reconnect
Reconnecting relationships through technology

Quasi-synchronous discussions: A proposal to measure the effect of Teams on cooperation, belonging, emotion and interactions

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As students begin to reconnect after the COVID-19 pandemic, changing student expectations around online engagement seem to be suggesting that new approaches should be adopted. Recent research has found that students who engaged with each other in a discussion task in a synchronous mode were more willing to work together, felt more positive and more like they belonged than students in an asynchronous mode. We wish to extend these findings by investigating whether Microsoft Teams promotes a *quasi-synchronous* mode of discussion and has a similar beneficial effect. The proposed study adopts a mixed-methods approach of quasi-experimental design to address this question. Students will be randomly assigned to groups of five and provided with online forums (control) then re-form and use Teams (experimental) for a discussion task. Data will be collected through survey, digital artefacts and interviews. We aim to contribute robust, empirical evidence on the effects of Teams on student engagement, which will be of interest to educational leaders and teachers.

Keywords: cooperative learning, group work, quasi-synchronous discussions, social interdependence theory, Microsoft Teams, online forums.

Introduction

In the COVID-19 pandemic of the last two years, tertiary educators have had no option but to reconnect to – or connect for the first time to – technologies to transition their on-campus classes to online. Some teachers have turned to two staples in the online learning toolbox, the online discussion and the virtual classroom, to foster student interaction with content, the teacher and each other. However, anecdotal evidence hints at the reluctance of students to interact with each other unless these activities are marked and, teachers express their dismay at the small number of students who attend their carefully planned synchronous classes. It seems students are reluctant to engage with each other online. One of the more novel responses, though, that we have seen over this period is the co-opting of the workplace productivity tool *Microsoft Teams* (Teams) for learning. As Teams has already proven popular in workplaces, it perhaps is inevitable that it has found its way into university classrooms. And so far, for those educators who have opted for Teams, it seems to be working. The early reports of using Teams for learning in formal contexts have been overwhelmingly positive and its popularity is predicted to grow (Roy & Sankey, 2021). However, the number of papers that report on studies grounded in a theoretical framework are limited. Both students and teachers seem to be enjoying the experience of using Teams, but we have little empirical understanding of how Teams actually influences the way students think and behave.

This paper outlines a planned study into the effects of Teams on student learning. Grounded in a Social Interdependence Theoretical framework, the proposed research aims to fill the gap in the literature by providing scholarly knowledge on the value of Teams for learning. Members of the research team come from three Australian and one New Zealand university. The research is being conducted at each university over the next 12 months, thus providing a large data set across different institutions to base our findings.

Background

Online teaching and learning have now become a norm in the COVID-19 era, which shows no signs of disappearing any time soon. As teaching and learning move online, we are struggling to design learning

activities that motivate students to engage with each other. The lack of student engagement is a serious problem if we are going to continue to teach online as student interactions of any kind, with each other, the subject content and the teacher, have been proven to improve learning (Bernard et al., 2009). So, we must ask 'how do we get our students to engage with each other?'

While there are a variety of online tools that could be used to promote engagement, the most common and persistent is the *online forum*, which has been with us since *e-Learning* began in the 90s. The online forum is the default tool for discussions and is central to the Learning Management System (LMS), the mainstay of online learning in higher education. Even today, the online forum is still perhaps the most commonly used tool for class discussions and announcements. However, over the last two years of lockdowns in which classes have been forced to move online, we have seen teachers adopting novel approaches to continue their classes, like using the workplace productivity tool, Microsoft Teams (Teams). Though Teams has carved out a large market share in business since its launch in 2017 (Tsai, 2018), scholarly research into its educational value and best use is only beginning, but so far, the results are encouraging.

Survey evaluations of students' perceptions and satisfaction with using Teams have found that students have liked it, found it easy to use and useful. In formal learning contexts, Teams has been found to be superior to social networking sites (Sobaih et al., 2021), supportive of student-student and student-teacher interactions (Rojabi, 2020) and superior to Moodle, a popular LMS, for chat, video conferencing and screen sharing and content creation (Krašna & Pesek, 2020). On the negative side, some student surveys have revealed that students find it difficult to keep track of assessment items in Teams, and that it is not as good as Moodle for the presentation and organisation of course content (Krašna & Pesek, 2020). Some students too, complained about external factors, such as Internet instability, which negatively impacted their Teams experience (Duong & Nguyen, 2021), but this cannot be attributed as a shortcoming of Teams. The negative findings, though, are far outweighed by the positive. It seems that during the enforced lockdown period, in the papers reviewed here anyway, students have responded in a positive way to a transition to Teams as a new way to reconnect with each other.

Teachers too have enjoyed using Teams. One teacher opined that Teams was a 'a great tool' (Poston et al., 2020), another reported that she had 'a good laugh together' with her students and that the student feedback was 'overwhelmingly positive' (Jones, 2021). Surveys of teachers have indicated that using Teams was 'user-friendly' and an effective way to promote networks with their students (Shanmuga Sundari & Karthikeyan, 2022), and that it improved staff morale (Henderson et al., 2020) and was 'very good' for assignment and grading, student-teacher interactions and classroom organisation (Olugbade & Olurinola, 2021). Overall, based on these findings, far from being a catastrophe for students and teachers, Teams has been a well-liked and effective option for handling the transition to online.

