Can Active Collaborative Learning Improve Equality?

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Abstract
Across UK Higher Education, there is a strong drive to improve equality for students from diverse backgrounds reflected in government and university strategies and policies. One priority is the attainment gap, where students from some ethnic minorities and other disadvantaged backgrounds experience worse outcomes than expected. The national regulator, the Office for Students, allocated funding for projects to improve equality for all students. Anglia Ruskin University (ARU) is a modern university in the East of England. It serves a diverse group of students, including above sector average numbers of BME students, students from regions with low participation in HE, and students from low income families. ARU partnered with two other UK universities on one of the Office for Students 'Addressing Barriers' projects. In keeping with ARU's strategic commitment to active learning, we aimed to scale up adoption of an Active Collaborative Learning approach, Team-Based Learning (TBL). TBL is a structured approach where students collaborate in permanent teams, and uses a mix of flipped learning, team work on authentic problems and feedback to ensure accountability. TBL has been demonstrated to improve engagement, participation and outcomes, with particular benefits for low performing students. We will present the evidence for impact on improved student outcomes, and narrowed gaps for disadvantaged groups of students as part of scaling up TBL across the institution. We will conclude with an outlook on how active collaborative learning together with other strategic measures can improve equality and student success in HE.

Keywords: Learning Experiences, Student Learning, Learner Diversity, Attainment, Retention, Higher Education, Educational Research

Introduction

The paper presents the findings of a project which considered the impact of active collaborative learning (ACL) on students' engagement and attainment in Higher Education (HE). The project was funded by the Office for Students (OfS) as part of the "Addressing barriers to student success (ABSS)" initiative (Office for Students, 2019a) and involved three UK universities – Nottingham Trent University (NTU) (lead institution), University of Bradford (UoB) and Anglia Ruskin University (ARU) (Office for Students, 2019b). A specific focus of the project was whether active collaborative learning approaches support the narrowing of attainment and other gaps.

At ARU the active collaborative learning approach adopted is team-based learning (TBL). The project aimed to scale-up TBL from successful early adopters, who worked mainly at module level in specific subject areas, to adoption in more modules as well as at degree programme-level across disciplines. The paper presents the findings regarding the impact of TBL on improved student outcomes, and narrowed gaps for disadvantaged groups of students.

After the introduction, the paper considers the wider national and institutional context and drivers for ARU's adoption of active collaborative learning pedagogies, in particular TBL, followed by a discussion of the project research methodologies and findings. We will conclude with lessons learned and an outlook on how we may take active collaborative learning forward strategically to improve equality and student success.

National Context

The UK HE sector is highly competitive while also being highly regulated based on a number of metrics which define an institution's national standing in league tables and the Teaching Excellence Framework (TEF) (Office for Students, 2019c). Amongst these metrics are

"how many students continue their course from one year to the next, graduate-level employment outcomes, and students' views about their experience (gathered in the annual National Student Survey). The TEF takes into account the mix of student characteristics, entry qualifications and subjects at each higher education provider. Assessment is based on what a provider has achieved within this context." (Office for Students, 2019d).

While retention and student experience (National Student Survey (NSS)) have been previous focuses of higher education policy, attainment and graduate employment outcomes have been strengthened in more recent HE policies by the Office for Students, the national HE regulator. This shift reflect their objectives to provide "value for money" in education (Office for Students, 2018) as well as introducing differentiated student fees via the TEF to bring about a more competitive HE market.

One aim of the OfS is to improve equality for students from diverse backgrounds (Office for Students, 2018). The attainment gap relates to students from some ethnic minorities and other disadvantaged backgrounds experiencing worse outcomes than expected. Improving attainment has been an objective at primary and secondary

school for a number of years and has now become part of further and higher education's strategic objective to "level the playing field". There is an impetus to achieve a fairer society and to ensure students from all social backgrounds, upbringings, ethnicities and (dis)abilities have an equal chance to succeed.

In 2018 ARU, together with NTU and UoB, were successful in securing funding from the OfS for a project focusing on improving equality for all students through active collaborative learning.

Institutional Context

ARU is a modern university in the East of England. It serves a diverse group of students, including above sector average numbers of BAME students, students from regions with low participation in HE, and students from low income families. According to ARU's student data (ARU, 2017a) up to 85% of ARU students may have one or more characteristics of disadvantage. As part of ARU's vision, values, and strategies, ARU is

"committed to valuing diversity and promoting equality. We seek to develop our people to be responsive, and equip our students for life in in a multicultural and diverse society. Our aim is to provide a supportive environment in which to work and study, where treating others with dignity, courtesy and respect is standard." (ARU, 2019a)

Being inclusive, addressing attainment gaps as well as employability are key objectives of the current University (ARU, 2017b) and Education strategy (ARU, 2018).

