# Blending Microsoft Teams with Existing Teaching Environments to Increase Access, Inclusivity and Engagement

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This paper reports on two questions posed by our Foundation Year teaching team, "Are students interacting with our teaching?" and "Do all students find they can access our teaching and resources?" We introduced Microsoft Teams within two settings: a whole cohort academic module and small group-based assignments during Semester 2 of the academic year. Access to and activity within the newly introduced Microsoft Teams platform was investigated using the 90-day analytics window built into Microsoft Teams. Importantly, data were compared before and after the imposed remote-working situation due to the 2020 Coronavirus pandemic (Covid-19). Students' opinions surrounding the use of Microsoft Teams within these settings were elicited through a questionnaire which helped to contextualise the benefits and challenges in introducing and embedding this tool into an existing teaching environment.

Students reported that this platform was easy to use and that they were confident in using it in the future, but exhibited clear inertia to change, preferring existing communication channels. This effect was also situation dependent; in the whole group situation, students liked to read what others had posted but were reticent to post things themselves. In the small group Teams, levels of activity were generally higher, with some groups using the tool for real-time collaboration. Surprisingly, there was no significant difference in activity and engagement observed within the analytics window before and after enforced remote working. Overall, this paper shows that the adoption of Microsoft Teams in a hybrid teaching approach has merit in specific settings. However, careful consideration of the size of groups and how it is used within a setting should be given to elicit the desired effects.

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## Introduction

The Foundation Year (FY) within the Faculty of Engineering and Physical Sciences (FEPS) at the University of Surrey has just concluded its second year of tuition. The success and value-added of these programmes will continue to be evaluated, including the student experience from the context of engagement and inclusivity. 'Student experience', 'student engagement', and 'student inclusivity' are broad and often ill-defined terms (Little *et al.*, 2009), which we will not attempt to unpack here. This work considers a specific intervention, the introduction of an online tool, namely Microsoft (MS) Teams, in conjunction with the existing teaching structure in this FY programme, and reports on our observations surrounding engagement and inclusivity in our educational context (Dampier *et al.*, 2019). The scope of what engagement and inclusivity are in the context of this work is captured by two distinct questions raised by the FY Teaching Fellows. The first is, "Are students interacting with our teaching?" Here, engagement is perhaps best contextualised by their use of the resources available to them. This is hard to determine accurately since much of their use will likely be outside structured teaching sessions. Instead, engagement is approximated by visible interactions such as asking questions, reading or considering other student contributions or showing inquiry around the teaching resources provided.

The second question is, "Do all students find they can access our teaching and resources?" Student cohorts at university tend to be diverse (Benson et al., 2013), attracting students from a myriad of backgrounds, requiring institutions to ensure their courses are inclusive for all to assure a great teaching experience. This perhaps rings even more true for FY programmes where students hail from a variety of educational backgrounds (e.g., entry grades and qualifications, quality of previous educational experience and support available) and demographics (e.g., age, commuting to university, cultural background) (Sanders and Daly, 2013; Clifford, 2018). Indeed, for our FY programme, we have indicative, but unvalidated demographic data for our students averaged across all FEPS FY cohorts and the 2018/2019 and 2019/2020 academic years: 66% BAME students (compared with 42% directly entering to level 4 courses) and 19% students from the highest areas of deprivation (compared with 9% direct entry). The motivating case for this work is encouraging students to seek help when they need it. For instance, many of our FY teaching team consistently highlight that 'you can come ask me any questions', 'office hours are between...', 'just drop us an email' when addressing students en masse. Whilst some students are very proactive at taking such help, it is widely documented that some students do not access this help promptly (Chung and Hsu, 2006). There is a multitude of reasons for why a student finds it more difficult to access this help available to them, ranging from physical- or neuro-disabilities (Moriña, 2017) to a lack of understanding of such social cues or conventions, or they do not attend campus regularly enough to initiate some of these interactions (e.g., commuters). Whilst it is fair for one to argue about the relative merit of any one reason for a student not accessing help, it does not address the fact the student might not be receiving the help they need. Similarly, when we ask students to conduct work in groups outside of a teaching session, how are we ensuring that all members of the group are equally able to contribute to the groupwork. For example, if a group decides to organise and communicate via a social media platform, do all members have access (or want to have access) to the group through such platforms?

