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RESEARCH ARTICLE

ONLINE LEARNING PLATFORM: A SCOPE FOR UNSTRUCTURED DATA

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ABSTRACT

Online learning platforms are being tremendously used by the researcher, educators or learners now days. As e-learning is not interactive so the communication is required in different way using asynchronous communication with discussion forum or through e-mail. Purpose of this paper is to explore various e-learning platforms and to categorize them, which are using the asynchronous communication to analyze the behavior of learner, improvement of course content, improvement of instructor and so on.

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INTRODUCTION

Learning Analytics is now an ongoing research in education system in which the performance of learner is analyzed so as to maximum benefit of all the learning platform available. Learning analytics with the detailed analysis of significant parameters of learning i.e. Content of the course, curriculum of institute and the behavior of learner also be analyzed and to predict learning out comes. The exact definition of LA is not given but The Society for Learning Analytics and Research (SoLAR) defined Learning Analytics is a way to measure, collect, analyze and visualize the learning behavior of a learner [Siemens, 2011]. A learner can be student, instructor, multiple industry professionals employed or unemployed. Persons are learning from internet through multiple learning resource like youtube, Learning Management System, social network (e.g. facebook, LinkedIn twitter) or any e-learning portals (e.g. Udacity, edX, Udemy etc) in which the instructor is not physically present. so the feedback regarding relevance and quality of content as well as instructor or course may given by discussion forum or email. the learner may clarify his or her doubt using the discussion forum or through mail. so the point arises that the how learner performance and behavior of learner, course content etc be analyzed?. There is a pool of technique to analyze viz a viz Supervised learning algorithm and unsupervised learning algorithm [Pedro Manuel Moreno-Marcos *et al.,* 2018]. Performance of a learner is dependent on quiz, assignment, attendance etc. and the behavior of student can be that learner is satisfies with the instructor or course content if so the learner will continue to study, means will not dropout. Sentiments in discussion forum may predict the behavior, performance of learner with respect to instructors teaching and about content of the course which is being studied. The performance and behavior includes that whether learner is going to complete the course the with certification or will leave the learning in the middle of the course. In discussion forum learner discussed their issues by posting the massages. Massage can be categorized in to post, thread and comment. In this study we have categorize the e-learning platform into four categories MOOC, LMS, Social Media and other. used to analyze the unstructured data provided when the learner is giving the feedback or discussing about the course.

Objective

The objective of this research is:

- To categorize available online learning platforms with respect to data they process.
- To find the most frequently used platform for online learning.

RESEARCH METHODOLOGY

The e-learning is now in new trend that is helping the learner for effective and extensible learning. This research is done with the intension to know about the e-learning platform and tools through which the learner can give the

feedback or clarify their doubts to improve their learning, to improve course content and to improve the performance of instructors too. I have selected 20 paper for the categorization according to the platform used in discussion forum to find the sentiments, opinion, attitude etcetera of the learner.

LITERATURE REVIEW AND ANALYSIS

Learning analytics is an important research area these days. The online learning platform provides the discussion forum as a medium to communicate with instructor, peers and give the feedback about the course. As the more of data is generating from the discussion forum. So is to analyze that data different methods data mining techniques, natural language processing etc are used. Literature review has been done on different e-learning platforms like MOOC, Learning Management System, Facebook, Youtube, etcetera.

MOOC

The abbreviation is Massive Open Online Course, in which any learner can learn from anywhere, any time. A learner can be any educator or student. a pool of MOOC portals are available i.e. Coursera, Udacity, Udemy, edX, Mookit. and there is one chenies MOOC i. e. Guokr Web [Sannyuya et al., 2018, Zhi Liu et al.,2015]. Courses are available in it to facilitate the learner for certification also. Many of the higher education institute are making compulsory to enroll in one of the subject in MOOC as self learning and having some credits which will be added to the student result. the issue related to course alignment (.i.e. the course which is to be enroll may or may not be fully aligned with the course is in institute), related to performance of instructor, and topic related issues may discuss on discussion forum provided by individual MOOCs. The context of discussion forum will help to find sentiments, opinion and the learning behavior of learner

LMS

LMS is the learning management System to provide dynamic and flexible learning. There are a number of LMS tools are MOODLE, Edmodo, Blackboard etc. the most used LMS is MOODLE. This is the platform which is used in particular institute. LMS is the platform where the lecture material, quiz, assignment etc that all can be performed online instructor will. In the recent trends the educational institutes are implementing the LMS in their teaching learning process to get the good learning outcome. quiz are uploading on that by giving deadline to attempt that, the result are shown to the students also to know their performance. And assignment can also upload on learning management system to evaluate it. the benefit of doing so is the advancement in learning.