The Team-Based Learning Project

Background

ARU introduced TBL in the academic year 2015/16 after staff training by Professor Larry Michaelson (2014) and Dr Simon Tweddell (2015) with the aim of improving attendance, retention and student satisfaction and as part of introducing more active collaborative learning approaches.

Initially TBL was piloted by enthusiastic staff in three out of the five faculties mainly in individual modules with a more strategic approach in one faculty. The evaluation of the pilots showed promising results and supported our successful bid for OfS funding.

Sweet (2010) defined TBL as

"a special form of small group learning using a specific sequence of individual work, group work, and immediate feedback to create a motivational framework in which students increasingly hold each other accountable for coming to class prepared and contributing to discussion." (Quoted in Sibley and Ostafichuk, 2014)

TBL supports a number of objectives identified in ARU's University and Education strategies and is an active collaborative teaching approach which can be applied across different disciplines. TBL is a structured, three-phase approach of pre-learning tasks before learners come to class (Phase 1), which are then assessed individually and as a team (Readiness Assurance Process or RAP) using a multiple-choice format (Phase 2). This phase of flipped learning is intended to replace the mostly theoretical and factual content delivered through lectures. The third phase involves the application of the pre-learning to authentic and real-world problems (application exercises) where teams engage in decision-making, discussion, inquiry and problem-solving.
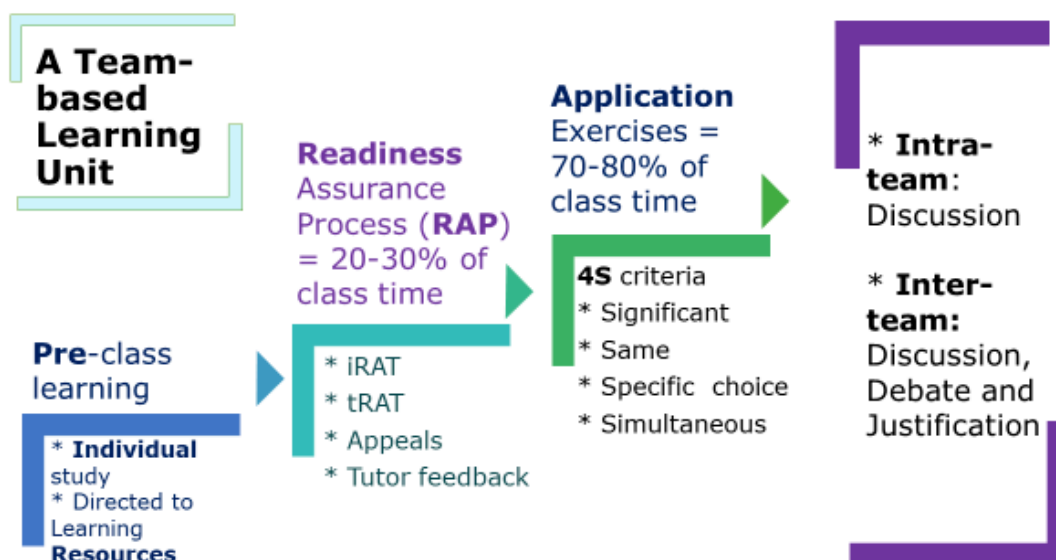

Figure 1: A TBL Unit

Students collaborate in permanent teams throughout a module, providing feedback, support and being accountable to each other. (Parmelee, et al, 2012, Whitley, et al, 2015).

TBL has been demonstrated to improve engagement, participation and outcomes, with particular benefits for low performing students. (Burgess, et al, 2014, Dearnley, et al, 2018, Fatmi, et al, 2013, Haidet, et al, 2014, Koles, et al, 2010, Sisk, 2011). Most TBL research is based on case studies of educational interventions,, but there is little research on institution-wide and routine implementation of TBL. This study discusses the impact of implementing and scaling up TBL across disciplines at institutional level.

We present the research methodology we used and the evidence we found for impact on improved student outcomes, and narrowed gaps for disadvantaged groups of students as part of scaling up TBL across ARU between 2015 and 2018.

Methodology

TBL was introduced at ARU through staff development events in 2014 and piloted in 2015-16. The pilot was evaluated using a mixed methods approach of student and staff surveys, a student questionnaire and semi-structured staff interviews. The

student questionnaire subsequently informed the design of the student questionnaire in the OfS project.

The OfS project also applied a mixed methods approach. The research instruments were coordinated between the project partners to ensure results were comparable.

