

Do Gender and Country of Origin Based Differences Matter for Online Learning?

Con Korkofingas and Joseph Macri

Macquarie Business School, Australia

Abstract. The rapid changes in technology and globalization have been important factors in the transformation, delivery and changing landscape of higher education services over the past 15-20 years. Many university courses are now delivered with online components and to a changing student cohort mix which feature greater proportions of women and international students. However, the effectiveness of online participation and online tools in the face of these changes in the higher education landscape is ambiguous. We seek to address three questions. First, does overall online participation, in a blended learning environment, improve student learning outcomes? Second, do various components of online participation impact differently on overall student performance? Third, is the effectiveness of the online components on student performance different for different sub-cohorts within overall student cohorts? The results suggest (1) overall online participation improves student learning outcomes (2) different components of online participation impact differently on overall student performance and (3) the use and impact of online tools on academic performance varies between gender and country of origin student sub-cohorts.

Keywords: gender-based differences, online learning, student learning outcomes, student online participation, web-based software, teaching online.

JEL Classification Code: A10, A20, A22,

1. Introduction

The exponential increases of both technology and globalisation have been important factors in the transformation and delivery of the core functions of higher education institutions over the past 15-20 years. Digital technologies such as the internet and Learning Management Systems (LMS) have provided the means to replace traditional lectures and tutorials with courses either delivered fully online or which blend traditional and online learning. The mixed or blended mode typically involves provision to students of course materials, course assessments, announcements, forums, group-based assessments and other learning tools predominantly via web-based technology. In a nation-wide survey of higher education courses in the USA in 2017 (Campus Technology 2017), only 15% of courses were reported as delivered fully face-to face while 12% were delivered fully online and 73% were delivered in a mixed or blended mode. The

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switch to online and mixed mode delivery has implications for students' learning with greater emphasis on self-regulated learning.

In parallel with the changes to delivery of courses through technology, changes in international student demand and the gender balance of demand for higher education have also contributed to the transformation of the education landscape. The large growth in international student demand has allowed existing providers greater potential access to much larger and diverse student markets. Although some of this demand is catered for with fully online/distance courses or through external campuses of existing providers, there has been a substantial increase in international students studying abroad. The number of mobile international students (studying abroad) increased by approximately 67% from 2005 to approximately 5 million in 2016 (ICEF 2016). From 2008 to 2016, the number of new foreign students at U.S. colleges and universities increased by 104% from 179,00 to 364,000 (Pew 2017). In Australia, international student numbers in higher education increased from approximately 86,000 in 2001 to just over 350,000 in 2017 (ADET 2018).

Additionally, the ratio of females to males in higher education for both developed and developing countries has been increasingly trending upwards for over two decades. The percentage of females of the total enrolment in US post-secondary education reached 56.5% in 2016 (NCES 2017), 57% in the UK for 2016/17 (HESA 2018) while for Australia, the equivalent figure in 2017 was 56.7% (ADET 2017). In the UK there has been a widening gap in the % of each gender entering higher education. From equal %'s in 2010 the gap was approximately 10% (Females 37.7%, Males 27.8%) for 2017 enrolments (UCAS 2018).

Together the changes to international student demand and gender balance of demand for higher education, have led to changes in the size and composition of student cohorts with generally increased and significant percentages of female and international student within overall cohorts. In Australia, the percentage of overall students in higher education which were international students was up from 18.7% in 2001 to approximately 28% in 2017 (ADET 2018). For the UK the percentage of business school enrolments in 2015 which were international students was 35% (BizEd 2018).

The changing size and mix of student cohorts within the online or blended learning environment raises important learning and pedagogical issues. The standard application or 'one-size' fits all approach of online delivery may not necessarily produce identical learning outcomes across different sub-cohorts, who may have different learning styles, language capabilities, affinity with technology and/or culture. Typical learning styles are likely to vary with both gender and country of origin as will affinity with technology. Capability in the use of English (typically the language of tuition) will likely vary with country of origin and culture. The impact of specific online tools (e.g. video, discussion boards, tests, forums, chat rooms etc.) may thus be different across these sub-cohorts. Inflexible application of online technologies, without an understanding