Supporting this view for Australia specifically, in a workshop held in April 2021, staff from 32 Australasian universities participated in an online survey and discussions on virtual collaboration and groupwork in online learning and assessment, as part of the ACODE 83 workshop facilitated by CQ University (Roy & Sankey, 2021). When asked which tools could be better utilised in learning and teaching, they identified the potential of Teams, reporting numerous benefits such as its currency in the world of work, proximity to other Office 365 applications and its potential for 'conversation-centric' (p.2) collaboration. TEAMs is first and foremost a tool for collaboration, which is in contrast to the LMS, which is content centric. This hints at a different type of teaching approach that can be afforded by TEAMs to what LMS users are familiar with. Martin and Tapp (2019) in their report of using Teams to teach a law subject, argue that Teams promotes a social constructivist pedagogy. A platform does not delimit the teaching approach, but the unique affordances of Teams and the fact that it is a technology that many graduates will encounter in their first job begs the question, *could Teams promote a more effective and relevant teaching and learning experience than the solidly entrenched LMS?*

In a study of turn-taking amongst students using Internet Relay Chat (IRC), Garcia and Jacobs (1999) explain that though participants are engaged at the same time in the discussion, there is a short lag between message composition and message delivery. They coined this mode *quasi-synchronous*. The chat function in Teams is quasi-synchronous as it is a messaging application. Evidently, synchrony plays an important role in how students work together. A recent study found that students who engaged with each other on a discussion task in a synchronous mode were more willing to work together, had more positive feelings towards that work and felt like they belonged more to the group than students in an asynchronous mode (Peterson et al., 2019). Very little of the Teams research to date has been grounded in a theoretical framework and so the rigour and trustworthiness of the findings is limited. We aim to fill this gap by conducting theoretically grounded research

that extends on the Peterson study by investigating how Teams, a quasi-synchronous technology, compares with the online forum, an asynchronous tool.
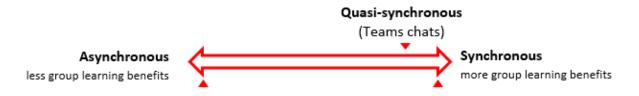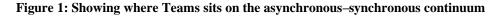
Theoretical framework

The research design of the proposed study is guided by that of Peterson et al. (2019) and uses the same Social Interdependence theoretical framework to investigate the effects of Teams on student's willingness to work together. Social Interdependence Theory states that "the outcomes of individuals are affected by their own and others' actions" (Johnson & Johnson, 2009, p. 366). According to this theory, the way in which participants interact with each other influences their motivational and affective states, such as their cooperativeness, belongingness, affect and behaviour (Deutsch, 2012; Johnson & Johnson, 1989, 2009). If the quasi-synchronous affordance of Teams has a similar effect on cooperativeness as synchronous interactions, we should expect Teams to boost students cooperativeness when compared to the asynchronous mode.

We are also interested in the effect of Teams on students' sense of belonging and emotion. Belonging refers to the basic need to form stable, mutually caring relationships with others (Baumeister & Leary, 1995). A sense of belonging is a driver of cooperation (Johnson & Johnson, 1989) and has strong effects on emotion and cognition (Baumeister & Leary, 1995). Evidently, synchrony also plays a part in how much individuals feel like they belong. Students studying synchronously, face-to-face and online, were found to have a greater sense of belonging than asynchronous online students and were more motivated, cooperative and better able to deal with different points of view (Saltarelli & Roseth, 2014). We are interested to find out if Teams users feel like the belong more than online discussion users. We also want to investigate the effect of Teams on students' emotions. Emotion refers to a temporary, specific feeling which may be positive or negative (Schunk et al., 2013). We know that the prospect of doing group work, especially online, makes many students break out in a cold sweat. So it would be useful to understand if using Teams can mitigate this deleterious effect and deliver a similar emotional boost as the online discussion (Peterson et al., 2019).

Our final focus is to investigate whether students in Teams have discernible differences in how they interact with each other than students in online discussions. Any strategy that boosts student interactions - with each other, subject content or the teacher - positively affects learning (Bernard et al., 2009). Peterson et al. (2019) found that synchronous students were more able to take risks and speak with authority than asynchronous students. In other words, they exhibited more sophisticated cognitive processing. Perhaps using Teams will have a similar effect on thinking?

In sum, in the Peterson study (2019), the synchronous mode of group discussion was found to be superior to the asynchronous mode in conferring on students motivational and behavioural benefits. We theorise that Teams, a quasi-synchronous modality, sits close to the synchronous end of the *asynchronous-synchronous continuum* (see Figure 1).

