eSTEeM Project Report

Covering page

Project Title: **Strategies to support students and tutors with online collaborative projects: an action research project**

Keywords: **online collaborative learning; distance learning; teaching strategies;**

Your name: Dr Shirley Evans

Report submission date: 31st August 2020

Names of any key staff associated with the project: Manish Malik, Winston Graham

Contact point: s.evans@open.ac.uk

HREC Reference number HREC/3319/Evans Approval eSTEeM project 26/4/19

Contents

Executive Summary

Development of group working skills is important both in terms of employability and as part of a collaborative learning approach but students may not always recognise the importance of it. Online collaborative group work in the work-place has become even more important due to COVID-19 since many people have been forced to work online rather than face to face. Online collaborative group work has been developed at the Open University since the 1990s and over the last 10 years, with T215 and TM255, has had an 8-week block of work devoted to it in a Level 2 module relating to communications and information technology. During this period the nature of the collaborative work has changed somewhat in relation to timing, the spread across blocks and complexity of the task. At the same time the student profile has changed significantly due to funding necessitating a qualification focus, more students taking more modules simultaneously, and less face to face tuition taking place. The original aims of this study were to better understand which strategies best support students to engage with online collaborative projects and which strategies best help tutors to support students in this activity. Three Tutor Groups were involved from which students were recruited for interviews regarding their experience of the group work, as well as a support mechanism, pre, during and post group work; the three tutors kept reflective diaries of the group work process; tutors were surveyed about their experience of engaging students and the support strategies with a follow-up interview to investigate this further. Students appreciated the additional support of weekly support bulletins, short telephone calls at key points and a focused group work tutorial. A key concern is engagement of other students and other pressures impinging on themselves which may limit their engagement and the quality of the engagement. Tutors appreciated the weekly bulletins and some would welcome additional support from the Module Team but had concerns about student engagement including slow starters, not being able to address the non-engagement; insufficient information to group students; fostering of relationships; complexity and timing of the task and difficulties assessing the task. That said those students that engaged fully with the tasks tended to achieve high marks and retention does not appear to be affected by the group work. Key themes that have emerged are tutor skills/experience, assessment, engagement, nature and timing of the task and difficulties in fostering relationships. A set of recommendations have been drawn in terms of strategies to address these potential issues, and it is recognised that some aspects will need further investigation. These strategies may be at a level tutors can implement such as approaches to selecting groups and weekly bulletins although this may only impact on those who are already engaged; some are at module team level such as complexity and timing of the task and technologies utilised. Higher level strategies by faculty or above in terms of how to incentivise students to engage in group work could be needed particularly in relation to the significance of employability skills and the place of online collaborative group work in the curriculum.

Aims and scope of your project

Background

The author of this report has been an Associate Lecturer (AL) in the STEM faculty, Computing and Communications for 22 years tutoring on level 1 and Level 2 modules. For the last 10 years this has been on T215 and TM255 Communication and information technologies. These modules involve a Block relating to collaborative online group work in which students work together to create a website and, more recently with TM255, a storyboard which they share with another Tutor Group and provide mutual feedback. The author has always had a sense of not keeping up with what students are doing, not choosing project groups effectively, not encouraging engagement or marking the tutor marked assignment as well as could be expected. When eSTEeM projects became available to ALs for the first time in 2019 this afforded the opportunity/time to explore these issues.

Development of group working skills is important both in terms of employability and as part of a collaborative learning approach but students do not always recognise the importance of it. Online collaborative group work has become more important due to COVID-19 since many people have been forced

to work online rather than face to face. Online collaborative group work has been developed at the Open University since 1998 and over the last 11 years has had an 8-week block of work devoted to it in a Level 2 module relating to communications and information technology.

This study builds on the module specific work of Hilliard (2017), Hillard et al (2020a), Hilliard et al (2020b) relating to student anxiety and emotions and tutors and students' perceptions (Donelan and Kear,2018) . Wider research on online group work includes studies and literature such as Booth (1996), Salmon (2004), and Fry (2014) which have informed this study and will inform the academic paper. Butler et al's (2018) eSTEeM study on the match between student and tutor expectations is also relevant.

Previous studies have indicated that some students experience negative feelings when engaging with online collaborative group work (ibid). For some this relates to existing social anxiety and related conditions. For others negative feelings can be invoked from the nature of the group work, for example not knowing what to expect and lack of engagement by and communications/relationships with other students as well as students own capacity to participate as much as they would like. The extent to which this affects learning is not known but there is likely to be an impact on cognitive load (balancing negative feelings, uncertainty, complexity of the task, communications and other aspects of student's lives) which will affect learning. Modules statistics indicate that whilst fewer students submit TMA02 than TMAs 01 and 03, the scores are higher.