To help address some of these issues surrounding engagement and inclusivity, learning is increasingly being taken (or supplemented) online, even for courses which require regular attendance of campus-based timetabled sessions. For example, it is almost ubiquitous for HE institutions to use lecture capture technology to record all or part of a teaching session for students

to supplement their learning (Ibrahim, Howarth and Stone, 2020). Typically, this forms part of a wider virtual learning environment (VLE) where such captured content is placed, as well as other resources such as lecture notes, course handbooks and student information. Similarly, communication primarily involves email, with institutions requiring students to check email periodically as the 'official' means of communication. Whilst there are some practical reasons for doing so, particularly with high numbers of students on a course, there are several pedagogical reasons for supplementing traditional teaching with online provisions (Jones and Lau, 2010; Poon, 2013). Online learning usually allows a student to learn at a pace which suits them; they can access additional resources as and when they need them; it encourages students to take responsibility for their learning; it improves digital literacy. Many of these skills are sought-after by graduate employers in an increasingly digital world, which might justify exposure to online working in itself. Of course, there exists a continuum mixture of technological learning (e.g., online) with traditional teaching (e.g., face-to-face lectures), where the mixture ratio will likely depend on the educational context; nevertheless, these so-called 'blended learning' approaches can complement each other to increase the learning gains for the student (Poon, 2013).

It is here that we find the rationale for searching for another tool to help address some of these gaps in inclusivity for our students, whilst attempting to boost engagement in existing teaching sessions. In particular, we wanted a tool which could provide an easy-to-access platform for questions and answers as well as a collaborative tool we could encourage students to use in groupwork projects. Such a tool would need to be accessible to all students, who may have significantly different access to technology. MS Teams was selected as a suitable tool to meet these requirements (Martin and Trapp, 2019; Ilag, 2020; Microsoft, 2020). A final note is that the use of online tools and the pedagogy of online learning has received considerable attention recently due to the evolving nature of providing education within the context of the 2020 Coronavirus pandemic (Covid-19). As such this work is uniquely positioned to make observations on the use of MS Teams as an additional online tool for learning before and after the educational landscape adapted to online provisions. This is increasingly important since these tools will continue to receive considerable attention as more educators adapt to online teaching and hybrid learning approaches.

## **Research Methodology**

### Semester Outline

MS Teams was introduced in two modules for two different reasons: (1) A Team was created for the academic module 'Physics A' by the module leader to provide a platform to help and support students in this module. Physics A is taught across Semester 2 and is a compulsory module for all students, totalling 113 enrolled students. (2) MS Teams was directed to be the required platform to organise and collaborate with their peers during groupwork as part of another academic module, referred to as the 'Group Project'. Such groupwork was compulsory for all students and individual groups consisted of 5-7 randomly selected students from the cohort. Both modules had various deadlines associated with formative and summative assessments as outlined in Figure 1. Semester 2 at the University of Surrey began on Monday 10<sup>th</sup> February 2020, referred to as 'week 1'. A 4-week Easter break (labelled E1 – E4) ran from Monday 30<sup>th</sup> March to Sunday 26<sup>th</sup> April. Our observations with MS Teams finished on Tuesday in week 14, where students finished their Physics A final

summative exam marking the end of the 90-day analytics window. By this point, all work regarding the Group Projects had also finished.

### Questionnaire

A questionnaire was distributed to all students to better understand their thoughts and experiences of using MS Teams during their studies, see Appendix. In total, 21 responses were received and analysed, indicating a 19% response rate. As such, responses can inform conclusions but should not be assumed representative of the cohort-wide views. This questionnaire was written in MS Forms and distributed by email a week after their final Physics A exam (Figure 1). Anonymised and aggregated responses were collected and reported in this work. The questionnaire contained a mixture of closed, fixed-response, Likert and open questions to focus on specific paths of inquiry to gauge their prior experience with MS Teams, their agreeability with its use in their educational context, how they utilised MS Teams in groupwork situations and how their experience with MS Teams might be improved (see Appendix).

