Chapter 8
Outstanding Student Achievement: A Journey of Pedagogy Informed and Confirmed by Analytics

Richard J. Self
University of Derby, UK

ABSTRACT
This chapter will describe, evidence and critically evaluate a pedagogical journey which takes the reader from a traditional position of the “academic as a domain expert” to what turns out to be a far more effective position as the “academic as a Learning to Learn expert”. The evidence used to confirm the value and effectiveness of this changed approach by the author over a period of 5 years or so is based on Learning Analytics which demonstrate significantly improved academic results and achievements. It also demonstrates that the author’s teaching styles have a dramatic impact on the so-called BME Achievement Deficit, compared to many modules at the institution. It has also had a significant impact in terms of improving student satisfaction. The confirmatory evidence derived from the Learning Analytics is now being used to make informed choices by other colleagues to change their own pedagogical choices to also develop excellent achievement in their own modules and programmes.

INTRODUCTION
Learning Analytics can be of great value in helping academics to evaluate the impact of different pedagogic choices. It should, therefore, be considered a standard part of academic continuous professional development practice, an aid to reflection, a guide to the continuous development of teaching practice and materials. If this is to be the case, then it is vital that the analytics techniques and tools and data employed do not impose an unnecessary burden on the practitioners themselves.

This chapter uses a case study evaluation of the author’s recent practice to demonstrate how changes to pedagogy have been shown to have unexpected and powerful consequences in terms of student achievement using very simple forms of analysis and data collection which imposed minimal workload on the author.

DOI: 10.4018/978-1-4666-9983-0.ch008
The pedagogic practice change that is evaluated for effectiveness is a change from the comparatively traditional perspective of the “Academic as Source of all Knowledge” to an approach of the “Academic as source of Learning to Learn Skills”. A consequence of this changed perspective is that the, so-called, teaching approach is no longer to concentrate on delivering the domain knowledge, facts and answers but on clarifying domain concepts, relationships and sets of important questions that the learners must be aware of and understand. This provides great freedom to use as much of the allocated contact time as possible or necessary for one-to-one and very small group formative discussion and feedback, there is little or no need to dedicate much time to delivering the domain facts which can be easily researched and read by the students, provided that suitable signposting is provided. It is an approach that stops trying to fill leaky buckets with information and replaces it with lighting the fires of inspiration and enquiry (to amend Plutarch (100 A.D.)).

The Learning Analytics demonstrate conclusively the significant increase in average marks achieved by the cohorts as a result of the change. More interestingly, it also demonstrates that over the ten year period between 2004 and 2013, the BMEI (Black, Minority Ethnic and International) students did not display the problematic grade deficit that appears to pervade much of the UK HE landscape.

Comparison between different approaches to generating the analytics is presented to illustrate the value of simple Microsoft XL based analytics in aiding the understanding the basic messages of the data, and illustrating the additional insights that can be obtained through the use of more complex analytics based on using the SAS® statistical methods.

Key academic research based literature is introduced in the section entitled ‘academic as “learning-to-learn” expert’, where justification for researched and problem based pedagogy is introduced.

Objectives

There are three objectives for this chapter:

1. Outline and evaluate the pedagogic choices and implications.
2. Identify and critically evaluate lessons from the application of Learning Analytics.
3. Demonstrate the ease of applying relevant Learning Analytics to evaluating the consequences and impact of pedagogical choices.

ACADEMIC CONTEXT

This section of the chapter provides an understanding of the context in which the pedagogic choices were being evaluated and the nature of the modules that were taught by the author in both styles of teaching. The application of Learning Analytics was an almost accidental side effect of providing information for the end of semester module report but became very important in terms of selling the changes to skeptical colleagues, as will be seen in this section.

Background

The author started teaching at the University of Derby in 2002, following a thirty year career in industry.