Reflections by students on previous modules on the group work in the relevant TMA question indicate that many students have concerns about the group work that they may not voice elsewhere. Many do say that they did enjoy it in the end (Hilliard, 20b) but for some who have a diagnosis of anxiety, and others, it can be quite a painful experience. In addition anecdotal evidence indicated that for some tutors facilitating the group work can be stressful for tutors in terms of ensuring that students have the opportunity to engage sufficiently, balancing student initiative with tutor support and marking the group work fairly.

Metrics for the project are contained in Appendix A.

Research question

The research question posed was: How can tutors best support students to successfully engage in online collaborative projects?

Aims of the research

The aims of the research were to:-

- Better understand which strategies best support students to engage with online collaborative projects.
- Better understand which strategies best support tutors to support students.
- Produce tips, guidelines, training materials and resources to support tutors to help concerns before and during the activity with a view to optimising learning for students.

Timescales

Start date for the project was 1st September 2019 and finish 31st December 2020.The focus of the action research was on the October 2019 presentation of TM255. The group work ran from 12th Dec 2019 to 20th Feb 2020. Students worked on an assessed 8-week team project collaborative project in which students work in small groups of 6 to 8 to produce a website for a specific client (e.g. a family-friendly hotel), designed a storyboard, evaluate another group's work and reflect on the process.

The project ran from early December to third week of February – 10 weeks including 2 weeks festive break and starts immediately after Block 1. Project Groups (usually 3 groups of 6 or 7) needed to be set up before the end of Block 1.

- end of week 11 (20/12): ground rules and means of group working established (TMA02 Q1)
- Break over festive period and New Year
- end of week 15 (31/01): individual storyboards complete (TMA02 Q3a)
- end of week 16 (7/2): website and sketch completed and made available to other groups (TMA02 Qs 2 and 3b)
- end of week 17 (14/2): evaluations of other group's work completed and returned (TMA02 Q4); Q5 reflection
- Thursday of week 18 (21/2): TMA 02 submitted.

Activities

A number of strategies were chosen to support students. These were based on strategies put forward by Hilliard (2017), Donelan and Kear (2018), Hilliard et al (2020a) and from the author's experience and observations.

The strategies were:-

- Tutors to run individual group activity at start of group work
- Tutors to ring or email the students recruited to the research project at the start, during and at the end of the project.
- Worked example (s) for tutors of how students could engage in the forums developed - how much is expected and the nature of the posts
- Weekly (were originally going to be fortnightly but frequency increased due to complexity of task) bulletins for tutors developed as to what is coming up and which they can personalise for their tutor groups
- Exemplar messages for tutors to post with clear information as to what takes place and when.

Data collection

A mixed method (quantitative and qualitative data collection) action research approach was taken. Such an approach is carried out in the course of an activity or occupation, typically in the field of education, to improve the methods and approach of those involved, McCutcheon and Jung (1990).

Students were asked before, during and after the group work as to how useful they found the strategies and the group work itself. This data was collected as brief semi-structured interviews or email questionnaires. There was the additional purpose of building relationships between the tutor and the students.

An online tutor survey was conducted to investigate student support in online collaborative projects. This was followed up by semi-structured interviews to investigate some of the responses further. A thematic analysis approach was to be taken (Braun and Clarke, 2006).

The three tutors directly involved kept a reflective diary of student support which will include a record of strategies used and reflection on how successful they were and what they could do differently.

Additional information was used to inform the report:-

- Main authors report to TM255 Module Team on Block 2 forums 2020.
- Module Team student Real Time Student Feedback (RTSF) as emotion awareness and regulation tool in an assessed, online collaborative project Hilliard et al (2020b).

- Module statistics.

Changes to original plan

A key issue was recruitment of students from the tutor groups. Reasons for this may include the following:-

- Module Team online survey at the same point in the module as the planned interviews.
- Short turn-around time to ascertain requirements/make a decision.
- The length and complexity of the participant information form
- An additional complexity to an activity student might already perceive as complex or difficult.
- Student perception of the tutor being the researcher.

11 students engaged in the telephone calls/discussions out of a potential 65. Therefore there it was not possible to carry out the quantitative aspect of the project. It was decided to collate basic characteristics of the students and their responses to questions/interviews and use these to enhance the data from the tutor reflective diaries

The tutor questionnaire aspect was also developed to include follow-up interviews to enhance the data from the diaries and the student interviews.

The research question was changed to focus more on strategies to support engagement and is addressed in the conclusion.

Findings - Results and analysis

Students Interviews/Questionnaires

The three tutors involved in the project posted forum messages and sent group emails to students in their Tutor Group with an abridged description of the project and the project information sheet attached or made available. This was attempted up to a maximum of three times. The questions are set out in Appendix B.