## **Activity and Interaction Analytics**

Analysis of student activity and interaction with all MS Teams groups was assessed using the analytics tools built into MS Teams, which provided a 90-day analytics window (*vide infra*). This provides data including the number of unique daily active users; the daily number of posts, replies, mentions and reactions; and the number of meetings held within a Team. These data were collected

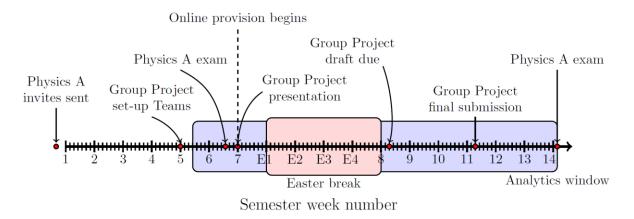


Figure 1. After the Physics A Team was created, email invites to all students were sent before the start of Semester 2, which lasted 14 weeks (labelled 1-14). Students were then encouraged to create their own Team for their ensuing groupwork as part of a different academic module. A deadline on Monday of week 5 was set for students to create a Group Project Team and invite all group members. The students sat an exam as part of Physics A on Friday week 6. At the start of week 7, the University adopted an online teaching provision due to the nationwide Government-directed lockdown amidst the Covid-19 pandemic. Students were required to submit a presentation about their Group Project on Monday of week 7. Students had a 4-week Easter break (labelled E1 to E4; red). A submission of a draft report was required for Group Project on Wednesday of week 8. A final Group Project report deadline was Wednesday of week 11. Students had a final Physics A online-exam on Tuesday of week 14. This filled the 90-day analytics window (blue) provided in MS Teams.

within this analytics window to understand how each MS Team was being used by students. At the administrator level, more detailed data are available, for example, who has accessed a Team and on what device (e.g., phone or desktop application). However, these data were not collected in this study.

An ethical self-assessment by the researchers indicated that a further review by a committee at the University of Surrey was not required. Participants were provided with a Participation Information Sheet attached to the invitation email which linked to the questionnaire. The invitation email, Participation Information Sheet, and questionnaire outlined that participation was entirely voluntary; the purposes of the research; how responses would be used, stored and anonymized; and that participants had the right to withdraw. The invitation was resent to the group a week later to increase response rates. Informed consent was sought explicitly by a single closed mandatory question on the questionnaire (see Question 1, Appendix).

#### **Results and Discussion**

## **Introduction of Microsoft Teams**

The academic module 'Physics A' was selected for the FY students, a compulsory module for all enrolled students which is taught during the second semester of study, lasting for approximately 14 weeks excluding a 4-week Easter break (see Figure 1). Just before the start of the semester, students received an introductory email explaining how MS Teams would be used in these modules and brief instructions on accessing the software, as well as an invitation link to Teams to join. At the beginning of the first lecture, MS Teams was introduced through a 10-minute talk and demonstration by a guest speaker from IT services. The aim of this was to add credibility to the introduction of a new tool which is maintained by IT services, as well as to introduce a point of contact for technical help. For groupwork, the use of MS Teams was encouraged via teaching resources to reinforce its adoption as a professional tool for communication and collaboration for students to use. After week 5, its use for the Group Project module was made mandatory and a deadline set for individual groups to create their group Team. This work, therefore, serves as a pilot study across Semester 2. If possible, introducing MS Teams at the start of the academic year, at the same time as IT accounts, email accounts and VLEs are being introduced, would likely be beneficial and boost adoption.

#### Making the Team

The process of creating a Team is relatively straightforward if it has already been deployed within an institution, often as part of an existing Office 365 suite of applications. Once signed into the MS Teams application through one's existing credentials, a new Team can be selected and a description of the Team, the Team type, and any appropriate settings can be selected, for example, whether the Team will be publicly searchable within your organisation. For Physics A, a generic Team type was selected, and privacy options were selected as private. For the student Group Project, students were provided with instructions on how to create a Team and to add group members to their Team, which were distributed through lectures and email. Students typically also opted for generic Team types which were set to private.

## Joining the Team

There are two main ways for adding members to a Team. Once a Team has been created, members can be manually searched for by email which will add them to the Team, or an existing Outlook distribution list can be used to add several members at once. This also provides opportunities for scalability across multiple Teams and larger cohorts. Another method is to create an invitation link unique to the Team which can be copied and shared as required. For the Physics A Team, the module leader emailed out an invitation link along with some information about what MS Teams is and what we would be using it for. This allowed students to 'request to join' the Team where the module leader could 'approve' the requests. This was useful for outlining MS Teams as well as inviting students to join. Of course, the downside of this method was that many students simply did not join the Team. For example, after three email invitations and reminders in lectures to join using the link sent out, 34% of enrolled students had still not joined the Physics A Team. At the beginning of week 6, students were manually added to the Physics A Team to encourage its use, given the transition into online teaching provisions which commenced in week 7. Students reported similar observations for creating their Teams for the Group Project where often one group member would set up the Team and invite the other members either by sending an invitation link or adding them via the email look-up. Many found the most immediate issue that some group members simply did not accept the invite, or sign into the application regularly. This was indicated in the questionnaire sent to students where 43% of student responses indicated that they sought better participation from other group members (Figure 6; vide infra).