The quantitative research was based on data from the university data systems which hold data on student performance (marks), attendance (since 2016-17 based on a swipe card system), student engagement (a combination of attendance (60%), library (20%) and virtual learning environment (20%) data) and student satisfaction (based on module evaluation surveys). We looked at taught undergraduate modules and used the data to compare TBL with non-TBL modules on related courses over 3 years (2015-8). Related courses refers to courses which had at least one TBL module over the duration of the 3 year study. The data allowed us to cross reference results with specific student groups e.g. male versus female, different socio-economic groups, BAME versus white.

The qualitative research involved defining the variation in TBL practice using a staff survey based on a TBL typology we had developed, staff experience using interviews and questionnaires, and student experience using an online questionnaire. The surveys and questionnaires were conducted using Jisc Online Surveys (Jisc, 2019a). The staff interviews were undertaken by the academic developer and the quantitative data was processed by a researcher both employed on the project. Excel, SPSS and NVIVO were used for the various analyses.

Findings

General findings

Over the three years of the project, adoption of TBL increased from 25 modules (2015) to 38 modules (2018) and from originally three to all faculties. While TBL adoption at module level increased successfully, course level adoption has been more of a challenge.

TBL substantially improved attendance and engagement scores. Engagement scores are calculated for each student for all the modules they take in a given year, and attendance (across the whole course) comprises 60% of the Engagement score (the rest being library use and interaction with the VLE).
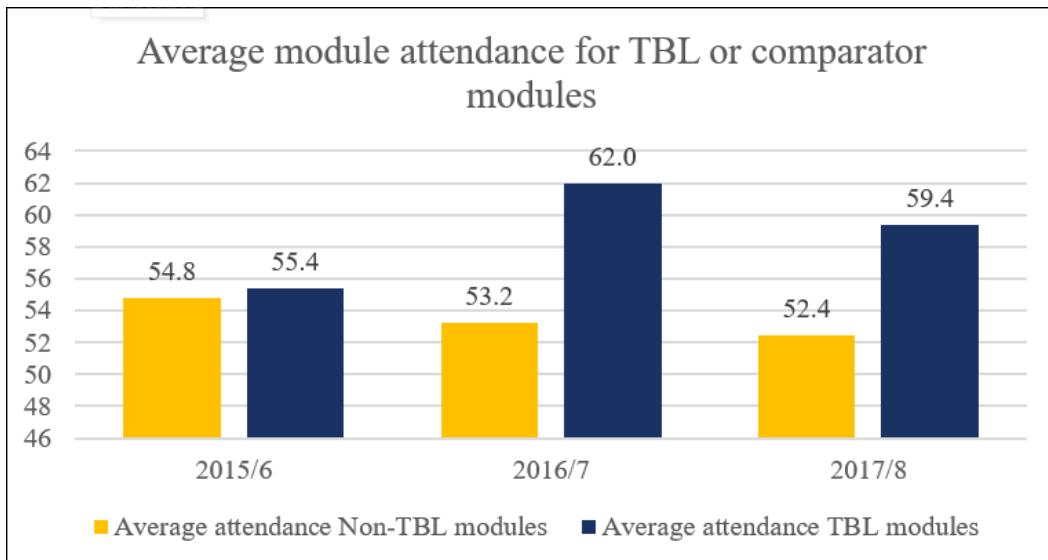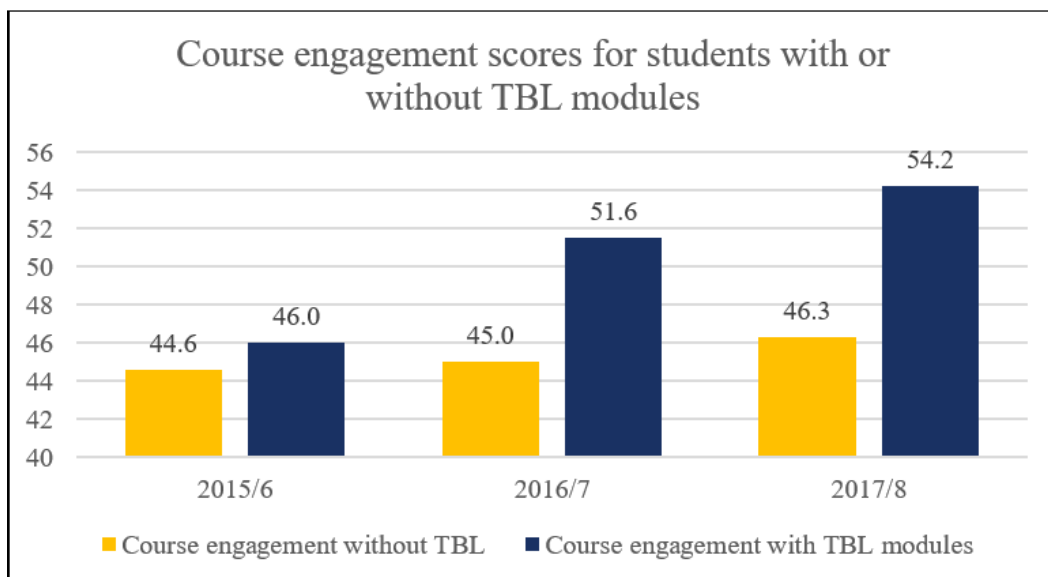
Figure 2: Average module attendance

Figure 3: Course engagement scores

The 2015/6 attendance and therefore the engagement are based on partial data as the automated systems were being piloted in this year.