Results/Findings

Student Profiles

Originally 17 students were recruited but due to withdrawal from the Module only 11 students participated in at least one interview/questionnaire above out of a possible 65. Nine students participated in all three interviews/questionnaires. Key data from the student participant profile table in Appendix C is set out below.

- Most had passed at least 3 modules previously with a maximum of 6 and only one had not passed a module before.
- 4 had not completed or had deferred a module before.
- Only one student was not taking another module at the same time; most were taking level 2 programming/web technologies; 2 taking Cisco courses; 2 taking 2 and one taking 4 other modules.
- 7 had not attended any tutorials; 2 attended 2 and 1 attended 11.
- 7 attained a higher score in TMA02 than in the other 2 TMAs – with 4 scores over 90 and 4 over 80.
- There were 7 Grade 2 passes and three distinctions for the module as a whole.

Clearly this is a small sample but of note is the low level of attendance at tutorials. This may relate to student perceptions of online tutorials (Campbell et al, 2019) and possibly to their perception of distance learning as a whole the success rate in terms of TMA02 scores indicating that engagement may pay off in terms of attainment and that most were taking at least one other module. This latter point is significant as the Cisco exam clashes with an important milestone in the group work and tutors raised this specifically as having an impact on engagement.

Student interviews/questionnaires

Key points from student interviews/questionnaires pre-group work (n=11)

- All except one student had participated in group work before – for 5 of them it was with TU100 (creating a video and providing a comment on another student's video); for 2 it was with TM254 – a collaborative project management activity.
    - Students liked the opportunity to work at their own pace, the discussions and perspectives of other students.
    - 7 students raised communications/engagement as an issue.
- Expectations were mainly around how the group was going to work together
- Barriers were around time management (other assignments, work, children), health, social anxiety, other student engagement

Support strategies

- 5 students did not think they would need additional support; 2 did not know, 2 put forward their tutor, student services and the library and one said talking it through with other students would help
- One student suggested an online tutorial for the Project Group and one was concerned about not the group not finishing the tasks on time.

Key points from student interviews/questionnaires during the group work (n=9)

- 5 students found it difficult due to lack of communications/engagement
- 3 students found it better than expected
- 4 were not concerned at the start and of these 3 were currently concerned; 5 were concerned at the start and of these 4 were no longer concerned. Only one had not changed their mind – being concerned at the start and still concerned.
- Concerns were in the main related to communications and engagement. One student who had been concerned and was no longer put this down to the project group kick-off meeting.

Support strategies

- Of the 6 who were receiving the telephone support calls (i.e the interview/questionnaire calls) all of them found them useful.
- Of the 4 who had an extra tutorial all of them found them useful.
- All of those interviewed found the support helped their learning.
- All except one did not feel they needed additional support and there were comments relating to those not engaging to be contacted sooner; larger groups (more members) needed to be involved to ensure sufficient activity.

Key points from student interviews/questionnaires post-group work (n=9)

- 7 felt that the group work was going well although 3 commented that there were group work challenges.
- 5 were not able to contribute as much as they would have liked
- Communications and engagement were commented on as going well with 2 mentioning the positive impact of the use of WhatsApp. Only one commented negatively.
- 4 commented that own time constraints were an issue; establishing ground rules was an issue for one and members missing/not knowing what others were doing was also an issue.
- 6 felt others were contributing as much as they would like them to.

Support strategies

- Improvements – more use of Slack/WhatsApp/universal tools (n=5); better communications/commitment (n=3) and one would have liked to have concentrated more.
- None wanted additional tutor support, bearing in mind that most were receiving weekly bulletins and support calls, and 2 commented that the weekly support messages were helpful.

Results/findings
The questions and responses from the online survey can be found in Appendices E and F respectively – graphs and comments from the 15 tutors out of a possible who 30 responded – response rate 50%.

Allocating students to groups
Tutors allocated students to groups by various methods. The main method (n=5) was based on previous interactions; second was random (n=4); 2 used self-selection; 2 used alphabetical order. Other selection/allocation methods included by geographical area; based on student strengths; gender balance and previous achievement and one tutor asked students to identify themselves as early starters or deadline hitters which did not appear to work. 8 tutors said they had sufficient information to allocate students. Of the remainder who did not 2 would have liked to have previous grades (current or previous modules) to look at and one mentioned performance on previous collaborative group work.