## **Activity in the Physics A Team**

Irrespective of how the students (eventually) joined the Team, the next challenge was getting students to log into MS Teams and use it. The MS Teams application currently provides a 90-day analytics window which informs how the Team is being accessed and used. Such data is available under the 'Manage Team' option which can be viewed by any Team member. Important dates within this 90-day window are shown in Figure 1. Importantly, this 90-day analytics window captures the use of MS Teams before and after the online-only provision commenced in week 7.

The first observation made with the Physics A Team was that out of the 113 enrolled students on this module, 11 students (around 10%) were inactive across the entire 90-day analytics window, likely suggesting they never accessed the Physics A Team at all during Semester 2. As previously mentioned, a similar observation was recorded for Teams made by students for their Group Projects, where typically one student was inactive over this activity period (representing around 15-20% of the group depending on group size). Whilst this does not necessarily indicate the inactive member did not contribute to groupwork (peer assessment would usually highlight this), it does show MS Teams was not fully adopted by all students in either the module-wide Team for Physics A or the Group Project Teams.

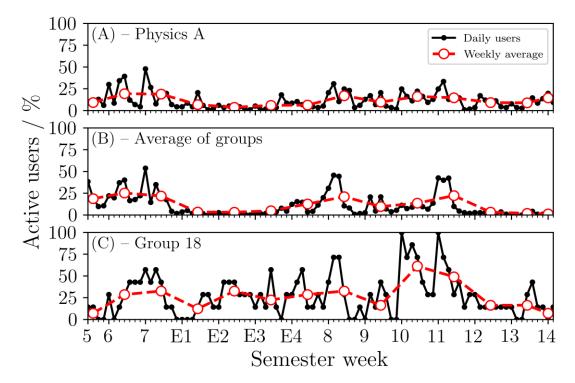


Figure 2. The number of active users recorded across the semester within the Physics A Team (A) and the student Group Project Teams (B), as a percentage of the total members in each Team. An example of one of the more active Teams, 'Group 18' is shown in (C).

The second observation made from the analytics window was the number of active users in the Team on any one day, see Figure 2. For the Physics A Team (Figure 2(A)), the daily activity peaked on Monday in week 7 with approximately 50% of Team members accessing the Physics A Team. This date represents the first lecture as part of the online provision which might account for increased activity. There are however two caveats to this observation. Firstly, this still only represents around 50% of the members of the Team. Any updates which were provided through MS Teams would not have been seen by half the cohort on the day of posting. Since the official mode of communication at the University is via email or existing VLE, this meant any important updates that were posted into a Team had also to be emailed to students. This likely accounts for reduced daily activity since the adoption of MS Teams is in addition to these communication channels, not in place of them, which is echoed by the student responses to the questionnaire, where 57% of students noted that remembering to check MS Teams regularly was an issue for them (Figure 6; vide infra). The second caveat is that daily activity was often much lower than 50%. The weekly averages (Figure 2(A), red line), show this more readily, where weekly activity was often less than 25%. Perhaps most surprisingly is the comparison of typical activity before and after week 7, which was when the online provision began for the University - there was no significant difference in student activity in the Team. This suggests students reverted to the default method of communication (email and existing VLE) to get updates and support. Similarly, activity did not significantly change throughout the key dates in Semester 2. For Physics A, there was a mid-semester test (Friday of week 6) and a final exam (Tuesday of week 14). The activity in the Team did not increase significantly around these times suggesting students did not use the Physics A Team as part of their revision. Again, it would seem students defaulted to use of email and the VLE. This is supported by student responses in a questionnaire where the majority of respondents (53%; Table 1; *vide infra*) indicated they prefer getting updates and information through email or existing VLE.

## **Activity in the Group Project Teams**

Observations drawn from the activity data from the Group Project Teams contrasts with that from the Physics A Team. Whilst the weekly average of active users was typically 25% or less, as observed within the Physics A Team, there were more frequent peaks of 50% or more active users in each Group Project Team (Figure 2(B)). These peaks occurred around important assessment dates for the Group Project module (cf. Figure 1), notably during week 7 (the Group Project presentation), week 8 (the draft report submission) and week 11 (the final report submission). This is encouraging as it suggests groups had used MS Teams to organise themselves and collaborated to produce the work product for assessment. Indeed, looking within the student Teams (since the module leader was added as a member to each group Team), it was clear that many were also using the document sharing and real-time collaboration features offered within MS Teams. Typical MS Office documents (Word, Excel, PowerPoint) are available through a web interface or can be opened natively on a desktop computer, meaning students could view and edit documents without having the Office Suite installed on their device. In addition to this, many groups also used video conferencing options to discuss and collaborate on assignments.

