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Vandana Naik  & **Venkatesh Kamat**

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Abstract

It is well known that if the learning strategies align with learning outcomes, learner well engaged in the session is likely to make progress in acquiring knowledge. However, it is challenging to ascertain learner's engagement in an online environment and to guess their grasp on particular topics. The objective of this work is to check for relations between the engagement and the performance. Firstly, log traces for each learner in a

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session depending on their interaction will be labeled. These features are analyzed to calculate engagement indicators that represent the level of learner's involvement and engagement levels per activity and session. This will help to identify the less engaged learners as well as to inform about the low engaging sessions or a particular activity in the sessions. It could be used in an adaptive learning environment to update the learning process by providing more engaging activities. Using the quantified traces, the prediction of the performance based on the interactions of the learner will be attempted. The training dataset from completed courses with labeled performance will be used to develop a model that can effectively predict the performance well in advance. This can help to prescribe techniques like extra help through more exercises, reference material for whom the predicted performance is below the threshold level. Supervised machine learning algorithms like neural networks, random forest and support vector machines will be explored to understand the prominent indicators of performance and to compare and find the most efficient algorithm for the purpose.

Author information

Authors and Affiliations

Department of Computer Science and Technology, Goa University, Taleigao, Goa, India
Vandana Naik & Venkatesh Kamat

Corresponding author

Correspondence to [Vandana Naik](#).

Editor information

Editors and Affiliations

University of Sao Paulo, Sao Paulo, Brazil
Seiji Isotani

University of Malaga, Málaga, Spain
Eva Millán

Carnegie Mellon University, Pittsburgh, PA, USA
Amy Ogan

DePaul University, Chicago, IL, USA
Peter Hastings

Carnegie Mellon University, Pittsburgh, PA, USA
Bruce McLaren

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Analyzing Engagement in an On-Line Session

Vandana Naik^(✉) and Venkatesh Kamat

Department of Computer Science and Technology, Goa University, Taleigao, Goa,
India

{dcst.vandana,vvkamat}@unigoa.ac.in

<https://www.unigoa.ac.in/departement-of-computer-science-technology.html>

Abstract. It is well known that if the learning strategies align with learning outcomes, learner well engaged in the session is likely to make progress in acquiring knowledge. However, it is challenging to ascertain learner's engagement in an online environment and to guess their grasp on particular topics. The objective of this work is to check for relations between the engagement and the performance. Firstly, log traces for each learner in a session depending on their interaction will be labeled. These features are analyzed to calculate engagement indicators that represent the level of learner's involvement and engagement levels per activity and session. This will help to identify the less engaged learners as well as to inform about the low engaging sessions or a particular activity in the sessions. It could be used in an adaptive learning environment to update the learning process by providing more engaging activities. Using the quantified traces, the prediction of the performance based on the interactions of the learner will be attempted. The training dataset from completed courses with labeled performance will be used to develop a model that can effectively predict the performance well in advance. This can help to prescribe techniques like extra help through more exercises, reference material for whom the predicted performance is below the threshold level. Supervised machine learning algorithms like neural networks, random forest and support vector machines will be explored to understand the prominent indicators of performance and to compare and find the most efficient algorithm for the purpose.

Keywords: Engagement · Performance · Log tracing

1 Introduction

Learner engagement refers to the depth of consideration, inquisitiveness, interest, optimism, and passion that learners show when they are learning or being

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