Social Media

Social media like Twitter, Facebook are also the learning platform in present era. Multiple social media platform for online learning are available, one of the Chinese social media is Weibo(Jichang Zhao *et al.*, 2012). Social media is one the platform where we can get the emotion, attitude, mood of learner to predict the behavior of learner, that can be classified in to that whether the learner is frustrated, confuse, bored etc. Some of the people write the slangs or emoticons to express their feelings. Weigo and twitter are providing that the learner can write only 140 characters at a time (Jichang Zhao *et al.*, 2012). It is the less in number so this will be one of the challenge in this field.

Others

Some of the platform which are used on large scale in education now days are YouTube, wiki and piazza which is used in collaboration with LMS, MOOCs and social media platforms (Michael Schubert *et al*., 2018). These platforms provide important feature of interactivity between the providers and peers which provide a scope of different kind of data generated from these platforms

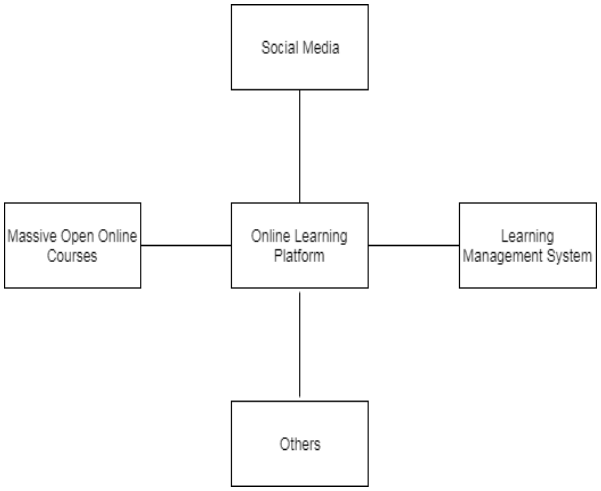

Figure 1. Various platforms of e- Learning

Table 1. Frequency of online learning platform

Categories of platform	Frequency
MOOC	11
LMS	5
Social Media	3
Others	4

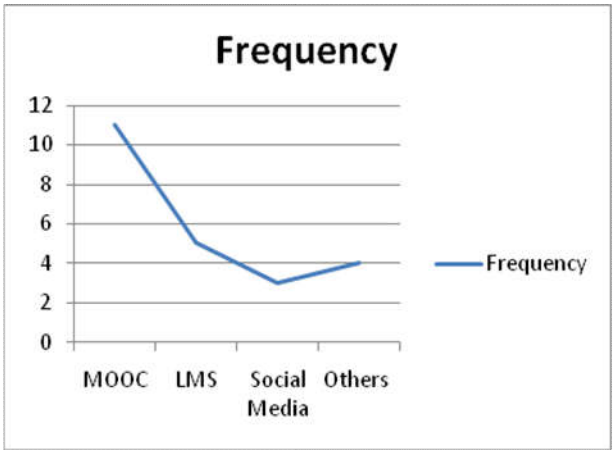

Figure 2. Graph representing frequency

Table 2. Categorization of online learning platform

Autor/ Year	Title	MOOC	LMS	SOCIAL MEDIA	other E- learning Platform
Pedro Manuel Moreno-Marcos, Carlos Alario-Hoyos, Pedro J. Muñoz-Merino, 2018	Sentiment Analysis in MOOCs: A case study	√	x	x	x
Steven C Harris, Vivekanandan Kumar, 2018	Identifying Student Difficulty in a Digital Learning Environment,	x	√	x	x
Sannyuya Liu1, Xian Peng1, Hercy N. H. Cheng1, Zhi Liu1, Jianwen Sun1, and Chongyang Yang1, 2018	Unfolding Sentimental and Behavioral Tendencies of Learners' Concerned Topics From Course Reviews in a MOOC,	√	x	x	x
Zhi Liu,SanyaLiu n, LinLiu,JianwenSun,XianPeng,TaiWan g, 2015	Sentiment recognition of online course reviews using multi-swarm optimization-based selected features	√	x	x	x
Arti Ramesh,1 Shachi H. Kumar,2 James Foulds,2 Lise Getoor2,2015	Weakly Supervised Models of Aspect-Sentiment for Online Course Discussion Forums	√	x	x	x
Diyi Yang, Robert E. Kraut, Carolyn P. Ros´e, 2015	Exploring the Effect of Confusion in Discussion Forums of Massive Open Online Courses	√	x	x	x
Michael Schubert, Damian Durruty, David A. Joyner,2018	Measuring Learner Tone and Sentiment at Scale Via Text Analysis of Forum post	x	x	x	√
