ADAPTIVE DESIGNS FOR STATISTICS TEACHING IN UK HIGHER EDUCATION

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PURPOSE

Prior to COVID-19, face-to-face, lecture-based instruction was the predominant form of teaching delivery in Higher Education (HE) in the UK for statistics. The pandemic offered an opportunity to rethink the delivery of statistics modules: teaching was primarily online throughout 2020–21 and a mixture of online and face-to-face in 2021–22. Much of the teaching over this two-year period moved to a 'flipped' approach, where students self-studied module materials before attending sessions aimed at consolidating knowledge.

This paper considers students' views on the effectiveness of online versus face-to-face statistics teaching and their preference for teaching delivery of statistics modules in HE: purely online, purely face-to-face, or a hybrid version where face-to-face sessions are live streamed for an online audience. Finally, we consider students' views on flipped learning as opposed to the more traditional lecture-based instruction.

APPROACH

In 2021–22, students taking statistical science degree courses at University College London (UCL) were exposed to different teaching delivery methods. Some sessions were purely online, some were purely face-to-face, and the rest were hybrid. Students were invited to take part in a survey to understand their views about the effectiveness of online and face-to-face teaching for learning statistics. Students were also asked their preference of delivery method for statistics modules in general (online, face-to-face, or hybrid) and their opinions about a flipped approach to teaching and learning.

RESULTS

Of the approximately 600 students invited to take the survey, 120 responded. Respondents were evenly split in their opinions about session delivery type and learning. Approximately one third expressed that they got more out of online sessions, and one third felt they got more out of face-to-face teaching. The remaining one third felt that they did not get more out of one or the other.

More than half of those surveyed (67/120) expressed a preference for hybrid teaching sessions, mostly to provide flexibility for students. A further quarter of respondents (31/120) preferred teaching that was in-person only. The remaining students were evenly split between preferring online-only sessions and expressing indifference between options.

Students were generally enthusiastic about flipped learning, with over one half of respondents (74/120) preferring a flipped approach. A further 25 students preferred the traditional lecture-type delivery, whereas the remaining students were indifferent.

The results also reveal the importance of a sense of community while learning statistics, which is difficult to create in purely online models.

IMPLICATIONS FOR THEORY AND PRACTICE

These results will be combined with an ongoing analysis of student engagement and progression data to feed into the design of future statistics teaching, including whether online teaching gives students the same sense of mastery as a blended approach, what elements are perceived by students to be better online, and whether to implement a flipped approach to learning more widely.

IMPORTANCE

Online and asynchronous learning will be a feature of education for the foreseeable future, a radical change for most HE institutions. Students' perceptions of content mastery should be an important consideration in any redesign.

In S. A. Peters, L. Zapata-Cardona, F. Bonafini, & A. Fan (Eds.), *Bridging the Gap: Empowering & Educating Today's Learners in Statistics. Proceedings of the 11th International Conference on Teaching Statistics (ICOTS11 2022), Rosario, Argentina.* International Association for Statistical Education. iase-web.org