As briefly highlighted, a commonly reported problem by the students when using MS Teams for their group project was the lack of activity from some group members (Figure 6; vide infra). Whilst this is a perennial problem for groupwork and collaboration, the activity data does somewhat support this issue where even on assessment weeks typically only half a group would be collaborating at any one time (or day). However, there were cases where students maximised their use of MS Teams. Group 18 (Figure 2(C)) is presented as a good example of this. Here, on two occasions all group members were active at the same time. This can be seen for weeks 10 and 11 where the students discussed and collaborated on the project (week 10) before video conferencing and finalising the submission (week 11). Whilst this group was above average in their activity, it does highlight that some groups adopted this tool very well. On the other side of this, are groups with very little activity. Such groups tended to use other tools for collaboration and simply created the Team to fulfil the minimum requirement requested of them. This is supported by student responses in the questionnaire (Figure 5; vide infra) where the most popular tool used by respondents was WhatsApp. Often these groups would still submit work suggesting collaboration had successfully taken place, but it is not clear how the decision to use such tools was made. For example, did one or two vocal members make a WhatsApp group and peer-pressure caused the rest to follow? Not all students will use WhatsApp or similar tools, putting them in a potentially awkward position of trying to contribute to the group, but not having or wanting access to tools which are often firstdesigned as social media platforms.

## **Engagement with Teams**

Like the activity data collected, there are some engagement metrics which are recorded in Teams during the 90-day analytics window. Predominately, Team members will *post* messages, *reply* to a posted message, *mention* another member of the Team to bring their attention to something or use a *reaction* to something posted to the Team (such as an emoticon) to indicate thoughts or feelings

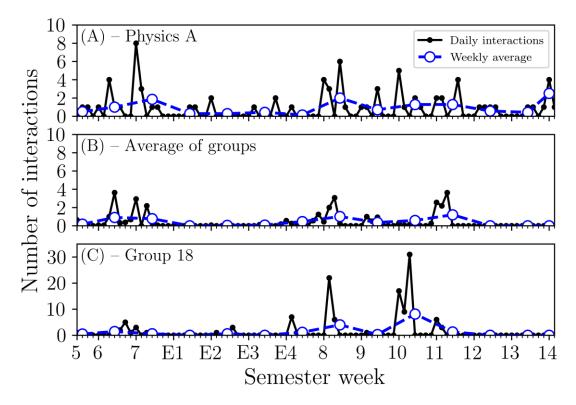


Figure 3. The number of interactions recorded across the semester within the Physics A Team (A) and the student Group Project Teams (B). An example of one of the more active Teams, 'Group 18' is shown in (C).

about a post. The sum of the number of each interaction – a post; a reply; a mention; or a reaction - was used as a measure of engagement. From the Physics A Team (Figure 3(A)) the most immediate observation was that the engagement appeared low, where typically only a few interactions were happening per day. Furthermore, these interactions included posts made by the module leader (e.g., announcements) which means student interactions were lower still. A reason for this might be that students prefer reading what others have posted, but do not want to post in a forum open to the whole cohort. Evidence for such reluctance comes from the student responses to the questionnaire (Table 1; vide infra). The disparity between students preferring to read what others have posted in the more 'public' forum than interacting themselves becomes more apparent when the engagement data for the Physics A Team is compared with that of the Group Project Teams (Figure 3(B)). Over the semester weeks (excluding the Easter break) a similar number of total interactions is seen in each Group Project Team as was seen for the Physics A Team. As such, students in the Group Project Teams were engaging far more directly with the platform. This was perhaps not surprising, not least because each group typically consisted of 5-7 students (cf. the 113 in Physics A) meaning any posts would be viewed by far fewer people, and the requirement of collaboration on a shared piece of work in the Group Project should foster more collaboration and thus a larger number of interactions. This is supported by the peaks in interaction data seen around weeks 6 and 7 (preparing and submitting presentations) and week 8 (draft proposal submitted) and week 11 (final project submission). Unsurprisingly, there were correlations between the activity data and interaction data, since one would be logged into MS Teams to interact with it, as is the case for the Group Project Teams (cf. Figure 2(B) and Figure 3(B)). However, this correlation was not seen for the Physics A Team since most of the interactions were from the module leader posting content into the Team, yet students were active on the Team suggesting passive use.

