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Author,year,country	Title	Objectives	Data	Theory and Ethics	Analysis	Outcome
Juan Cruz-Benito, Roberto Theron, Francisco j.,Garcia-Penalvo,Emiliana Pizarro Lucas, 2014, Salamanca Spain	Computers in Human Behavior, Discovering usage behaviors and engagement in an Educational, Virtual World	Investigate user interactions to determine usage behaviors patterns and engagement factors to improve learning in virtual world.	Data concerning four of the key features and options in Educational Virtual Worlds were retrieved:voice chat-based,text-communication based,text communication based features ,session information and movement inside the Virtual Worlds.	Engaged learning Theory is generally defined to a situation in which learners are active in their learning and student activities involve active cognitive processesses.Users have to identify theirselves in Virtual World,protection by survey authorities.	Microsoft Excel was used to extract raw data from the Virtual World for exploratory analysis.Cluster ing of common features,basic statistics to analyze the measures	Usage behaviors and engagement indicators represent an appropriate approach with which managers of the Educational Virtual Worlds can determine how users use the online features avaliable which tools have greater acceptance, and which tools are more useful for users.
Rebeca Cerezo,Miguel Sanchez-Santillan,M.Puerto Paule-Ruiz,J.Carlos Nunez,2016,Spain	Students' LMS interaction patterns and their relationship with achievement: A case study in higher education.	To extract different groups of students with similar behavior from Moodle logs and match them, if possible, with different levels of achievement by using the log data which are retrieved from an eleven-week Moodle-based course.	The variable data were retrieved from usage data provided by Moodle (Cole & Foster, 2007), which is one of the most widely used open source LMS.	The program was organized around a series of SRLS or self-regulated learning strategies (i.e., establishing goals, organizing time, managing text information, using comprehensive memorizing strategies).	In the first stage, cluster analysis groups the students into different groups, and in the second stage, ANOVA is conducted to observe the hypothesized inter-cluster differences.	The results show that three variables of the most related with the final marks were timetask, followed by days "hand in" and words forums; therefore, we used those attributes to make sense of the results and name the groups as Cluster 1 e Non Task or Theory Oriented Group (non-procrastinators), Cluster 2 eTask Oriented Group (socially focused), Cluster 3 e Task Oriented Group (individually focused), and Cluster 4 e Non Task Oriented Group (procrastinators).
Dirk T. Tempelaar , Bart Rienties , Bas Giesbers , 2014,Netherlands	In search for the most informative data for feedback generation: Learning analytics in a data-rich context.	Investigate several different data sources to explore the potential of generating informative feedback for students and teachers using learning analytics: data from registration systems, entry test data, students' learning dispositions, BlackBoard tracking data, tracking data from two e-tutorial systems, and data from systems for formative, computer assisted assessments.	Data from registration systems, entry test data, students' learning dispositions, BlackBoard tracking data, tracking data from two e-tutorial systems, and data from systems for formative, computer assisted assessments. In line with recommendations by Agudo-Peregrina et al. (2014), we collected both dynamic, longitudinal user data and semi-static data, such as prior education.	Under the Blackboard LMS behaviour Vermunt's model distinguishes learning strategies (deep, step-wise, and concrete ways of processing learning topics), and regulation strategies (self, external, and lack of regulation of learning).So, there are Learning Styles,Motivation, Engagement. Here,learning analytics should take into consideration data from Personal Learning Environments (PLE), although several ethical issues need to be addressed in terms of informed consent if institutions are using PLE data.	Prediction models applied in this study are all of linear, hierarchic regression type. More complex models have been investigated, in particular interaction models. . Predicting performance by demographic data, . Predicting performance by EntryTest data, Predicting performance by all weekly data etc.	The generation of timely feedback based on early performance predictions and early signalling of underperformance are crucial objectives in many learning analytics applications. The added value of data sources for such applications will therefore depend on the predictive power of the data, the timely availability of the data, and the uniqueness of information in the data.
Dragan Gašević , Shane Dawson , Tim Rogers , Danijela Gasevic ,2015,UK	Learning analytics should not promote one size fits all: The effects of instructional conditions in predicting academic success.	By detecting the instructional conditions that influence the prediction of academic success in in nine undergraduate courses offered in a labeled learning model making better implications for institutions seeking generalized and portable models for identifying students	Data stored in institutional student information systems, e.g., high school grades, socio-economic status, citizenship and immigration status, parents' education, and language skills; trace data recorded by LMSs and other online learning environments; combinations of data. sources described above.	Post-behaviorist learning theory would suggest the importance of elements of the specific learning situation and student and teacher intentions , while motivational approaches focus (in part) on the beliefs that students hold regarding their capabilities with respect to specific content (Zimmerman	Regardless of the data source, the prediction of student grades is generally determined by applying logistic regression, . However, many authors, especially those from educational data mining backgrounds,	Generalized models of academic success prediction can overestimate or underestimate effects of individual predictors derived from trace data. Generalized predictive models were not suitable to inform practice and research. Use of a specific LMS feature by the students within a course does not necessarily mean that the feature would have a significant effect on the students' academic success; rather, instructional conditions need to be considered in order to understand if, and why, some variables were significant in order to inform the research and practice of learning and