TBL also slightly improved module marks and pass rate. The improvement in pass rate was often greater than the improvement in average marks for the cohort, indicating that lower performing students benefitted most from TBL.
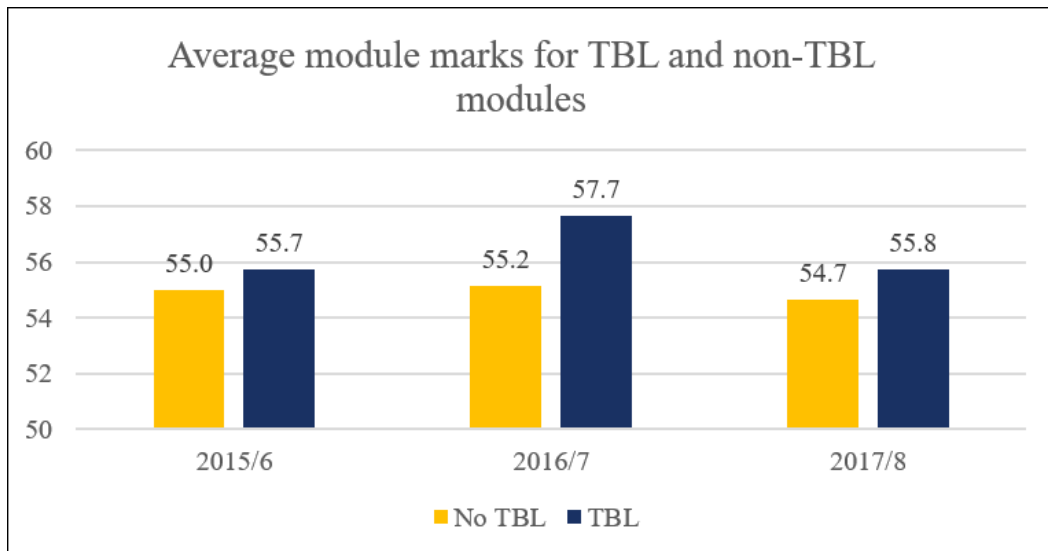
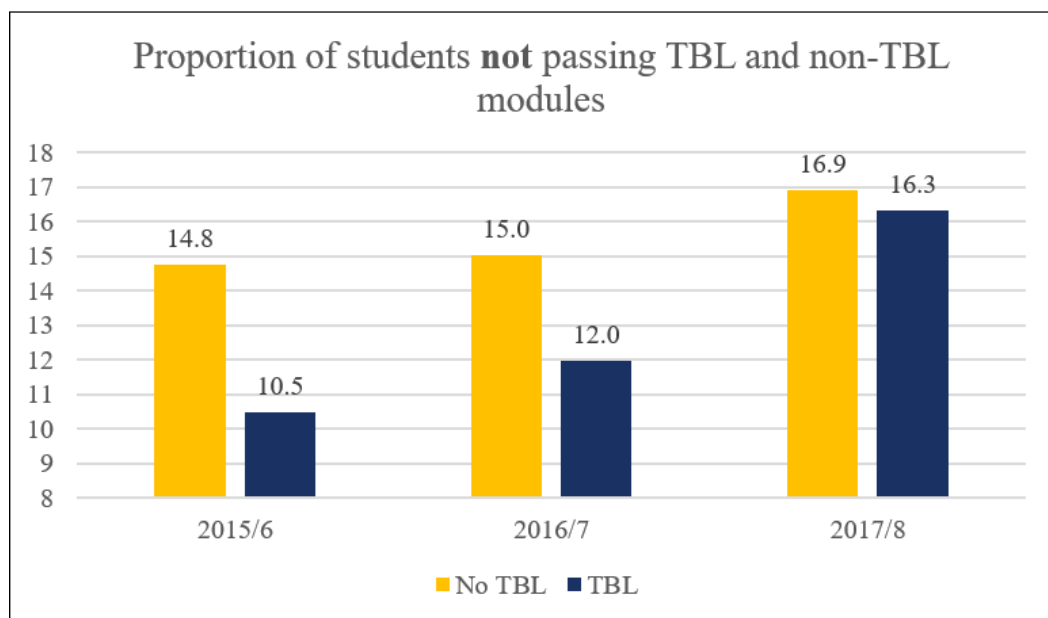Figure 4: Average module marks