## Staff Observations of Activity and Engagement

Moving away from a cohort-wide analysis of activity and engagement, several important observations were made surrounding individual use of MS Teams during the semester. Whilst the activity of students on the Physics A Team did not change significantly around assessment dates, a number of those who were active on MS Teams contacted the module leader through the 'chat' feature of MS Teams. For them, this was in preference to email. What was observed here was that for each query from the student, the communication typically consisted of multiple short messages, rather than a long message one often gets via email. This platform could be a key tool to facilitate one-to-one help where messaging is far more dynamic: you can see when another person is typing a message, messages can be edited, and images can be easily sent to help scaffold an explanation or discussion, and when required, the discussion can be quickly moved into an audio or video call, with the option for screen-sharing.

Whilst this support is on a one-to-one basis, any useful discussions or explanations were copied into the Physics A Team to share with the rest of the cohort or compiled into a Frequently Asked Questions (FAQs) area, where students can be directed. This worked well given the existing tools available in MS Teams to create such a space. In this way, it becomes a more enriched and dynamic FAQ which could include text, images or videos. However, the impact of this space is, of course, limited by the activity of users within the MS Teams. If they are not checking it regularly, it instead becomes a list of possibly useful information which goes unnoticed. Again, for important updates which might be well placed in this FAQ (e.g., assessment details, deadline dates), they would have to be disseminated through existing (official) channels to ensure all students received the information.

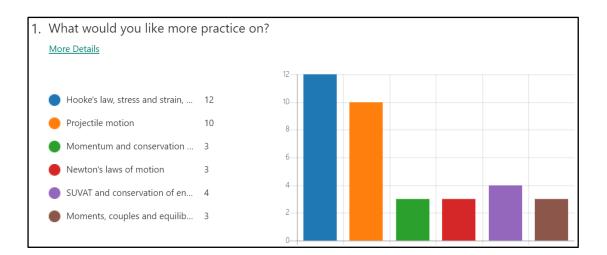


Figure 4. A screenshot of an example poll used in the Physics A Team. Students were asked "What would you like more practice on?", and a list of weekly topics covered are given to choose from. Results are made available in real-time and the poll can be closed whenever the creator wants to.

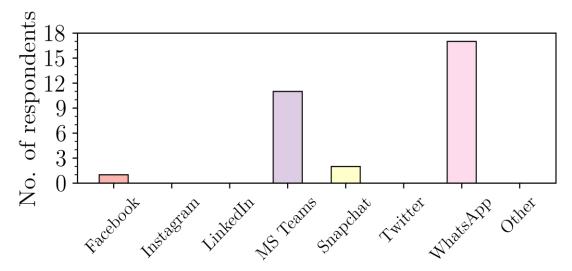


Figure 5. Students were asked "Considering your group work projects, which tool(s) did you prefer to use to communicate with and manage your group?" and were given 7 common communication/social media platforms to select from. Respondents could choose multiple options and indicate 'Other'. No respondents selected 'Facebook', 'Instagram', 'LinkedIn', 'Twitter' or 'Other'.

The ability to create short questionnaires or polls through the MS Forms App, which is integrated with MS Teams, was another feature used by both staff and students. For example, in the Physics A Team, the module leader would create a list of possible topics for revision and students could submit their preferred choices (see Figure 4; *vide supra*). The results of the poll can be made private or public to the students. Anecdotally, students indicated they liked to see the results which were ultimately reflected in the revision resources that followed. Similarly, this type of functionality was used by students in the Group Project Teams to schedule availability for meetings.

## Student Opinions – Preferred Communication Tools

We asked students "Considering your groupwork projects, which tool(s) did you prefer to use to communicate with and manage your group?" Students were given the option to select more than one tool and their responses are shown in Figure 5. WhatsApp was reported as the preferred tool (by 81% of respondents), which is likely to be because many students have already had exposure to WhatsApp, for example with group messaging. It is noteworthy that many students (52%; Table 1) reported that their preferred tool would be MS Teams – this is interesting since two-thirds of students also reported that they had not used MS Teams before its introduction in Semester 2. Similarly, 67% of students responded positively to using MS Teams for their groupwork (Table 1). Taken together this suggests that, as with most people, there is an inertia to change, where students will default to what they are most familiar with when they have the chance, or as one student reported: "...its just easier for people to use platforms they're already comfortable with". However, given some time to adapt and test new tools, they are willing to adopt them for specific uses – in this instance, notably for group work.