Student Engagement
All 15 tutors experienced issues with student engagement and problems encountered were:-

- Non-engagement/superficial engagement (n=11)
- Late arrivals (n=5)
- Not understanding/reading question (n=2)
- Completion of the activity within milestones (as a group) (n=2)
- Dominant student/clash of personalities (n=2)
- Difficulty with contact as outside UK (n=1)
- Use of platform which did not suit everyone (n=1)

14 out of 15 tutors were contacted by students about lack of engagement by other students

Ways of addressing this were included contacting the group and emailing, texting individuals: individual messages (n =14); emails to Tutor Group Forum (n=10); emails to Project Group Forum (n=12); regular phone calls (n=2). This contact took the form of encouraging participation and/or calming students down regarding disagreement within the group.

Support

Tutors used the following support forums:-

- Block 2 Tutor Forum (n=10)
- Block 2 Forum for students (n=8)
- Block 2 Technical forum for students (n=2)
- Did not use them (n=2)

11 out of 15 used the weekly support messages. 9 tutors commented that the messages were useful with one stating that students had commented positively on them. 3 tutors said that they adapted them for use. 1 tutor was not aware of the weekly messages but would have used them otherwise

Other support or resources that the module team could offer

- Timing of group work (n=3)
- Reminders/flash messages/responsibilities (n=3)
- Group size – 7 to 8 not 5 to 6 (n=1)
- TMA/Q3 overly complex (n=2)

Other comments

- Participation – there is a need to emphasise the importance of participation and responsibility to engage.
- Essential that tutors facilitated their own Tutor Group Forum tutorial on group work (this is not always the case due to the cluster system).
- Q3 Storyboards activity appears to difficult – complexity of task and lack of understanding of what is involved.
- Providing weekly bulletins is 'dumbing down' to Level 1
- Introduce group work in Block 1 - this can enable students to feel comfortable with it and to get to know other students.

Tutor Follow-up Interviews

The interview outline questions can be found at Appendix G. Findings have been separated out into high level themes. It is intended to carry out further detailed analysis using the interview data and other study related data (such as the Tutor Survey since the 8 interview participants responded to the survey) for the planned academic paper. It is recognised that there is some overlap with the themes identified in the Donelan and Kear study (2018).

From the follow-up interviews there was some additional quantitative data gleaned:-

- Four tutors were new to tutoring online collaborative work (2 years since the start of TM255) with the other 4 having tutored for between 7 and 12 years on such activity.
- All had around approximately 20 students at the start and most lost 5 or 6 students with an average of 15 submitting TMA02. Two tutors stated that they had 2 students who did not submit TMA02 but completed the module.
- All tutors except 1 created 3 Project Groups. One created 2 Project Groups and stated that this worked better than the previous year.
- All tutors except for one found some aspects of marking the TMA difficult/problematic and in particular assessing contributions to the work and allocation of marks.

An initial thematic sort of data was carried out (see Appendix J) and the following overarching themes were identified on analysis:-

- Tutors skills
- Assessment (of TMA02)
- Nature and timing of the task
- Student Engagement
- Relationships (between students and with the tutor)

There is overlap between the themes and in particular:-

- Tutors skills/ Assessment (of TMA02)/ Nature and timing of the task
- Student Engagement/ Relationships (between students and with the tutor)/ Nature and timing of the task

The overlap will be followed up for the academic paper but for this report each theme is looked at in terms of implications for the research question.

Tutor skills

There were four comments directly related to tutor skills. Newer tutors were learning new skills relating to online collaborative work although the second presentation was found to be easier having gone through it once and a module briefing/standardisation meeting could be of use.

Assessment
There were 13 comments directly related to assessment. All tutors except for one found marking the TMA difficult/problematic. Key areas of concern were assessing contributions (who had done what – 'you gain an impression') and objectivity relating to this and the length of time taking to mark the assignment.

Engagement
Most of the comments were around engagement with 25 being directly related. There were 13 comments about selection of groups – time taken to do it and lack of effectiveness whatever method is chosen; reminders do not seem to work and suggestions/comments (4) that it would be helpful if students were required to engage. There was one comment related to tutor anxiety caused by non-engagement:

Relationships
There were seven comments related to relationships addressing personality clashes, lack of real contact and the use of video conferencing to enhance social presence.

Nature and timing of task
There were six comments directly related to nature and timing of the task addressing the issue that some students work across the festive break and some do not; complexity and student understanding of the task and use of forums and other media to communicate:-

Tutor Reflective Diaries

Please see Appendix H (confidential and not included for wider readership) for combined content of the reflective diaries. Data has been synthesised with key points set out below.

