THE APPLICATION OF BLENDED LEARNING TO LARGE GROUPS

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Information and communication technologies have the potential to transform education in developing countries from the traditional methodologies to a more modern and flexible learning environment. The application of information and communication technologies can play a significant role in improving the learning experience of students. In our introductory statistics courses we encounter large, diverse, heterogeneous groups of students from various disciplines and backgrounds which create some specific challenges. We would like to challenge and stimulate strong students while providing students with a weaker background with additional learning opportunities and materials. Blended learning offers us a unique opportunity to create a blend of face-to-face and technology enhanced learning opportunities to cater for these diverse groups of students. We present results from a pilot study using blended learning for a large first year service course in statistics at a South African university.

BACKGROUND

For the purpose of the pilot study an introductory statistics course which is a compulsory service course for students in the faculty of commerce, as well as the students who intend to major in statistics, was selected. The course has been developed to support students from various disciplines such as statistics, accounting, marketing, industrial psychology, investment management, agricultural economics, economics etc.

Traditionally the number of students who have enrolled for this module has been approximately 850 students, but in 2014 this number has increased to 1150 students. Of the 1150 students only 50 students continue with statistics in their second year. Approximately half of the students are accounting majors, with investment management majors making up another 20%.

THE PILOT STUDY

In the South African context, universities have students from diverse socio-economic backgrounds and high school education systems. Some students take advanced mathematics courses at high school level, where others simply take the course as it is prescribed.

Lecturers have to balance the limited time that they have available for face-to-face lectures between finding time to challenge students with a strong mathematical background and accommodating weaker students in the same group. In the past lecturers have tended towards spending the majority of their lecture explaining the basic statistical concepts in order to assist weaker students, leaving mathematically strong students unchallenged.

In the pilot study, we attempt to use technology such as Moodle and Qurio to overcome these challenges. Online assessments on Qurio enable students who require additional time to interact with the course content to complete online assessments after lectures at their own pace. Qurio is a web-based mobile assessment tool which enables lecturers to ask questions in any format and collect responses from feature phones in addition to smartphones, as opposed to only the latter.

Furthermore, case studies were developed with the aim to provide stronger students with the opportunity to see where statistics will be used in their future studies and careers. The fields of Management Accounting and Investment Management were identified as the two majors that have been included in the pilot study. At the end of each chapter a question taken from the second or third year management accounting and investment management courses was adapted to form a case study. A short assessment was included in the case study which students could complete in groups or individually on Moodle. These case studies were accompanied by vodcasts which guide students through the statistical techniques and Excel steps required to complete the case study.

Examples of the assessments and case studies developed as well as some preliminary results of this pilot study will be presented.

In K. Makar, B. de Sousa, & R. Gould (Eds.), *Sustainability in statistics education. Proceedings of the Ninth International Conference on Teaching Statistics (ICOTS9, July, 2014), Flagstaff, Arizona, USA.* Voorburg, The Netherlands: International Statistical Institute. iase-web.org

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