## Student Opinions – Using Microsoft Teams

Several statements were given to students and they were asked to what level they agreed with each statement. The statements and their agreeability are reported in Table 1. On reviewing this table, some of the observations made in the activity and interaction data (Figures 2 and 3) become clearer. Firstly, the majority of respondents (57%) agreed or strongly agreed that they liked to use MS Teams to ask a question about a module. Whilst the students liked to ask questions, notably through the chat feature of MS Teams (one-to-one with the module leader), this did not translate into asking questions observable by the rest of the cohort (i.e., within the Physics A Team). This was particularly noticeable in the Physics A Team compared to the Group Project Teams, suggesting that the audience size may be one factor which weighs into a student's decision to engage with the Team. This is somewhat unfortunate given that most students (62%) liked to read what was posted into Teams. If a student and their peers are reluctant to post something viewable by the rest of the Team, then most of the content being viewed will have been posted by the module leader, limiting the student-student interactions, particularly in larger Teams. Students did not report significant feelings towards using MS Teams for all academic modules, suggesting immediate scaling of the use of MS Teams in this way may be unwarranted. Students generally (53%) disagreed with the statement 'I prefer getting updates and information through a Team rather than email or SurreyLearn', suggesting students preferred to use official means of communication (email and the existing VLE). Finally, students reported overwhelming that they found MS Teams easy to use (86%) and that they are confident in using it in the future (90%). Since 67% of respondents indicated they had not used MS Teams before Semester 2, this suggests a new skill and competence with this platform has been developed.

Table 1. Statements given to students and their responses on a Likert-agreeability scale: 'Strongly Agree' (SA), 'Agree' (A), 'Neutral' (N), 'Disagree' (D) and 'Strongly Disagree' (SD). Responses with an aggregate of more than 50% above or below 'Neutral' are highlighted in bold. Note, percentages are rounded. Question 2 of the questionnaire (see Appendix) regarding previous experience with MS Teams has been included here for brevity.

	% of respondents				
Statement		Α	N	D	SD
I found Microsoft Teams easy to use.	29	57	14	0	0
I liked using Microsoft Teams to ask questions about a module.		38	24	14	5
I liked reading what others had posted in a Team.	19	43	33	5	0
I liked using Microsoft Teams for group work.	29	38	19	14	0
I prefer getting updates and information through a Team rather than email or SurreyLearn.	10	14	24	24	29
I would like to have a Team for all modules.	19	29	29	19	5
I would like to use Teams for all future group work.	14	24	48	5	10
I know how to use Microsoft Teams, if needed in the future.	38	52	10	0	0
Before using it in semester 2, had you used Microsoft Teams before?	Yes: No: 67 %				

**FR1**: 'Better participation from other students'

**FR2**: 'More training in using Microsoft Teams'

**FR3**: 'Remembering to check Teams more frequently for new posts'

**FR4**: 'Better features / functionality of Teams'

**FR5**: 'Improved integration with other university systems'

FR6: 'Other'

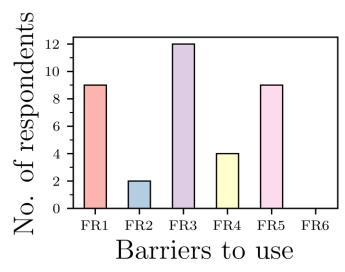


Figure 6. Students were asked "What would improve your experience using Microsoft Teams?" and were given 6 fixed-response (FR1-FR6) options to indicate the barriers they faced using MS Teams. Respondents could choose multiple statements with total responses for each fixed-response shown. No respondents selected FR6: 'Other'.

## Student Opinions – Barriers to Use

We asked students to select any relevant statements which presented barriers to using MS Teams effectively, or what would improve its use in the future (Figure 6). Asking "What would improve your experience using Microsoft Teams?" three specific statements resonated with respondents from the six fixed-responses offered. The first is 43% of students would like Microsoft Teams to have 'improved integration with other university systems'. Whilst students did not elaborate on what these other systems might be, it is likely related to 'remembering to check Teams regularly', which 57% of respondents selected as a barrier to use. Having another, somewhat disaggregated platform likely poses some problems for students where they would have to remember to check the application, as well as checking existing communication channels (emails and VLE). If these were all brought together, students might find MS Teams, and perhaps the cohort-wide Teams (e.g., the Physics A Team), more useful. However, this would likely require much greater adoption of MS Teams across the university to invest in such connected infrastructure. Finally, 43% of students reported that 'better participation from other students' would improve their experience of using MS Teams for groupwork, which is somewhat unsurprising given that remembering to check MS Teams regularly was a common issue among respondents.