Results/findings

General Statistics

Table 1 - Tutor Group retention, TMA results and submission data

Tutor	No. Students at	No left/withdrawn/i	Retention	Submitted	No. Distinctions	Submitted TMA02	No. distinctions	Submitted TMA03	No. of distinctions
A	20	7	65%	18	7	18	6	13	5
B	25	7	72%	25	2	21	13	18	3
C	20	7	65%	17	0	14	4	13	2

Tutors A, B and C had retention rates of 65%, 72% and 65% respectively. Tutors B and C had more distinction level TMA02s than the other two assignments. (There is usually an EMA but this was cancelled due to the impact of COVID-19). There were some withdrawals between submitting TMA01 and TMA02 but is not thought that this is due to the group work – students would have left in any case. Little is known about those who leave and an exit interview could be useful. Those who completed and engaged with Block 2 generally fair well with the TMA score although some students either withdraw or do not submit TMA03 and the reasons for this is not clear. For this year (2019J) it could have been that they were planning to leave TMA03 out and submit the EMA which was not an option.

Students taking other modules

Table 2 - Students taking other modules

Tutor	No. of students taking other modules	No. of students taking more than one other module	No. of students taking a Cisco module
A	**9**	**1**	**5**
B	**9**	**1**	**5**
C	**10**	**1**	**3**

Table 2 shows that there most students are taking other modules simultaneously with a small number taking more than one other module – with quite a number taking the Cisco module with clashing milestones.

Tutor Group Forums

Each tutor posted an initial welcome post and sent it by email as well. A summary of the number of posting is set out in Table 2 below.

Table 3 – summary of postings in Tutor Group Forums

	Tutor A	Tutor B	Tutor C
No. of replies to welcome email	8	4	4
No of posts in TG forum	100	85	40
Most discussions - tutor	29	4	6
Most discussions - students	11,6,1,1	6,2,1,1	1,1
Subscribers	**3**	**5**	**6**
Most read discussions	• TMA 01 Activity 5.10 = 13 • Group 1 evaluations = 12 • Group 2 Evaluations = 11 • Group 3 Evaluations = 11 • Sign up for research project = 11	• TMA 01 Activity 5.10 = 20 • Group 1 evaluations = 13 • Group 2 Evaluations = 15 • Group 3Evaluations = 15 • Group 4 Evaluations = 13	• TMA 01 Activity 5.10 = 14 • Question 4 evaluations = 14 • Block 2 Project group formation = 14 • Block 2 Groupwork tips = 12 • Take some responsibilities = 12

The data in Table 3 above show that here is a low level of replies to the welcome email and this may not set the scene well for the forthcoming group work. Observation indicates that the quantity of forum posts has reduced over the years and that students may not perceive this to be an important part of learning and teaching. This point may also have synergy with the Campbell et al (2019) study. The table above indicates that most students do not subscribe to forums; most discussions are initiated by tutors and that the most read messages were those directly related to the TMA.

Reflection/observations

- Continue with the weekly reminders via the forum and email and ask for confirmation of receipt
- There is something missing at the start – start as you mean to go and this is reflected in the low response to the welcome email.
- Encourage students to set their individual targets, which will be reviewed at some agreed timeline

- Encourage students to subscribe to the forum - this could be automated.

Block 2 Group selection

Tutor A – allocated students to groups by alphabetical order by first name. A number of methods had been tried over the last 11 presentations and it does not seem to make a difference as there is usually one group which engages fully and the other two only partially.

Tutor B – reported that grouping based on geographical location *somehow works. Perhaps students feel that they are closer to the other students which they may discover when they speak with each other when they socialise online on the forums. This may bring some form of affinity in the group/ some commonality. It worked this time too as all my groups by and large did a reasonable and comparable job in the group work.*

Tutor C- gave the students the opportunity to form their own group. For the selections to take place, a Group Formation thread was created followed by an email to students asking anyone of them to start an invite to form a group and indicating whether they wanted to start/finish early or otherwise. Three groups were formed by students and those who were not associated to a group were allocated into the three groups.

Three quite different methods were implemented but it is not known how effective these methods are/which is the 'best' method.

Project Group engagement

Table 3 – Students active in each Tutors Project Group Forums and TMA02s submitted

	Start – no of students			Students active Pre Xmas break			Students active Post Xmas Break			TMA 02s submitted		
	Tutor											
	A	B	C	A	B	C	A	B	C	A	B	C
Group 1	6	6	5	6	4	4	5	5	4	6	6	4
Group 2	7	6	5	4	6	4	3	5	3	3	5	4
Group 3	7	6	5	3	4	4	5	4	4	4	4	4
Group 4	N/A	7	N/A	N/A	3	N/A	N/A	4	N/A	N/A	3	N/A

The pattern of engagement in Table 3 above shows that Tutors A and B had broadly 1 group that engaged consistently and 2 or 3 accordingly that were less consistent. All Tutor C groups engaged more or less consistently but with some drop off.

