

Improving “Desktop medicine” efficiency using Guided Inquiry Learning in an Electronic Health Records System

Saptarshi Purkayastha, Parvati Ravindranathan Menon Naliyatthaliyazchayil, Asha Kiranmayee Surapaneni, Ashwini Kowkutla, Pallavi Maity
 Department of BioHealth Informatics, Indiana University – Purdue University Indianapolis, USA.

Abstract: Recent studies have shown that more than 50% of physician time is spent on “desktop medicine” – the practice of medicine that requires the use of computers and other technology. Providers are trained in other medical practices through elaborate course work, but don’t get enough training and follow-up training on the desktop medicine practices such as efficient use of an electronic health record (EHR) system. By putting in practice theories from learning sciences, human-computer interaction and evaluation in an undergraduate health information management (HIM) course, we developed a module called Student Team Learning Monitor (STLM) in an open-source EHR.

This innovative STLM is a module that is meant to track learner/user behavior in the EHR system and measure engagement (into categories of cognitive, behavioral, emotional and social) through a social constructivist approach to team-based learning called Process Oriented Guided Inquiry Learning (POGIL). The STLM module stores each user action like mouse clicks, page navigation, typing, hovering etc., and then provides a UI to compare the action between users. The EHR system has privacy controls and allows the user to enable/disable recording of actions. By comparing actions on similar activities, that similar users do in their routine work, users can learn from each other by reviewing and comparing actions. Currently, we have implemented STLM in two HIM courses (M200 database design and M220 clinical decision support system) and evaluated if student engagement improved due to use of STLM and POGIL-driven learning.

In a classroom setting, assignments are common tasks that students are asked to do in the EHR system, and compare with other students to learn the most efficient way to solve a problem. But this can further be evolved to apply to different types of clinical settings, where registration clerks might do similar actions, nurses might do similar actions etc.

Base Sample	New Sample
1 https://demo.openmrs.org/openmrs/login.htm	1 https://demo.openmrs.org/openmrs/login.htm
-2 [test:*****]-click.Login	2 admin:****-click.Login
3 https://demo.openmrs.org/openmrs/referenceapplication/home.page -click.System Administration	3 https://demo.openmrs.org/openmrs/referenceapplication/home.page -click.Find Patient Record
4 https://demo.openmrs.org/openmrs/coreapps/systemadministration/systemadministration.page -click:Advanced Administration	4 https://demo.openmrs.org/openmrs/coreapps/findingpatientrecords/coreapps/findingpatientrecords.page -click:Find Patient Record
-5 https://demo.openmrs.org/openmrs/admin/index.htm -click:Manage Patients	
6 https://demo.openmrs.org/openmrs/admin/patients/index.htm	
7	
8	

Figure 1: Comparison feature in STLM