Editorial

Learning analytics and Medical Education

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The number of courses delivered online or supported using learning management systems continues to rise; both in size and number, it is used by more students and employees to gain new knowledge, learn skills and earn degrees. [1]

In contrast to traditional methods of teaching that leave little trail behind, online learning has the potential to generate huge amounts of data about the students and their way of learning in terms of records, logs, interactions and digital footprint. [2]

The availability of huge datasets, increased computer power and the pressure towards better teaching and learning, personalization of the content and improving educational system has led to increased interest in learning analytics research. [3, 4, 5]

Learning analytics (LA) is an emerging and rapidly developing research discipline in the field of technology enhanced learning that -by definition- aims at *"measurement, collection, analysis and reporting of these data and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs"*. [2, 5]

Using analytics in the field of higher education can improve the decision making process based on actual data and real trends that are derived from students' behavior and resource usage. LA can foster institutional growth, increase productivity, create innovative models and enable institutions to understand strengths and challenge. [5, 6] It can be used to predict students' performance, personalize instruction, build adaptive systems and alarms of potential underachievement in real time. [3, 6, 7]

The future holds promise in bringing more sources of data that can add to the pool; from smartphones and smart watches, wearable technologies, Internet of Things (IoT), tracking devices, biometrics, sensors, smart medical training devices with logging modules, from RFID-Based attendance and beacon devices.

There is also a venue of a new category of smart and networked hardware; An example could be a microscope that records all data specific to students' usage, these data will be later analyzed to better understand and identify the patterns that are best linked to effective training which can be used to create adaptive systems. This is will also be possible to stethoscopes, sphygmomanometers as well as many other tools.

Unlike other sectors that has made great strides in the field of analytics, the education sector is late in reaping the benefits and harnessing the developments of data science, and it is even worse in the case of medical education where research is very limited in number and quality. A fact that necessitates the development of skills in education analytics and data science, infrastructure to support it, modifications to the existing learning management systems and new tools designed for this specific task.

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