Tutor A Observations

- One group had a facilitated session which worked well and meant that they all contributed to the ground rules.
- All three groups had 2 or 3 main contributors
- One group used Discord and one group used WhatsApp. One group did not use an app with audio feature as one member was not able to participate across such a medium.
- There was an issue in one group regarding what was required for Q3b
- Limited engagement before the festive break and activity did not pick up until one week after the festive break.
- Spikes of activity around the project milestones

Tutor B Observations

- Students used different communication mediums and were also using the forums, this may have caused the engagement with the forums to be for the purposes of assessment only. One group actually submitted their communications using alternate methods.
- The peaks of activities in this group are triggered in some cases due to the reminder sent out, so this practice should continue.
- Most groups seem to work in three clusters of peaks.

Tutor C Observations

- Most discussions were via the project forum and some on 'Slack and WhatsApp' collaborating tools.
- Online tutor group session was organised but only 1 out of 5 students participated. However, the group created their ground rules and continued with their group discussions. All students participated with 2 being at an expected level for distinctions.
- There were peaks of activity around the project milestones as well as during the festive break but no activities before the start of the project in their Project Group Forum. However, there were some activities in the Tutor Group forum. Most of the activities were generated by 4 students.

Reflections

- *As the groups started with 5 students, at least 3 of members engaged fully and the rest seem to engage with some lack of commitment.*
- *It could be made compulsory to use the forum to collaborate (integrated into the assignment) and produce specific evidence before the festive break so that they would assess their fellow student's performance and give appropriate feedback. These will form part of the overall marks for TMA02.*
- *Some students are doing multiple modules at the same time, it was a challenge for them to manage their time and give priority to the project group work, as priority was allocated to other module(s).*
- *Students in general use other forms of forums/tools to collaborate with their friends and family, so TM255 should provide links to other forms of collaboration tools that tutors can gain access to and assess student's performance.*
- *Peer review/monitoring of group work participation (throughout the project cycle) might encourage increased engagement. However, it is possible that students have made their mind up at an early stage as to how much they will engage/what they can get away with.*
- *It might be especially beneficial for the students if they have a continuous run of the group project without a break in December. It could start just after they resume for the festival break after they have done some planning before and during the break.*
- *However, some students do not like collaborating with other people, as they are either shy or have specific needs. Special provisions could be made for these students otherwise they will not engage with their group(s) and eventually get lower marks.*

Marking Assignments

Q1 Ground Rules – it appears that in most cases one or two students prepare the ground rules and this results in the rest of the group not gaining marks.
Q2 Website – this can present difficulties due to varying levels of experience and engagement of students.
Q3 Storyboard and sketch - **t**here was lack of clarity between what a storyboard and what a sketch is. This resulted in students producing different evidence for question 3. Groups often present one student's contribution as the final sketch. It is not clear what to post where.
Q4 Evaluating – evaluating a completed design presents limited issues
Q5 – Reflection - in **Q5a**, students did not have scope given to them to reflect on their groupwork. Some students find it difficult to produce an excellent answer. **Q5b** student are expected to reflect and to provide a set of improvements within 100 words. Again, there was little scope given to students for their reflections. The issue was that most students reflected on the lessons learnt and did not provide a list of improvements relating to the evaluations, therefore could not produce an excellent answer.

Reflection

- *For me the main issues were related to the evaluation part in Q4. Other issues I can manage easily, the timings of the ground rules can be reconsidered as they did not do them till later on.*

- *In general, I find this a very challenging TMA to assess students' participation and evidence provided. Earlier moderation and standardisation of the questions and marking guide with clearer targeted questions for both students and tutors could help to address the problems encountered in this 19J presentation.*

Project group-work related tutorials

Tutor A

I ran a 2-hour tutorial on Sunday 12th Jan TMA02 and project Group 1 – 22 registered and 8 students turned out 6 of whom were from my own Tutor Group and 4 of which were involved in my research project. 3 individual students viewed the tutorial since then. I offered my project groups a facilitated session for their own group. Only one group took this up. 4 of these participated in the study and all appreciated it.

Tutor B

I ran a 2-hour tutorial on 18 Jan titled "Block 2: Group working at distance" for 1 hour 30 mins – 9 registered and 3 students turned out 2 of whom were from my own Tutor Group. None of these were involved in my research project. 7 individual students viewed the tutorial since then. The students worked on a Google document and interesting contributions were made.

Tutor C

I scheduled 30 minutes online project group tutorials for each group for the 16th / 17th and 18th December. For the 16th December, only one student attended but was late. However, we discussed relevant TMA02 requirements and group working. On the 17th December, no student attended, on the 18th December, two students attended, so we discussed tasks and responsibility and group working.