Figure 5: TBL improved module pass rates

After three years, we found a tendency for students having experienced one or more TBL module during their studies to have improved degree outcomes. Good degrees refer to students achieving a 1st or 2.1 in their degree.
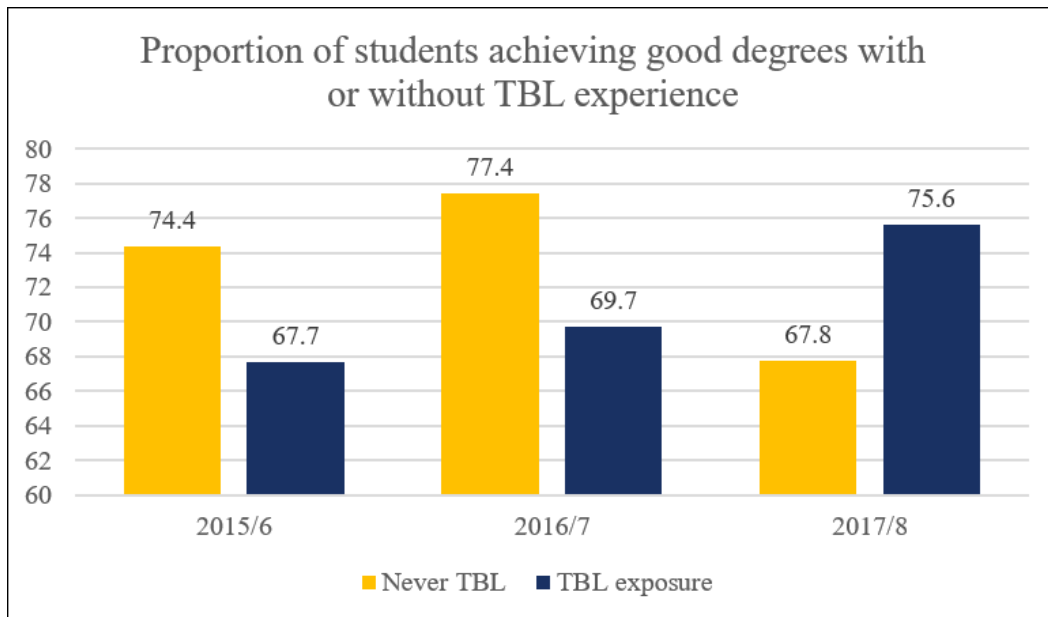
Figure 6: Good degrees

Overall students and staff were satisfied with TBL. In the student questionnaire, a two thirds majority of respondents were satisfied with their TBL experience and agreed that the different aspects of TBL have a number of benefits and advantages over other learning approaches. A majority of students also felt that TBL promotes employability and is a more inclusive way of learning. Some student quotes highlight why:

"Working with people I wouldn't have worked with otherwise."

"Using each other's knowledge to help you"

"Sharing of different skills and ideas"

These quotes emphasise the value of team work in helping students to experience a diverse team which is supportive and inclusive.

However, between one fifth and one quarter (depending on the question) were either neutral or critical about TBL. The following quotes provide an insight to students' critical stance towards TBL:

"We were treated as a group not individuals. I felt that I was wasting my money and time."

"It made me think that working alone would have reflected my own abilities more effectively."