## **Concluding Remarks**

This work serves as a pilot study of introducing Microsoft Teams as an online tool to blend with an existing traditional teaching setting. Microsoft Teams was introduced in two settings. One setting involved a cohort-wide module where Microsoft Teams provided a platform for students to post questions and ask for help from the module leader, as well as for the module leader to post announcements or to poll questions from the cohort. From student responses, they tended to passively engage in this, preferring to read what others had posted, rather than posting themselves.

This was contrary to the second setting where Microsoft Teams was used for small group projects. In this situation, students were far more active and engaged, suggesting that both the size and setting of the Team are factors which may determine student engagement.

Microsoft Teams also presented several additional opportunities for staff and students to capitalise on, for example, creating polls to question students, build Frequently Asked Questions databases, and communicate with students on a one-to-one basis. However, given students often reported forgetting to regularly log into the Microsoft Teams application, the impact of these additional tools is smaller than desired. Indeed, when given the chance, students typically defaulted back to their more familiar communication channels and used applications such as email, existing virtual learning environments and WhatsApp. However, when students were required to use Microsoft Teams for groupwork, they reported positively about its ease of use and that they are confident they could use Microsoft Teams in the future if asked to, suggesting a new skill has been developed – a positive for today's ever-increasing demand for digital literacy in graduates. Many groups also took advantage of the real-time document collaboration features as well as video conferencing tools to organise themselves.

Given this pilot study began before the nationwide lockdown of institutions in response to the 2020 Coronavirus pandemic (Covid-19) and continued into an online provision for the rest of the semester, some interesting observations were made. Notably, the use of Microsoft Teams did not change significantly over the semester, suggesting students were more comfortable with existing communication channels. This highlights an important problem: just because a new tool is introduced and may have clear benefits to its use, it does not mean students will adopt it fully unless there is university-wide pressure for doing so.

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#### **About the Authors**

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### **Appendix**

The questionnaire sent to students to capture their opinions using Microsoft Teams.

Questions

Responses 21



## What are you thoughts and use of Microsoft Teams?

This survey typically takes 5 minutes to complete.

The purpose of this survey is understand your thoughts on Microsoft Teams as a tool to supplment your studies.

Full information regarding this study can be found the Participation Information Sheet which is attached to your invitation email. Below are the key summary points of this information sheet:

Key notes on participation:

- All responses are anonymous and no personal or identifiable information is collected or stored.
- Participation in this study is completely voluntary and you can withdraw from the questionnaire at any point.
- Responses will be used to inform us on how to use Microsoft Teams in the future. They will also form part of a wider study into the use of Microsoft Teams in teaching.

The researchers have completed the University of Surrey ethical self-assessment which indicated a further ethical review by a committee was not required.

1. Informed consent *
Please indicate if you are happy to take part in this study and you consent to your anonymised responses bused in the way described.
○ Yes
○ No
2. Before using it in semester 2, had you used Microsoft Teams before?  This might have been at work, school, college, or personal use.
Yes
○ No

3. Considering using Microsoft Teams in semester 2, how agreeable do you find the following statements?

Please select for each statement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I found Microsoft Teams easy to use.					
I liked using Microsoft Teams to ask questions about a module.					
I liked reading what others had posted in a Team.					
l liked using Microsoft Teams for group work.					
I prefer getting updates and information through a Team rather than email or SurreyLearn.					
I would like to have a Team for all modules.					
I would like to use Teams for all future group work.					
I know how to use Microsoft Teams, if needed in the future.					

4. Considering your group work projects, which tool(s) did you prefer to use to communicate with and manage your group?  Select all that apply.
Facebook
Instagram
LinkedIn
Microsoft Teams
Snapchat
Twitter
WhatsApp
Other
5. What would improve your experience using Microsoft Teams?  Select all that apply.
Better participation from other students
More training in using Microsoft Teams
Remembering to check Teams more frequently for new posts
Better features / functionality of Teams
Improved integration with other university systems
Other
6. Please let us know what other thoughts and feedback you have about using Microsoft Teams  Feel free to write as much or as little as you want. Thank you for completing this survey.
Enter your answer