helps them learn.

III. CONCLUSION

Creation of datasets using Questionnare & feedback form for understanding particular subject by the same teacher if teach by traditional method & virtual ICT technology. Its seen that virtual learners confidence level is high. To make the society understand the important of virtual learning technique. To prove how effectively these tools contributed to education sector. To support for the students with the goal of improving their reasoning process.

IV. FUTURE SCOPE

This is a preliminary work to show the need of VLE in the educational field. Several extensions could be explored, but firstly we need to evaluate the user appreciation of the VLE. As future work, we will set up an online survey to ask human users (including students, teachers and managers) about the goodness of these experiment.

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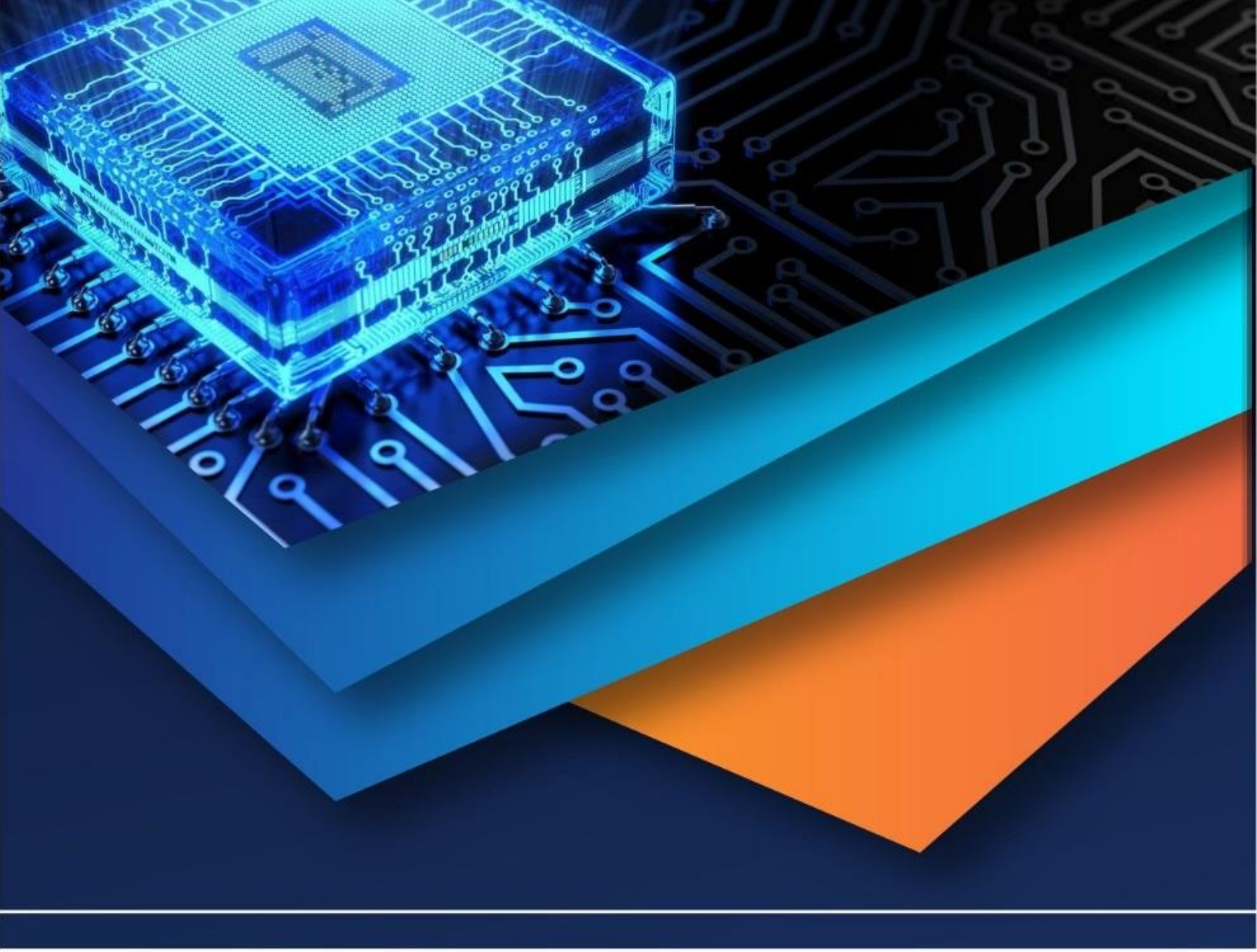

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