More than half the students, responding to the question "I prefer to work on my own", agreed or strongly agreed, around a third were neutral and another third disagreed. This clearly indicates that, while students appreciate the value and benefits of TBL, which has working in a team at its heart, more than half of the students have to be convinced at the outset that TBL is to their benefit.
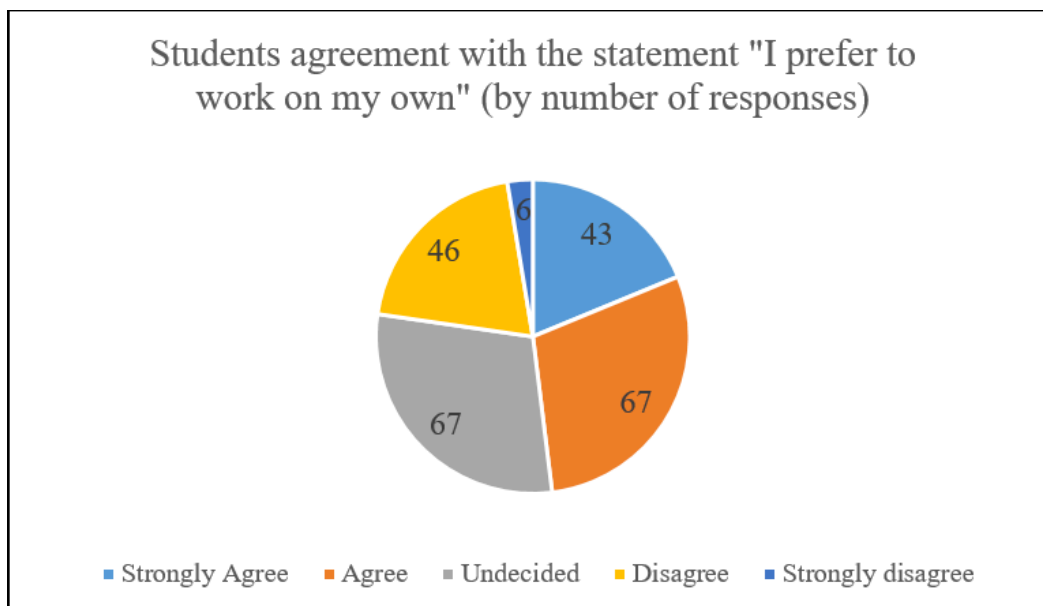
Figure 7: Student working preferences

Impact on disparities

In general we found that all groups of students improved to a similar extent when they learned with TBL. As a result, gaps in outcomes remained at a similar level. For example, we found that BAME students generally had slightly lower module marks than white students in the same modules, and this was the case in both TBL and non-TBL modules. However, both groups of students achieved higher average module marks in TBL than non-TBL modules.
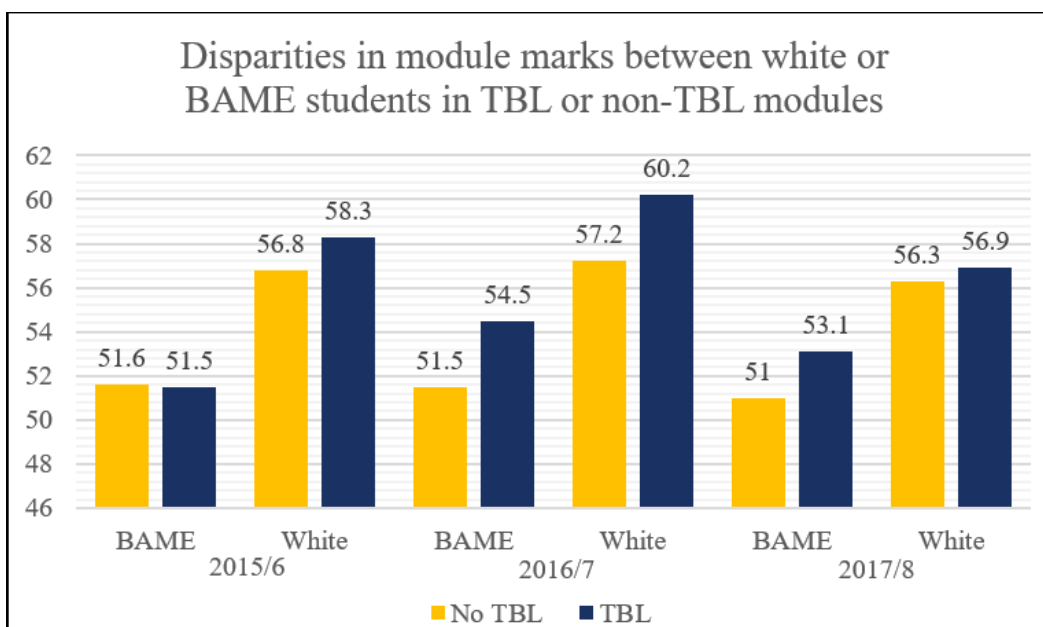

Figure 8: Disparities in module marks for white or BAME students

Similar patterns were seen for other disparities: in both TBL and non-TBL modules, female students had slightly higher module marks than male; students without declared disabilities had slightly higher module marks than students who declared

disabilities; students from POLAR regions with high HE participation had slightly higher marks than students from low participation POLAR regions; and students who had previously achieved A-Levels had slightly higher marks than students who had taken BTECs (specialist work-related qualifications at Level 3) before starting university (Office for Students, 2018).