Other sources of data/information

Pertinent points from the three additional sources are summarised below.

Results of the Real-Time Student Feedback Survey

This was carried out in TM255 2019J by the Module Team (Hilliard et al, 20b). Key points are that :-

- 64% said the atmosphere of their group is positive.
- 70% satisfied with how things went.
- Part-way through the group work 45 out 122 responses indicated concern about lack of engagement in the group work.

Module Statistics

- TMA02 submission rate was 73.3% compared to 85.3% for TMA01 and 71.7 % for TMA03.
- TMA02 submission rate for the previous year (18J) was 78.8%.
- Average TMA02 score 76.5% compared to 70.3% for TMA01 and 74.7% for TMA03.

Analysis of student engagement in Project Group Forums from 2018 as a tutor resource

The analysis (part of which is at Appendix H) was carried out as part of this project as a resource developed to help new tutors understand what to expect. This analysis indicates that it is in general 2 or 3 students in each group that contribute most and that out of 3 groups 1 group was fully engaged and that for the other two groups there was only partial engagement. The analysis reflected the author's perception of engagement over the previous presentations of T215/TM255 and was reflected in the online tutor survey and interviews. The analysis and related documents were posted in the TM255 Tutor Forum and there were nine tutor views and one comment, *As a new tutor on this module (2nd year) It has given me clarity upon the approach to marking this TMA, which I believe will result in increased consistency.* It is thought this could form the basis of a tutor development activity in a briefing or standardisation meeting.

Conclusions

Low-level strategies were put in place to support students to engage with the group work i.e. weekly bulletins, project group tutorials and 'progression calls' and these were well-received and could be implemented in the future (see the recommendations below).

Initial synthesis of the results indicates that lack of engagement by some students is a key issue for both students and tutors. Some tutors are expending time and energy on strategies to engage students including setting up the project groups and encouraging engagement but in many cases this may have little or no impact on those not engaging either because they do not want to and/or because they do not have sufficient time and/or because they are prevented by social anxiety for example.

On reflection the research question and aims would be better framed around strategies to support students **to engage** and strategies to help tutors **to engage** in the online group work. However a bright light has been shone on the context in which tutors are working and the types of strategy that could have impact on student engagement.

A majority of students do enjoy the group work, at least in the end, and that in terms of achievement marks and TMA responses indicate that learning is taking place. The impact on learning and teaching is not known and it is not possible to come to any conclusions about strategies to 'best support' students and tutors.

The recommendations/suggestions below have been presented to the Module Team. These should be read in the context of the nature of the collaborative work having changed little over the last 10 years except for timing, the spread across blocks and complexity of the task. However the student profile has changed due to funding , more students are taking more modules simultaneously, and there is less face to face tuition.

Tutor Implemented Strategies (Low Level)

- Continue weekly bulletins
- Tutors have calls with individual students to set targets/discuss issues.
- Tutors hold briefing session with tutor group – TMA02 tutorial; facilitated project group meetings

Module Team Strategies (Intermediate Level)

- Automated group selection – generated from learning analytics previous results/engagement, possibly location. This could be overridden by the tutor where necessary.
- A standardisation exercise and/or briefing session for tutors at the start of each presentation.
- Progression calls as implemented in TU100 and TM111.
- Timing of task – start group formation in TMA01 or even at the very start of the Block; start group work in January to avoid festive break; avoid key milestones clashing with eg. Cisco module exams.
- Complexity of task – further clarification of TMA questions and/or removing or altering Q3.
- Communication channel – possible use of MS Teams or Slack for project group work to generate a professional feel with alerts and discussion all in one place, asynchronous and synchronous communications, file storage, video calls.

Faculty/Institutional Strategies (Higher Level)

Enhanced recognition of online collaborative group work as a key employability skill. This could be effected by the development of a Future Learn/Open Learn module, a 10 point or a 30 point module. Students and tutors could then choose to engage in the online group work rather than it simply being quite a large part of Module or it could be used as a steppingstone approach to developing online group skills. There is

considerable overlap with project management skills, for example TM254 includes group work but this might benefit from a stepping-stone approach too. This has been discussed with the Director of Teaching and is being taken forward.
There are always going to be issues for some with online collaborative engagement in terms of external influences and occurrences which affect student engagement and cannot be foreseen or addressed. The dilemma is to put in support mechanisms and interventions which maximise the learning opportunity and time /energy for tutors to support students with the learning without themselves affecting cognitive load and workload.

It is also worth bearing in mind that as one tutor commented:

I think it works but I think there's a certain element of, you know, if it ain't broke don't fix it.