Fabio Clarizia, Francesco Colace, Massimo De Santo, Marco Lombardi, Francesco Pascale,2018	E-Learning and Sentiment Analysis : A Case Study	x	√	x	x
Jichang Zhao!, Li Dong!, JunjieWu†, and Ke Xu!‡,2012	MoodLens: An Emotion-Based Sentiment Analysis for Chinese Tweets	x	x	√	x
Alvaro Ortigosa ⇑, José M. Martín, Rosa M. Carro,2013	Sentiment analysis in Facebook and its application to e-learning	x	x	√	x
Lorenzo A. Rossi Omprakash Gnawali,2014	Language Independent Analysis and Classification of Discussion Threads in Coursera MOOC Forums	√	x	x	x
Zied Kechaou, Mohamed Ben Ammar, Adel.M Alimi,2011	Improving e-learning with sentiment analysis of users' opinions	x	√	x	√
Diego Buenaño-,W.Villegas-Ch., Sergio Luján-Mora.,2018	Using text mining to evaluate student interaction in virtual learning environments	√	x	√	√
Conrad Tucker, Barton K. Pursel, Anna Divinsky, 2014	MINING STUDENT-GENERATED TEXTUAL DATA IN MOOCS AND QUANTIFYING THEIR EFFECTS ON STUDENT PERFORMANCE AND LEARNING OUTCOMES	√	x	x	x
Jian-Syuan Wong, Bart Pursel, Anna Divinsky, and Bernard J. Jansen,2015	An Analysis of MOOC Discussion Forum Interactions from the Most Active Users	√	x	x	x
Mina Shirvani Boroujeni1, Tobias Hecking2, H. Ulrich Hoppe2, and Pierre Dillenbourg1,2017	Dynamics of MOOC Discussion Forums	√	x	x	x
Qingchun Hu, Yong Huang, Liping Deng,2018	A Method for Analysis of Online Discussion Forum in Moodle	x	√	x	x
Zhi Liu, Wenjing Zhang, 2016	Emotion and associated topic detection for course comments in a MOOC platform	√	x	x	x
P, Bharathisindhu, S. Selva Brunda, 2014	IDENTIFY E-LEARNING'S OPINION USING AUTOMETED SENTIMENT ANALYSIS IN E-LEARNING	x	x	x	√
Andreas F. Gkontzis,Christoforos V. Karachristos,Chris T. Panagiotakopoulos, Elias C. Stavropoulos and Vassilios S. Verykios, 2017	Sentiment Analysis to Track Emotion and Polarity in Student Fora	x	√	x	x

Conclusion

In this paper different online learning platforms are categorize on the basis the data they handle. These online platforms are grouped in to four different category MOOC, LMS (Learning Management System), Social Media, Others(i.e. YouTube, Piazza,). It is analyzed that the most used online learning platform is MOOC followed by LMS and others.

Future Work: This analysis is being done on small set of Online Platforms. For further investigation more number of research papers can be considered to find the different categories and subcategories of e- learning platforms.

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