			at risk of academic failure.		& Schunk, 2011), and constructivist theories investigate the interplay of instructional design and student internal conditions (Winne, 2006; Winne & Hadwin, 1998). All therefore acknowledge the contextual conditions.	have also reported highly accurate predictions using different classification algorithms such as C4.5, EM, Naïve Bayes, and support vector machines (SVM).	teaching.
Srećko Joksimović, Areti Manataki, Dragan Gašević, Shane Dawson, Vitomir Kovanović, Inés Friss de Kereki,2016,UK	Translating network position into performance: Importance of Centrality in Different Network Configurations	Investigate an SNA structure that incorporates both – descriptive and statistical methods to provide a more comprehensive and holistic understanding of a students' network position.	This study analyzed forum discussions within two instances of a single course that were delivered on the Coursera platform in Spring 2015. The two instances, Code Yourself (CDY) and A Programar.	In the present study, Simmelian Ties Theory presents a sound theoretical framework in providing valid context for interpreting the importance of social centrality for the academic achievement.	Social network analysis was conducted through two complementary phases; statistical network analysis and structural (i.e., traditional) network analysis.	Supplementing descriptive SNA with statistical network analysis and multinomial logistic regression, we were able to conclude that social centrality within the network characterized with "superstrong" ties, does not necessarily imply benefits. On the other hand, structural centrality in the network with reciprocal ties, where all participants have similar level of popularity, yet without a significant effect of "super-strong" ties, is positively associated with the likelihood of obtaining a certificate at the end of the course.

Selected Paper & Theory and Ethics Discussion
Computers in Human Behaviors
Discovering usage behaviors and engagement in an Educational Virtual World

"Those concepts that has been included in that research are about *engagement* and *behavior* patterns, their relationship with *the learning ecosystems*, and their *relevance in Educational VirtualWorlds.* Engagement is a key factor in the successful adoption of a learning ecosystem by students.And the article defines engagement simply as; engagement is *related to the involvement of students in their learning process or tools*. This involvement is evident in many ways, such as the time users spend learning, the number of activities undertaken, the relationship between results quantity and quality, etc. In the case of Virtual Worlds, for example, *engagement features are those factors related to the interactions of users with both the 3D environment and other users that increase use and acceptance of the environment*, thereby achieving better final results in the learning process."(from article)

So, according to the above defititinions and declarations that are taken from the article, Engaged learning is generally defined to a situation in which learners are active in their learning and student activities involve active cognitive processes and underline student makes psychological investments in the learning activities. And in this Engagement theory we need to focus on which learning happens while interacting with people inside the learning community or with those who are outside of it based on three components;

- First, focus on the collaborative nature of learning
- Second, the project based activities
- Third, emphasizes on the importance of making useful contributions to the society and community while learning.

Teacher roles for engaged learning shall be that of a facilitator, guide and co-learner; and student roles for engaged learning shall be that of explorer, cognitive apprentice, teacher and producer of knowledge. This provides a comprehensive basis for engaged learning by indicating factors that can help a teacher to design (and redesign), develop, implement and assess a learning process that focuses on the engagement of students. If we define an indicator like 'vision of engaged learning' and say that the learners are responsible for learning,strategic,energized by learning and collaborate with each other. 'Vision of engaged learning' indicator helps in defining engaged learning while other indicators propose ways in which engaged learning can be facilitated. And also there may be a difference in being physically engaged and cognitively engaged. Based on the literature mentioned above a definition of engaged learning theory we can say that this definition of engaged learning has the following: learner activeness aspect, cognitive aspect, socio-collaborative aspect, behavioral aspect, and so on…

"Learning through virtual worlds can be engaging for learners and can affect their test scores as well as their attitude and motivation towards it. However, in order to have the most out of learning in virtual worlds, they can be designed according to design guidelines based on previous research which suggests that virtual worlds shall foster inquiry-based, experimental, socio-collaborative features that engage learners in authentic and challenging tasks and shall have game-based rules for entertainment. Teachers need to follow some guidelines for engaged learning that suggests change in their traditional role. They shall guide learners in exploring, teaching and producing knowledge. Teachers also need to choose ways of assessment that is suitable for virtual worlds."
And when it comes to the Ethics part,

For this research, the authors do not intend to evaluate the acceptance or effectiveness of the platform for learning or its specific use by users during the test months, which could be determined using surveys after the pilots or based on student grades, but the authors do intend to explore user behavior and usage patterns to obtain deeper knowledge and explore the value of this knowledge in decisionmaking processes about the learning process in this Virtual World."(from article)

Since right after the tests, both teachers and srudents assessed aspects of appropriateness and acceptability through surveys, they are consent to attend these surveys.(Consent)

And against the anonymous identities ; because students and teachers have to identify theirselves in a Virtual World there is no such problem. (Anonymous Identity,Transparency+Validity of Data)

Since the authors do not intend to evaluate the acceptance or effectiveness of the platform for learning or its specific use by users during the test months, the administration who owns the data doesn't have such intension to evaluate specific use by users,so we don't have a problem at the side of data ownership and control.