Limitations

This was a small-scale action research study and although there are indications regarding the nature, acceptability and feasibility of interventions to support students and tutors participating in online collaborative group work the impact on cognitive load and learning and teaching was not specifically addressed. Participants in the study are those who are engaged in the group work and therefore the views of those not engaged are not known/included. The study did not specifically address negative feelings experienced by tutors but there is an indication that some tutors find the group work activity difficult/testing at the very least. If tutors are spending time encouraging students to engage, potentially to little avail then this time could be better spent supporting those who are engaging for example and developing student self-efficacy, social presence and helping them to learn. These aspects, amongst others are followed up in the section below.

Future Research

In relation to online collaborative group work the following could be explored further:-

- Investigation of tutor emotions, cognitive load and direction of energy.
- Effectiveness of specific strategies to support engagement - Specifically a realist review/evaluation. around what works for whom in what circumstances and why could be applied.
- Formation of relationships in online collaborative group work.
- Nature and characteristics of the role of the tutor – skills required.
- Student/tutor/faculty and institutional perceptions.
- How to foster a better match between student/tutor expectations building on the Butler et al (2018). study relating to online tutorials and considering the overlap.

List of deliverables

3 Conference/Workshop presentations

- eSTEeM Conference Apr 29/30 2020 - An AL led eSTEeM action research project to support students and tutors: challenges and opportunities
- STEM-By ALs-ForALs Workshop June 3rd 2020 - eSTEeM – why be interested? https://learn3.open.ac.uk/mod/connecthosted/joinrecording.php?id=134547&scoid=4045389160&url=/pb49qccuuao8/&groupid=0
- AL Conference June 24th 2020 – eSTEeM: getting started with a scholarship project in the STEM faculty. https://learn3.open.ac.uk/mod/forumng/discuss.php?d=99217

Other

- Weekly summaries for Tutors – on TM255 Tutor Forum
- Examples of student engagement as a tutor resource– see Appendix H
- Submitted an abstract to ALT (the 2020 conference has been postponed to 2021)
- Planned academic paper with revised research question and enhanced thematic analysis.

List of Appendices

Figures and tables

References

Booth, A. (1996) Assessing Group Work . In: A Booth and P Hyland (eds). History in Higher Education. Oxford: Blackwell, 276– 297.

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3, 77–101.

Butler, D., (2018), Achieving student centred faciliation in online synchronous tutorials, ESTEeM project

Campbell, A., Gallen, Jones, Wolfe, (2019), The perceptions of STEM tutors on the role of tutorials in distance learning, Open Learning: The Journal Of Open, Distance and E-Learning 2019, VOL. 34, NO. 1, 89–102 https://doi.org/10.1080/02680513.2018.1544488

Donelan, H. and Kear, K. (2017) 'Creating and collaborating: students' and tutors' perceptions of an online group project, International Review of Research in Open and Distributed Learning. Volume 19, Number 2

Fry, Heather, et al. A Handbook for Teaching and Learning in Higher Education : Enhancing academic practice, edited by Heather Fry, et al., Taylor and Francis, 2014. ProQuest Ebook Central

Hilliard, Jake (2017). Students' Perceptions and Experiences of Anxiety in An Online Collaborative Project. MRes thesis The Open University.

Hillard, J., Donelan, H., Kear, K., and Heaney, C., (2020a), Students' experiences of anxiety in an assessed, online, collaborative project, Computers and Education, 143 https://doi.org/10.1016/j.compedu.2019.103675

Hilliard, J., Wong, P., Kear, K., Donelan, H., and Heaney, C., (2020b), Using real time student feedback as an emotion awareness and regulation tool in an assessed online collaborative project. In: The 9theSTEeM Annual Conference, 29-30 Apr 2020, Milton Keynes, England

McCutcheon, G., & Jung, B. (1990). Alternative perspectives on action research. Theory into Practice, 29, 144-151. EJ417491

Salmon,G., (2004). E-Moderating: The Key to Online Teaching and Learning: The Key to Teaching and Learning Online. Taylor and Francis

University approval processes

If your project required specific approval from university committees, please provide the appropriate information below. This is a necessary requirement for future publication of outputs from your project.

- *SRPP/SSPP – Approval from the Student Research Project Panel/Staff Survey Project Panel was obtained according to the Open University's code of practice and procedures before embarking on this project. Application number* **SSPP – 2019/169; SRPP - 2019/078**
- *Ethical review – An ethical review was obtained according to the Open University's code of practice and procedures before embarking on this project. Reference number* **HREC/3319/Evans**
- *Data Protection Impact Assessment/Compliance Check – A Data Protection Impact Assessment/Compliance Check was obtained according to the Open University's code of practice and procedures before embarking on this project. Data Protection registration number* **28 04 009**