Figure 1: Showing where Teams sits on the asynchronous–synchronous continuum

Research problem

We want to know if Teams is better for group work than online forums. We theorise that the quasi-synchrony of Teams will have a stronger positive impact on student *cooperativeness*, *belonging* and *emotion* than the asynchrony of the online forum for group discussions. We also believe that the nature and affordances of the two platforms will influence how students interact with each other. Specifically, we want to answer the following five research questions:

1. Is there a significant difference in cooperativeness between students using online forums and Teams?
2. Is there a significant difference in belonging between students using online forums and Teams?
3. Is there a significant difference in emotion between students using online forums and Teams?

4. How do students interact with each other in online forums and Teams?
5. What do students think of using Teams for learning when compared to online forums?

Context & recruitment

The proposed research (CQU HREC Approval 23607) will be conducted first at Central Queensland University and then at universities in which the research team members are situated, thus generating a large data set across different higher education settings. We will be seeking subjects in which students are able and encouraged to interact with each other in an informal way to provide each other support and seek and provide help. Teachers of the subjects will be provided with training in how to use and promote Teams for such a purpose. In a related study, not detailed in this paper, we will be investigating how teachers' personal approach to learning impacts on their ability to support a social constructivist approach (Martin & Tapp, 2019) using Teams. Potential participants will be notified by their teacher of the nature of the study and will be formally invited to participate by a member of the research team who has no direct involvement in the teaching or assessing of students in the subject. Participants will be encouraged to participate in a 20-minute interview with the offer of going in a draw to win one of two $50 gift vouchers.

Methodology

The proposed study uses a mixed-methods approach of quasi-experimental design. Students in participating subjects will be assigned randomly to groups of five and will use an online forum (control) for a discussion task throughout the first half of the subject. In the second half, new teams of five will be formed who will then use Teams (experimental) for the same purpose, thus giving students a similar experience of using the two tools from scratch with new team members. The sources of the scales used to answer RQs 1-3 as well as the methods planned to answer other research questions are shown Table 1.

Table 1: Research Questions and Methods

Research Question	Method
RQ1 Cooperation	Perceptions of cooperation | competition | individualism scales (Peterson, 2020, p. 89)
RQ2 Belonging	Relatedness scale (Furrer & Skinner, 2003))
RQ3 Emotion	Positive emotion, negative emotion scales (Linnenbrink, 2005) (Linnenbrink, 2005)
RQ4 Interactions	Secondary data (chat logs); Interview
RQ5 Experience	Interview

An online Qualtrics form will be used to survey participants' measures of cooperation, belonging and emotion. The original scales consist of 26 items which we have reduced to 17 for speed of completion, which we hope will increase the response rate. We have also slightly modified the items to suit our context. Each item requires respondents to rate themselves against statements like *'I want to do better than other students in my group'* (competition) and *'I felt accepted by others in my group'* (belonging) and '*While working with my group, I generally felt bored'* (negative emotion) from 1 (*strongly disagree)* to 5 (*strongly agree).* To answer RQs 1–3, participants will be surveyed at two times in the subject using: T1 will be at the half-way point to gauge the three effects in the first condition (online forums) and T2 will be at the conclusion of the subject to measure the effects in the second condition (Teams). We will use SPSS to conduct paired samples T-Tests to investigate whether there is a significant difference between the two conditions for each of the three constructs measured as well as a one-way repeated measures MANOVA as we conceptualise that these three variables are related personal factors that influence participants feelings towards working with each other.

To answer RQ4, we will collect secondary data from participants in the two conditions, which will consist of logs, page views and actual posts between participants. We will initially do a count of conversations, posts, words and words per conversation in the two conditions. We will conduct a thematic analysis of this data using Braun and Clarke's six-step methodology (2006): data familiarisation, code generation, theme search, theme definition/naming and report. Emerging patterns and themes from this thematic analysis will be used as the basis for the 20-minute interviews, to provide richness to our analysis. To answer RQ5, participants will be asked about their experience of using both tools, which one they found easier to use and for what reasons.

Significance & Expected Outcomes

We expect that students will derive more benefits from using Teams than online forums for group discussions. Besides the pedagogical value of using a technology that promotes cooperativeness, we also argue that it makes sense to use technologies that prepare our graduates for the world of work (Sankey, 2020). We hope our findings will support this argument by providing solid evidence of the educational effects of Teams on student motivation and behaviour. The findings from this study, grounded in a theoretical framework, will provide solid empirical data for university leaders contemplating the integration of Teams into their learning environment, or even the replacement of their LMS at some point in the future, with an alternative platform that has different affordances. Designers of learning and teachers interested in using technologies that promote student engagement and social learning will also find the outcomes of this study of interest.

As new technologies emerge that have distinct affordances to what have gone before, we also need to revise our approaches to teaching. In the COVID normal era, in which online learning is even more established, we need to understand how to design learning experiences making best use of the available technologies to assist students to reconnect. We hope that our study will give weight to the idea that quasi-synchronous learning made possible by technologies like Teams opens doors to thinking about learning and designing learning in different ways. It is possible that we are at the beginning of a new approach of teaching, leaving behind the content-centric nature of the LMS to the social constructivist possibilities of quasi-synchronous technologies like Teams.

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