Partner institutions found more positive effects on some gaps when students learned with active collaborative learning. At Bradford many gaps narrowed or disappeared, while at NTU gaps narrowed (except for gender) when students took multiple ACL modules (Active Collaborative Learning Project p23-6 and 31-33)

When we further subdivided the 'BAME' group into black, Asian and other non-white students, we found that the biggest disparity in module marks was between white and specifically black students, with the other two groups falling somewhere in between. This black / white gap narrowed in TBL modules compared to non-TBL modules, with all groups showing some improvement in marks for TBL modules.
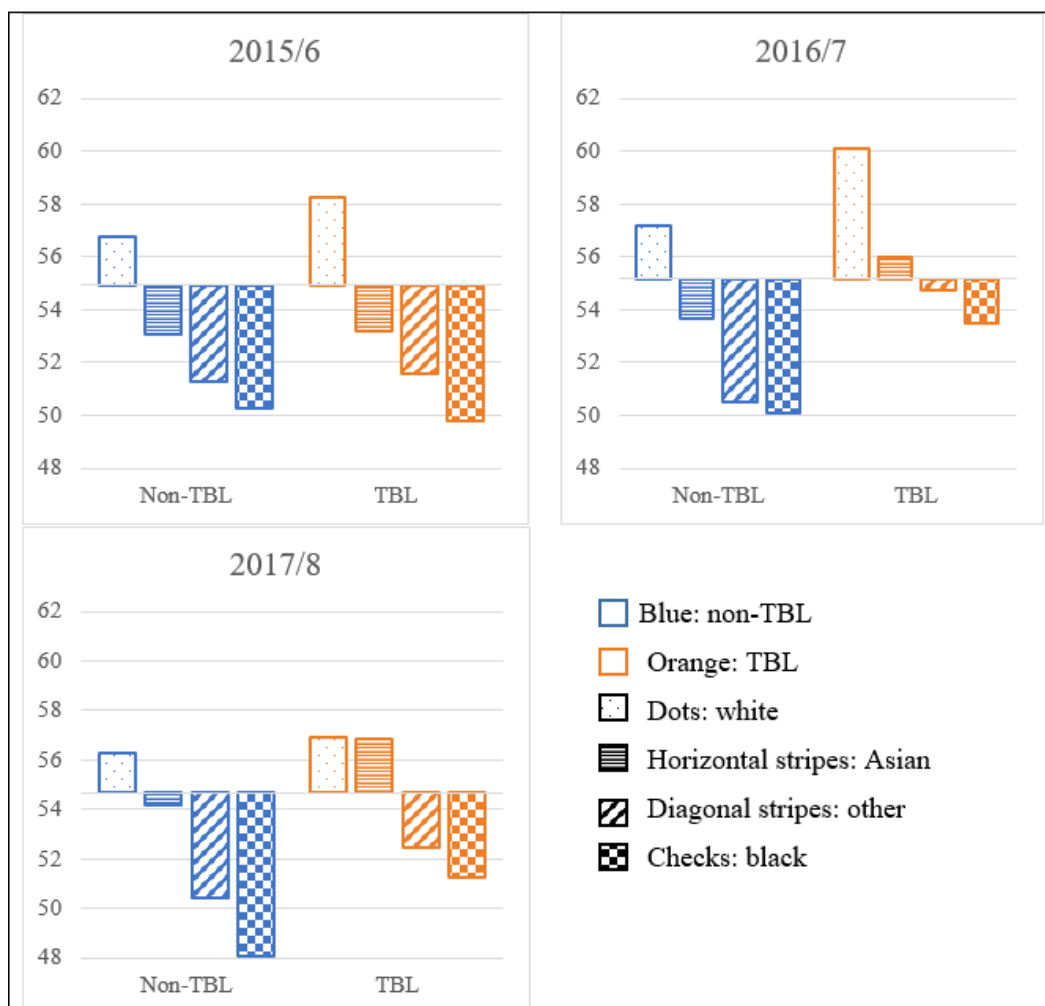

Figure 9: Module marks in TBL modules for students from different ethnic backgrounds

After three years, good degree attainment gaps narrowed for gender and ethnicity. In our data, 2017/8 was the only year where students could potentially have experienced TBL throughout their course. While at ARU we only had data for one cohort tracked

longitudinally over the whole three years of their degree, improvements in degree outcomes were evidenced by both project partners in their data. Both partners had data for several cohorts who had experienced active collaborative learning approaches throughout their degree learning journey. (Active Collaborative Learning Project, 2019, p21-33)
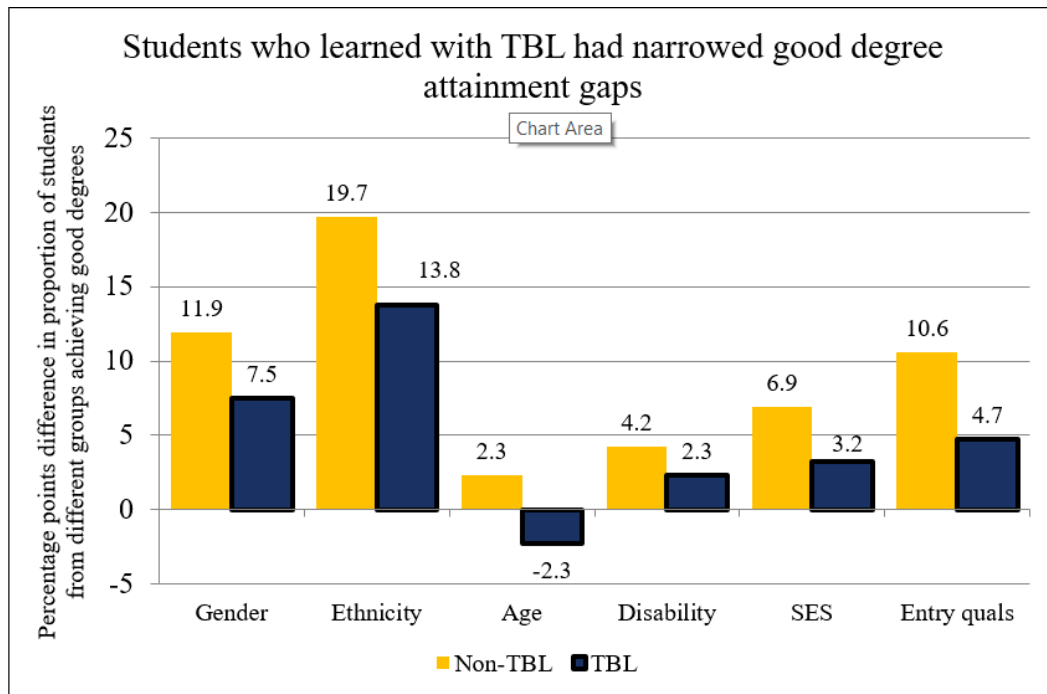

Figure 10: Good degree attainment gaps for several disadvantaged groups

Conclusion

The project demonstrated significant benefits of collaboration across three UK HE institutions. The shared research methodology and instruments allowed comparison of quantitative and qualitative research findings between three very different universities. The large number of students involved in this study across all three institutions underpins robust research findings, and is unique in its scale. At ARU alone we obtained data on around 7000 students,with around 3000 studying on TBL modules.

We found that TBL improves outcomes for all students, while the module pass rate improved more than the average module mark, indicating that the lowest performers benefit the most. We also found that while we had clear improvements in attendance the marks did not improve as much at ARU. This might be partially due to the module rather than course-based approach and that the study at ARU only included one cohort which went through a whole degree cycle. Results at NTU and UoB ddemonstrated greater improvements in performance, indicating that a higher number of modules taught with an active collaborative learning approach over the course of a degree (e.g. NTU) and a course level approach (e.g. UoB) improves performance and attainment. The findings demonstrate that TBL can successfully be scaled up across an institution, but some of the barriers such as aligning assessments to TBL (e.g. summative RATs, peer assessment) and the initially higher workload required to convert to an active

collaborative learning approach need to be addressed at institutional level (Active Collaborative Learning Project, 2019).

Attendance showed the most promising improvements, and increased attendance can be expected to have a positive impact on retention. TBL is specifically designed to create a learning community, where individual team members are accountable to their team. The diversity of teams is seen by learners and teachers as more inclusive and representing authentic experiences of working in a professional context. In fact, emphasising the link between professional behaviour, employability and team work is one way to create a learning culture and address the reluctance of some students regarding working in teams. Further studies on how learners with learning difficulties and disabilities may be affected by group- and team activities are forthcoming in order to recommend adjustments to avoid exclusion of some students.

The project also makes a case for the use of "big" data to inform decisions on pedagogic interventions. At ARU this was the first time that we evaluated a pedagogic intervention and evidenced its impact using complex sets of student data at scale. At national level intensive data work is currently being undertaken at many institutions and by a Jisc initiative on data and analytics (Jisc, 2019b). In future using this kind of data will provide us with the means to address areas of concern at different levels from single modules to courses to institutional approaches, similar to approaches already used at UK schools (Department for Education, 2018; Ofsted, 2008).

We report the impact of active collaborative learning at institutional and national level on students from broadly defined disadvantaged groups, such as BAME students or students from low participation POLAR areas. In order to identify and effectively address HE disparities, it will be valuable to consider individual programmes and modules, and to look at more fine-grained categories, such as different ethnicities, more complex measures of socio-economic disadvantage, and the impact of intersectional identities. Ultimately,any use of data and analytics must centre on individual learners. . As teachers having a good understanding of our individual learners and cohorts is essential to adapt our teaching and learning environment to create an inclusive and effective learning experience for all learners.

Acknowledgement

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